BUREAU OF OCEAN ENERGY MANAGEMENT

11th National Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program

November 2025

1st Analysis and Proposal

11TH

NATIONAL OUTER CONTINENTAL SHELF OIL AND GAS LEASING

1ST ANALYSIS AND PROPOSAL

Draft Proposed Program

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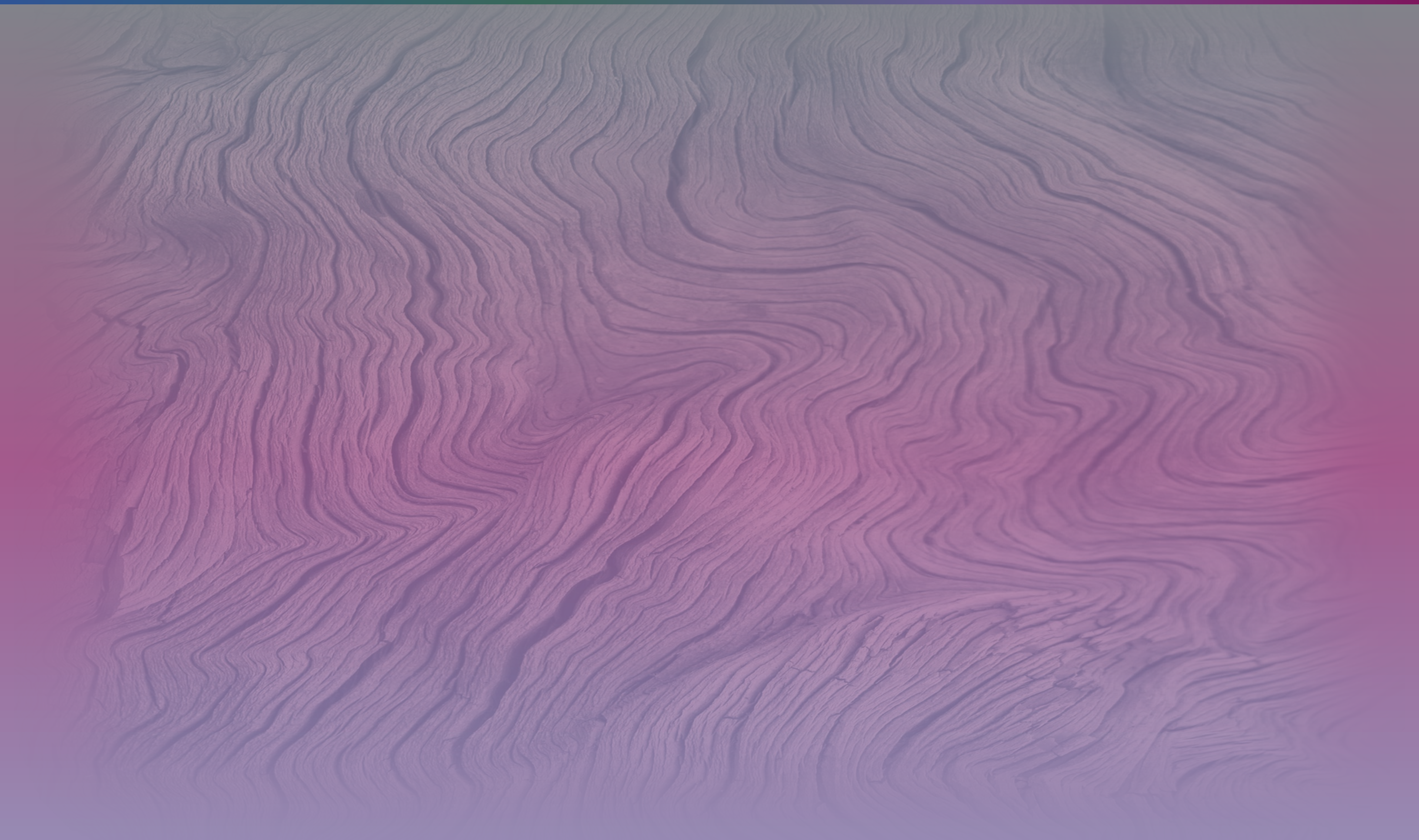
11th National OCS Oil and Gas Leasing Draft Proposed Program

1st Proposal



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ABBREVIATIONS AND ACRONYMS

11th Program	11th National Outer Continental Shelf Oil and Gas Leasing Program
BOEM	Bureau of Ocean Energy Management
E.O.	Executive Order
FR	*Federal Register*
GDP	gross domestic product
GOA	Gulf of America
GOMESA	Gulf of Mexico Energy Security Act of 2006
LWCF	Land and Water Conservation Fund
National OCS Program	National OCS Oil and Gas Leasing Program
OBBBA	One Big Beautiful Bill Act
OCS	Outer Continental Shelf
P.L.	Public Law
RFI	Request for Information and Comments
Secretary	Secretary of the Interior
USDOI	United States Department of the Interior
UTRR	undiscovered technically recoverable oil and gas resources

11th National OCS Oil and Gas Leasing Draft Proposed Program: 1st Proposal on the Size, Timing, and Location of Sales

Introduction

Section 18 of the Outer Continental Shelf (OCS) Lands Act charges the Secretary of the Interior (Secretary) with performing a comparison among OCS Regions to select the size, timing, and location of proposed OCS lease sales for the 5 years following approval of a National OCS Oil and Gas Leasing Program (National OCS Program). This regional comparison, presented in the 1st Analysis portion of this document, provides the Secretary with the necessary information to balance, to the maximum extent practicable, the potential for environmental damage, discovery of oil and gas, and adverse impact on the coastal zone.

The development of the 11th National OCS Oil and Gas Leasing Program (11th Program) is a key component of the U.S. Department of the Interior's (USDOI) implementation of President Trump's Executive Order (E.O.) titled *Unleashing American Energy* (January 20, 2025), and Secretary Burgum's Secretary's Order 3418 (February 3, 2025). The E.O. reconfirmed that it is "the policy of the United States…to encourage energy exploration and production on Federal lands and waters, including on the [OCS], in order to meet the needs of our citizens and solidify the United States as a global energy leader long into the future."

One Big Beautiful Bill Act

On July 4, 2025, President Trump signed into law the One Big Beautiful Bill Act (OBBBA) (Public Law [P.L.] 119-21) that advances the Trump Administration's priorities to grow the economy, reduce dependence on foreign energy, and keep America as a global energy leader. The OBBBA includes requirements for a long-term schedule of offshore oil and gas lease sales in the Gulf of America (GOA) and Alaska's Cook Inlet. While BOEM is required by the OBBBA to hold 36 lease sales at various times through 2040, those lease sales are separate from the sales held pursuant to the 11th Program, and will be conducted regardless of the Secretary's discretionary leasing proposals outlined in this 1st Proposal. OBBBA lease sales are not included in the Secretary's 1st Proposal.

The OBBBA's inclusion of at least 30 lease sales in the GOA through 2040 underscores the region's indispensable role in America's energy portfolio, accounting for roughly 14 to 15% of U.S. crude oil production and serving as the linchpin of offshore energy output. The OBBBA-scheduled sales offer the oil and gas sector much needed clarity and stability, and encourage continued investment in deepwater infrastructure, which is foundational to national energy resilience. The GOA Region supports hundreds of thousands of jobs, contributes tens of billions to U.S. gross domestic product (GDP) annually, and generates substantial Federal and state revenues. The economic and energy security gains from these sales are both immediate and long-lasting.

Cook Inlet, along Alaska's south-central coast near the City of Anchorage, will play a vital role in America's energy future. By including six lease sales in Cook Inlet through 2032, the OBBBA helps ensure that

Alaskans will benefit from new jobs, stronger local economies, and long-term investment in their communities. Alaska's unique position as both a strategic energy hub and a gateway to the Arctic makes it essential to U.S. energy and national security. Responsible development in Cook Inlet could reduce projected regional supply shortfalls while supporting the state's decades-long tradition of powering America with reliable, homegrown energy.

The lease sales included in the OBBBA provide industry with a long-term, consistent supply of OCS oil and gas leasing opportunities, thereby delivering valuable supply to America's energy portfolio for decades to come.

National OCS Program Development Process

The Bureau of Ocean Energy Management (BOEM) is responsible for administering the leasing program for OCS oil and gas resources and advising the Secretary on the National OCS Program. This document represents the first of three analytical phases required to develop a new National OCS Program (see **Figure 1**). The 11th Program, once approved, is expected to replace the 10th Program. This proposal is the first in this series of three proposals made by the Secretary, consistent with the OCS Lands Act, before final action may be taken to approve the 11th Program.

On April 30, 2025, the first step in the 11th Program development process, the Request for Information and Comments (RFI), was published in the *Federal Register* (FR). The 45-day public comment period ended on June 16, 2025. BOEM received more than 86,000 public comments on the RFI (see **Appendix A**).

With the publication of this 1st Proposal in the Secretary's decisionmaking process, the Department is again seeking public comment (see **Chapter 13**). These comments are considered during the 2nd Analysis and Proposal phase, the Proposed Program.

Inclusion of an area in this 1st Proposal is not a final indication that it will be included in the approved 11th Program, or offered in a lease sale, because additional decision points remain to potentially reduce or completely remove an area or sale.

Once the 11th Program has been approved, there are additional requirements at the sale planning stage for lease sales in the National OCS Program, including sale size, timing, and location analyses, environmental review, and public comment (see **Chapter 1**).

1st Proposal Lease Sale Schedule

After careful consideration of the OCS Lands Act Section 18(a)(2) factors, as well as input from governors, industry, and the public, this 1st Proposal includes a schedule of 34 lease sales in three of the four OCS Regions[1] (see **Tables 1**, **2**, and **3**). The areas included in the 1st Proposal will now become program areas for further consideration. **Figures 2** through **5** show the geographic composition of the 20 new program areas. The 1st Proposal's full lease sale schedule is shown in **Table 3**.

[1] The lease sales included as part of this 1st Proposal are in addition to the lease sales required by the OBBBA.

The 1st Proposal does not include a potential lease sale in the North Aleutian Basin Planning Area, Washington/Oregon Planning Area, or any of the Atlantic planning areas.

After considering relevant information and analysis, the Secretary intends to create a new South-Central GOA Planning Area, the boundaries of which would align with GOA Program Area B (see **Figure 3**)[2]. Additionally, the Secretary has decided to remove the remaining areas within the current Eastern GOA Planning Area from further leasing consideration in the 11th Program.

Figure 1: National OCS Oil and Gas Leasing Program Development Process

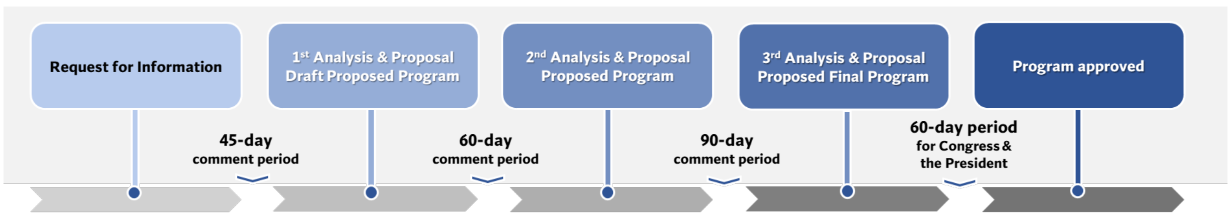


Table 1: 1st Proposal Regional Sale Summary

Region	Starting in Year	Number of Sales
Alaska	2026	21
Gulf of America	2027	7
Pacific	2027	6
	Total	**34**

Table 2: 1st Proposal Sale Summary by Program Area

Program Area	Starting in Year	Number of Sales
Beaufort Sea	2026	2
Cook Inlet	2027	5
Chukchi Sea	2028	2
GOA Program Area A	2027	5
GOA Program Area B	2029	2
Gulf of Alaska, Shumagin, Kodiak, Hope Basin, Norton Basin, Navarin Basin, St. George Basin, and High Arctic	2030	1 in each of the 8 areas
Aleutian Basin, Aleutian Arc, Bowers Basin, and St. Matthew-Hall	2031	1 in each of the 4 areas
Southern California	2027	3
Central California	2027	2
Northern California	2029	1
	Total	**34**

[2] Includes a 100-mile coastal buffer off the coast of Florida and the area eastward of a line extending south from a point approximately 25 miles west of Tallahassee, Florida.

Table 3: 1st Proposal Lease Sale Schedule*

Count	Sale Year	OCS Region	Program Area
1.	2026	Alaska	Beaufort Sea Program Area
2.	2027	Pacific	Southern California Program Area
3.	2027	Pacific	Central California Program Area
4.	2027	Gulf of America	GOA Program Area A
5.	2027	Alaska	Cook Inlet Program Area
6.	2028	Alaska	Chukchi Sea Program Area
7.	2028	Gulf of America	GOA Program Area A
8.	2028	Alaska	Cook Inlet Program Area
9.	2029	Pacific	Southern California Program Area
10.	2029	Pacific	Northern California Program Area
11.	2029	Pacific	Central California Program Area
12.	2029	Gulf of America	GOA Program Area A
13.	2029	Gulf of America	GOA Program Area B
14.	2029	Alaska	Cook Inlet Program Area
15.	2030	Alaska	Gulf of Alaska Program Area
16.	2030	Alaska	Shumagin Program Area
17.	2030	Alaska	Kodiak Program Area
18.	2030	Gulf of America	GOA Program Area A
19.	2030	Gulf of America	GOA Program Area B
20.	2030	Alaska	Cook Inlet Program Area
21.	2030	Pacific	Southern California Program Area
22.	2030	Alaska	Chukchi Sea Program Area
23.	2030	Alaska	Beaufort Sea Program Area
24.	2030	Alaska	Hope Basin Program Area
25.	2030	Alaska	Norton Basin Program Area
26.	2030	Alaska	Navarin Basin Program Area
27.	2030	Alaska	St. George Basin Program Area
28.	2030	Alaska	High Arctic Program Area
29.	2031	Gulf of America	GOA Program Area A
30.	2031	Alaska	Cook Inlet Program Area
31.	2031	Alaska	Aleutian Basin Program Area
32.	2031	Alaska	Aleutian Arc Program Area
33.	2031	Alaska	Bowers Basin Program Area
34.	2031	Alaska	St. Matthew-Hall Program Area

***Note:** The GOA Program Area A and Cook Inlet Program Area lease sales included in this table are discretionary sales that would be in addition to those sales mandated by the One Big Beautiful Bill Act.

Figure 2: 1st Proposal Alaska Region Program Areas

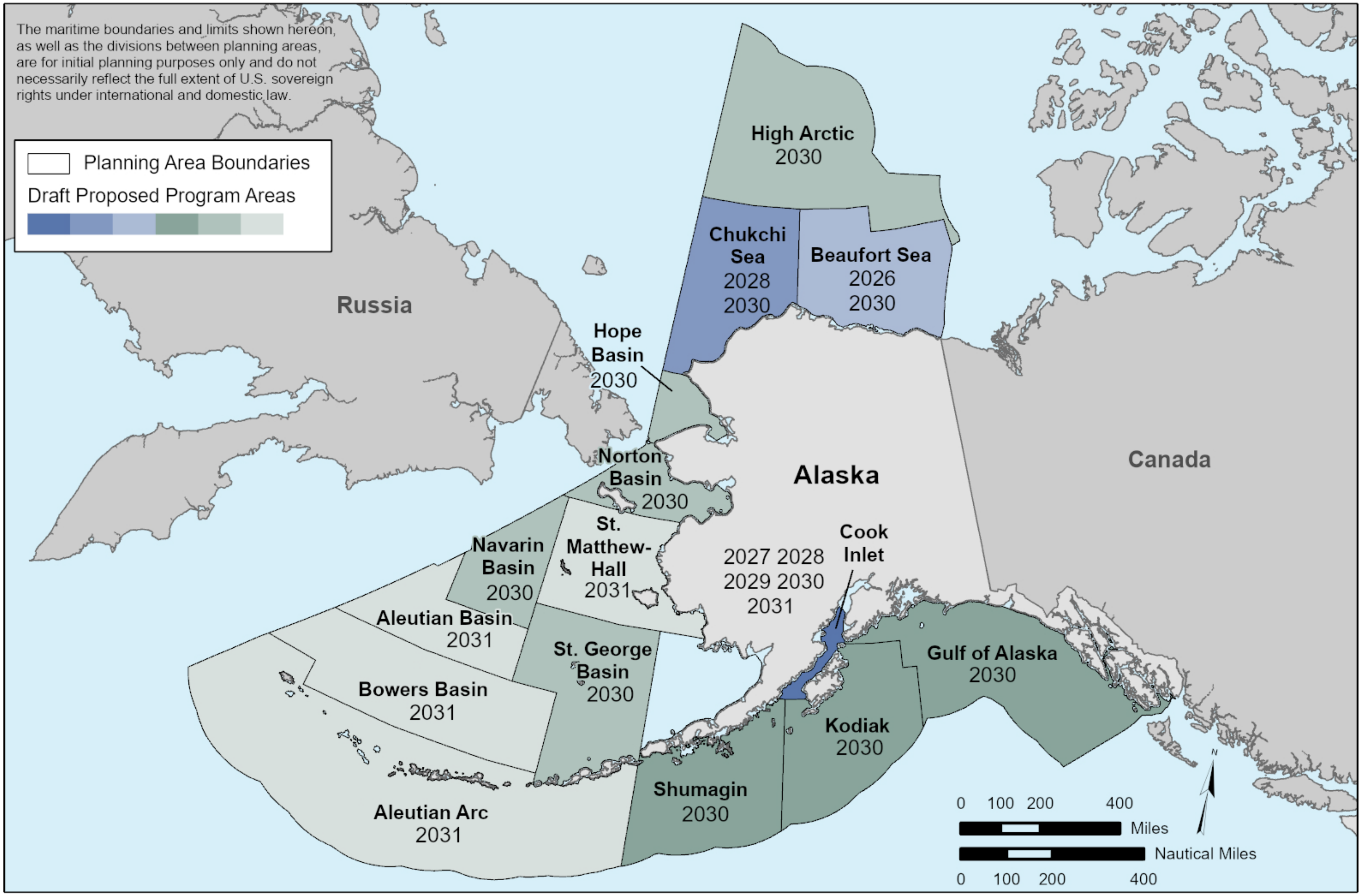


Figure 3: 1st Proposal Lower 48 Program Areas

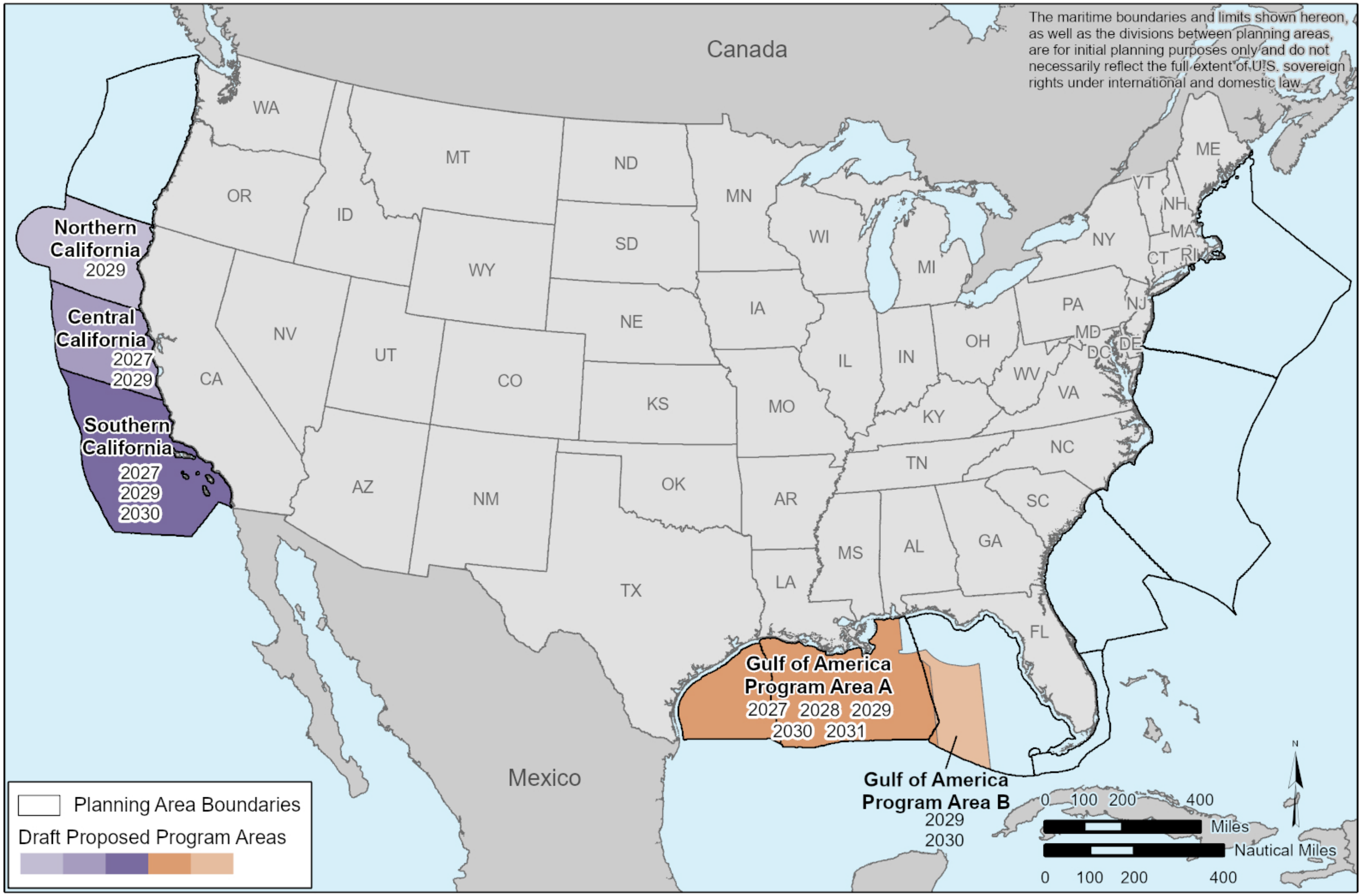


Figure 4: 1st Proposal Gulf of America Region Program Areas

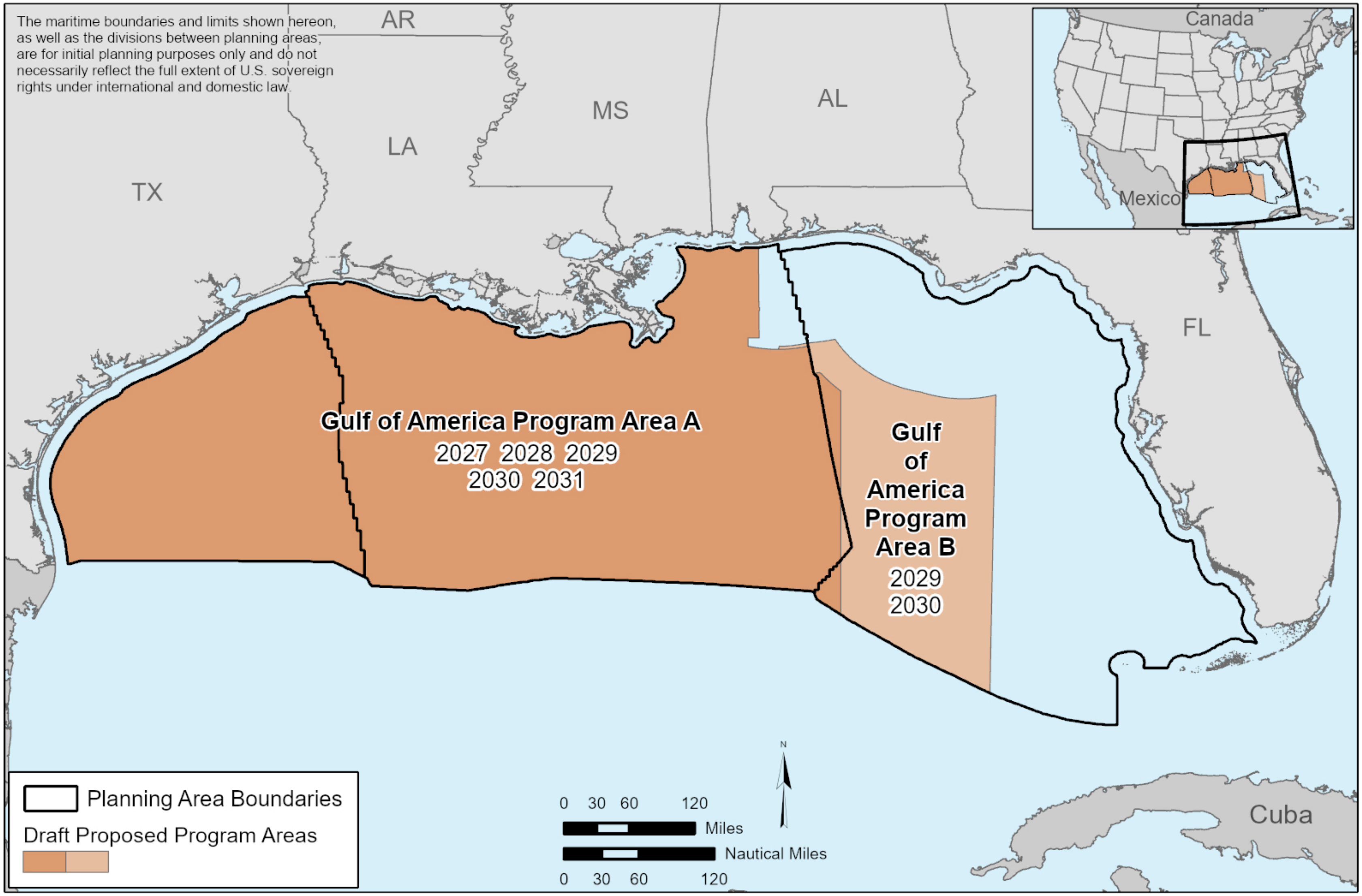
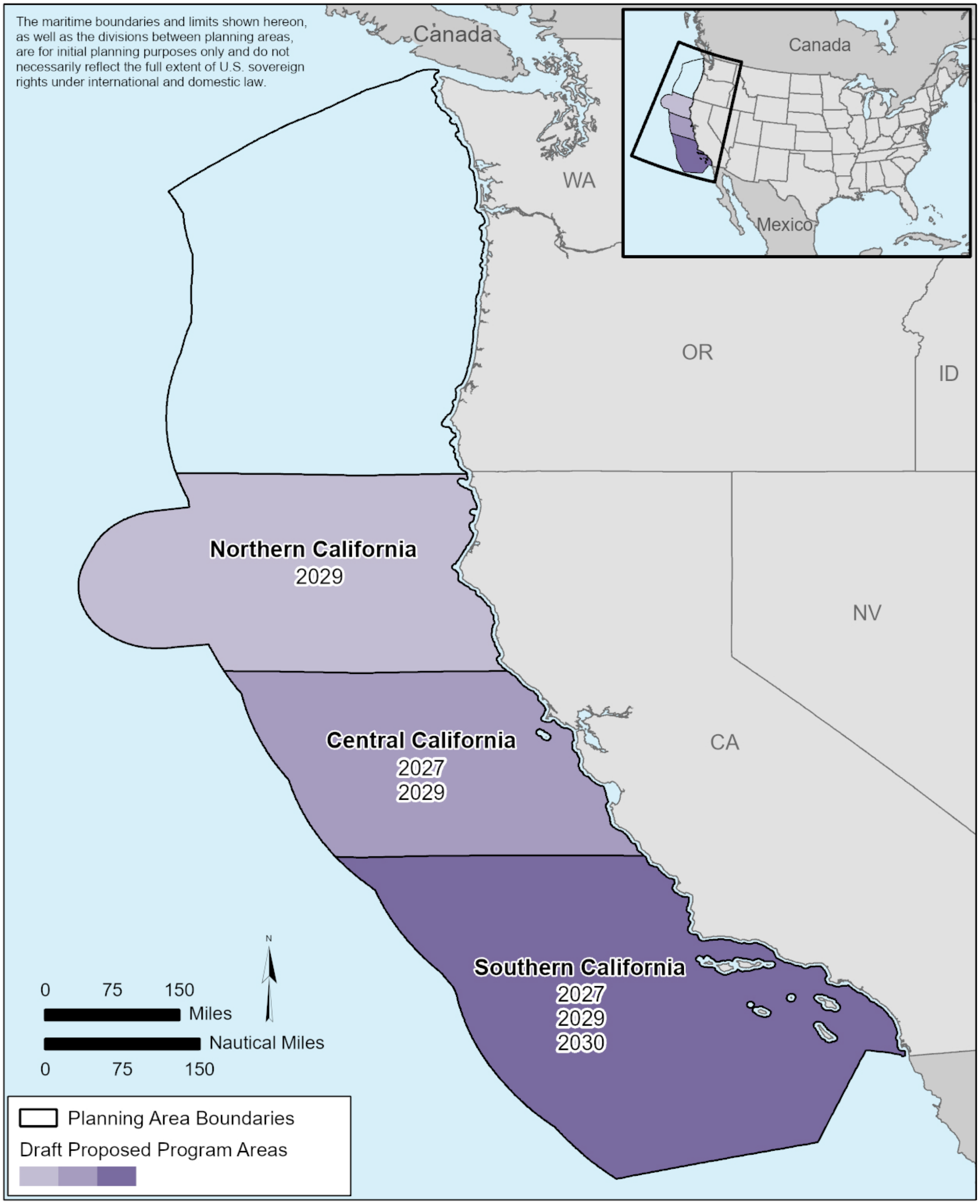


Figure 5: 1st Proposal Pacific Region Program Areas



Proposal Framework

As part of the Trump Administration's *Unleashing American Energy* strategy, and in accordance with Section 18 of the OCS Lands Act, this 1st Proposal for the 11th Program includes all or portions of 21 of the 27 OCS Planning Areas, which represents a significant expansion of the OCS acreage available for leasing compared to the current 10th Program, and makes approximately 85% of the technically recoverable OCS oil and gas resources available to consider for leasing in the 11th Program's 5-year period.

This 1st Proposal allows for the consideration of increased access to America's extensive OCS oil and gas resources, which is a critical component of the Nation's energy portfolio, and emphasizes the importance of meeting America's energy needs with American energy.

Proposing areas in three of the four OCS Regions, including those with some of the most prospective oil and gas resources for continued leasing consideration, is consistent with Administration policy to solidify the United States as a global energy leader not only within the next 5 years, but long into the future.

Development of OCS oil and gas is a long-term endeavor. Production in newly available OCS areas may not occur for a decade or more and then would continue for another 30 to 40 years or longer. Leasing occurring under the 11th Program provides important additions to the Nation's energy supply well into the middle of this century.

All of the Section 18(a)(2) factors, including trends in energy markets and input from governors, industry, and the public, were considered in developing the 1st Proposal. The **1st Analysis** (see **Chapters 1–13**) provided the Secretary with information needed to thoroughly consider the Section 18(a)(2) factors and perform the balancing required by Section 18(a)(3) of the OCS Lands Act to formulate this 1st Proposal for additional consideration.

This 1st Proposal includes program areas that increase the opportunity to add oil and gas reserves to the U.S. portfolio. It continues to encourage industry to employ its world-class geological and technical expertise to safely assess and evaluate America's potential OCS oil and gas resources.

This 1st Proposal allows for maximum flexibility, so areas considered for leasing could be narrowed at later stages of the Section 18 process, after further environmental analysis is conducted and important input and coordination from key stakeholders is obtained.

The Secretary is committed to enhancing coordination and collaboration with other governmental entities—including Tribal governments, governors, and other Federal agencies—and key stakeholders, to discover solutions to multiple use challenges so oil and gas resources can be discovered and extracted, critical military and other ocean uses can continue, and our sensitive physical and biological resources are protected.

In response to the RFI, the Secretary received comments from 17 governors or state agencies (see **Chapter 13**). Including areas in this 1st Proposal allows further consideration of comments from affected states, as required in Section 18(a)(2) of the OCS Lands Act, and provides for a more thorough comparison of OCS areas to assist the Secretary in the Section 18(a)(3) balancing required to finalize his choice of the size, timing, and location of the lease sales to be scheduled in the 11th Program.

The oil and gas trade associations and exploration and development companies that responded to the RFI expressed interest in all four OCS Regions. Proposing areas in three of the four OCS Regions at this 1st Proposal stage allows the Secretary to obtain additional information on more specific industry interest in obtaining leases in the areas included, particularly the frontier areas that have not been explored in decades, or ever.

Further consideration of industry interest in the program areas included in this 1st Proposal, along with all of the other Section 18(a)(2) factors in the OCS Lands Act, allows for a more thorough comparison of OCS areas and assists the Secretary in the Section 18(a)(3) balancing required to finalize the choice for the size, timing, and location of the lease sales to be scheduled in the 11th Program.

Including areas in the 11th Program incentivizes industry to look to the U.S. OCS when considering long-term investment strategies in upstream energy development and encourages industry to employ their worldclass geological and technical expertise to assess and evaluate America's potential OCS oil and gas resources.

This will, in turn, further America's understanding of the resources available on the OCS to meet national energy needs. The Secretary's approach to the 1st Proposal does not prematurely foreclose exploration planning, but can foster it, to allow for the potential discovery of oil and gas on the OCS.

Allowing for the potential discovery of new OCS oil and gas reserves is consistent with the Administration's *Unleashing American Energy* strategy, which seeks to achieve energy security to meet the needs of U.S. citizens and solidify the U.S.as a global energy leader.

OCS oil and gas production benefits the United States by helping to reinvigorate American manufacturing and job growth and contributes to the GDP. Many of the jobs in the oil and gas industry earn a significant wage premium; these employees have more purchasing power and can consume more goods and services, which increases their standard of living and contributes more to the economy.

Additionally, a large proportion of the revenues from OCS production accrue to the U.S. Treasury, and a portion is appropriated to specific funds, such as the Land and Water Conservation Fund (LWCF) and the Historic Preservation Fund. The LWCF was established by Congress to safeguard our natural areas, water resources, and cultural heritage, and to provide recreation opportunities to all Americans. The Historic Preservation Fund provides Federal grants to non-Federal entities for historic preservation projects and to individuals to preserve properties that are listed on the National Register of Historic Places.

Further, under Section 8(g) of the OCS Lands Act, revenues from leasing within the first 3 miles of a state/Federal boundary are shared with the adjacent states. Additionally, the Gulf of Mexico Energy Security Act (GOMESA) (P.L. 109-432

[2006]) provides for sharing of 37.5% of revenues from OCS oil and gas production in specific areas of the GOA with adjacent coastal states and coastal political subdivisions (subject to a $375 million annual cap) and 12.5% to the LWCF (subject to a $125 million annual cap). The OBBBA increased the amount of GOMESA revenue sharing from $500 million to $650 million ($487.5 million for states and counties/parishes, and $162.5 million for the LWCF) through 2034. The $500 million annual GOMESA revenue sharing cap will then resume from 2035 through 2055, after which there will be no cap on GOMESA revenue sharing.

By making three of the four OCS Regions available for leasing, including the program areas that are estimated to have some of the most prospective oil and gas resources, this proposal could provide beneficial effects for the U.S. economy and national security from reduced oil imports and stable energy sources.

Lastly, Section 12 of the OCS Lands Act states that the President may, from time to time, withdraw from disposition any of the unleased lands of the OCS. Based on this authority, Program Area B included in this 1st Proposal is withdrawn through June 30, 2032. This 1st Proposal only facilitates further information gathering and analysis of these areas, and it is not a final decision to offer these areas for lease. The President and the Secretary will have the opportunity to use the information gathered and analyses developed during this process to exercise their discretion under Section 12 and Section 18 of the OCS Lands Act and make more informed decisions on what areas should be made available for leasing.

Secretarial Consideration of the Eight OCS Lands Act Section 18(a)(2) Factors

This 1st Proposal represents the result of the Secretary's consideration of each of the following eight Section 18(a)(2) factors. The public comments and information received in response to this 1st Proposal will further inform the Secretary's consideration of these factors and the eventual balancing that is performed to choose the size, timing, and location of the OCS areas to be considered for potential leasing. The **1st Analysis** (see **Chapters 1–13**) portion of this document provides important information and analysis of each of these required factors.

Geographical, Geological, and Ecological Characteristics

Section 18(a)(2)(A) directs the Secretary to take into account geographical, geological, and ecological characteristics of the OCS areas under consideration, and these are discussed throughout the **1st Analysis**. Where possible, BOEM considers recent geophysical, geological, and technological information to estimate the potential presence and amount of technically recoverable oil and gas resources on the OCS. BOEM also considers economic parameters, such as exploration and development costs and oil and gas prices, to estimate economically recoverable resources on the OCS. See **Chapter 5**.

Table 4 shows the percentage of estimated undiscovered technically recoverable oil and gas resources (UTRR) that would be offered under the 1st Proposal in each of the three OCS Regions.

Table 4: 1st Proposal Estimated UTRR Oil and Gas Resource Offerings

Region	Regional UTRR in 1st Proposal
Alaska	95%
Pacific	94%
Gulf of America	92%
Total OCS Resources Offered	**85%**

Source: BOEM (2021)

Chapter 9 describes the environmental conditions for the areas and resources potentially affected by activities under the 1st Proposal and considers both current conditions and future baseline conditions. Future baseline conditions reflect changes to the current conditions that could occur in the absence of the 11th Program.

Equitable Sharing

Section 18(a)(2)(B) directs the Secretary to consider how to equitably share the benefits and risks of OCS development among the OCS Regions. Benefits from the development and production of oil and gas resources accrue to the U.S. as a whole, with many benefits going to producing regions and nearby onshore populations. These benefits generally include the following:

- Billions of dollars a year in bonus bids, rentals, and royalties to the U.S. Treasury
- Funding for LWCF and the Historic Preservation Fund
- Payments to state and local governments pursuant to OCS Lands Act Section 8(g), GOMESA, and any other future revenue sharing programs.
- Contributions to the economy indirectly through employment, wages, and tax payments to state and local governments.

Development and production of oil and gas resources associated with leasing under the National OCS Program involve risk to the human, coastal, and marine environments. The potential for impacts on the waters of the OCS and the immediate coastal zone generally increases with higher levels of activity.

Additionally, in areas of limited onshore development, new infrastructure could cause significant impacts. These types of impacts are described in **Chapter 11**; potential costs and benefits by region are monetized and discussed in **Chapter 6**.

Including three of the four OCS Regions in the 1st Proposal increases the sharing of benefits and risks compared to most previous National OCS Programs. Less equitable sharing occurs when areas of high resource potential are not offered for lease, and areas of high consumption do not share the environmental risk. See **Chapter 11** for a discussion on equitable sharing considerations.

Regional and National Energy Markets

Section 18(a)(2)(C) requires the Secretary to consider the location of the regions with respect to, and the energy needs of, regional and national energy markets. The overall need for imported oil has declined over the past several years, given increased domestic onshore production. The increased domestic onshore oil produced is light, sweet crude, whereas most oil currently imported is heavy crude oil. The medium-to-heavy crude oil found on the

OCS provides a domestic source to replace imports. Additionally, refineries are constrained in the qualities of crude oil they can accept. Given the different qualities of crude oil, production from the OCS is essential to U.S. energy markets to fulfill the demand at Gulf Coast refineries for medium/heavy and sour crude oil.

The Energy Information Administration's 2025 *Annual Energy Outlook* outlines the U.S.'s continued reliance on crude petroleum and natural gas to meet a significant share of its energy needs through 2050, reinforcing their critical role in energy security and economic growth. Petroleum, natural gas, and other conventional energy sources will still be required even with significant renewable energy generation. These projections underscore the importance of sustaining oil and natural gas production to support national security and drive economic prosperity.

OCS production provides a steady and predictable source of oil and gas for the long-term and is less susceptible to short-term price changes than onshore production. Therefore, potential future oil and gas production from the Alaska, Pacific, and GOA program areas could help maintain the Nation's position as a global energy leader for much of the next century.

Increasing domestic production provides additional stability with reduced reliance on U.S. imports, which are susceptible to geopolitical uncertainties and changes. Further, oil and gas production from these program areas could meet the energy demands in regional markets that are major energy consumers and rely on production imported from other regions or nations (e.g., East and West Coast markets).

Each OCS Region has different energy market considerations. In 2024, Alaska consumed the most energy per capita of all the U.S. states (EIA 2024). Arctic areas (Beaufort and Chukchi seas) have especially promising oil and gas potential at higher prices. Arctic OCS oil could be important to Alaska for continued operation of the Trans-Alaska Pipeline System. The Cook Inlet Program Area serves as a vital energy source for south-central Alaska due to its proximity to Anchorage's commercial markets and infrastructure.

Most of Anchorage's electrical generation is fueled by natural gas from state leases in Cook Inlet (Deerstone Consulting 2017). However, a 2022 State of Alaska study estimated that, due to a shrinking resource base, Cook Inlet gas production from state lands can only meet the estimated south-central Alaska demand, around 70 billion cubic feet per year, until 2027 (Redlinger et al. 2018). Any new OCS natural gas production would primarily be consumed locally and could further ease natural gas prices in south-central Alaska. OCS crude oil production would also support the Alaska economy with crude oil refined locally in Alaska or transported by tanker to other West Coast refineries.

In the Pacific region, West Coast gasoline prices, particularly in California, are considerably higher than those in other regions of the country. California refineries are already running at capacity to meet demand. Because supplies are already limited, any disruption in supply can cause prices to spike even higher.

Given the large distance between the West Coast and most refineries on the Gulf Coast, as well as a lack of pipelines crossing the Rocky Mountains, potential replacement supplies are farther away and could cause the price spikes to last longer. The Pacific OCS holds significant oil and natural gas resources, offering a considerable opportunity to help meet West Coast energy needs. However, the West Coast could need additional refinery capacity for the region to use those resources.

The states surrounding the GOA are a vital hub for domestic energy production, refining, and transportation. The region has the greatest ability to use its resource potential and infrastructure to supply crude oil, natural gas, and refined products to the United States and other countries. Production from the OCS is essential to U.S. energy markets and meeting the Gulf Coast refineries' demand for medium-to-heavy and sour crudes. Texas and Louisiana particularly share extensive pipeline networks to distribute crude oil, natural gas, and refined petroleum products to domestic or international markets.

The President's energy strategy seeks to encourage energy exploration and production to solidify the U.S. position as a global energy leader. By providing additional opportunities for exploration, leasing, and development and establishing regulatory certainty, this strategy supports domestic energy production that can provide energy security, jobs, and revenue for the Nation. Through continued and expanded production, the OCS can enhance energy security by reducing dependence on foreign fuel sources.

See **Chapter 7** for a discussion on energy markets. Additional information on national energy needs is included in **Chapter 4**.

Other Uses of the OCS

Under the analysis in Section 18(a)(2)(D), consideration of other uses of the OCS includes activities related to military readiness, including critical military training and testing operations; National Aeronautical and Space Administration launch operations; commercial and recreational fishing; tourism; subsistence fishing and hunting; renewable energy production; and shipping (see **Chapter 8** for descriptions of what uses are prevalent in each OCS Region). USDOI is committed to working with other Federal agencies, state and local governments, and Tribal organizations to cooperatively manage multiple uses of the OCS.

The GOA OCS Region has successfully managed multiple use conflicts for decades, allowing for the coexistence of oil and gas activities with military activities, commercial and recreational fishing, and tourism, among others, and can serve as a model for how to work closely with stakeholders in other regions to design mitigation measures and minimize conflicts to the extent possible.

The Secretary is committed to continuing his ongoing consultation efforts and weighing the input received from all interested stakeholders to discover solutions to multiple use challenges so oil and gas resources can be discovered and extracted, critical military and other ocean uses can continue, and our sensitive physical and biological resources can be protected.

Industry Interest

OCS Lands Act Section 18(a)(2)(E) (see **Section 2.2** and **Chapter 13**) requires BOEM to consider the interest of potential oil and gas producers. In response to the RFI, BOEM received comment letters from six exploration and development companies and oil and gas industry associations representing such companies. The Secretary considered these comment letters and the interest expressed therein in developing this 1st Proposal.

Industry expressed general interest in expanded access to oil and gas development on the OCS, with statements of specific interest in leasing in northern Alaska (the Arctic), the Pacific (particularly Southern California), the GOA Region (with particular interest in exploring Program Area B), and the Atlantic. The Secretary seeks to obtain additional input from industry concerning its interest in acquiring leases in the areas included in this 1st Proposal. See **Chapter 13** and **Appendix A** for further information on industry input.

Laws, Goals, and Policies of Affected States

Under Section 18(a)(2)(F), the Secretary considers the laws, goals, and policies of affected states that are specifically identified by their governors when deciding which areas of the OCS will be included in the approved National OCS Program. Adjacent states can consider, and provide input regarding, the potential benefits and costs of leasing off their shores at this and later stages of the process.

To develop this 1st Proposal, the Secretary considered comments received from affected states and the state laws, goals, and policies identified in those comments. The OCS Lands Act allows the Secretary to further consider the laws, goals, and policies of affected states at later stages of the National OCS Program development process, as well as prior to making final lease sale decisions.

The states of Alaska, Louisiana, and Alabama expressed support for inclusion of areas offshore their respective states in the National OCS Program, whereas all Pacific and most Atlantic states expressed opposition to such inclusion. Several states adjacent to areas included in this 1st Proposal did not provide input or did not specify a position in response to the RFI. Including three of the four OCS Regions allows for further and more complete input from states at later stages.

The Secretary seeks further input and information about the areas included in this 1st Proposal during successive National OCS Program development and lease sale phases. See **Chapter 13** and **Appendix A** for more information on input received from state governments.

Environmental Sensitivity and Marine Productivity

The Secretary is required, per Section 18(a)(2)(G) of the OCS Lands Act, to consider the relative environmental sensitivity and marine productivity of the OCS when making decisions regarding the schedule of lease sales for the National OCS Program.

Sensitivity scoring combines species presence, extinction risk, and productivity, all re-scaled within ecologically meaningful ecoregions. The results from this analysis, with sensitivity scores ranging from 60 to 12, indicate that all OCS areas are ecologically sensitive and provide a relative comparison among the areas. The region with the highest sensitivity score (60) is the Hope Basin Planning Area in Alaska. The Straits of Florida Planning Area has the second highest score (49), while the High Arctic Planning Area has the lowest (12).

A marine productivity analysis was also conducted, based on primary production (primarily from phytoplankton), which forms the base of the marine food chain. Both the highest (Norton Basin) and lowest (High Arctic) productivity estimates were measured in the Alaska Region.

Environmental and Predictive Information

Chapter 9 provides an overview of environmental and predictive information for consideration under Section 18(a)(2)(G) and discloses potential impacts from oil and gas exploration and production activities.

As part of the 2nd Analysis, further environmental analysis will evaluate and disclose any potential impacts in more detail and identify which impacts could be substantial or limited and where they could occur. This analysis allows potential environmental concerns to be weighed against the other Section 18 criteria.

Fair Market Value

The requirement in the OCS Lands Act Section 18(a)(4) to assure receipt of fair market value is met through a multi-phase process at the National OCS Program, lease sale, and lease-level stages.

Components are considered at the National OCS Program stage but are subject to sale-by-sale reconsideration, including hurdle prices, leasing framework (i.e., size and frequency of lease sales), bidding systems, fiscal and lease terms, and bid adequacy.

USDOI has the *option* to offer OCS areas in this or any future National OCS Program and makes the decision whether to exercise the option based on multiple factors. One important way in which BOEM evaluates the timing of this decision is through its hurdle price analysis (see **Chapter 9**).

If expected prices at the start of the 11th Program are greater than the hurdle price, the value of offering leases for prompt exploration is greater than the value of waiting 5 years. In this case, including the program areas in the National OCS Program could be more valuable for the U.S. than delaying the lease sale. The expected market prices exceed the hurdle price in all 1st Proposal program areas with developmental potential.

The 2nd and 3rd Analyses, which will inform the Secretary's 2nd and 3rd Proposals, respectively, allow for the opportunity to revise hurdle price assumptions with more refined data and compare these prices with more up-to-date price forecasts. This will provide the Secretary additional information to determine whether to include these areas in the 11th Program.

From an option value perspective, holding lease sales in areas where the expected market prices exceed the hurdle prices would provide greater value than not holding the sales. Since market prices can be volatile, inclusion of an area at this stage provides the opportunity for additional analysis and consideration as the National OCS Program development and lease sale processes continue.

The hurdle price is one consideration of many that the Secretary evaluates when making his proposal, and the Secretary may choose to include areas even though the hurdle price analysis could suggest exclusion, given the other Section 18 balancing factors.

Conclusion

In the 1st Proposal, the Secretary has thoughtfully and carefully considered all the Section 18(a)(2) factors. In three of the four OCS Regions, the Secretary has chosen areas to retain for potential leasing consideration in the next stages of National OCS Program development, and to properly balance the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone.

Continuing to evaluate areas containing 85% of the undiscovered oil and gas resources at this point in the decisionmaking process allows for further and more refined consideration of the Section 18 factors at future steps in the National OCS Program development process.

The program areas included in this 1st Proposal have the potential to provide an important contribution to the fulfillment of America's energy needs and provides the opportunity to more equitably share benefits and risks than any National OCS Program in the past 30 years.

A 60-day comment period follows publication of this 1st Proposal. To inform future analyses and proposals for use in the preparation of the 11th Program, the Secretary requests information and comments from Tribal governments, Native American and Native Alaskan organizations, Governors, Federal agencies, state agencies and local governments, environmental and other public interest organizations, the oil and gas industry, non-energy industries, other interested organizations and entities, and the public. The Secretary is seeking a wide array of information, including but not limited to information associated with the economic, social, and environmental values of all OCS resources, as well as the potential impact of oil and gas exploration and development on OCS resources and the marine, coastal, and human environments.

References

BOEM. (2021). "Fact Sheet: 2021 National Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf."

Deerstone Consulting. (2017). "Anchorage Energy Landscape and Opportunities Analysis." Retrieved January 4, 2022, from https://www.muni.org/departments/mayor/aware/resilientanchorage/documents/anchorage%20energy%20landscape%20and%20opportunities%20analysis%20may%202017.pdf.

EIA. (2024). "Rankings: Total Energy Consumed per Capita, 2022." Retrieved May 15, 2025, from https://www.eia.gov/state/rankings/.

Redlinger, M., Burdick, J. and Gregersen, L. (2018). "Cook Inlet Natural Gas Availability." Retrieved September 18, 2023, from https://dog.dnr.alaska.gov/Documents/ResourceEvaluation/CI_Natural_Gas_Availability_Study_2018.pdf.

11th National OCS Oil and Gas Leasing Draft Proposed Program

1st Analysis

Overview

Management of the oil and gas resources of the Outer Continental Shelf (OCS) is governed by the OCS Lands Act (43 U.S. Code [U.S.C.] §§ 1331 et seq.). The OCS Lands Act sets forth procedures to administer leasing, exploration, development, and production of those resources. Section 18 of the OCS Lands Act (43 U.S.C. § 1344) calls for the preparation of a nationwide OCS oil and gas leasing program that sets forth a 5-year schedule of potential lease sales designed to best meet the Nation's energy needs for the 5 years following approval of a new National OCS Oil and Gas Leasing Program (generally referred to as the National OCS Program). The Bureau of Ocean Energy Management (BOEM), within the U.S. Department of the Interior (USDOI), is responsible for implementing the requirements of the OCS Lands Act related to preparing the leasing program.

BOEM is preparing this 11th National OCS Oil and Gas Leasing Program to replace the 2024–2029 Program (the 10th Program). Throughout this document, the 11th National OCS Oil and Gas Leasing Program title is shortened to "11th Program" and past National OCS Programs referred to as a variation of this shorthand (e.g., "9th Program"). The effective dates covered by this 11th Program will be finalized upon approval of the Program. See Table 1 for a crosswalk of the effective years for each National OCS Program.

Table 1: Effective Years for each National OCS Program

Program Number	Effective Years
1st	1980-1985
2nd	1982-1987
3rd	1987-1992
4th	1992-1997
5th	1997-2002
6th	2002-2007
7th	2007-2012
8th	2012-2017
9th	2017-2022
10th	2024-2029

This 1st Analysis and Proposal comprises the Draft Proposed Program (DPP) for OCS oil and gas leasing, and is the first in a series of three analyses and proposal documents developed, pursuant to the OCS Lands Act, before the Secretary of the Interior (Secretary) may take final action to approve the 11th Program (43 U.S.C. 1344(c)(2)).

This 1st Analysis and Proposal phase provides a basis to conduct further analysis and is a mechanism to gather additional information for the Secretary to consider in making future decisions. See Chapter 1, OCS Oil and Gas Leasing Program Development Process, for further information regarding the OCS oil and gas leasing program development process. The Secretary used the information in this 1st Analysis to inform the 1st Proposal, which presents the potential lease sale schedule and program areas that may be included in the 11th Program and summarizes the rationale behind the 1st Proposal. The OCS areas to remain under leasing consideration, as presented in the 1st Proposal, will be analyzed in more detail during the next phase, the 2nd Analysis and Proposal (Proposed Program) phase. This document is organized as follows:

Chapters 1 through **3** describe the framework for developing a new National OCS Program. These chapters discuss the substantive and procedural requirements to prepare a National OCS Program under Section 18 of the OCS Lands Act and describe BOEM's approach to meeting those requirements. This includes a discussion of the Section 18 requirements and factors relating to OCS oil and natural gas resources and the environmental, economic, and social aspects that Section 18 requires be considered when deciding where and when to schedule lease sales. Also included in Chapter 2 is a summary of the judicial guidance from court decisions regarding the National OCS Program.

Chapters 4 through **13** present the Section 18 analyses for all OCS planning areas, including a snapshot of the comments received on the Request for Information and Comments (RFI), to inform the 1st Proposal.

Appendix A: Summaries of Public Comments summarizes the comments BOEM received and considered in response to the RFI issued on April 30, 2025 (90 FR 17972), which requested comments from all interested parties. **Appendix B** provides the Economic Analysis Methodology for the 1st Analysis. **Appendix C** contains a list of protected species found in or near the OCS planning areas. **Appendix D** is the list of acronyms used in the document. **Appendix E** contains a glossary of terms used in this document. **Appendix F** is the reference list.

Figure 1 shows the document organization, consisting of the following three main categories:

1. Process and foundation
2. Analysis
3. Appendices.

Figure 1: Document Organization for 1st Analysis

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Chapter 1 National OCS Program Development Process

Chapter 1 OCS Oil and Gas Leasing Program Development Process

1.1 Introduction

Section 18 of the Outer Continental Shelf (OCS) Lands Act (43 United States Code [U.S.C.] § 1344) requires the Secretary of the Interior (Secretary) to prepare and maintain a schedule of proposed OCS oil and gas lease sales, referred to as the National OCS Oil and Gas Leasing Program (National OCS Program) that "best meet national energy needs for the five-year period following its approval or reapproval." The National OCS Program must be prepared and maintained in a manner consistent with the procedures and criteria specified in Section 18 of the OCS Lands Act. Those criteria, and how they are considered in preparing the 1st Analysis for the 11th Program (the Draft Proposed Program or DPP), are summarized in Chapter 2.

The OCS is defined in the OCS Lands Act (43 U.S.C. § 1331) and consists of all submerged lands, subsoil, and seabed lying seaward and outside of the lands beneath navigable waters. In most cases, the OCS extends from 3 nautical miles (nm) from the coastline to the seaward extent of the jurisdiction of the United States (U.S.), which is typically 200 nm, and beyond in some cases, from the coastline.[1]

Section 18 of the OCS Lands Act requires that the proposed schedule of lease sales is based upon a comparative analysis of the oil- and gas-bearing regions of the OCS. For administrative and planning purposes, the Bureau of Ocean Energy Management (BOEM) established four OCS Regions, now comprised of 27 planning areas, as shown in Figure 1-1 and Figure 1-2.[2]

[1] State jurisdictions for Texas, Florida's Gulf Coast, and the Commonwealth of Puerto Rico extend 9 nm from the coastal baseline; Louisiana's jurisdiction extends to 3 imperial miles, reflecting boundaries at the time these states joined the U.S. Federal jurisdiction is defined by Federal statutes (e.g., the Submerged Lands Act and the OCS Lands Act) and under accepted rules of international law. Specifically, under international law, the continental shelf extends to the outer edge of the continental margin, or to 200 nm from the baseline, whichever is greater. Where the outer edge of the continental margin extends beyond 200 nm from the baseline, the outer limits of the continental shelf are determined in accordance with Article 76 of the 1982 United Nations Convention on the Law of the Sea. While the United States has not acceded to the convention, the U.S. considers it to represent customary international law. In December 2023, the U.S. Department of State published updated information in the *Federal Register* pertaining to the outer limits of the U.S. continental shelf (88 *Federal Register* 88470). In April 2025, BOEM announced modified OCS planning areas to match the revised jurisdiction of the OCS.

[2] The Inflation Reduction Act of 2022 amended the definition of the OCS in the OCS Lands Act to include submerged lands within the exclusive economic zone adjacent to all U.S. Territories. However, the OCS Lands Act, as modified by

Figure 1-1: Alaska OCS Planning Areas

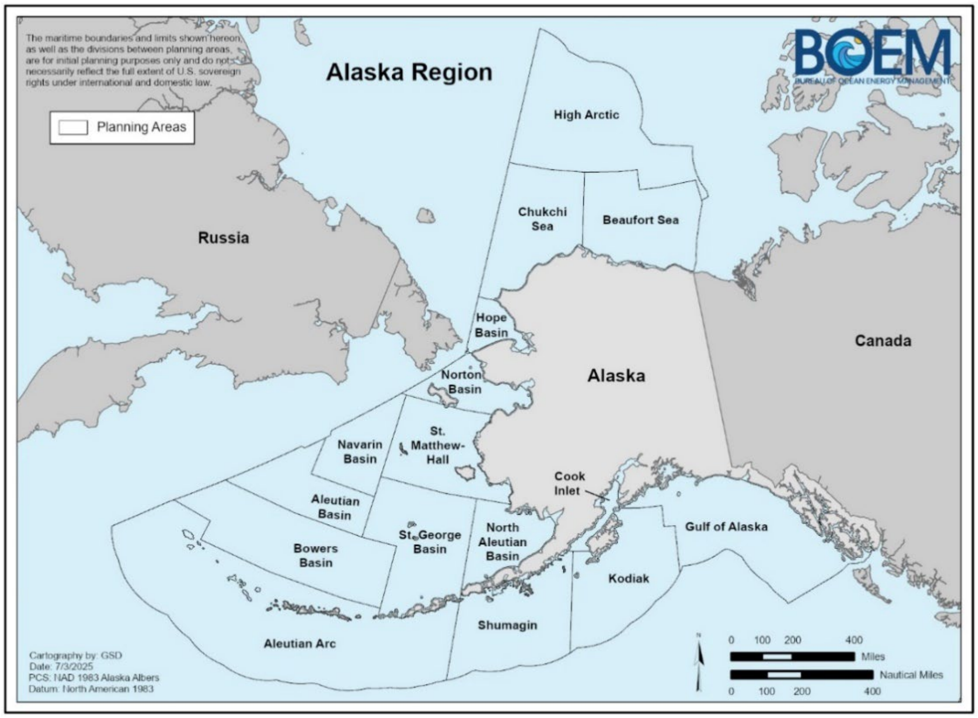
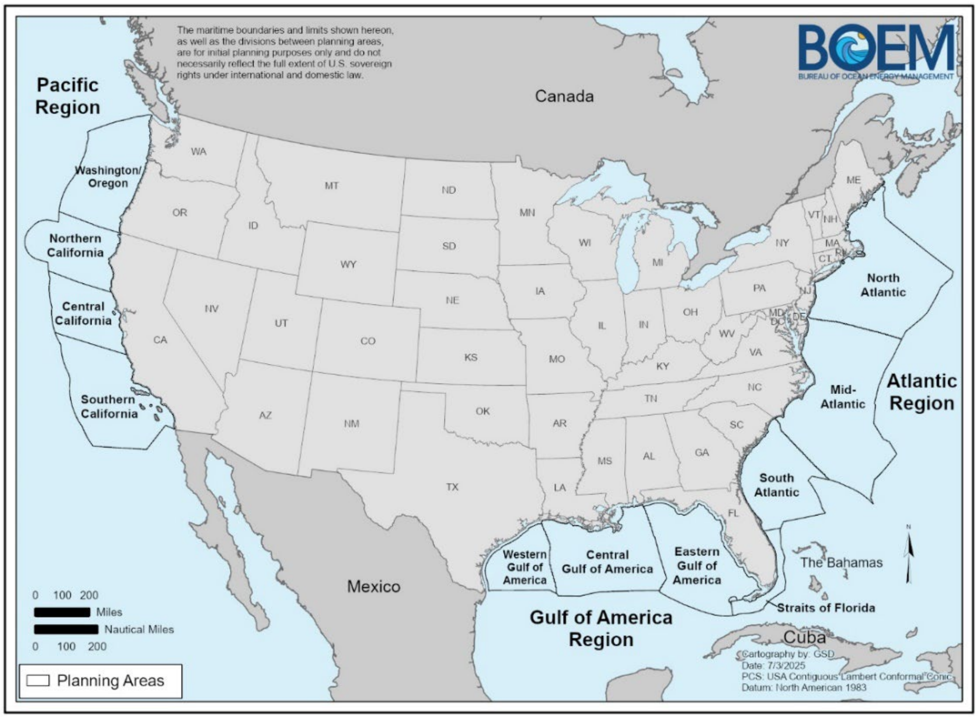


Figure 1-2: Lower 48 States OCS Planning Areas



the IRA (see 43 U.S.C. 1334(i)), prohibits OCS oil and gas leasing offshore the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands. Therefore, these areas are not part of the OCS planning areas and are not considered or analyzed for the National OCS Program.

The four OCS Regions are Alaska, Pacific, Gulf of America (GOA), and Atlantic. Administratively, the Pacific Region includes the State of Hawaii, but for the purpose of developing this 11th Program, the Pacific Region is only composed of the four planning areas off the contiguous U.S. West Coast.

An OCS planning area is a large, spatially defined contiguous portion of a broader OCS Region used for BOEM planning and administrative purposes for oil and gas activities, including for the analysis conducted in support of a National OCS Program and to facilitate coordination with state and local governments. Not all the OCS is subdivided into planning areas; the areas surrounding Hawaii and the U.S. Territories are distinct and manageable portions of the OCS that are not considered for oil and gas leasing, so have not been designated as planning areas.

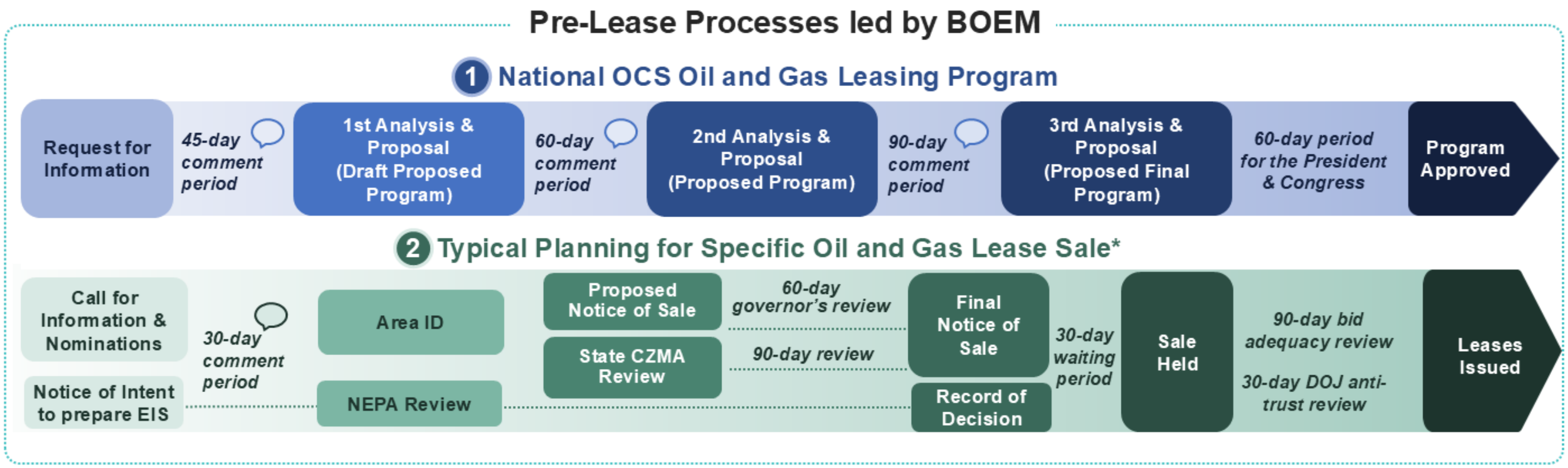
Changes to OCS jurisdiction sometime necessitate that BOEM revise the OCS planning areas to account for new boundary information. The most recent change was announced on April 30, 2025, where BOEM modified its planning areas to address jurisdictional changes arising from the U.S. Department of State's December 21, 2023, announcement regarding modified outer limits of the continental shelf beyond 200 nm. Other administrative changes were also incorporated, including updates to the three GOA planning areas to reflect the name change announced in Executive Order (E.O.) 14172, *Restoring Names That Honor American Greatness* (January 20, 2025). A new planning area, the High Arctic Planning Area, was created, increasing the total number of OCS planning areas from 26 to 27. More information on BOEM's jurisdiction is at https://www.boem.gov/oil-gas-energy/leasing/outer-continental-shelf.

1.2 Oil and Gas Leasing, Exploration, Development, and Production Process on the OCS

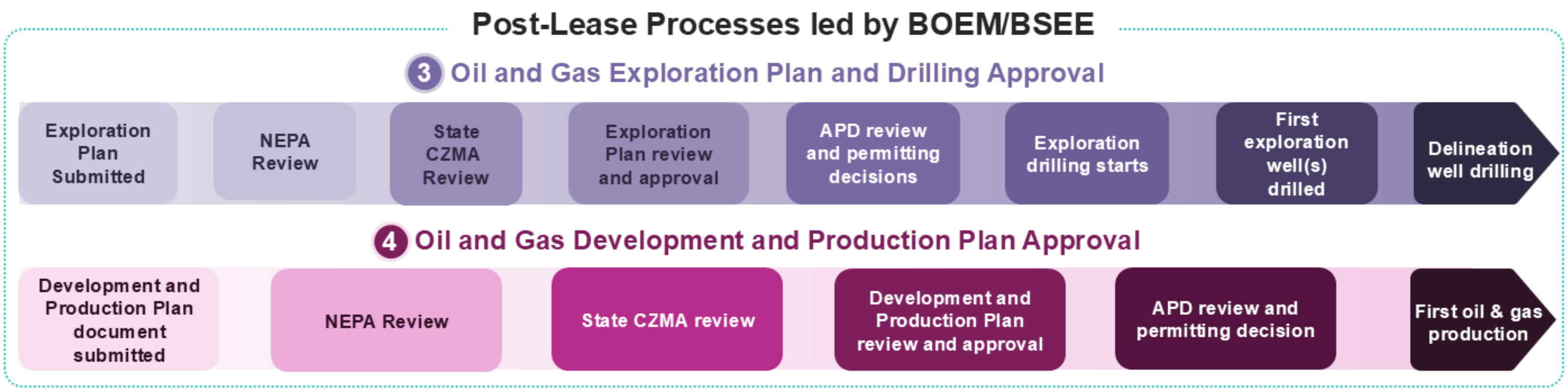
BOEM has oversight responsibility for OCS oil and gas leasing and development (see Figure 1-3), starting with the development of the National OCS Program. Section 18 requires the Secretary to prepare an oil and gas leasing program consisting of a 5-year schedule of proposed lease sales that the Secretary determines will best meet national energy needs (see Section 1.2.1).

For a specific lease sale to be held, it must be included in an approved National OCS Program or approved by Congress. Prior to a scheduled lease sale being held, BOEM conducts a sale-specific analysis (see Section 1.2.3). Following a lease sale, BOEM performs a review and either accepts or rejects bids, typically within 90 days (see Chapter 12).

Figure 1-3: Four Decision Phases for OCS Oil & Gas Leasing, Exploration, & Production



Notes: The lease sale process can begin during the National OCS Program development process. The first sale in a new Program can be held as early as 30 days after Program approval.



Note: Government-to-Government consultations are conducted throughout all leasing phases.
Key: APD = Application for Permit to Drill; CZMA = Coastal Zone Management Act; DOJ = Department of Justice; EIS = Environmental Impact Statement; NEPA = National Environmental Policy Act

Once granted, an oil and gas lease conveys the exclusive right to explore, develop, and produce oil and/or gas for a specific initial period (for a minimum of 5 years and maximum of 10 years) from a specific OCS block. All exploration, development, and production plans are carefully reviewed by BOEM (see Section 1.3). Following plan approval, the Bureau of Safety and Environmental Enforcement (BSEE) exercises primary oversight of specific permitting and operational activities (e.g., drilling and production) on OCS leases.

1.2.1 National OCS Program Development Process

Multiple steps are required to prepare a new National OCS Program. The National OCS Program development process begins with the publication of the Request for Information and Comments (RFI) followed by three analytical stages: (1) the 1st Proposal, resulting from the initial analysis (1st Analysis) of all 27 OCS planning areas and published as part of this DPP; (2) the 2nd Proposal, resulting from the analysis of the 1st Proposal and published as part of the Proposed Program; and (3) the 3rd Proposal, resulting from the analysis of the 2nd Proposal and published as part of the Proposed Final Program (PFP). Approval of a new National OCS Program may occur no earlier than 60 days after publication of the 3rd and final Analysis and Proposal (PFP).

Figure 1-3 shows the analytical flow process for the four decision phases required before new oil and gas production can occur on the OCS.

1. National OCS Program development
2. Lease sale planning and lease execution
3. Exploration plan review, approval, and execution
4. Development and production plan review, approval, and execution.

This document includes the 1st Proposal and constitutes the first of three analyses resulting in a proposed schedule of lease sales for the 11th Program.

Section 18(a)(2) of the OCS Lands Act lists eight factors the Secretary must consider when determining the size, timing, and location of oil and gas lease sales among the different OCS areas (see Chapter 2). In developing a National OCS Program, BOEM analyzes, among other items: regional and national energy needs; leasing interest as expressed by potential oil and gas producers; applicable laws, goals, and policies of affected states as reflected in comments received from states; comments and concerns of local governments; public input; competing uses of the OCS; the relative environmental sensitivity and marine productivity among OCS Regions; and the equitable sharing of benefits and risks among OCS Regions.

As shown in Figure 1-4, the National OCS Program development process starts with the broadest consideration of all 27 OCS planning areas and can be narrowed in subsequent proposals during the development process.

Figure 1-4: National OCS Oil & Gas Leasing Program Development Analytical Flow Process

Once a defined area is included in the National OCS Program, it becomes known as a program area. Program areas are therefore the portions of the original OCS planning areas that remain under leasing consideration during the National OCS Program development process. For example, the entire Cook Inlet Planning Area was originally considered for leasing in the 1st Analysis for the 9th Program, but the Cook Inlet Program Area ultimately included only the northern portion of the larger Cook Inlet Planning Area. In addition to program areas, the Secretary can also identify Subarea Options for additional analysis in later stages of National OCS Program development.

This 1st Analysis presents the comparison of all 27 OCS planning areas in accordance with the Section 18(a)(2) factors for consideration and balancing mandated by Section 18(a)(3). The National OCS Program development process is a winnowing process, and only those program areas and any Subarea Options that the Secretary decides are appropriate to carry forward for further analysis are included in the next analytical document. Therefore, only those areas that the Secretary decides to include in the 1st Proposal will be analyzed in the 2nd Analysis. Subsequently, the program areas that the Secretary decides to include in the 2nd Proposal, and any potential subsets thereof, will be analyzed in the 3rd Analysis.

Several of the Section 18(a)(2) factors address environmental considerations. For past National OCS Programs, BOEM has prepared a Programmatic EIS pursuant to the National Environmental Policy Act (NEPA) as the analysis vehicle for these environmental factors. For the 11th Program, BOEM is preparing an environmental analysis outside of the NEPA framework to provide the relevant environmental and predictive information for different areas of the OCS as required by Section 18 of the OCS Lands Act.

BOEM's decision to prepare an associated Programmatic EIS for past programs was discretionary because the U.S. Court of Appeals for the District of Columbia ruled that the approval of a National OCS Program does not constitute an irreversible and irretrievable commitment of resources, and that, in the context of BOEM's multiple stage leasing program, the obligation to fully comply with NEPA does not mature until the lease sale stage (*Center for Biological Diversity v. Department of the Interior*, 563 F.3d 466 [D.C. Cir. 2009]; *Center for Sustainable Economy v. Jewell*, 779 F.3d 588 [D.C. Cir. 2015]).

The environmental analysis considers the potential effects of activities that may occur under lease sales scheduled in a new National OCS Program, which includes those lease sale effects that could be experienced beyond BOEM program area boundaries, such as potential impacts on migratory animals.

The environmental analysis also considers potential geographic exclusions from leasing for this National OCS Program based on sensitive or otherwise important environmental or cultural components of the area. The final decision on the National OCS Program can adopt any analyzed exclusions within program areas otherwise included that are sufficiently identifiable at the programmatic stage. In addition, the Secretary may determine not to offer sensitive subareas at subsequent stages, such as at the lease sale stage. Table 1-1 shows the environmental documentation associated with the various stages of National OCS Program and lease sale development.

Additionally, BOEM informs federally recognized Tribal governments when a National OCS Program is being prepared, including the steps in the National OCS Program development process and where to find additional information on meetings and opportunities for information exchange (see Section 13.6). BOEM recognizes the unique relationship between the U.S. and

Tribes and invites requests for government-to-government consultation. This consultation can occur at any time during the National OCS Program stage or subsequent stages (e.g., lease sales, plan reviews). Consultation and coordination with other Federal agencies, and state and Tribal governments, as required under specific environmental statutes, occur at subsequent stages of the leasing process.

Table 1-1: Typical Environmental Review for the National OCS Oil & Gas Leasing Program and Lease Sale Processes

Program Level	Program Stage	NEPA Documentation	Geographic Scope	Focus and Scope
Planning, no decisions are final	National OCS Program	NEPA is discretionary at this stage. BOEM is preparing an OCS Lands Act-focused environmental analysis in place of a NEPA analysis for the 11th Program.	National	Inform choice of program areas and number of sales for the schedule of lease sales in the National OCS Program. Consider programmatic-level environmental impacts and identify potential geographic exclusions for purposes of environmental or cultural protection.
Regional or site-specific lease sale	Lease Sale	NEPA Review, if applicable (EIS, EA, or Determination of NEPA Adequacy [DNA])	Program Area	Assess potential environmental impacts and mitigation measures (EIS or EA) to inform choice of parcels to be offered or determine whether these are adequately covered in a previously prepared NEPA document (DNA).
Project	Exploration	DNA, CER, EA, or EIS	Portion of lease block(s)	Assess effects of proposed activities to inform decision to approve, disapprove, or approve with mitigation measures.
	Production	DNA, CER, EA, or EIS	Portion of lease block(s)	
	Decommissioning	DNA, CER, EA, or EIS	Specific facility within a lease block	

Note: The level of NEPA analysis at the project level is determined by the complexity of the project, risk factors associated with the project, project location relative to other uses or environmentally important areas, technologies proposed for use, and other factors.
Key: CER = categorical exclusion review; DNA = Determination of NEPA Adequacy; EA = environmental assessment; EIS = environmental impact statement; NEPA = National Environmental Policy Act.

1.2.2 Request for Information and Comments

The first step in developing a new National OCS Program is the RFI. On April 30, 2025, BOEM published in the *Federal Register* (FR) the RFI regarding the preparation of this 11th Program (90 FR 17972). Simultaneously with the release of the RFI, BOEM also sent letters to all governors and the heads of interested Federal agencies requesting their input during the 45-day RFI comment period. Pursuant to OCS Lands Act Section 18, BOEM requested that governors and oil and gas companies provide updated information regarding state laws and policies or industry interest, respectively. Details of the information gathered throughout the outreach and coordination conducted is documented and analyzed (see Chapter 13 and **Appendix A**).

1.2.3 1st Analysis and Proposal

After the RFI, the second step is the publication of the 1st Analysis and Proposal, titled the DPP. After considering the analyses associated with the Section 18 factors and principles (see Chapter 2), the Secretary selects Analysis Options and potential Subarea Options as part of the 1st Proposal. This decision is the initial proposal for the 11th Program. BOEM announces the availability of the DPP document (which includes the 1st Analysis and Proposal) in the FR. Following the publication of the DPP, BOEM transmits the DPP to all 50 governors and relevant Federal agencies and invites comments from them within 60 days. Chapter 13 provides a more detailed discussion on public involvement and outreach for the National OCS Program.

1.2.4 2nd Analysis and Proposal

The third step is the publication of the 2nd Analysis and Proposal, titled the Proposed Program. Preparation of the 2nd Analysis for the 11th Program is based on additional analyses of required Section 18 factors (see Chapter 2) and comments received by BOEM on the 1st Analysis (see **Appendix A**). OCS areas identified for potential leasing in the 1st Proposal are analyzed in the 2nd Analysis, which informs the Secretary's 2nd Proposal.

BOEM announces the publication of the 2nd Analysis and Proposal and associated request for comments in the FR and requests feedback from interested and affected parties during a 90-day comment period. The 2nd Analysis and Proposal is also submitted to governors and relevant Federal agencies.

1.2.5 3rd and Final Analysis and Proposal

The fourth step is the publication of the 3rd and final Analysis and Proposal, titled the PFP. As the last analytical phase of the National OCS Program development, BOEM prepares a 3rd Analysis based on additional analyses of Section 18 factors and comments received on the 2nd Analysis and Proposal. OCS areas identified for potential leasing in the 2nd Proposal are analyzed in the 3rd Analysis. BOEM announces publication of the 3rd Analysis and Proposal in the FR and submits it to the President and Congress, along with copies of all comments and responses to comments and recommendations received on the 2nd Analysis and Proposal from state and local governments and Federal agencies.

1.2.6 Program Approval

The fifth and final step is National OCS Program approval. Per Section 18(d)(2), the Secretary will not approve the new Program until at least 60 days after sending it to the President and Congress. At the time of approval, the Secretary's decision is described in a decision memo that is made publicly available. In general, the decision memo identifies the schedule of potential lease sales to occur during the 11th Program, presents the basis for the decision, and identifies methods to avoid, minimize, or otherwise mitigate environmental impacts. The decision memo could also adopt any programmatic mitigation measures or restrictions on leasing activities that the Secretary considers necessary.

1.3 Lease Sale Process

Approval of a National OCS Program does not constitute final approval of the lease sales scheduled in that National OCS Program. No National OCS Program decisions are final, and each potential lease sale scheduled in a National OCS Program is subject to separate, established pre-lease sale decision processes, typically including environmental review and analysis (see Figure 1-3, Figure 1-4, and Table 1-1). While the OCS Lands Act defines BOEM jurisdiction and regulatory responsibility on Federal offshore lands, other Federal laws play a significant role in the management of offshore operations. Compliance with the provisions of these laws is a major undertaking within BOEM and is part of the lease sale and later processes (see https://www.boem.gov/about-boem/regulations-guidance/boem-governing-statutes for more information).

During the lease sale process, the Secretary may further refine the area available for leasing. For example, the Secretary could choose an areawide approach, in which all available unleased acreage in a program area is offered for lease, or a targeted leasing approach, which is designed to result in a more focused lease area configuration.

A targeted approach could, for example, only offer lease sales in areas with high hydrocarbon resource potential while appropriately weighing adverse impacts and other factors. Other potential considerations could include biologically sensitive subareas and areas of potential conflict with other users or uses of the marine environment, such as subsistence hunting and fishing activity (see Chapter 8). This is consistent with the policy of the OCS Lands Act to make OCS oil and gas resources available for development while considering safeguards for the human, marine, and coastal environments.

As shown in Figure 1-3 and Figure 1-4 interested and affected parties have multiple opportunities to participate and comment prior to any decision to hold a specific lease sale. The lease sale process has traditionally taken about 2 years to complete and includes multiple steps and decision points along the way.

While a lease sale may not occur until an approved National OCS Program is in place, in some cases, lease sales occurring early in a National OCS Program schedule require that steps are taken in the pre-lease sale process prior to final National OCS Program approval. This is not a pre-judgment by the Secretary concerning any area that may be made available for leasing, only an initiation of the statutory and analytical steps required to hold a lease sale on time should it remain in an approved National OCS Program.[3] The full process for a typical lease sale is described below in more detail.

1. **Call for Information and Nominations (30 Code of Federal Regulations [CFR] 556.301)—**In the first step of the lease sale process, BOEM issues a Call for Information and Nominations (Call) in the FR on an area proposed for leasing in the National OCS Program. Potential bidders are invited to submit nominations or indications of interest in specific OCS blocks within the Call area. The Call also requests from the public information on areas of special concern that should be analyzed and solicits comments about geological conditions; archaeological sites; potential multiple uses of the area including navigation, recreation, and fisheries, and socioeconomic, biological, and other environmental information.
2. **Area Identification (30 CFR 556.302)—**Area Identification (Area ID) is the second major step in BOEM's oil and gas lease sale process. During Area ID, BOEM uses information and comments received in response to a Call, and, in consultation with appropriate Federal agencies, develops a recommendation to the Secretary for the area(s) to be subject to further leasing consideration and environmental analyses. The Area ID decision is announced in the FR.
3. **Review under NEPA—**BOEM conducts region-specific NEPA analyses to support decisions on individual proposed OCS oil and gas lease sales in those areas; this is typically an EIS (see Table 1-1).
4. **Government-to-Government Consultations**—Under E.O. 13175 and the Department of the Interior Policy on Consultation with Indian Tribes, BOEM is obligated to engage in government-to-government consultations with Tribes on any Departmental action with Tribal implications. This includes federally recognized Tribes with current and historic interests in coastal areas of Alaska, Pacific, GOA, and Atlantic. In Alaska, BOEM additionally consults with Alaska Native Claims Settlement Act (ANCSA) Corporations. These consultations are conducted for additional approvals (e.g., plans and permits) as appropriate throughout the life of an OCS oil and gas lease.

[3] Solicitor's M Opinion 36954, *Whether the Department May Issue a Call for Information & Nominations for Outer Continental Shelf Lease Sale 91*, 93 I.D. 125 (1986).

5. **Environmental Consultations—**Consultations under various environmental statutes may occur, as applicable, such as the Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531 *et seq*.) and Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801 *et seq*.). Pursuant to these environmental statutes, BOEM may consult with agencies such as the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). BOEM also consults, as appropriate, under Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108).
6. **Proposed Notice of Sale (NOS) (30 CFR 556.304)—**The proposed NOS describes the size, timing, and location of a proposed oil and gas lease sale. It also provides potential bidders with information on proposed economic terms and conditions and any proposed mitigation measures (i.e., lease stipulations), which are typically designed to reduce potential conflicts with other ocean uses and to protect the environment. BOEM publishes a notice of availability of the proposed NOS in the FR.
7. **Coordination with Governors of Affected States (30 CFR 556.304-307)—**Section 19 of the OCS Lands Act (43 U.S.C. § 1345) requires BOEM to solicit input on the size, timing, and location of lease sales from governors of affected states. BOEM sends the proposed NOS to governors of affected states requesting their recommendations on the proposed size, timing, and location of the lease sale. The governors have 60 days to submit their recommendations to BOEM. If recommendations are received, BOEM sends each governor a written explanation for USDOI's determination to accept or reject that governor's recommendation prior to holding the lease sale.
8. **Consistency Determination (30 CFR 556.305(b))—**All Federal activities affecting the coastal zone, including OCS oil and gas lease sales, must be consistent to the maximum extent practicable with the enforceable policies of an affected state's coastal zone management (CZM) program (see 16 U.S.C. § 1456(c)(1) and (2)). BOEM provides coastal states with a consistency determination on whether the proposed lease sale is consistent, to the maximum extent practicable, with the enforceable policies of federally approved state coastal management plans. That is not done, however, for Alaska lease sales since the State of Alaska no longer has a federally approved coastal management plan. For more information on BOEM's CZM work, see https://www.boem.gov/Coastal-Zone-Management-Act/).
9. **Issuance of a decision document pursuant to NEPA—**Traditionally, upon completion of the NEPA review for each individual lease sale, a decision is made on the proposed action. Depending on the type of NEPA review undertaken for a lease sale, the NEPA review process may be completed through the issuance of a Record of Decision (ROD), Finding of No Significant Impact (FONSI), or DNA. Typically, the ROD or FONSI, if applicable, is completed contemporaneously with the Final NOS.
10. **Final NOS (30 CFR 556.308(a))—**BOEM publishes a Final NOS at least 30 days before a lease sale is held. The Final NOS includes information on how to submit bids; the date,

time, and location of the bid opening and reading; the OCS blocks being offered; and terms and conditions of the lease sale, including lease stipulations.

11. **Holding the Lease Sale (30 CFR 556.516)—**BOEM opens the sealed bids at the place, date, and hour specified in the Final NOS for the sole purpose of publicly announcing and recording the bids. BOEM does not accept or reject any bids at that time.
12. **Lease Issuance (30 CFR 556.520-522)—**Before a lease can be issued, high bids are subject to evaluation verifying the receipt of fair market value (FMV) and analysis confirming that the award of any tract to the highest bidders in the lease sale would not create or maintain a situation inconsistent with anti-trust laws. BOEM will issue a lease following completion of its FMV analysis and the anti-trust review conducted by the Department of Justice in consultation with the Federal Trade Commission.

1.4 Exploration and Development Process

Areas with mature oil and gas development, such as the GOA, generally have more recent and therefore more sophisticated seismic data available (e.g., three-dimensional [3-D] seismic surveys) to assess oil and gas resources. Frontier areas of the OCS generally only have older, less sophisticated seismic data (e.g., two-dimensional [2-D] seismic surveys) available. If leasing and related activities increase in frontier areas, new seismic data will be collected, and more detailed information will become available. On the U.S. OCS, seismic data are typically acquired both prior to lease issuance (through the issuance of a permit) and after a lease is in effect.

After BOEM issues a lease, a lessee typically accelerates the process to explore for oil and gas accumulations. In some cases, potential oil and gas resources could already be identified through analysis of existing data and information. Prior to most exploration activities on the lease, an exploration plan is submitted to BOEM for environmental review and consideration for approval (see Figure 1-4). Prior to proceeding with certain ancillary activities, lessees must submit notice to BOEM rather than an exploration plan.

High-resolution geophysical surveys on a lease are typically performed prior to exploration plan submittal to identify natural and human-made hazards, areas of potentially sensitive benthic habitat such as hard-bottom habitat and coral reefs, and significant cultural resources such as historic shipwrecks or inundated occupation sites on or below the seabed. The next phase of exploration involves drilling an exploration well that targets the interpreted oil or gas trap in the subsurface to determine if an oil or gas resource exists. If oil or gas is discovered in quantities appearing to be economically favorable, one or more follow-up delineation wells could be drilled to help define the amount of the resource or the extent of the reservoir.

Delineation and production wells are sometimes both termed “development wells.” If a lessee wishes to drill a development well, a development and production plan must be submitted to

BOEM so that BOEM can perform environmental review and consider plan approval (see Figure 1-4).

Assuming that hydrocarbon resources are discovered and successfully delineated, a production facility could be installed at the site. The number of wells to be served by a single facility varies according to the type of production facility used, the prospect site, and the drilling and production strategy deployed. Oil and gas resources are brought to market via a system of pipelines and processing facilities or through production into a floating system.

Exploration plans and development and production plans are subject to focused, site-specific environmental analyses under NEPA and other environmental statutes, as well as the requirement for an operator to certify consistency of the proposed activities with the enforceable policies of a state's CZM program, as appropriate.

For more information about the exploration and development process, see BOEM's web pages on the status of oil and gas plans for the Alaska Region (https://www.boem.gov/akplans), GOA Region (https://www.boem.gov/oil-gas-energy/exploration-and-development-plans/status-gulf-america-plans), and Pacific Region (https://www.boem.gov/Pacific-Lease-Management/). For more information about BOEM's oil and gas resource evaluation program, see the web page: https://www.boem.gov/Resource-Evaluation-Program/. Figure 1-5 provides a high-level summary of the four phases of OCS oil and gas leasing, exploration, and development decisionmaking.

Figure 1-5: Summary of OCS Oil & Gas Leasing, Exploration, and Development Decisionmaking Phases

Note: * = The lease sale process can begin during the National OCS Program development process.
Key: OCS = Outer Continental Shelf; NEPA = National Environmental Policy Act

Chapter 2
OCS Lands Act Section 18
Requirements & Factors

Chapter 2 Section 18 Requirements & Factors

2.1 BOEM's Approach to Analyze Planning Areas

Section 18(a) of the OCS Lands Act contains four subsections that set forth principles and factors to guide the National OCS Program development process. This 1st Analysis contains analysis of all 27 planning areas pursuant to the requirements and factors articulated by Section 18 of the OCS Lands Act (see Section 2.3 and Figure 2-1). See further discussion of planning areas in Section 3.1.

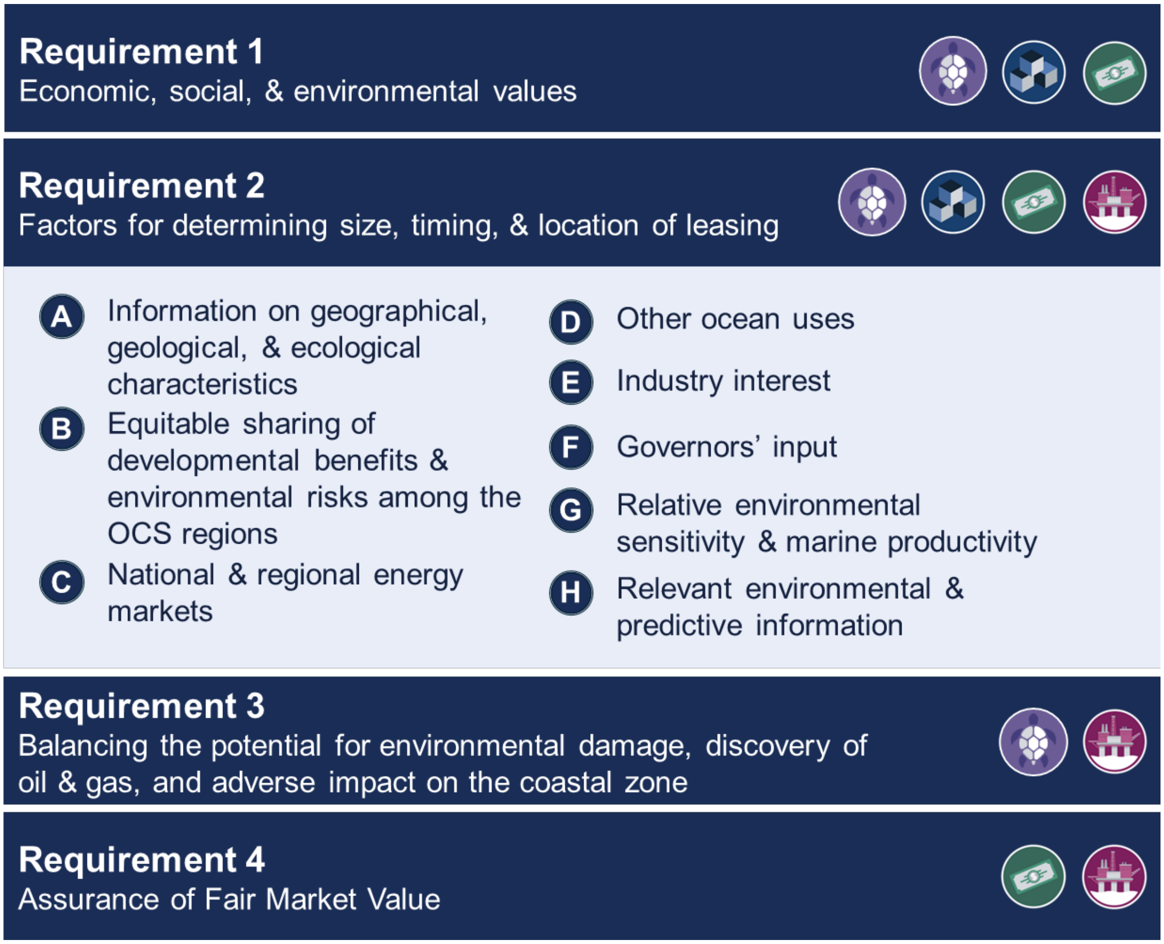
The Secretary's 1st Proposal identifies areas for further leasing consideration. The Analysis Options presented as part of the Secretary's 1st Proposal will later be analyzed in the 2nd Analysis. Once the Secretary proposes areas for inclusion in the National OCS Program, those areas become "program areas" in the 2nd and 3rd analyses.

This chapter provides the foundation for how BOEM analyzes all the OCS Lands Act Section 18 requirements and factors (see Figure 2-1). The Secretary may select areas for potential leasing "indicating, as precisely as possible, the size, timing, and location of leasing activity which [the Secretary] determines will best meet national energy needs for the five-year period following [Program] approval…" (43 U.S.C. §1344(a)). This chapter also presents a brief overview of those Section 18 requirements and factors as well as guidance provided in court decisions on prior National OCS Programs (see Section 2.7). Figure 2-2 presents where analyses of Section 18 requirements and factors are found throughout this document.

In the next analytical document, an analysis of the 1st Proposal, No Sale Options, as well as any Subarea Options (collectively called the 2nd Analysis Options) identified by the Secretary will serve as the basis for the upcoming 2nd Analysis that will inform the Secretary's forthcoming 2nd Proposal (the Proposed Program).

The analyses underlying this National OCS Program use the best available information at the time. Previous studies and analyses are augmented by the latest documents, reports, and studies available, along with pertinent information provided in public comments on the RFI. Additionally, BOEM reviews and re-interprets existing oil and gas resource data as necessary.

Figure 2-1: OCS Lands Act Section 18 Factors & Requirements



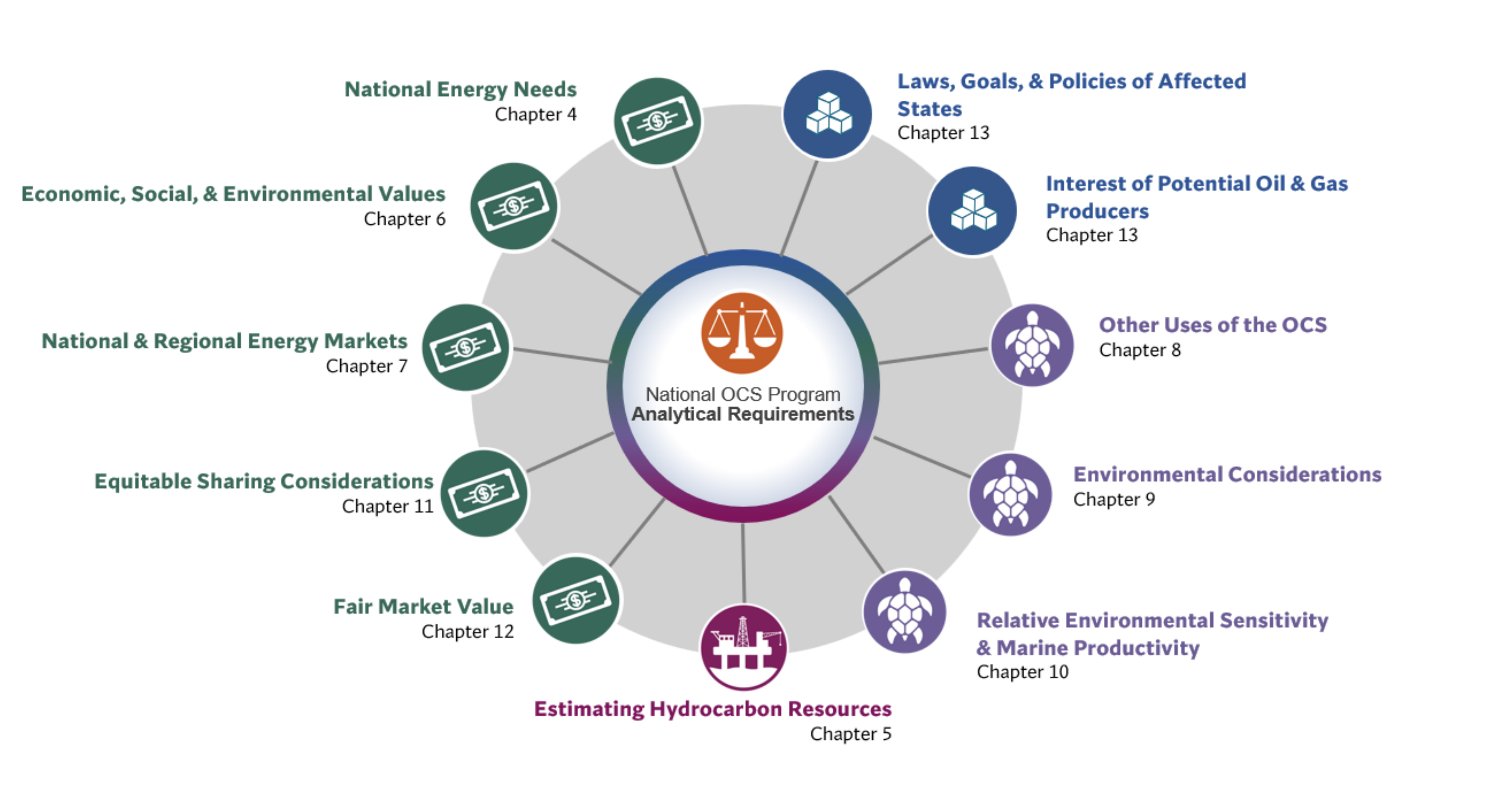
2.2 Section 18(a): Energy Needs

As stated in Section 18(a) of the OCS Lands Act, the purpose of the National OCS Program is to help meet the future energy needs of the U.S. for the 5-year period following its approval or reapproval. Chapter 4 presents an analysis of anticipated energy needs in the context of meeting anticipated energy needs of consumers of all types. Chapter 7 presents information on energy markets and energy substitutions.

2.3 Section 18(a)(1): Economic, Social, and Environmental Values

Section 18(a)(1) of the OCS Lands Act requires the Secretary to manage the OCS "in a manner which considers economic, social, and environmental values of the renewable and non-renewable resources contained in the outer Continental Shelf…." The 1st Analysis is conducted to ensure that economic, social, and environmental values associated with exploration, development, and production of OCS resources are considered as important aspects of the National OCS Program's development. Specifically, Chapter 6 presents a quantitative analysis of economic, social, and environmental values.

Figure 2-2: OCS Lands Act Section 18 Analyses throughout this Document



The OCS Lands Act also requires the Secretary to consider potential impacts of oil and gas activities on other resource values of the OCS and on the marine, coastal, and human environments. The 1st Analysis assists the Secretary with meeting these requirements (including the balancing requirement described in Section 2.5, Section 18(a)(3): Balancing the Potential for Environmental Damage, Discovery of Oil and Gas, and Adverse Impact on the Coastal Zone).

Chapter 9 presents the environmental setting for each of the OCS Regions (Alaska, Pacific, GOA, and Atlantic), including relevant environmental information on habitats, species types and distribution, and federally protected species. **Appendix A** contains comment summaries received in response to the RFI, including issues or concerns that were identified by commenters. The environmental considerations chapter also includes information from previous National OCS Program documents and references to available environmental resource information. Finally, a brief discussion of predictive information is provided to identify potentially relevant impacts and the resource areas that could be affected.

2.3.1 Economic Value

Economic value will be realized from decades of oil and natural gas exploration, development, and production resulting from leases awarded by implementing the next National OCS Program. One metric used to calculate economic value is the net economic value (NEV) of extracted oil and natural gas resources, which includes government receipts of cash bonuses, rentals, royalties, and taxes. A second metric of economic value considers the estimates of employment and income from oil and natural gas activity.[4]

BOEM also considers the adverse economic impacts associated with oil and gas production, such as those from air pollution and potential oil spills. Economic values are discussed primarily in the subsequent chapters on Economic, Social, and Environmental Values (Chapter 6), National and Regional Energy Markets (Chapter 7), Equitable Sharing Considerations (Chapter 11), and The Value of OCS Leases and Assuring Fair Market Value (Chapter 12).

2.3.2 Social Value

Social value is realized when OCS resources are combined with inputs or processes to generate improvements in the lives of people or benefits to society. Social values include cultural and community values, but also broad evaluations of a wide array of factors, many of which could be considered economic or environmental effects. Components of social value are reflected in the substantive requirements analyses prepared for this 1st Analysis, whether accounted for in the

[4] Consistent with standard practices in cost-benefit analysis, the analysis in Chapter 6 treats employment, wages, and income as costs necessary to obtain the oil and natural gas that provide economic value. However, in general, these results of OCS development are widely viewed as benefits to society given the income and economic activity they generate. They are treated as such in Chapter 11.

OCS Inventory Net Benefits estimates or described qualitatively throughout the document, including the equitable sharing analysis.

2.3.3 Environmental Value

Environmental value is the worth society places on the intrinsic natural capital in the OCS's renewable and non-renewable resources. Natural capital provides goods and services from nature, including marine productivity, quality of aesthetic resources, human-ecological connectivity, and air and water quality. As with components of social value, components of environmental value are reflected in the substantive requirements analyses prepared for this 1st Analysis, in the OCS Inventory Net Benefits or described qualitatively throughout the document.

2.4 Section 18(a)(2): Factors for Determining Size, Timing, and Location of Leasing

As stated above, Section 18(a) of the OCS Lands Act states that a 5-year leasing program (i.e., National OCS Program) must be prepared and maintained by the Secretary consistent with principles set forth in the section. Section 18(a)(2) lists eight factors that the Secretary must consider when determining the size, timing, and location of oil and gas leasing activity among the different areas of the OCS. While some of these factors lend themselves to quantification to facilitate comparison among planning areas, others cannot readily be quantified and so are qualitatively considered. Each of the eight factors provided in Section 18(a)(2)(A) through (H) is introduced below:

A) Geographical, Geological, and Ecological Characteristics of Regions

Discussion of geographical, geological, and ecological information can be found across this document (e.g., geological characteristics in Chapter 5 and geographical and ecological characteristics in Chapter 9). Sources of information on geographical, geological, and ecological characteristics of the regions and planning areas considered when preparing this 1st Analysis include the following:

- Leasing and operational activities
- BOEM oil and gas resource assessments and associated regional geologic and reserves reports
- Indigenous traditional knowledge
- Scientific study results (including those reported in BOEM's Environmental Studies Program Information System [ESPIS])
- Information submitted or cited by commenters
- The Final Programmatic EIS for the 10th Program.

B) Equitable Sharing of Developmental Benefits and Environmental Risks

Chapter 11 analyzes the equitable sharing of developmental benefits and environmental risks associated with OCS oil and gas leasing activities. The National OCS Program has inherent equitable sharing in that the geographic areas bearing the greatest risks also receive higher shares.

Developmental benefits analyzed include the following:

- Additional jobs and higher wages
- Business income
- Direct Federal revenues
- Revenue sharing (with states, counties/parishes, and grant programs)
- Increased Federal, state, and local tax revenues
- Proximity of energy supply to consumers.

The environmental risks of leasing are described in Chapter 8, Chapter 9, and Chapter 10, and are summarized in Chapter 11. These risks include the following:

- Impacts on the quality of the physical environment (e.g., water quality, air quality) and associated risks to humans
- Impacts on species and habitats
- Impacts on resources with commercial, recreational, and/or cultural value (e.g., coastal tourism, commercial fisheries, subsistence harvest)
- Accidental events such as oil spills.

Chapter 12 also discusses the benefits and risks of not leasing in certain areas, including the benefits and risks from the alternative energy sources that would be needed to meet energy needs in lieu of OCS oil and gas production. In addition, there could be disruptions to areas, such as certain areas near the GOA that have structured their economies around OCS oil and gas development and production.

C) Location with Respect to Regional and National Energy Markets and Needs

The analyses in Chapter 7 focus on recent developments in energy markets, regional energy markets in relation to the location of OCS planning areas, and trends in regional production and consumption.[5]

[5] Chapter 4 also addresses energy needs but with respect to the overriding purpose of the National OCS Program "to best meet national energy needs ...." As noted above, the focus of Chapter 7 is on providing information to allow the Secretary to meet the requirements of Section 18(a)(2)(C).

The analyses include the U.S. Department of Energy's projections of national and regional production and consumption according to the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) 2025 (EIA 2025); the potential contribution of OCS oil and gas production in meeting national energy needs; regional energy markets including regional production and consumption, regional transportation trends and regional energy prices; and alternatives to OCS production.

Existing oil and natural gas infrastructure and its relationship to new leasing is also discussed. Recent OCS oil and gas lease sale EISs and other NEPA documents provide relevant information related to the regional distribution and processing of OCS oil and natural gas.[6]

D) Location with Respect to Other Uses of the Sea and Seabed

Chapter 8 discusses multiple uses of the OCS and includes information received from Federal, state, and local government agencies; Tribal governments; environmental and other organizations; and regional fishery management bodies. This information, also found in **Appendix A**, is further supplemented by data and information provided by BOEM's Marine Minerals and Renewable Energy programs in Chapter 8.

Further discussion of past, present, and reasonably foreseeable future actions will be included in the 2nd and 3rd Analysis and will include a characterization of OCS activities, other than activities associated with implementing the 11th Program, that could affect environmental resources on or adjacent to the OCS.

E) Interest of Potential Oil and Gas Producers

Section 13.5 describes industry interest as indicated in response to the RFI. **Appendix A** summarizes the comments received from oil and natural gas companies and associations in the exploration and production sector of the energy industry.

F) Laws, Goals, and Policies of Affected States Identified by Governors

Section 13.4 summarizes relevant laws, goals, and policies—including policies of federally approved CZM programs—that state governments identified when responding to BOEM's RFI. As required by Section 18(c)(1), BOEM sent letters to the governors of all 50 states requesting their suggestions and asking them to identify any relevant state laws, goals, and policies for the Secretary's consideration. **Appendix A** summarizes the comments received on the RFI, including those from governors and state government agencies.

[6] See https://www.boem.gov/environment/environmental-documents to access BOEM's environmental review documents.

G) Relative Environmental Sensitivity and Marine Productivity

Chapter 10 contains an analysis of the environmental sensitivity and marine productivity for the planning areas. BOEM defines the term "sensitivity" as sensitivity to potential impacts from oil and gas exploration and development as measured by indicators of vulnerability and/or resilience to impact. This 1st Analysis provides estimates of OCS marine productivity. Productivity is defined in terms of biomass production per unit of time. In the marine environment, primary production through photosynthesis determines the total amount of biomass available to higher trophic levels. However, the relationship between primary and secondary, or higher-level, production is not straightforward or uniform across marine ecosystems (Pomeroy 1991). Higher-level productivity is difficult to estimate, especially across a geographically large and ecologically diverse area such as the OCS (Balcom et al. 2011).

Section 18(a)(2)(G) calls for the consideration of the relative environmental sensitivity and marine productivity of the OCS. BOEM has modernized its approach by developing and implementing the Marine Sensitivity Toolkit (MST). This innovative, cloud-native toolkit fundamentally revamps BOEM's previous Relative Environmental Sensitivity Analysis (RESA) (BOEM 2018), delivering a transparent, reproducible, and scalable system that fully aligns with the E.O. 14302 requirements for scientific integrity, transparency, and the use of best available science (see Section 2.3 (G) and Chapter 10 for methodological explanations).

Measurements of biomass for the BOEM Ecoregion[7] areas were produced using satellite-based measurements of chlorophyll-*a*, available light, and photosynthetic efficiency (Balcom et al. 2011). These measurements allow BOEM to directly compare different areas. All 27 OCS planning areas, including the new High Arctic, are included in the sensitivity analysis. The smallest unit of analysis is a 0.05° cell (averaging 5 kilometers in the lower 48 states and 3.6 kilometers in Alaska). Planning area scores are aggregated from these cells based on the percentage overlap and then re-scaled within each BOEM Ecoregion to ensure comparability across diverse ecological contexts. The High Arctic Planning Area is treated as its own dedicated ecoregion.

H) Environmental and Predictive Information

Chapter 9 provides the following environmental and predictive information:

- A summary of environmental and cultural resources information for each OCS Region, including the ecological considerations and portions of the geographic and geological considerations relevant to determine when and where leasing should occur.
- Relevant environmental issues.

[7] Ecoregions in this document are defined as broad geographic areas of the OCS characterized by distinct ecological features, including marine and coastal ecosystems, species distributions, and environmental conditions like ocean currents and bathymetry. These regions are identified to evaluate the environmental impacts of potential oil and gas leasing activities under the 11th Program. BOEM uses ecoregions to assess potential effects on marine life, habitats, and coastal resources within each region's unique ecological context.

- A broad overview of the types of relationships between resources and impact-producing factors (IPFs) that could result in impacts on those resources.

The potential impacts of activities associated with leasing under the 11th Program will be analyzed further in the forthcoming 2nd and 3rd Analysis.

2.5 Section 18(a)(3): Balancing the Potential for Environmental Damage, Discovery of Oil and Gas, and Adverse Impact on the Coastal Zone

Section 18(a)(3) requires the Secretary, when making decisions on the timing and location of OCS leasing, to strike a balance among the potential for environmental damage, the discovery of oil and gas, and adverse impacts on the coastal zone. The Secretary's balancing effort is informed by an analysis of all the Section 18(a)(2) factors.

This 1st Analysis presents a comparative analysis of all 27 planning areas, including estimates of societal net benefits for each planning area, derived by calculating the value of undiscovered economically recoverable oil and natural gas resources (UERR) minus the cost to industry to develop those resources and the environmental and social costs incurred in the process. BOEM refers to this analysis as the Inventory Net Benefits (see Chapter 6).[8] A description of the various types of value can be found in Section 2.6.

The environmental sensitivity index compares and ranks the sensitivity of the different BOEM ecoregions based upon quantified information relating to environmental sensitivity and marine productivity (see Chapter 10) and relating to the interests of potential oil and natural gas producers (see Section 13.5). Other Section 18(a)(2) factors, including geographical, geological, and ecological characteristics, and laws, goals, and policies of affected states, do not lend themselves to quantification and are therefore treated qualitatively.

The comparative analysis also examines additional qualitative information pertaining to the findings and purposes of the OCS Lands Act, the comments and recommendations of interested and affected parties, and other information relevant to striking a balance under Section 18(a)(3). The OCS Lands Act does not specify how the factors in Section 18(a)(2) should be weighed to achieve the balance required by Section 18(a)(3), leaving it to the Secretary's discretion to reach a reasonable determination under the existing circumstances.

[8] As explained below, for later programmatic analyses, the Inventory Net Benefits and additional estimates reflect anticipated production and related activities resulting specifically from the National OCS Program decision.

2.6 Section 18(a)(4): Assurance of Fair Market Value

Section 18(a)(4) of the OCS Lands Act requires receipt of FMV from OCS oil and gas leases. In addition to the assurance of FMV in the National OCS Program development and implementation process, BOEM continues to assess market and resource conditions as each lease sale approaches and designs the lease sale fiscal terms to achieve FMV. BOEM's two-phase, post-sale bid evaluation process, used since 1983, assures the FMV requirement is met for the issuance of individual leases. Under its bid adequacy procedures, BOEM evaluates all high bids received on each OCS block to ensure the receipt of FMV for each lease issued. Additional information on, and analysis of, FMV is contained in Chapter 12, which also considers the uncertainties surrounding OCS oil and gas leasing, and how these uncertainties could impact the value of OCS acreage.

2.7 Judicial Guidance

This National OCS Program will be the 11th Program prepared by the Department. Section 23(c)(1) of the OCS Lands Act provides that any action of the Secretary to approve a leasing program pursuant to Section 18 of the OCS Lands Act shall be subject to judicial review only in the United States Court of Appeals for the District of Columbia. The following National OCS Programs prepared and approved under Section 18 were challenged in court: 1st, 2nd, 3rd, 7th, 8th, and 10th Programs. No lawsuits were filed with respect to the approved 4th, 5th, 6th, or 9th Programs.

This National OCS Program is being prepared consistent with applicable court rulings. A brief description of such decisions, and how they have guided preparation of the National OCS Programs over time, follows.

> *California v. Watt*, 688 F.2d 1290 (D.C. Cir. 1981) (*Watt I*) — In this case, the State of California challenged the 1st Program, which was the first to follow the passage of the OCS Lands Act Amendments of 1978 that added the Section 18 requirement for a leasing program. The court stated that the Secretary must consider all eight factors and not defer consideration of required factors to later stages because more information might be available. It accepted the use of a cost-benefit type analysis and recognized that certain analyses could be qualitative. The court found that the three balancing factors in Section 18(a)(3) were not inherently equal, and the Secretary had discretion in weighing them if the decision was not arbitrary. The case was remanded to consider those of the eight factors not previously considered, better quantify environmental costs, and present a coherent explanation of how NEV is determined and the possible value of deferring leasing. However, because a new 2nd Program was already in preparation, the 1st Program was not revised.

California v. Watt, 712 F.2d 584 (D.C. Cir. 1983) (*Watt II*) — In this case, the court held that the 2nd Program met the requirements found lacking in the 1st Program. The court upheld the methodology and assumptions used for its cost-benefit analysis. The court reiterated the "pyramidic" nature of the entire leasing process and upheld the first use of areawide leasing because exact tracts (blocks) do not need to be identified at the National OCS Program stage. It found that receipt of FMV does not mean "maximization of revenues" and validated the post-sale bid evaluation methodology. The court also stated that once the determination has been made to not consider an area for leasing, that area does not need to be analyzed further.

Natural Resources Defense Council (NRDC), et al. v. Hodel, 865 F.2d 288 (D.C. Cir. 1988) — In this case, the court remanded the 3rd Program for a more thorough analysis of the cumulative impacts resulting from simultaneous development in different planning areas. The court validated the use of administratively established planning areas as the basis for comparing "oil- and gas-bearing physiographic regions," a term used, but not defined, in the OCS Lands Act. As in previous cases, the court upheld the cost-benefit methodology and assumptions used. The court stated that while the Secretary was required to receive and consider nominations for the exclusion of areas, there was no requirement to exclude nominated areas. Should a decision be made to exclude an area, the court agreed with the Secretary that such exclusion decisions must be reasoned, and their basis identified, but there is no "formula" for such decisions, meaning a full Section 18 analysis is not a prerequisite. The court cited *Watt I* (at 1321–22) to explain that the Secretary's duty as to the exclusion decisions is "simply to identify his legal or factual basis and to explain why he acted as he did." Once an area is excluded from availability for leasing, "[t]he Secretary need not perform a Section 18 analysis" on that area (*Watt II* at 608).

Center for Biological Diversity, et al. v. Department of the Interior, 563 F.3d 466 (D.C. Cir. 2009) — In this case, the court remanded the 7th Program for failure to consider the relative environmental sensitivity and marine productivity of "different areas of the outer Continental Shelf," not just the shoreline, and required the Secretary to rebalance under Section 18(a)(3) using the revised analysis along with the other seven factors. The court determined that the OCS Lands Act does not require the agency to consider the impacts from consuming OCS oil and gas as part of its National OCS Program decision. Further, the Court determined that the NEPA claims at issue were not ripe because an agency's NEPA obligations mature only once it reaches a critical stage of a decision, which will result in irreversible and irretrievable commitments of resources that will affect the environment. The court reasoned that in the case of the National OCS

Program, the point of irreversible and irretrievable commitment of resources and the concomitant obligation to comply with NEPA does not occur until the lease sale stage.

Center for Sustainable Economy (CSE) v. Jewell, 779 F.3d 588 (D.C. Cir. 2015) — The Court found CSE's NEPA challenges to the 8th Program unripe because the Department makes no irreversible and irretrievable commitment of resources at the National OCS Program stage such that NEPA would be triggered. The Court also upheld the Department's chosen methods of cost-benefit analysis as reasonable and consistent with the statute. For example, the Court upheld: (1) the Secretary's decision to assess costs of energy substitutes where they would occur, and to attribute a proportionate share of those costs to each planning area, (2) the Secretary's decision not to track which proportion of OCS energy was consumed by the American public, and (3) the Secretary's qualitative assessment of the informational value in delaying leasing because there was not yet a sufficiently well-established methodology for quantifying it.

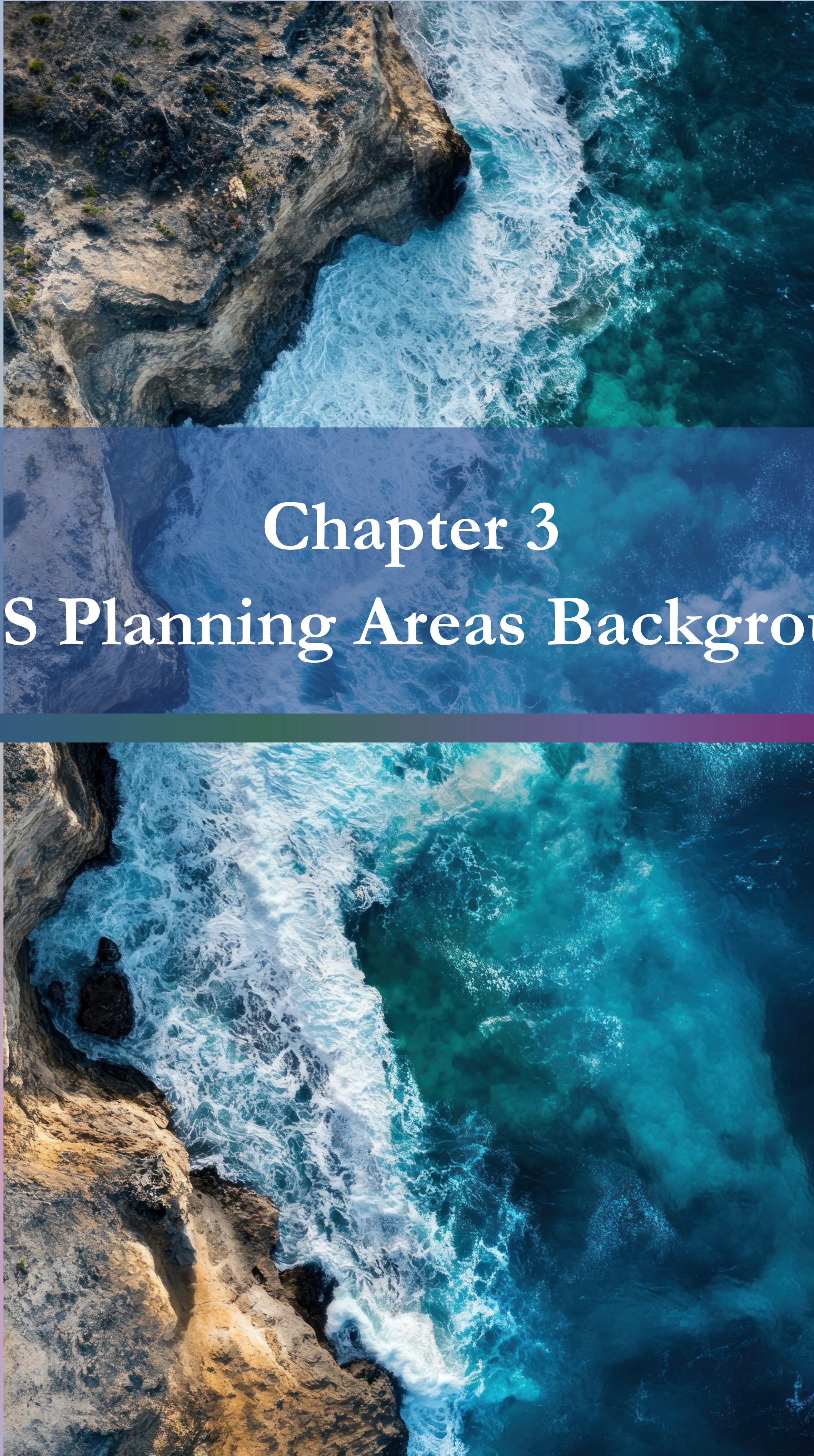
Healthy Gulf et al. v Department of the Interior (Case No. 24-1024) — The 10th Program was challenged by the American Petroleum Institute (API) and environmental organizations including Healthy Gulf. API voluntarily moved to dismiss its petition prior to the court's August 29, 2025, decision. The court's opinion denied the environmental petitioners' petition. The environmental petitioners had argued that BOEM's analyses failed to consider environmental justice impacts, impacts on the Rice's whale, and how new leasing could conflict with other ocean uses.

On environmental justice, the court stated that "[the OCS Land Act] requires Interior to consider whether environmental risks are equitably shared 'among the various regions,' not to perform a comparative analysis of individual communities" and "[w]hat [the OCS Land Act] demands is a reasoned assessment of the potential for harm and the severity of its consequences." Ultimately, the court held that "Interior reasonably evaluated how offshore leasing risks affect vulnerable communities."

On Rice's whale impacts, petitioners argued that the Rice's whale should have been chosen as the GOA Region's representative marine mammal instead of the sperm whale, given its precarious status, however the court found that "Interior considered the relevant data, applied its methodology, and provided a reasoned explanation for its choice." Further, the court held that "[t]he record contains extensive evidence of Rice's whale occurrences across the GO[A], including scientific studies, acoustic detections, Federal scientist declarations, and the proposed critical habitat."

Petitioners argued that Interior failed to consider whether National OCS Program leasing may interfere with other present or anticipated uses of the GOA Region. The court stated that the OCS Lands Act "requires consideration of 'other anticipated uses,' not preemptive resolution of all potential conflicts" and "does not require mitigation at the program stage." The court held that the 10th Program appropriately analyzed other uses of the sea and seabed and found that Interior's Section 18(a)(3) balancing was satisfactory.

Chapter 3
OCS Planning Areas Background



Chapter 3 Planning Areas Background

This chapter contains the background and history of each planning area. The OCS is divided into 27 planning areas that are grouped, for administrative purposes, into four regions: Alaska, Pacific, GOA, and Atlantic (see Figure 1-2 and Figure 1-3). As part of the National OCS Program development process, BOEM begins with the broadest consideration of areas available for leasing, which are, in general, narrowed throughout the National OCS Program development and associated lease sale processes. The environmental setting of an area where oil and gas leasing activities could occur is defined by its geological, geographical, and ecological characteristics.

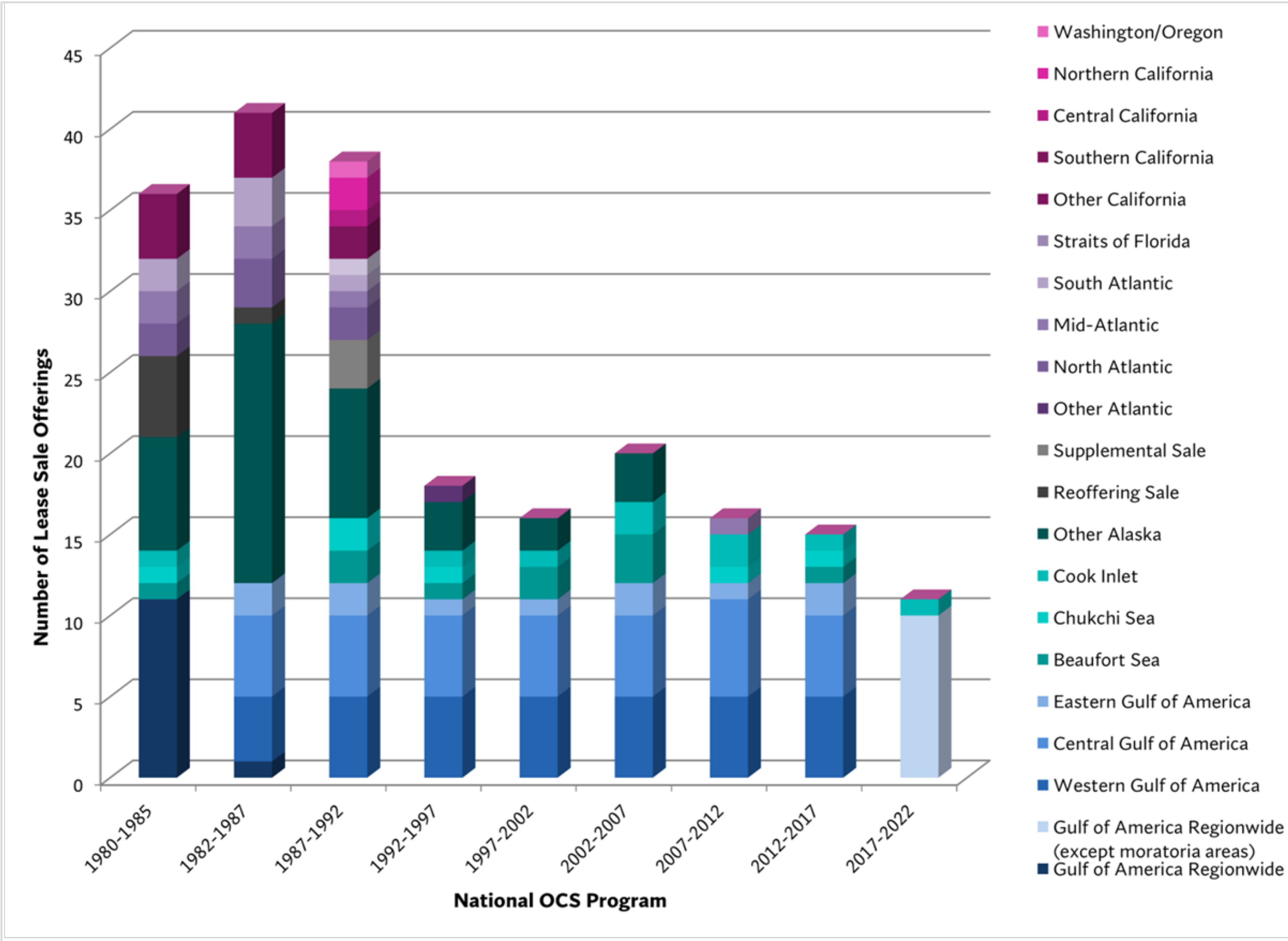
The planning areas were initially established for administrative convenience to implement the OCS Lands Act Amendments of 1978. The main purpose of a planning area is to divide large OCS Regions for planning purposes. Planning areas are also used to facilitate the required analytical comparison among OCS Regions at the National OCS Program development stage, as well as coordination with state and local governments. They have been reconfigured several times over the years, most recently to correspond to the U.S. Department of State's FR notice on December 21, 2023, announcing the outer limits of the extended continental shelf of the United States.

The United States identified seven extended continental shelf areas: the Arctic, Atlantic (East Coast), Bering Sea, Pacific (West Coast), Mariana Islands, and two areas in the GOA. Unless otherwise noted, references to planning areas in this document correspond to the 2023 extended continental shelf areas. BOEM is not authorized to propose lease sales in the OCS areas offshore the U.S. Territories under the OCS Lands Act and Hawaii does not have any known hydrocarbon resources assessed. These areas account for approximately 1.48 billion acres and have not been designated as OCS planning areas. Additional OCS planning area information, including maps and acreages, can be found at https://www.boem.gov/oil-gas-energy/leasing/outer-continental-shelf.

3.1 Summary: Historical Leasing Statistics

Figure 3-1 shows the trends in lease sale offerings for each approved National OCS Program. Figure 3-2 shows general leasing history statistics for each OCS Region.

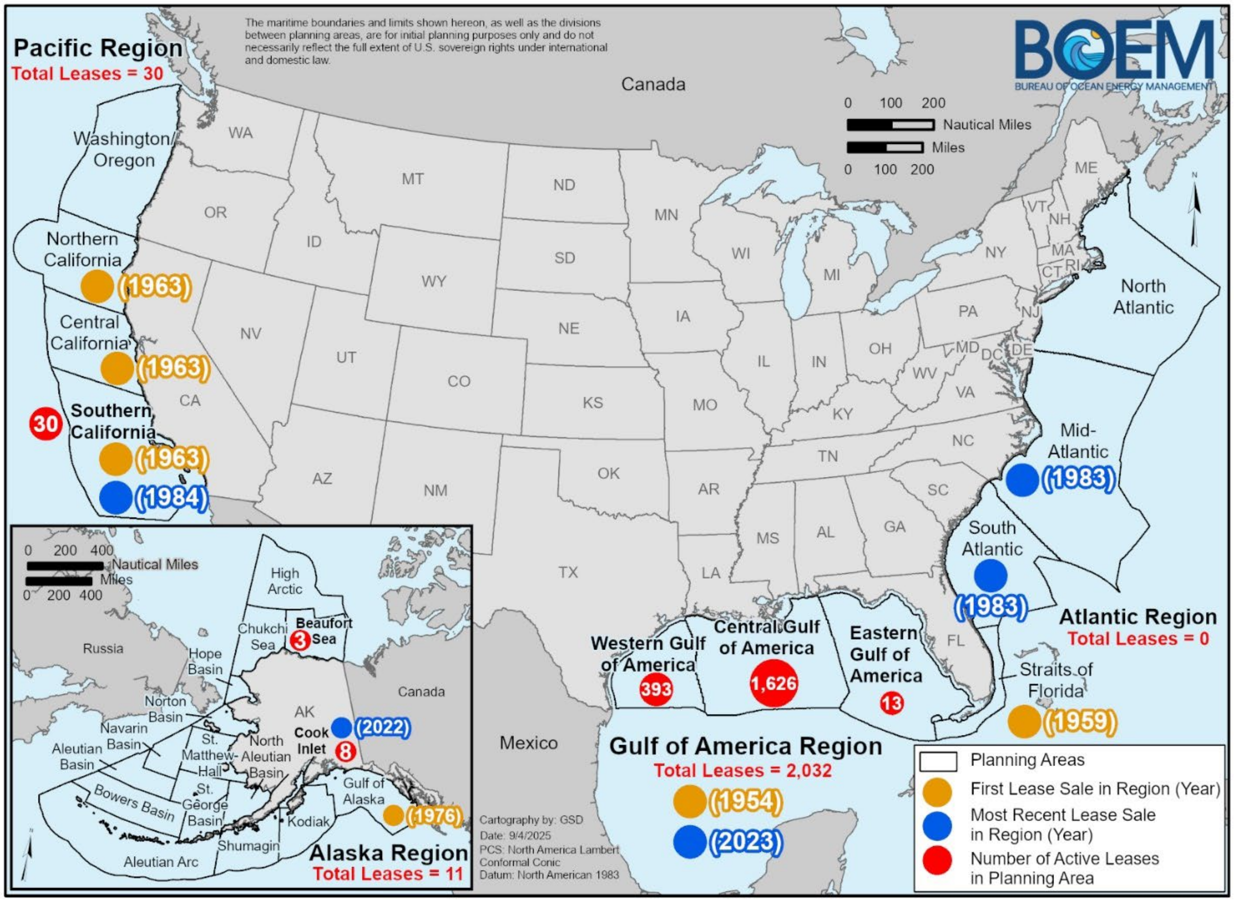
Figure 3-1: Number of Proposed Lease Sales Included in Approved National OCS Programs by Planning Area



Region	1st 1980-85	2nd 1982-87	3rd 1987-92	4th 1992-97	5th 1997-02	6th 2002-07	7th 2007-12	8th 2012-17	9th 2017-22	10th 2024-29	TOTAL
Alaska	10	16	12	6	5	8	3	3	1	0	**64**
Pacific	9	5	9	0	0	0	0	0	0	0	**23**
GOA	11	12	12	11	11	12	12	12	10	3	**106**
Atlantic	6	8	5	1	0	0	1	0	0	0	**21**

Note: Information about leases actually held can be found in this Lease Offerings spreadsheet.

Figure 3-2: General Leasing History Statistics per OCS Region (as of September 2025)



3.2 Areas Currently Restricted from OCS Oil and Gas Leasing

Restrictions on OCS leasing can originate outside the National OCS Program development process. Under Section 12(a) of the OCS Lands Act (43 U.S.C. § 1341(a)), the President may withdraw areas; these are referred to as Presidential withdrawals (also called executive withdrawals). Additionally, areas can be withdrawn or otherwise made unavailable for leasing by the President under the Antiquities Act, or by Congress by statute (e.g., the now-expired Gulf of Mexico Energy Security Act [GOMESA] moratorium).

Table 3-1 lists the areas under restriction from OCS oil and gas leasing and the status of the restriction, and Figure 3-3 shows the restricted areas. Additional information and maps showing areas under restriction is at https://www.boem.gov/oil-gas-energy/leasing/areas-under-restriction.

Table 3-1: Statistics for Areas Currently Restricted from OCS Oil & Gas Leasing

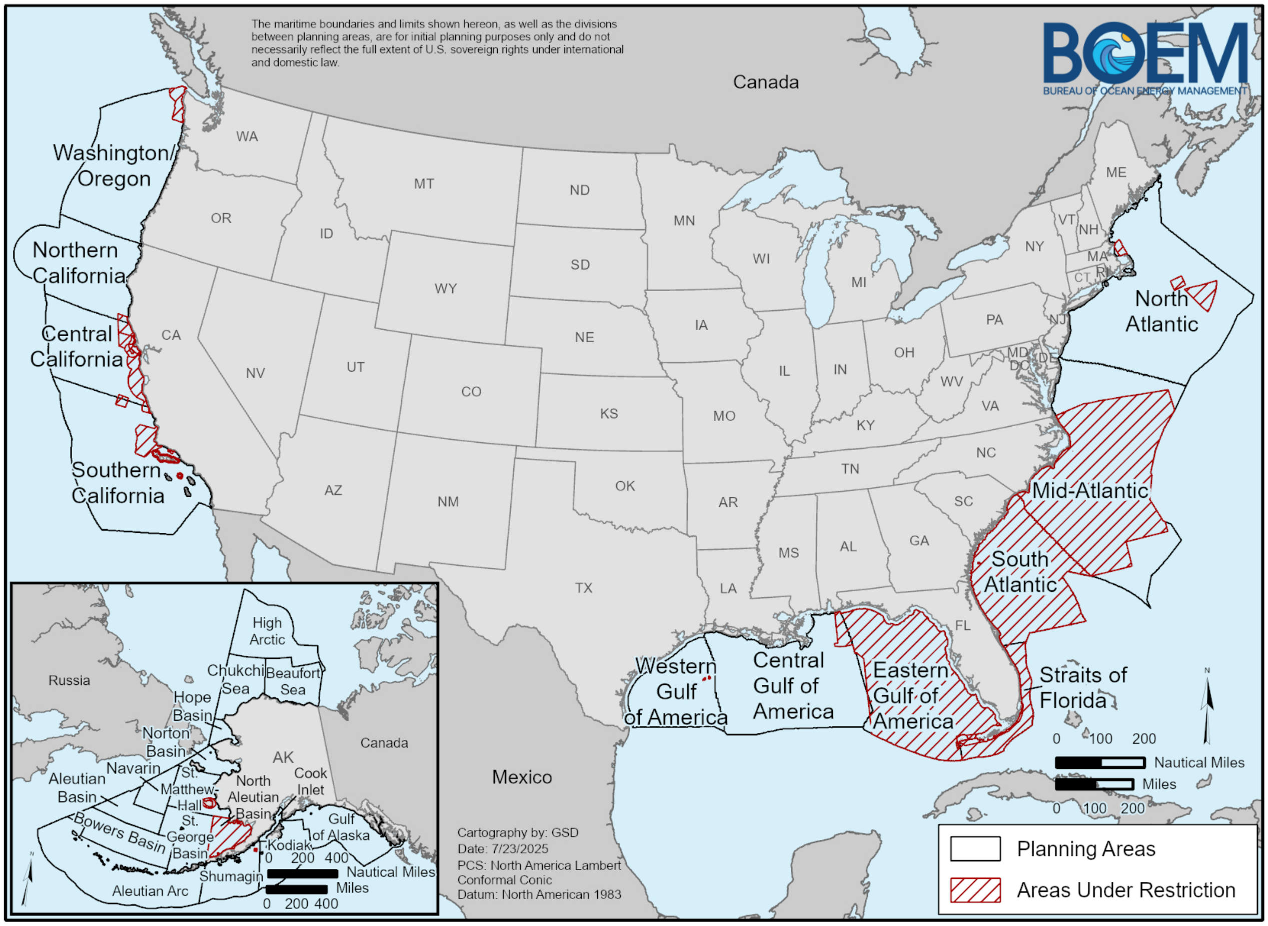
OCS Region	Area/Feature	Withdrawal/Restriction Date	Status
Various	**National Marine Sanctuaries** (within the boundaries designated as of July 14, 2008), or otherwise designated (see Section 3.2.1)	July 14, 2008, or as otherwise specified	Unavailable for OCS oil and gas leasing, pursuant to the July 14, 2008, Presidential Memorandum
Alaska	**North Aleutian Basin** Planning Area	December 16, 2014	Unavailable for OCS oil and gas leasing, pursuant to the Presidential Memorandum, dated December 16, 2014
Atlantic	**Northeast Canyons and Seamounts Marine National Monument**	September 15, 2016	Unavailable for OCS oil and gas leasing, pursuant to the Presidential Proclamation 9496 designation under the Antiquities Act (54 U.S.C. § 320301), dated September 15, 2016
Atlantic	North Carolina portion of the **Mid-Atlantic** Planning Area*	September 25, 2020	Unavailable for oil and gas OCS leasing, from July 1, 2022, to June 30, 2032, pursuant to Presidential Memorandum issued on September 25, 2020
Atlantic	**South Atlantic** and **Straits of Florida** planning areas	September 8, 2020	Unavailable for oil and gas OCS leasing, from July 1, 2022, to June 30, 2032, pursuant to Presidential Memorandum, dated September 8, 2020
GOA and Atlantic	Portions of the Central and **Eastern GOA** planning areas*	September 8, 2020	Unavailable for oil and gas OCS leasing, from July 1, 2022, to June 30, 2032, pursuant to Presidential Memorandum, dated September 8, 2020

Key: * = Areas currently restricted from oil and gas leasing could become available for leasing during this National OCS Program development cycle if the associated statutory or Presidential restrictions are lifted, modified, or expire.

Whole OCS lease blocks and portions of these blocks lying within the boundaries of the National Marine Sanctuaries (NMSs) designated prior to July 14, 2008, are withdrawn from leasing disposition. Additionally, rules and regulations governing the designation and management of a specific NMS may restrict or prohibit certain activities within the sanctuary, such as leasing, exploration, and/or production of oil and gas resources.

Additional information can be found in BOEM's OCS regulatory framework document at https://www.boem.gov/OCS-Regulatory-Framework/. There are no NMSs in the Alaska Region. The Pacific Region includes the Olympic Coast, Greater Farallones, Cordell Bank, Monterey Bay, Channel Islands, and Chumash Heritage NMSs. The GOA Region includes the Flower Garden Banks and Florida Keys NMSs. The Atlantic Region includes the Florida Keys, Stellwagen Bank, Gray's Reef, and Monitor NMSs.

Figure 3-3: Areas Restricted from OCS Oil & Gas Leasing



3.2.1 National Marine Sanctuaries

The National Marine Sanctuaries Act (16 U.S.C. §§ 1431 et seq.) was enacted in 1972 and is the legislative authorization that governs the National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries and the NMS System. Under the Act, the Secretary of Commerce is authorized to designate and manage areas of the marine environment as NMSs. Such designation is based on attributes of special national significance, including conservation, recreation, ecological, historical, scientific, cultural, archaeological, educational, or aesthetic qualities.

3.2.2 North Aleutian Basin Planning Area

One lease sale was scheduled for this area in the 7th Program. However, pursuant to Section 12(a) of the OCS Lands Act, the area was withdrawn from leasing consideration through June 30, 2017, by President Obama on March 31, 2010.

While a lease sale was included in the original 7th National OCS Program, it was not included in the revised version (published in December 2010) that followed the remand by the D.C. Circuit Court of Appeals (see Section 2.7 for further information).

Pursuant to Section 12(a) of the OCS Lands Act, 43 U.S.C. § 1341(a), in March 2014, President Obama withdrew the Bristol Bay area of the North Aleutian Basin, and then on December 16, 2014, he revoked the March decision and withdrew the entire North Aleutian Basin Planning Area, including Bristol Bay, from future leasing consideration for a period without specific expiration (see Figure 1-1).

3.2.3 Northeast Canyons and Seamounts Marine National Monument

The Northeast Canyons and Seamounts Marine National Monument in the Atlantic OCS was established by Presidential Proclamation on September 15, 2016, pursuant to the Antiquities Act (54 U.S.C. § 320301). Exploring for, developing, or producing oil and gas or minerals, or undertaking any other energy exploration or development activities within the monument, is prohibited.

3.2.4 Portions of the Central and Eastern GOA Planning Areas

On December 20, 2006, President George W. Bush signed GOMESA into law. GOMESA established a moratorium on leasing, pre-leasing, or any related activity for designated areas until June 30, 2022. However, on September 8, 2020, President Trump, using his authority under Section 12(a) of the OCS Lands Act, withdrew this area from leasing consideration for an additional 10 years, until June 30, 2032. There are existing leases in both the currently available and unavailable portions of the Eastern GOA. Those in the unavailable portion pre-date GOMESA. The GOMESA (and now withdrawal) areas are shown at https://www.boem.gov/GOMESA-Map/ and are described as follows:

- The area within 125 miles of the State of Florida in the Eastern GOA Planning Area
- The 181 Area in the Central GOA Planning Area that is within 100 miles of the State of Florida
- The area east of the Military Mission Line (86°41’ West longitude).

3.2.5 Straits of Florida and South Atlantic Planning Areas

On September 8, 2020, President Trump, using his authority under Section 12(a) of the OCS Lands Act, withdrew these areas from any leasing consideration for purposes of exploration, development, or production, beginning on July 1, 2022, and ending on June 30, 2032.

Prior to President Trump’s withdrawal, the South Atlantic Planning Area was subject to Presidential withdrawal pursuant to Section 12(a) of the OCS Lands Act from 1998 to July 2008 and to Congressional leasing moratoria included in annual appropriations bills from fiscal year (FY) 1999 through FY 2008.

3.2.6 North Carolina Portion of the Mid-Atlantic Planning Area

The area was subject to Presidential withdrawal pursuant to Section 12(a) of the OCS Lands Act from June 1998 to July 2008 and to Congressional leasing moratoria included in annual appropriations bills from FY 1999 through FY 2008. Per Section 12(a) of the OCS Lands Act, on September 25, 2020, President Trump withdrew a large portion of the planning area from consideration for any leasing for purposes of exploration, development, or production during the 10-year period beginning on July 1, 2022, and ending on June 30, 2032. A map depicting this area is available at https://www.boem.gov/oil-gas-energy/leasing/areas-under-restriction.

3.3 Alaska Region Planning Areas

The Alaska Region is the largest OCS Region, covering more than 1 billion acres, with water depths ranging from less than 10 feet to more than 25,000 feet. Alaska OCS planning areas begin 3 nm offshore and extend seaward to approximately 200 nm or the limit of the extended continental shelf. The Alaska OCS is composed of 16 planning areas surrounding the state (see Figure 1-1), with varying degrees of leasing and exploration activity in each. Lease sales have been held in eight different planning areas over the years, the most recent of which was held in December 2022 in the northern portion of the Cook Inlet Planning Area (Lease Sale 258). The North Aleutian Basin Planning Area is withdrawn in its entirety from leasing consideration (see Section 3.2.1).

Since 1976, the Alaska Region has issued almost 2,400 leases resulting in more than 12 million acres leased and generating more than **$9.2 billion of revenue for the U.S. government**.

As of September 2025, there are a total of **11 active leases**, with 3 in the Beaufort Sea and 8 in the Cook Inlet planning areas.

As of August 2025, there were a total of 11 existing Federal leases in Alaska planning areas, with 3 in the Beaufort Sea Planning Area and 8 in the Cook Inlet Planning Area. Federal OCS production is occurring in a joint Federal/state unit in the Beaufort Sea Planning Area. BOEM has assessed five planning areas—Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and St. Matthew-Hall—to have negligible oil and gas resource potential.

Figure 3-4 through Figure 3-7 show the leasing history in each planning area. Outside of the Beaufort Sea and Cook Inlet, there is no existing oil and gas infrastructure and activity offshore

Alaska. See Chapter 5 for information on the oil and gas resource potential in Alaska. Figure 13-3 shows the general position on OCS oil and gas production stated by the Governor of Alaska in comments on the RFI. Figure 3-8 shows the number of wells drilled per year in the Alaska Region.

3.3.1 Beaufort Sea Planning Area

Ten lease sales have been held in this planning area since 1979. One lease sale was scheduled in the 8th Program, but was subsequently canceled on October 16, 2015, due to lack of industry interest and existing market conditions. Three lease sales were initially included in the 1st Proposal of the 10th Program.

In October 2018, BOEM approved an oil and gas development and production plan in the Beaufort Sea associated with the Liberty Project. The Ninth Circuit's ruling in *Center for Biological Diversity v. Bernhardt*, 982 F.3d 723 (2020) vacated the approval and remanded the action to BOEM. On December 26, 2019, BSEE issued a suspension for the three leases constituting the Liberty Unit. This suspended status was renewed in 2021 for a period of up to 3 years with another suspension request currently under review by BSEE after a plan amendment was submitted to BOEM in 2024.

As of September 2025, there were three existing OCS leases in the Beaufort Sea Planning Area. Thirty-one exploratory and seven development wells have been drilled.[9] The most recent well was drilled between 2017 and 2019. In preparation for the proposed 2019 Beaufort Sea Lease Sale, as included in the 1st Proposal for the 10th Program's lease sale schedule, BOEM published a Call on March 30, 2018, and a Notice of Intent on November 16, 2018.[10] The State of Alaska holds areawide lease sales annually in the adjacent state waters, and there is active production from state acreage adjacent to existing OCS leases. The most recent Beaufort Sea lease sale in state waters was in December 2024, where 33 bids were received on 20 tracts.

[9] The 31 wells include a top-hole well drilled in 2012, which is not considered a well drilled to completion.
[10] The first lease sale scheduled in the 2019–2024 Draft Proposal was the 2019 Beaufort Sea lease sale. However, due to adjustments in timing to the National OCS Program, that lease sale did not occur.

Figure 3-4: Beaufort and Chukchi Seas Planning Areas Leasing History

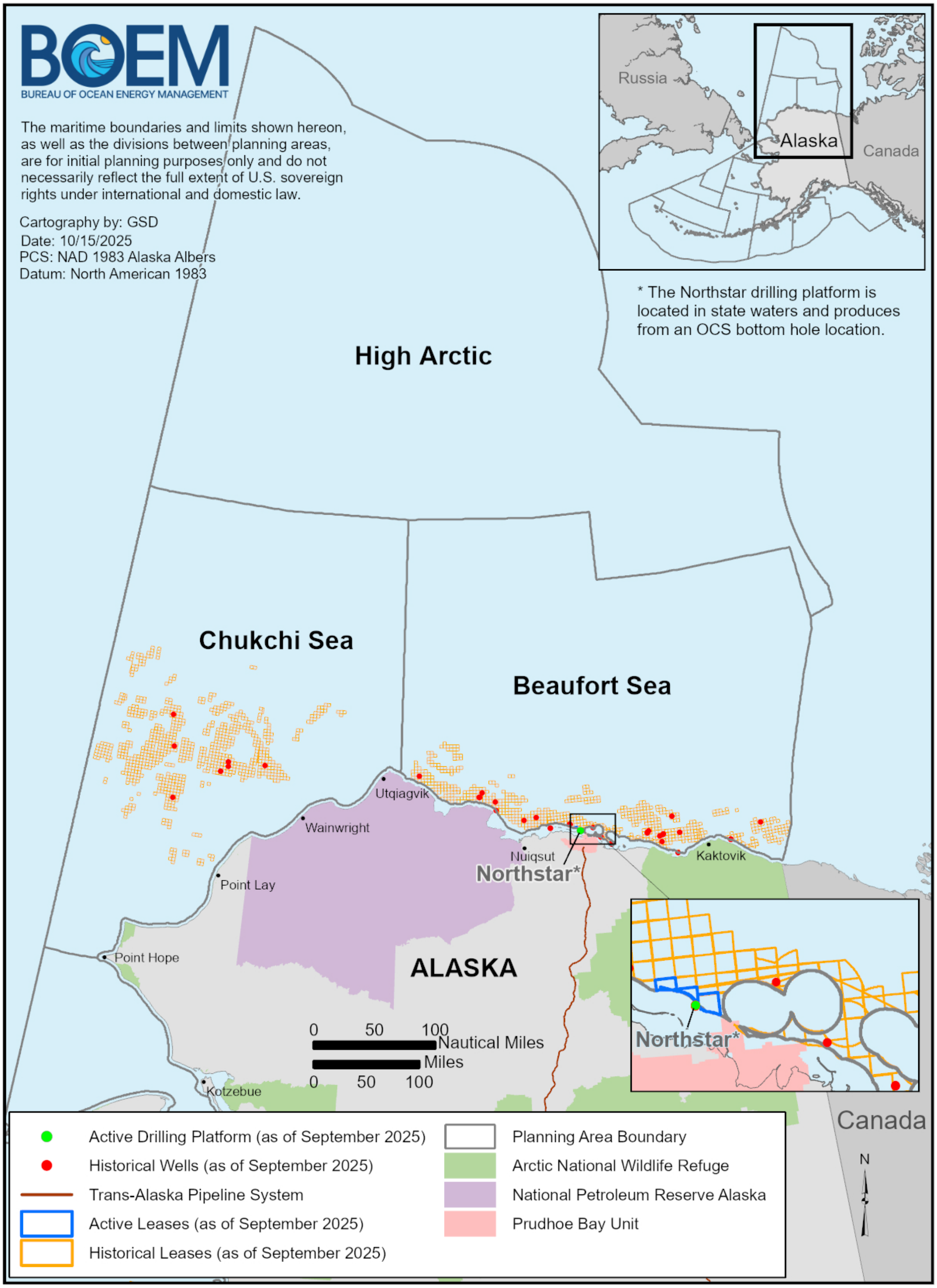


Figure 3-5: Western Alaska Planning Areas Leasing History

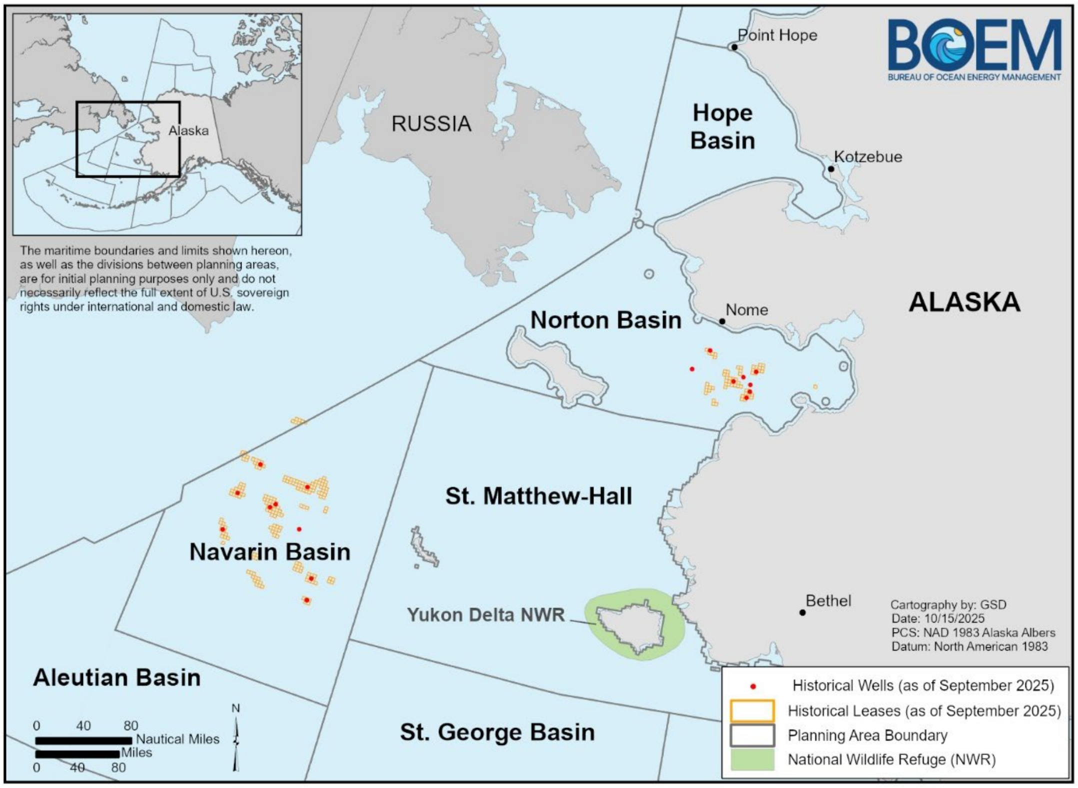


Figure 3-6: Southwestern Alaska Planning Areas Leasing History

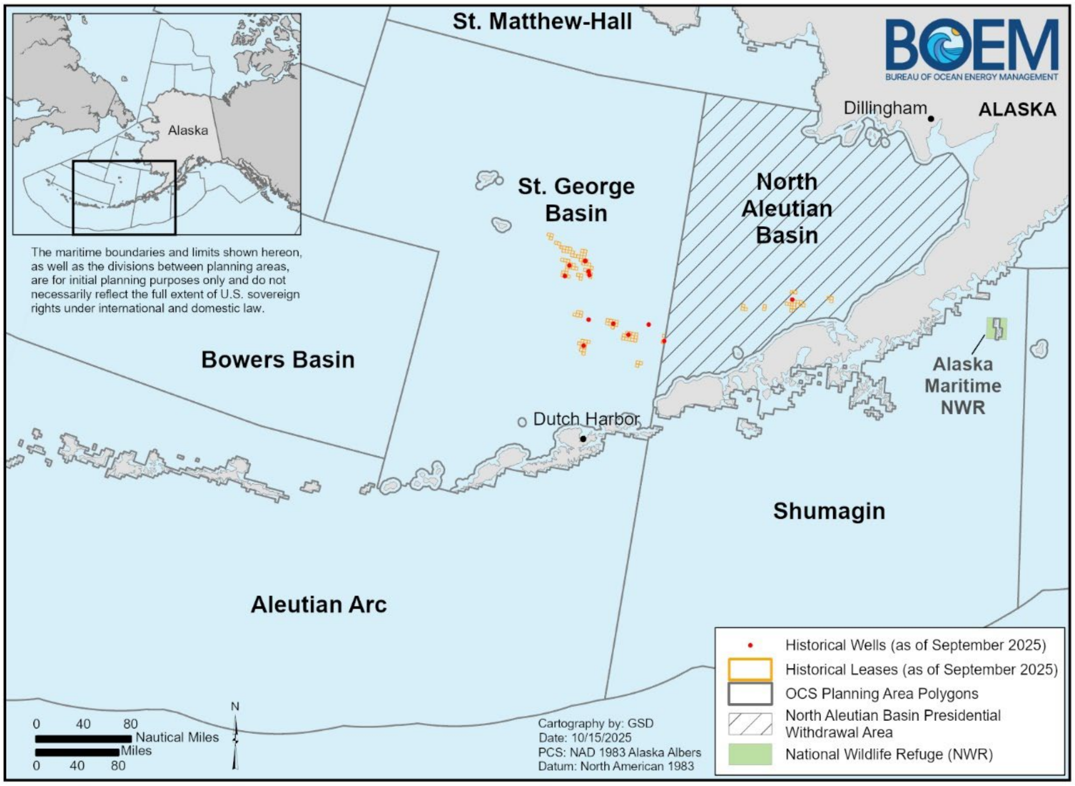


Figure 3-7: Southeastern Alaska Planning Areas Leasing History

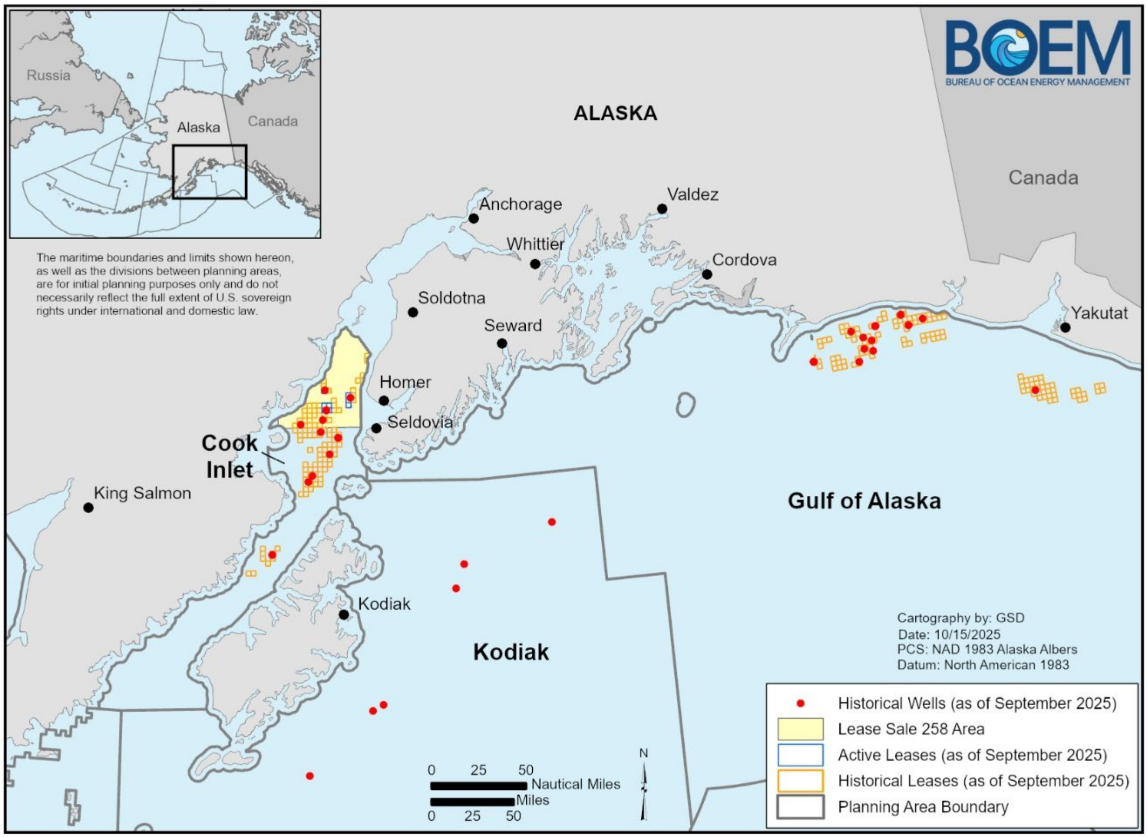
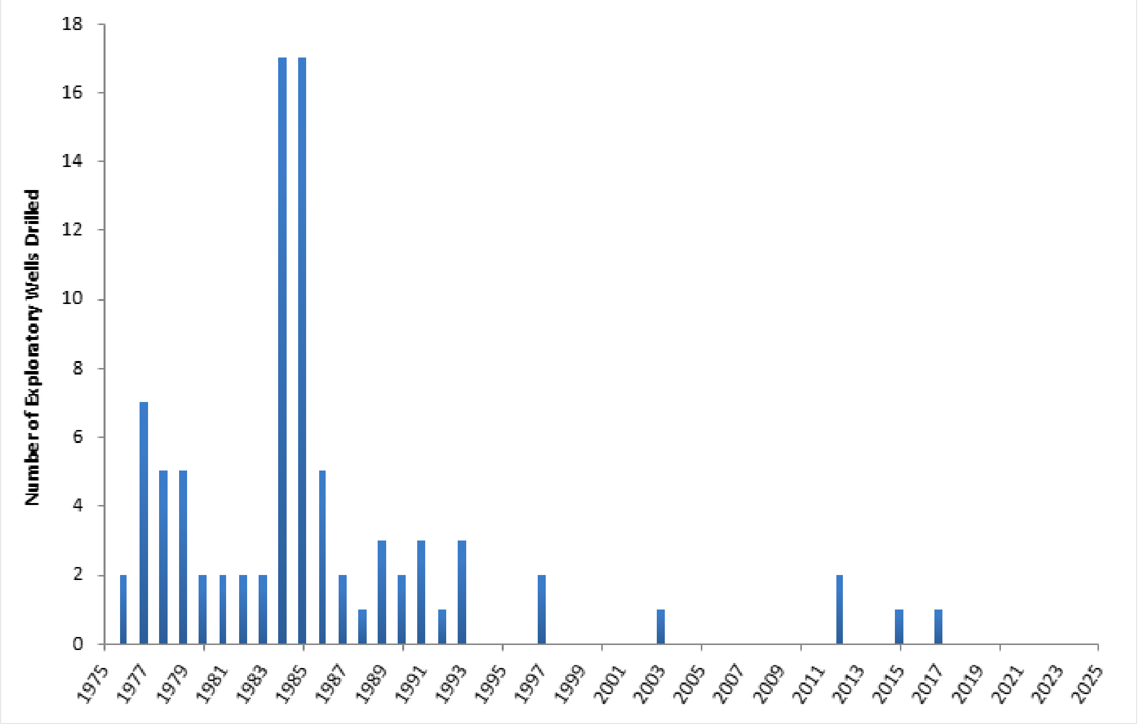


Figure 3-8: Number of OCS Exploratory Wells Drilled per Year in the Alaska Region, 1975–2025



Commenters, in public comments on the RFI, have stated the importance of ensuring adequate oil production to extend the operation of the Trans-Alaska Pipeline System (TAPS). TAPS is currently operating at approximately one-quarter of its capacity and requires new discoveries to continue operations. Both the Beaufort Sea and the Chukchi Sea planning areas have the potential for oil discoveries that could help extend the viability of TAPS.

3.3.2 Chukchi Sea Planning Area

Three lease sales have been held in this area since 1988. Five exploratory wells were drilled prior to 1992 on leases issued in earlier lease sales; all have since been plugged and abandoned. An uneconomic gas discovery was made in 1990 in the Burger prospect and the well was plugged and abandoned. One exploration well was drilled in 2012 but was also plugged and abandoned without being drilled to total depth. In 2015, one exploration well was drilled to total depth and was plugged and abandoned.

Lease Sale 193, the most recent in this area, was held in February 2008, and was the largest lease sale in the history of Alaska OCS leasing, generating more than $2.6 billion in bonus revenues. For various reasons, including high operating costs, drilling results, litigation, and regulatory challenges, all 487 leases in the Chukchi Sea Planning Area were relinquished by the leaseholders.

There are no existing leases in the Chukchi Sea Planning Area. One lease sale was scheduled in the 8th Program, but subsequently canceled on October 16, 2015, due to lack of industry interest and existing market conditions. One lease sale was included in the 2nd Proposal for the 9th Program but was subsequently removed from consideration.

3.3.3 Hope Basin Planning Area

No lease sales have been held in the Hope Basin Planning Area. The area was included in the 5th Program as a simultaneous U.S./Russia OCS lease sale, but that sale was canceled. Subsequently, this area was included in the 6th Program as a special interest lease sale, meaning multiple Calls were issued to determine if there was interest in a lease sale, in conjunction with Calls for the Chukchi Sea Planning Area. However, no interest was expressed for the Hope Basin in response to three Calls issued during the 6th Program timeframe, so the lease sale was canceled.

3.3.4 Norton Basin Planning Area

One lease sale was held in 1983 in Norton Basin (Figure 3-5). Six exploratory wells were drilled, with no commercial discoveries, and there are no existing leases. The area was included in the 6th Program as a special interest lease sale; four Calls were issued but had no expressions of interest.

3.3.5 Navarin Basin Planning Area

One lease sale was held in 1983 in the Navarin Basin (Figure 3-5). Eight exploratory wells were drilled, with no commercial discoveries. There are no existing leases, and the area has not been included in an approved lease sale schedule since the 3rd Program.

3.3.6 St. George Basin Planning Area

One lease sale was held in 1983 in the St. George Basin (Figure 3-6). Ten exploratory wells were drilled, with no commercial discoveries; there are no existing leases in this area. One lease sale was scheduled in the 4th Program, but it was canceled, and the area has not been included in a proposed lease sale schedule since.

3.3.7 Cook Inlet Planning Area

There have been seven lease sales in this area since 1977 (see Figure 3-7). Prior to the most recent lease sale, there were 14 existing leases in the planning area, all of which were issued in Lease Sale 244 held June 21, 2017. In September 2024, rights to seven of the leases were relinquished to BOEM by Hilcorp Alaska, LLC. Secretary Haaland decided not to hold Lease Sale 258, scheduled as part of the 9th Program, due to a lack of industry interest in the area. However, as directed by the Inflation Reduction Act (IRA), BOEM held Cook Inlet Lease Sale 258 on December 30, 2022. One bid was received on one block. The bid, for $63,983, was submitted by Hilcorp Alaska, LLC; the lease was issued in March 2023. As of September 2025, a complete exploration plan has not been submitted for these leased areas, and eight active leases remain. Thirteen exploratory wells have been drilled on leases issued through earlier sales with no commercial discoveries to date.

The Upper Cook Inlet is a mature basin in which extensive exploration and development in state submerged lands and onshore areas have occurred during the past 50 years. The State of Alaska schedules annual areawide lease sales in Cook Inlet, the most recent of which was held in June 2025, with five bids received on five tracts. Existing infrastructure in the upper portion of Cook Inlet includes 17 platforms in state waters, associated oil and gas pipelines, and onshore drill pads, processing facilities, and support facilities.

In July 2025, Congress passed Public Law (P.L.) 119-21, One Big Beautiful Bill Act (OBBBA), requiring 6 lease sales to be held in the northern portion of the Cook Inlet Planning Area, as identified in the 3rd Proposal for the 9th Program published on November 18, 2016 (81 FR 84612). The statute specifically requires that a minimum of one sale be held in each of the calendar years 2026 through 2028, and in each of the calendar years 2030 through 2032, by March 15 of the applicable calendar year. All Cook Inlet oil and gas lease sales mandated by the OBBBA must offer the same lease form, lease terms, economic conditions, and lease stipulations as those that were contained in the Cook Inlet Sale 244 Final NOS (82 FR 23291), which was published on May 22, 2017. Additionally, the OBBBA requires the Secretary to offer not fewer than 1 million acres in the Cook Inlet Planning Area, or all available unleased acres if less than 1 million acres are available.

3.3.8 Gulf of Alaska Planning Area

Three lease sales were held from 1976 to 1981 in the Gulf of Alaska. Twelve exploratory wells were drilled (Figure 3-8), but no commercial discoveries have been found. The lease sale scheduled in the 5th Program was canceled, primarily due to low prices and low industry interest. There are no existing leases.

3.3.9 Alaska Planning Areas with No Lease Sales

The following planning areas have had no lease sales or on-lease exploratory wells drilled:[11]

- Aleutian Arc
- Aleutian Basin
- Bowers Basin
- High Arctic
- Hope Basin
- Kodiak
- Shumagin
- St. Matthew-Hall.

[11] While no exploratory wells have been drilled in these eight planning areas, six deep stratigraphic test wells were drilled in the Kodiak Planning Area (Figure 3-8).

3.4 Pacific Region Planning Areas

The Pacific OCS planning areas encompass approximately 205 million acres, including the Pacific offshore area extending north to the Canadian border and south to the Mexican border (see Figure 1-1).[12] Pacific OCS planning areas begin 3 nm offshore and extend seaward to the edge of the OCS, with water depths ranging from approximately 30 feet (ft) to more than 17,500 ft.

Since 1963 in the Pacific Region, there have been 476 OCS blocks leased covering more than 2.5 million acres and generating **$4.2 billion in high bids**.

As of September 2025, there are **30 active leases** in the Southern California Planning Area, covering more than 150,000 acres.

For the National OCS Program, the Pacific Region is comprised of four planning areas: Washington/Oregon, Northern California, Central California, and Southern California. Twelve lease sales have been held in the Pacific Region across all four planning areas between 1964 and 1984 (see Figure 3-9 and Figure 3-10).

As of September 2025, there are 30 existing leases and 23 platforms, all in the Southern California Planning Area. Eight of the 23 platforms are being decommissioned.

See Chapter 5 for information on the Pacific Region oil and gas resource potential. Figure 13-3 shows the general positions stated by the governors of the three coastal states, as expressed in their comments received in response to the RFI.

3.4.1 Washington/Oregon Planning Area

One lease sale was held in 1964 in the Washington/Oregon Planning Area. Twelve exploratory wells were drilled, with no commercial discoveries. There are no existing leases. The Olympic Coast NMS overlies part of the northern area containing assessed hydrocarbon resources within the Washington/Oregon Planning Area.

3.4.2 Northern California Planning Area

One lease sale was held in 1963 in Northern California. Seven exploratory wells were drilled, with no commercial discoveries. The Greater Farallones NMS overlies a small part of the area containing assessed hydrocarbon resources within the Northern California Planning Area.

[12] Administratively, the Pacific Region includes the State of Hawaii. However, for the National OCS Program analysis, the Pacific Region only includes the four planning areas adjacent to the U.S. West Coast.

Figure 3-9: Washington/Oregon and Northern California Planning Areas Leasing History

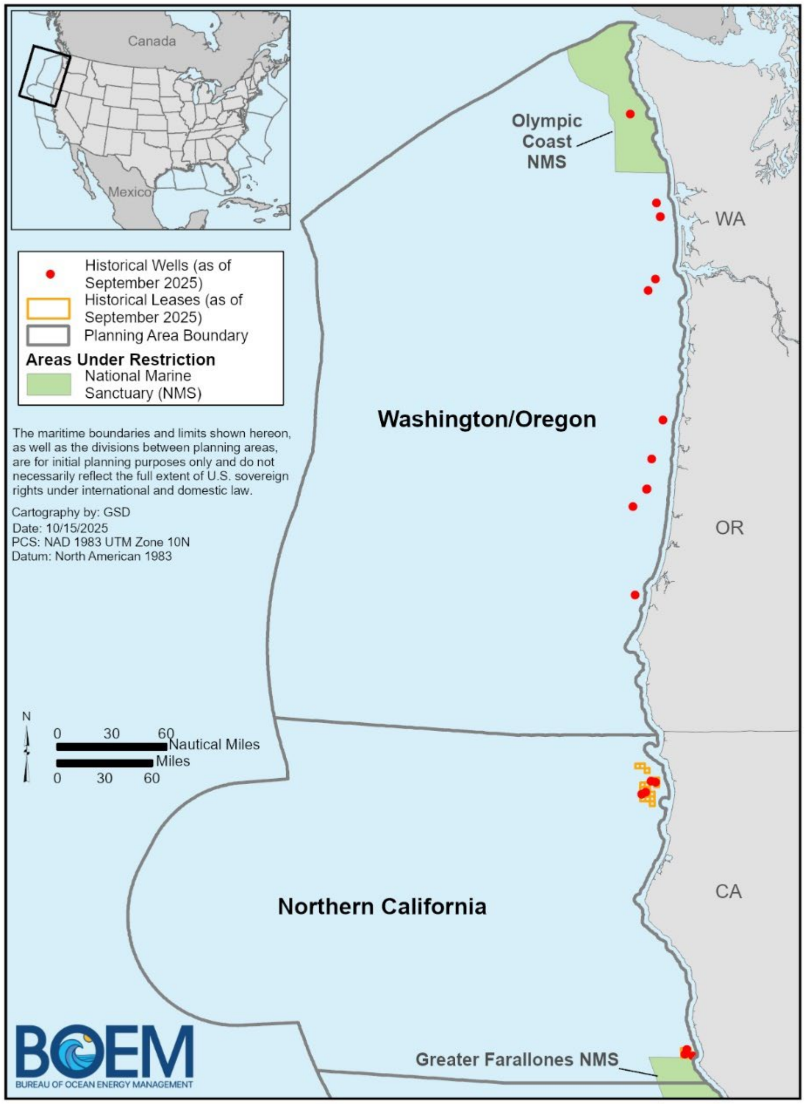
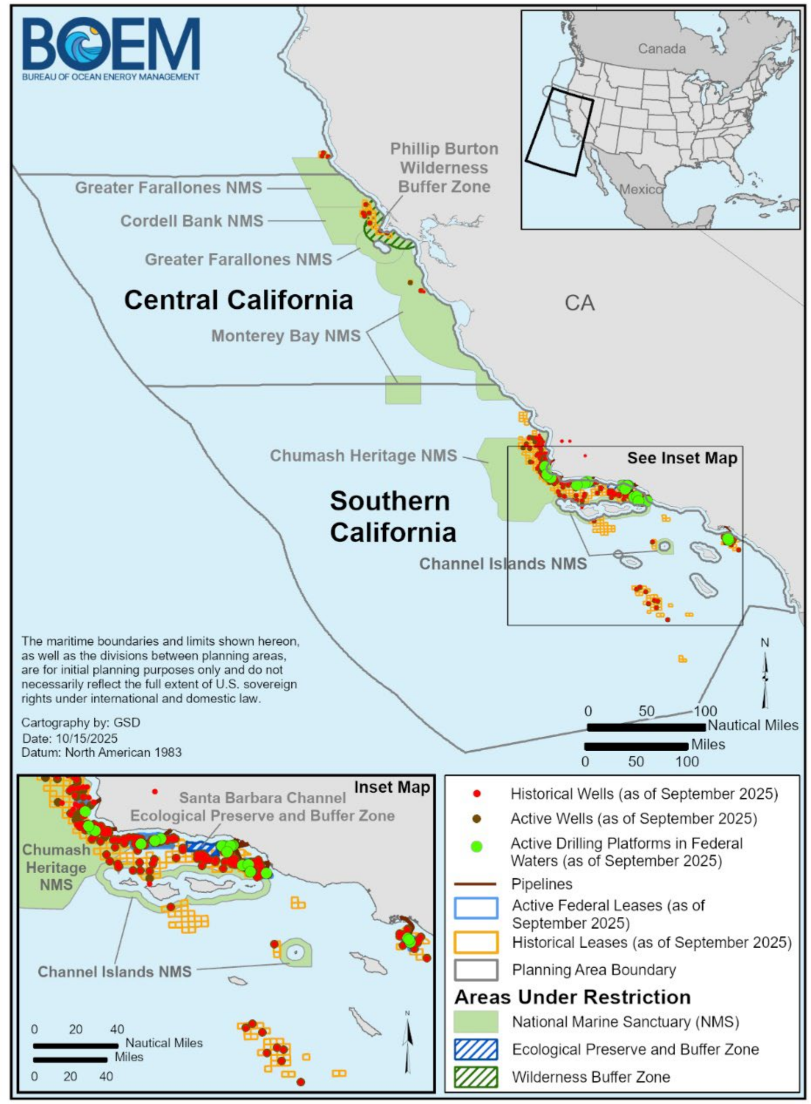


Figure 3-10: Central and Southern California Planning Areas Leasing History



3.4.3 Central California Planning Area

One lease sale was held in 1963 in Central California. Twelve exploratory wells were drilled, with no commercial discoveries. Most of the OCS closest to the coast is designated as NMSs and the boundaries of the NMSs as they existed on July 14, 2008, are under Presidential withdrawal for a period without specific expiration. The NMSs overlie large parts of the area containing assessed hydrocarbon resources within the Central California Planning Area (see Figure 3-10).

3.4.4 Southern California Planning Areas

Ten lease sales were held from 1963 through 1984 for the Southern California Planning Area. More than 1,500 exploratory and development wells have been drilled. As of September 2025, there are 30 existing leases, of which 30 are producing. Twenty-three oil and gas platforms were installed between the late 1960s and 1990. There are producing leases in state waters, although no new state leases have been issued since 1969.

On October 27, 2023, BSEE announced the *Final Programmatic Environmental Impact Statement for Oil and Gas Decommissioning Activities on Pacific Outer Continental Shelf* (Decommissioning PEIS). On December 12, 2023, BSEE announced the publication of a ROD for the decommissioning of offshore energy infrastructure on the Pacific OCS. The Decommissioning PEIS and appendices are comprehensive and used as a reference in new development and current maintenance, as well as for decommissioning planning, of OCS oil and gas.

BOEM assisted BSEE in preparing the Decommissioning PEIS and maintains information on the project website but has no role in approving decommissioning that requires analysis.

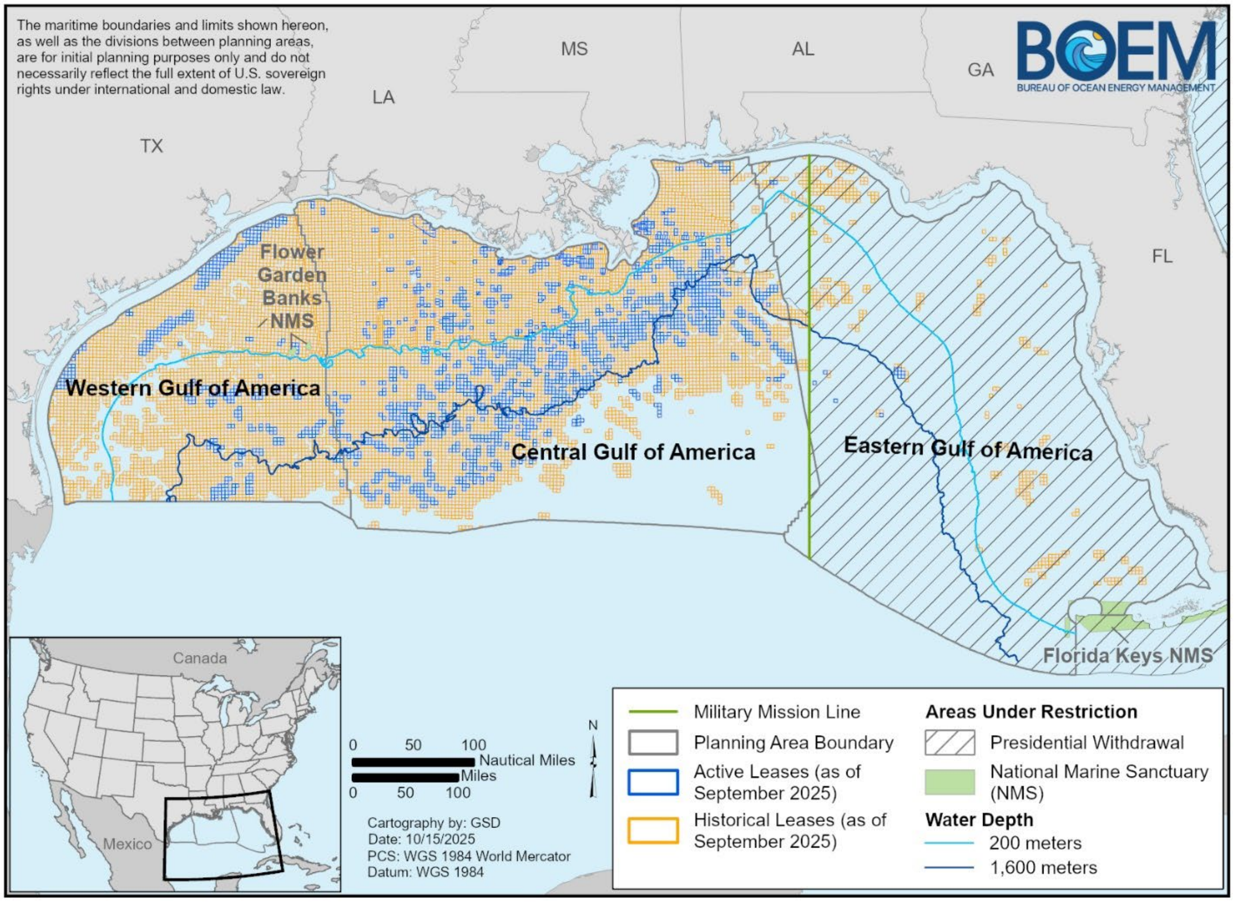
3.5 Gulf of America Region Planning Areas

Since 1954 in the GOA Region, over 29,000 tracts have been leased, covering more than 154 million acres, and generating approximately **$70 billion in high bids**.

As of September 2025, there are **2,032 active leases** in the GOA Region.

The GOA Region is on the southern margin of the U.S. and contains approximately 160 million acres in three planning areas: Western, Central, and Eastern GOA planning areas (see Figure 3-11). State jurisdictions for Texas and Florida's Gulf Coast extend 9 nm from the coastal baseline and Louisiana's jurisdiction extends to 3 imperial miles. These boundaries are reflective of the time these states joined the U.S. State jurisdictions for Mississippi and Alabama extend 3 nm from the coastline. Water depths range from less than 10 feet to greater than 11,000 feet.

Figure 3-11: GOA Region Leasing History



The Western and Central GOA planning areas are the most mature and active of all the 27 OCS planning areas, with extensive existing infrastructure and production taking place for more than 60 years. Cumulative oil and gas production in the GOA over this time exceeds 25 billion barrels of oil and consists of nearly 200 trillion cubic feet of natural gas.

The Western and Central GOA planning areas, consisting of the OCS offshore Alabama, Mississippi, Louisiana, and Texas, remain the primary offshore source of oil and gas for the U.S., generating about 99% of all OCS oil and gas production. This high level of production and activity is supported by an oil and gas industry that includes hundreds of large and small companies, and an expansive onshore network of coastal infrastructure.

Annual areawide lease sales in the Western and Central GOA planning areas have been typical for most of the past 30 years. As of September 2025, there was a total of 2,032 existing Federal oil and gas leases across all three planning areas. For information on offshore renewable energy and marine minerals activity in the GOA, refer to Chapter 8.

The geology of the GOA basin and the abundance of subsurface salt structures provides the setting that makes the GOA one of the richest oil and natural gas regions in the world. The greatest undiscovered resource potential in the region is assessed to exist in water depths greater than 200 meters.

There have been more than 130 lease sales since 1953 in the GOA Region. Lease Sale 261 is the most recent sale in this planning area and was held on December 20, 2023. BOEM awarded 299 leases on these tracts covering approximately 1,659,224 acres. The total high bids accepted on these tracts was $372,460,408. Additional information on Lease Sale 261 can be found at https://www.boem.gov/oil-gas-energy/leasing/lease-sale-261.

There is production from leases in the Western and Central GOA planning areas, but as of September 2025, no commercial production has occurred from leases in the Eastern GOA Planning Area. See Chapter 5 for geologic play maps and a discussion of estimated oil and gas resources by planning area. Figure 13-3 shows the general position on OCS oil and gas leasing stated by governors in the GOA Region, as expressed in the comments received in response to the RFI.

Internationally, the U.S and Mexico signed the *Agreement between the United States of America and the United Mexican States Concerning Transboundary Hydrocarbon Reservoirs in the Gulf of Mexico* (Agreement) in February 2012. It entered into force in July 2014. The Agreement sets out a framework for cooperating on joint exploration and exploitation of geological hydrocarbon structures and reservoirs that extend across the maritime boundary of the U.S. and Mexico, and the entirety of which are beyond 9 nm from the coastline.

Accordingly, the U.S. and Mexico notify each other of planned activities within 3 statute miles of the delimitation line. Mexico made constitutional amendments in December 2013, followed by legislation in August 2014, which opened oil and natural gas markets to foreign investments, including from entities that are active in the GOA. The first leases in the area covered by this Agreement on the U.S. side were issued from Western GOA Lease Sale 238, held in August 2014.

In July 2025, Congress passed P.L. 119-21, OBBBA, requiring 30 lease sales to be held in the GOA with the following scheduling requirements:

- All 30 sales must be held by March 15, 2040
- The first lease sale is to be held by December 15, 2025
- At least two lease sales must occur each year during calendar years 2026 through 2039, including one by March 15 of the applicable calendar year and one thereafter but no later than August 15 of the applicable calendar year.

The Secretary of the Interior is required to hold these lease sales in addition to any other lease sales scheduled in the current 10th Program or any "successor" National OCS Program (except within areas that are under existing oil and gas leasing moratoria). Specific requirements, terms, and stipulations are also outlined in detail in Section 50102 of the Act. The first sale under the new law — a GOA lease sale titled “Big Beautiful Gulf 1” — is set for December 10, 2025. BOEM will publish the Final NOS at least 30 days before the sale.

3.5.1 Western Gulf of America

As of September 2025, there are approximately 393 active leases in the Western GOA Planning Area. More than 7,900 wells have been drilled. The State of Texas administers an oil and gas program in state submerged lands adjacent to this area.

3.5.2 Central Gulf of America

As of September 2025, there are approximately 1,626 existing leases in the Central GOA Planning Area. More than 46,000 wells have been drilled. As described above, Lease Sale 261 was the most recent lease sale in this area. The states of Louisiana and Alabama administer robust oil and gas programs in state submerged lands adjacent to this area. There are no Mississippi state submerged lands leases.

3.5.3 Eastern Gulf of America

As of September 2025, there are 13 existing leases in this area. Twenty-two lease sales have been held in this planning area as it has been configured over the years and 48 wells drilled, with significant discoveries of natural gas. However, there has been no commercial production in the planning area. Lease Sale 224 in March 2008, a lease sale mandated by GOMESA, resulted in leases awarded for 36 OCS blocks with bonuses totaling $64.7 million.

Lease Sale 261 was the most recent lease sale in the portion of the area not subject to Presidential withdrawal and was held on December 20, 2023.

3.6 Atlantic Region Planning Areas

The Atlantic OCS encompasses nearly 270 million acres and includes the Atlantic offshore area extending north to Canada and south to the offshore territorial waters of Cuba. The Atlantic OCS planning areas begin 3 nm offshore and extend seaward to the edge of U.S. EEZ and beyond, where the continental shelf extends beyond the EEZ. Water depths in the Atlantic OCS range from approximately 12 feet to more than 18,000 feet.

The Atlantic Region comprises four planning areas (North Atlantic, Mid-Atlantic, South Atlantic, and the Straits of Florida) that have undergone numerous boundary changes over the years. There have been 10 Federal oil and gas lease sales throughout this region, the most recent of which was held in 1983 (see Figure 3-12 and Figure 3-13). A total of 433 leases were issued in the Atlantic, but there have been no active oil and gas leases since the mid-1990s. Although 54 wells were drilled, no hydrocarbon production has occurred on the Atlantic OCS. Figure 13-3 shows the general positions stated by the governors of the coastal states, as expressed in comments received in response to the RFI.

> Since 1959 in the Atlantic Region, there have been 433 tracts and almost 2.5 million acres leased for oil and gas development, generating more than **$2.8 billion in high bids**.
>
> As of September 2025, there are **no active leases** in the Atlantic Region.

3.6.1 Straits of Florida Planning Area

Between 1960–1961, three exploratory wells were drilled, with no commercial discoveries. As of September 2025, there are no existing oil and gas leases, and the area has not been included in a National OCS Program since the 3rd Program. One sale was initially included in the 1st Proposal for the 10th Program.

There are historic wells and exploratory licenses offshore Cuba and the Commonwealth of the Bahamas in the waters adjacent to this planning area. While drilling activity has been nearly non-existent for the past 35 years, in 2020, a prospective well was spudded offshore the Bahamas' northern territorial waters. Although highly anticipated, the well failed to show commercially viable volumes of hydrocarbon resources.

Licensing rounds in the Caribbean region have been relatively scarce. Most recently (June 2019), Cuba announced a Licensing Round for Offshore Blocks in the Cuban EEZ of the GOA. This licensing round called on oil and gas companies interested in exploration and exploitation activities in the Cuban EEZ to present offers for one or more blocks under Production Sharing Agreements. Cuba offered 24 blocks in its 2020 License Round, but the round failed to garner interest, and no licenses were issued. The timing of additional leasing and drilling activity in the area remains uncertain.

Figure 3-12: South Atlantic and Straits of Florida Planning Areas Leasing History

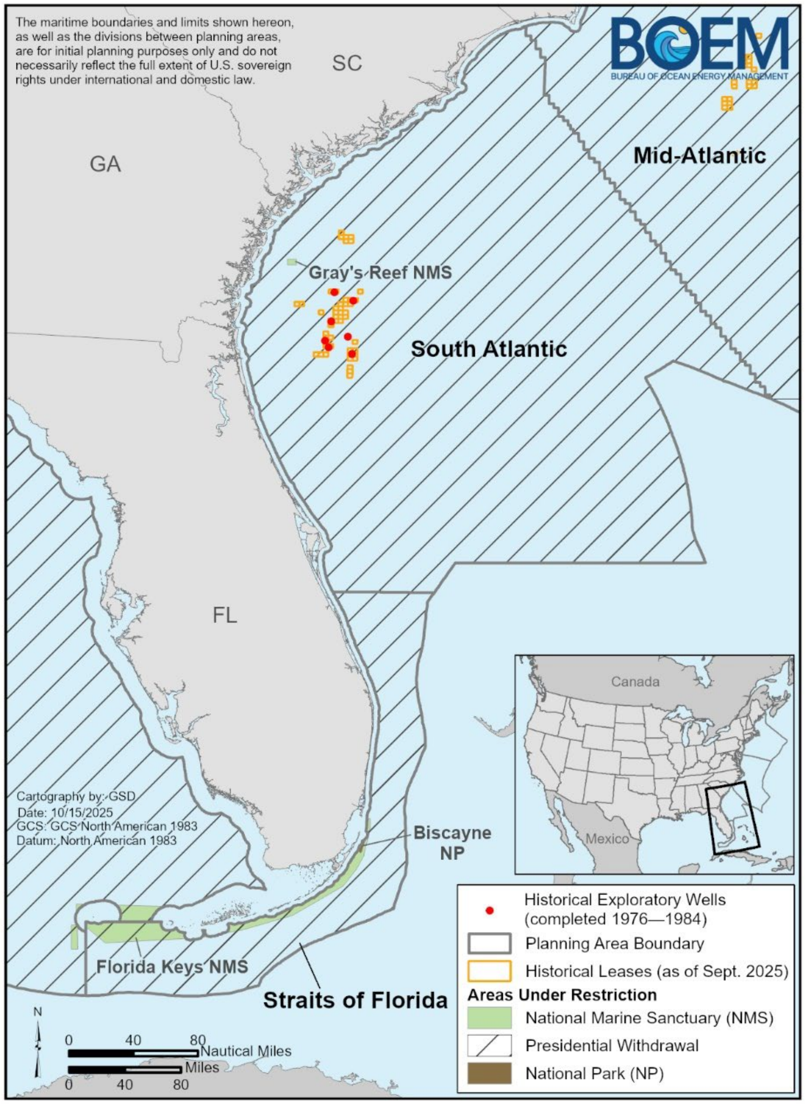
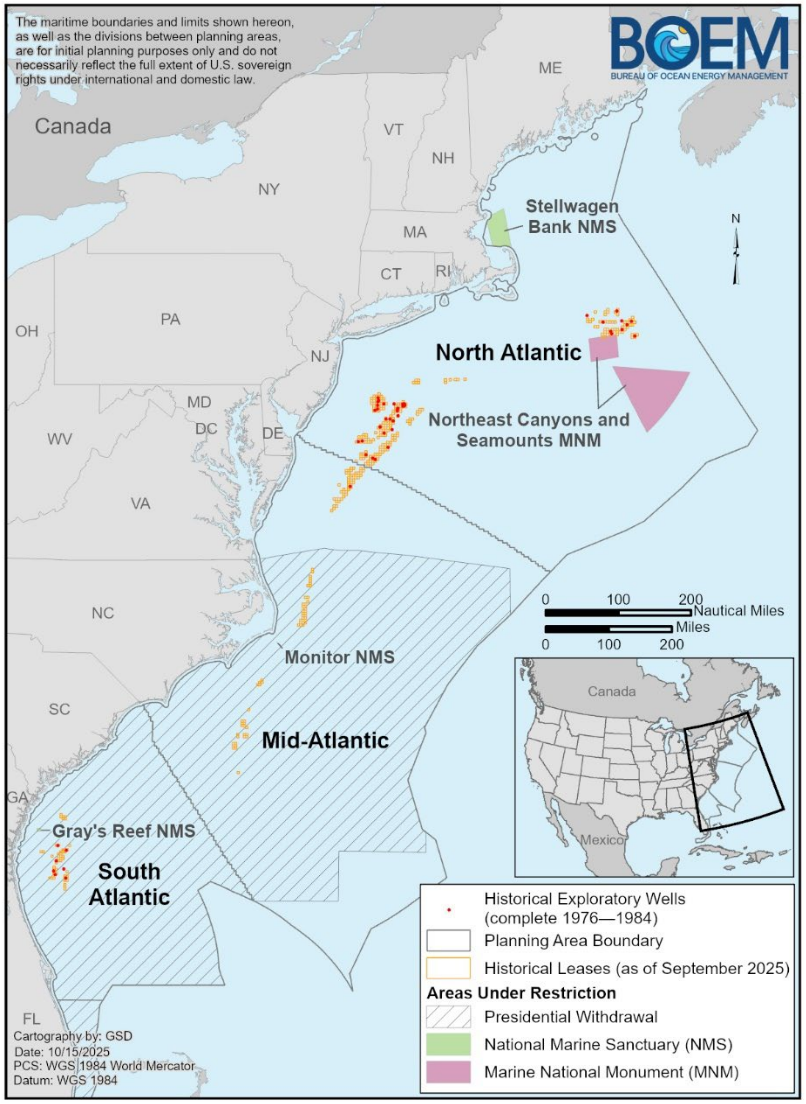


Figure 3-13: North and Mid-Atlantic Planning Areas Leasing History



3.6.2 South Atlantic Planning Area

Between 1979–1980, seven exploratory wells were drilled in the current planning area with no commercial discoveries. As of September 2025, there are no existing oil and gas leases.

This planning area was analyzed in the Atlantic Geophysical and Geological (G&G) Programmatic EIS and the Draft Programmatic EIS for the 9th Program. A potential lease sale for a portion of this planning area was initially included in the 1st Proposals for both the 9th and 10th Programs but were subsequently removed from consideration.

3.6.3 Mid-Atlantic Planning Area

In 1984, one exploratory well was drilled in the current planning area, with no commercial discoveries. There are no existing oil and gas leases. A special interest lease sale for an area offshore Virginia was scheduled for 2011 in the 7th Program; however, the lease sale was canceled by Secretary Salazar in May 2010. This planning area was analyzed in the Atlantic G&G Programmatic EIS and the Draft Programmatic EIS for the 9th Program.

A potential lease sale for a portion of this planning area was included in the 1st Proposal for the 9th Program, but subsequently removed from consideration. Three potential lease sales were initially included in the 1st Proposal for the 10th Program.

3.6.4 North Atlantic Planning Area

Between 1976–1984, 43 exploratory wells were drilled in the currently configured planning area with no commercial discoveries. There are no existing oil and gas leases. Two potential lease sales were initially included in the 1st Proposal of the 10th Program.

Chapter 4
Energy Needs

Chapter 4 National Energy Needs

Meeting national energy needs is a stated purpose of the OCS Lands Act Amendments of 1978 (43 U.S.C. 1802), which established the criteria for the Secretary to consider when developing each new National OCS Oil and Gas Program (P.L. 95-372). The 1978 Amendments added Section 18 of the OCS Lands Act, requiring the Secretary to formulate a National OCS Program to "best meet national energy needs for the five-year period following its approval or reapproval" (Section 18(a), 43 U.S.C § 1344(a)).[13]

Energy needs, as recognized in the language of the OCS Lands Act and reinforced by the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit, is a broad term that includes economic and energy policy goals, national security, dependence on foreign sources of energy, the balance of payments in world trade, and other aspects of national welfare affected by the availability of appropriate quantities and qualities of oil and gas.[14] Despite changes over the past few decades, many of the energy challenges that led to the passage of Section 18 still remain today, and energy continues to play a central role in the U.S. economy.

Developing more OCS energy resources to support U.S. energy needs is a major component of the President's energy strategy. E.O. 14154, *Unleashing American Energy*, and Secretary's Order (S.O.) 3418, *Unleashing American Energy*, both recognize America's "abundance of energy and natural resources that have historically powered our Nation's economic prosperity." E.O. 14156, *Declaring a National Energy Emergency*, emphasizes that affordable and reliable domestic energy supplies are a fundamental requirement for our national and economic security. These E.O.s and the S.O. acknowledge the broad nature of America's energy needs, and the important contributions made by OCS production. Further, the OBBBA (P.L. 119-21) underscores the importance of OCS oil and gas leasing in America's economy with required lease sales in the GOA and Cook Inlet.

[13] Section 18 also requires the Secretary to consider "the location of such regions [oil- and gas-bearing physiographic regions] with respect to, and the relative needs of, regional and national energy markets" (Section 18(a)(2)(c), 43 U.S.C. §1344(a)(2)(c)). Chapter 7 contains the energy markets analysis conducted to help the Secretary meet that requirement.

[14] The Federal Circuit Court upheld this broad concept of energy needs in *Center for Sustainable Economy v. Department of the Interior*, 779 F.3d 588 (D.C. Cir. 2015). The court premised that "any capacity that is developed domestically helps to ensure that the United States has available domestic sources of fuel for domestic consumption as needed, for example, in the event of international conflict, natural disaster, unexpected foreign fuel shortages, or price volatility in international markets."

4.1 Contribution of Oil and Natural Gas to the U.S. Economy

OCS oil and gas production is a key component to meet U.S. energy needs. It provides valuable energy resources that contribute to U.S. energy security, strengthens relations with allies and partners, supports international peace and national security, improves the balance of payments, and increases public revenues, employment, direct output, and value added through the supply chain.

In 2022, domestic energy expenditures accounted for 6.7% of the U.S. gross domestic product (GDP). Domestic petroleum end-use energy expenditures totaled $1 trillion in 2022 (EIA 2024g). In 2024, oil and gas consumption accounted for 74% of the energy consumed domestically, and it directly or indirectly supports the supply chain for delivering nearly all goods and services in our economy (EIA 2025y). Further, oil and gas production and downstream activities contribute to employment, the balance of payments and trade, energy security, and technology advancements.

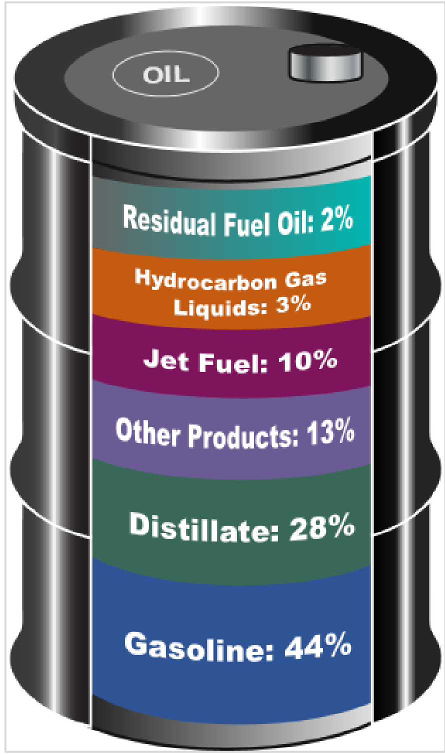
4.1.1 Consumption of Energy Sources

Although U.S. energy needs go far beyond simply consuming oil and natural gas, these fuels currently are fundamental to powering our economy. While oil has largely been replaced by other fuels for electricity generation, it continues to play a dominant role as a fuel in the transportation sector and as a feedstock for plastics and other industrial products.

In 2024, petroleum-based fuels accounted for more than 95% of transportation energy use and 72% of petroleum-based fuels were used in the transportation industry (EIA 2025y). Crude oil is a raw input for gasoline and other transportation fuels, as well as for a variety of petroleum products found in non-fuel markets (e.g., chemicals, plastics, synthetic materials). Major product categories derived from a barrel of oil are depicted in Figure 4-1. Section 7.2.1 provides more information on the consumption of oil and natural gas.

The U.S. economy relies heavily on diverse energy sources to meet its residential, commercial, industrial, and transportation needs, as shown in Figure 4-2. Petroleum products predominantly fuel transportation, with about one-quarter supporting industrial activities. In 2024, approximately 42% of natural gas consumption powered electricity generation, while just under one-third was used in the industrial sector. Coal, solar, wind, nuclear, hydro, and geothermal energy sources are other energy sources used in electrical generation. In the aggregate across all sources, almost two-thirds of the original source energy is lost through thermodynamic entropy in the production chain (labeled “Rejected Energy” in Figure 4-2).

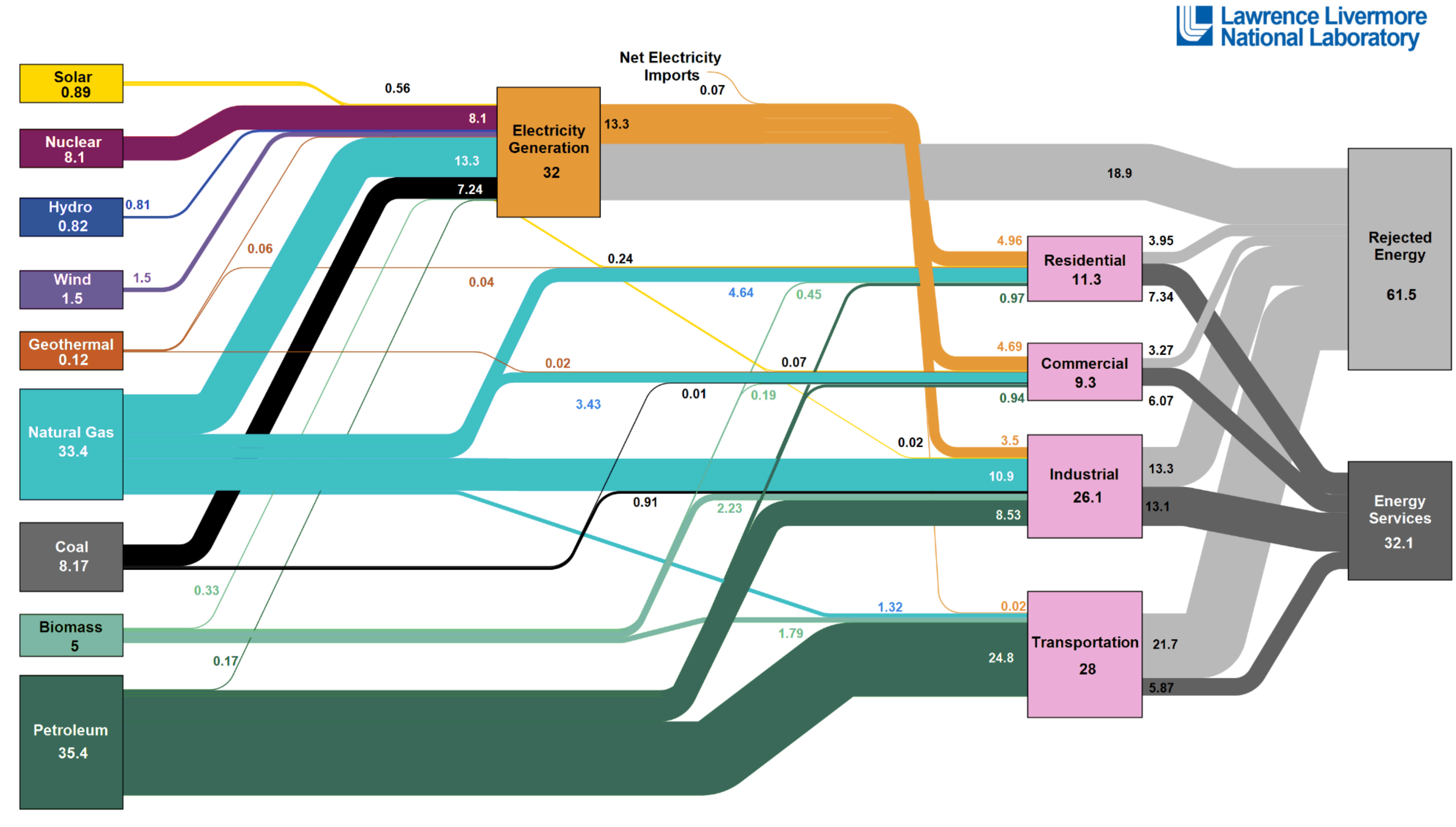
Figure 4-1: Products Derived from a Barrel of Oil



Source: EIA (2025a)

BOEM relies on the EIA's AEO to consider how consumption patterns might change over the next 25 years. EIA's 2025 AEO forecasts that the United States will continue its reliance on oil and natural gas to meet a significant share of its energy demands, even as alternative sources of energy provide an increasing share of U.S. energy supply (EIA 2025d). Figure 4-3 depicts the U.S. energy consumption by sector and source in 2024, as well as EIA's projected sources in 2050 using its reference case. It is important to keep in mind, however, that the AEO bases its forecasts on laws, policies, and technology current as of December 2024. Given that the initiatives outlined in the recent E.O.s have only begun to be implemented, it is difficult at this time to ascertain how these policies could shift outcomes relative to the AEO 2025 baseline. This policy shift could lead to increased U.S. energy consumption over time and also affect the composition of U.S. energy production (e.g., increased fossil fuel production and reduced renewable energy generation).

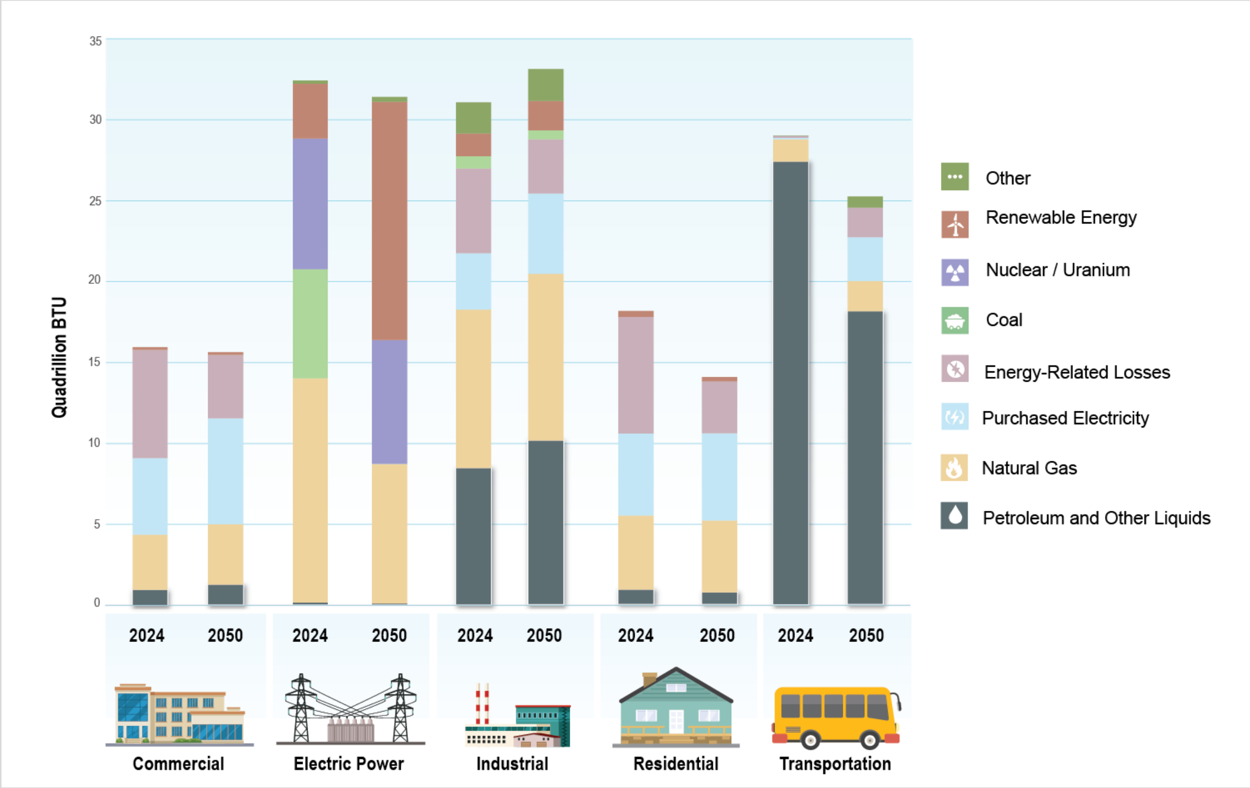
Figure 4-2: Energy Consumption by Sector & Source, 2023



Source: LLNL October, 2024. Data is based on DOE/EIA SEDS (2024). If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports consumption of renewable resources (i.e., hydro, wind, geothermal and solar) for electricity in BTU-equivalent values by assuming a typical fossil fuel plant heat rate. The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 65% for the residential sector, 65% for the commercial sector, 49% for the industrial sector, and, 21% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527

Source: Adapted from Lawrence Livermore National Laboratory (2024). Reprinted with permission.

Figure 4-3: Energy Consumption by Sector & Source, 2024 and 2050



Source: EIA (2025b)

4.2 Other Components of National Energy Needs

The OCS Lands Act mandates that the Secretary determine how to best meet "national energy needs." Additionally, the court elaborated in the decision in *Center for Sustainable Economy v. Jewell*, 779 F.3d 588 (D.C. Cir. 2015) that such a determination can look beyond those considerations that "meet current demand for domestic consumption" (*CSE*, 779 F.3d at 607). Specifically, the Secretary may, when proposing and finalizing the National OCS Program, account for the fact that there are both direct and indirect benefits to issuing leases during the next National OCS Program. The direct benefits of OCS leasing include ensuring an adequate energy supply and the corresponding effects on crude oil, refined products, and natural gas prices.

4.2.1 Balance of Payments and Trade

President Trump's E.O. 14156, issued on January 20, 2025, declared a national energy emergency. The President's declaration of a national energy emergency is designed to focus U.S. efforts on ensuring a reliable, diversified, and affordable supply of domestically produced energy, including oil and gas. Domestic production of oil and natural gas creates jobs and economic prosperity for Americans and improves the United States' trade balance.

The United States has been a net total energy exporter since 2019 (EIA 2024f), and total U.S. energy exports in 2023 were the highest on record. In 2024, the U.S. had a trade deficit of nearly $1,213 billion for all goods (BEA 2025b). The cumulative U.S. trade in crude oil and petroleum product decreased the trade deficit by nearly $45 billion (BEA 2025a). While the U.S. continues to remain a net importer of crude oil, when combined with the net exports of petroleum products, the U.S. was a combined net exporter of total petroleum products and crude oil in 2023 (EIA 2025c). The country's production of plentiful supplies of oil and natural gas will continue to improve the U.S. balance of trade and our energy security.

4.2.2 Energy Security

In declaring a national energy emergency, E.O. 14156 highlights energy security as an "increasingly crucial theater of global competition." An affordable and reliable domestic supply of energy is a fundamental requirement for our national and economic security. As described in E.O. 14156 and mentioned in Section 4.1, domestic energy production enhances America's national and energy security.

The United States can enhance our national and economic security by increasing the supply of domestic energy or by reducing domestic energy consumption. The increase in U.S. energy production has greatly contributed to U.S. energy supply security, reduced the need to import foreign oil, and increased world production, which in turn has permitted greater foreign policy latitude and effectiveness for the United States (Cummings and Gold 2013, Engel and Windrem 2014).

4.2.3 Technology

New technologies employed by the oil and gas industry are, in large part, responsible for making the U.S. the world's top producer of crude oil and natural gas. Many of these technological advances include enhanced production in the GOA from deeper water depths. In addition, the offshore oil and gas industry reduced deepwater (200 meters or greater) project costs through greater equipment standardization. The high-pressure and high-temperature (HPHT)[15] advances in the GOA are examples of technology breakthroughs in oil and gas development. These advancements unlocked previously inaccessible deepwater resources, significantly boosting GOA production and prospects for future developments.

Higher-quality G&G data—achieved through state-of-the-art acquisition methods and processing—has aided in the identification of prospects and effective well placement, which improves the probability for commercial discoveries. Consequently, companies can drill fewer

[15] HPHT describes the characteristics of a well that requires specialized drilling and production equipment with high enough safety ratings to access these resources. BSEE defines HPHT to include wells with a pressure rating greater than 15,000 pounds per square inch absolute or a temperature rating greater than 350° Fahrenheit (see 30 CFR 250.105, "HPHT environment").

wells per discovery in the best prospects (Raval 2018). Advanced composite materials and materials engineering have improved OCS structures and moorings to better withstand the operating environment. These and other technologies developed for crude oil and natural gas operations have contributed (and continue to contribute) to U.S. leadership in the crude oil and natural gas industries, while supporting U.S. economic growth and helping to meet domestic and global energy needs.

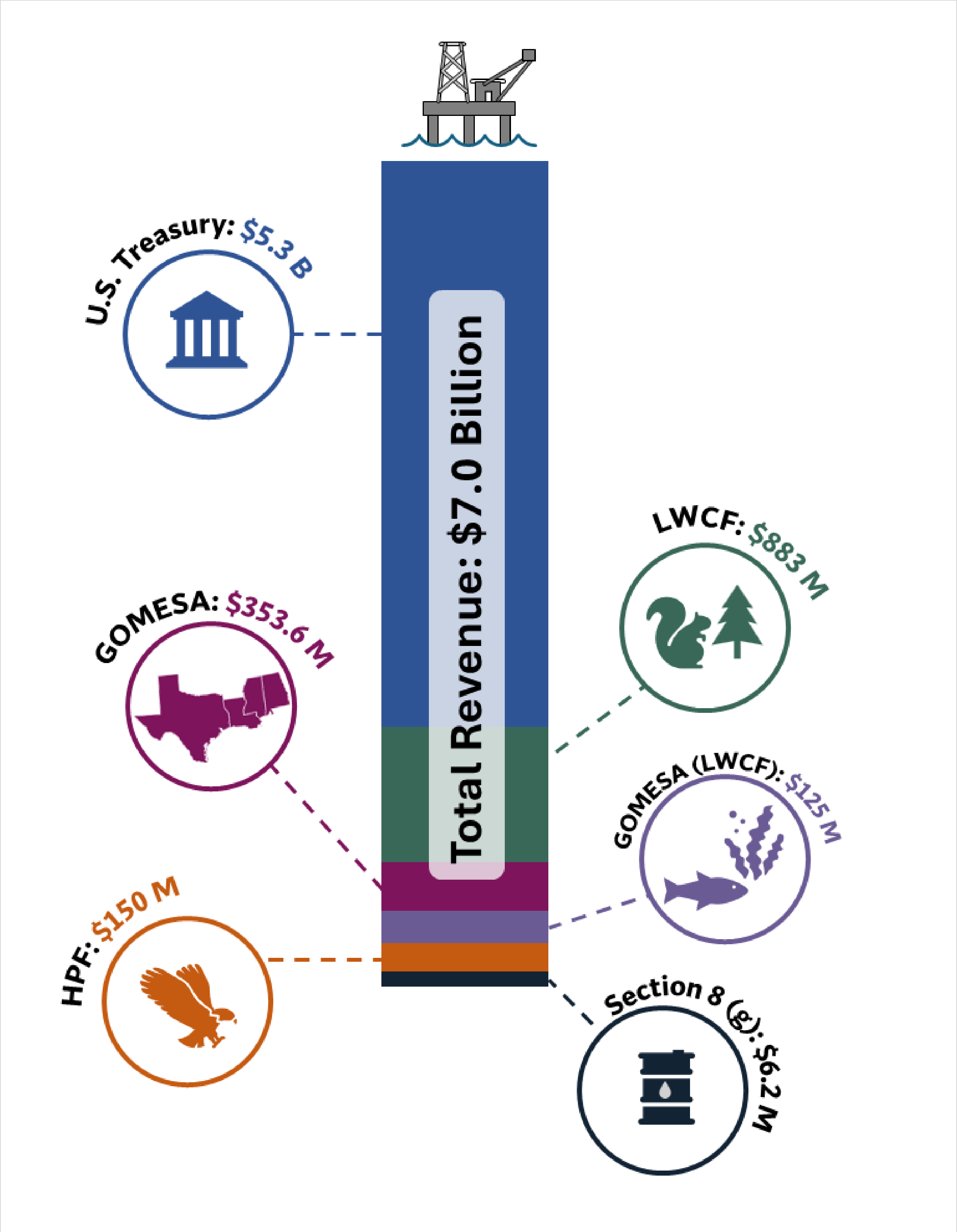
4.2.4 Employment and Public Revenues

The domestic energy industry is an important component of the U.S. economy through its contribution to GDP, employment, and public revenues. Production of domestic oil and gas not only provides employment at higher-than-average wages to industry employees but also provides work for many Americans in other industries that supply goods and services for exploration, development, production, and domestic transportation of oil and gas. The impact of OCS oil and gas development on GDP and employment is discussed in Chapter 11, which also describes the revenues available to local, state, and Federal governments.

In general, OCS leasing and production provide the following public revenues (see Figure 4-4):

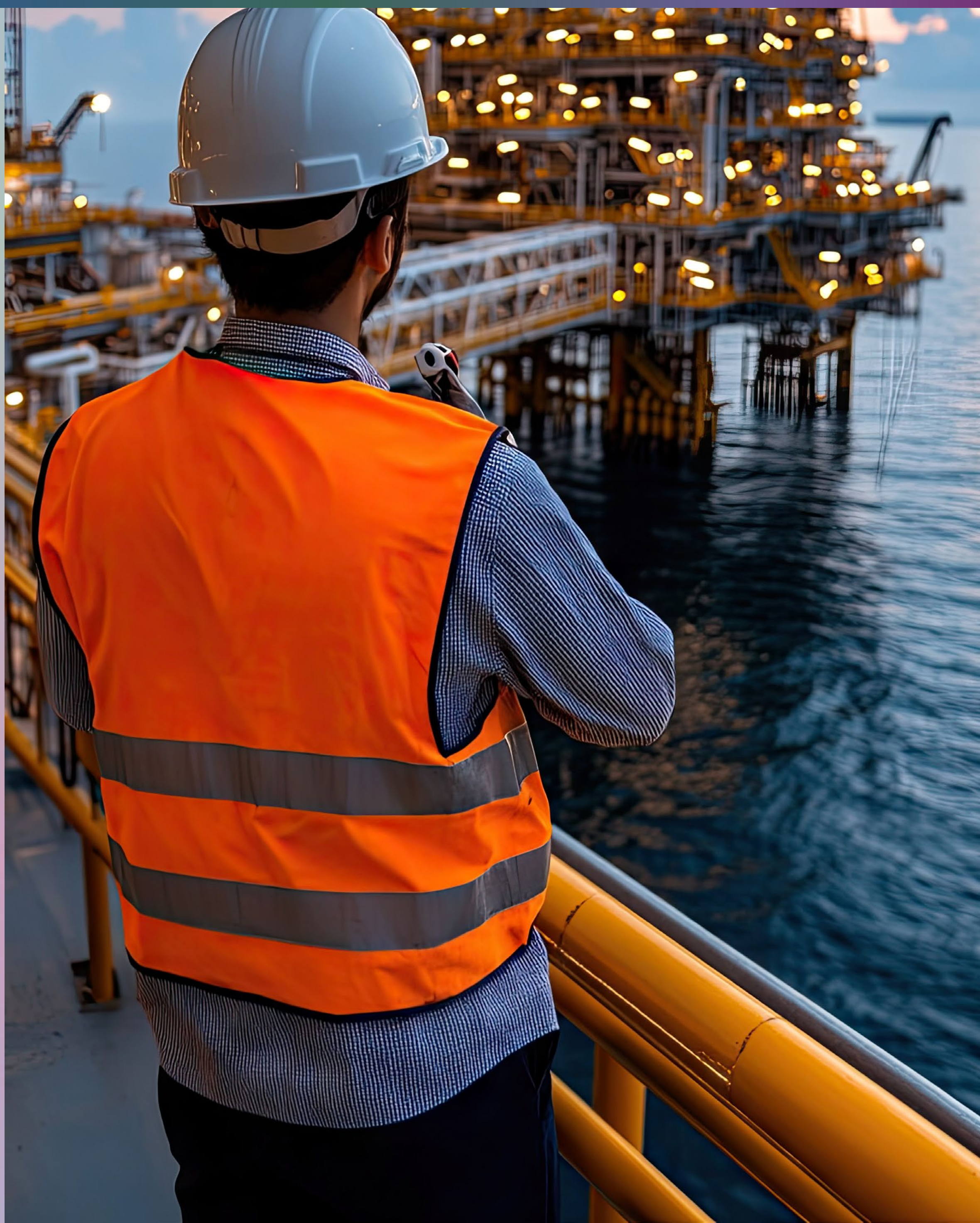
- Billions of dollars a year in bonus bids, rentals, and royalties to the U.S. Treasury
- Funding for the Historic Preservation Fund (HPF)
- Funding for the Land and Water Conservation Fund (LWCF)
- OCS Lands Act Section 8(g) and GOMESA revenue sharing payments to states
- Indirect revenues via funding to state and local governments through worker and industry tax payments.

Figure 4-4: FY24 Public Revenues Gained from OCS Oil & Gas Production



Source: ONRR (2025)

Chapter 5
Hydrocarbon Resources



Chapter 5 Analysis of Hydrocarbon Resources

5.1 Estimating Hydrocarbon Resources

Oil and gas resource assessments are critical components of energy policy analysis and provide important information about the relative potential of U.S. offshore areas as sources of oil and natural gas. Resource assessments provide the Secretary with information on the geological characteristics of OCS Regions required by Section 18(a)(2)(A) of the OCS Lands Act. For this 1st Analysis, BOEM considers the amount of UERR available on unleased blocks in each of the OCS planning areas as part of the valuation and ranking process (i.e., areas are ranked from greatest to least number of resources estimated to be economically recoverable). BOEM's approach to resource assessment is designed to account for the uncertainty inherent in estimating undiscovered resources.

In general, uncertainty in estimates of undiscovered oil and natural gas is greatest for frontier areas that have had little or no past exploratory effort (e.g., the Arctic). For areas that have been extensively explored and are in a mature development stage (e.g., the Central GOA Planning Area), many of the developmental risks have been reduced and the degree of uncertainty reflected in the range of possible outcomes has been narrowed.

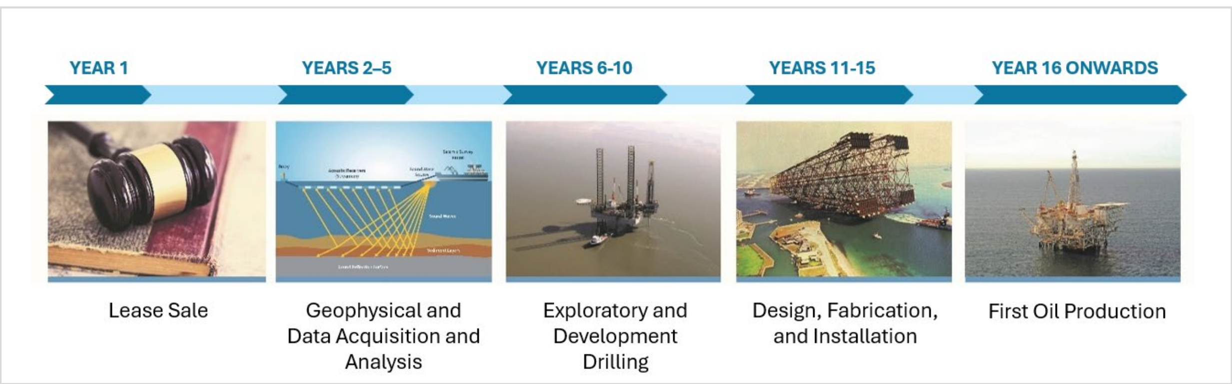
In conducting resource assessments, BOEM quantifies uncertainty by using ranges of values for input data that are sampled through multiple iterations of assessment model trials. Additionally, BOEM applies risk (i.e., the probability that oil and gas will not be found) to geologic plays and assessment units that do not have a proven petroleum system. A geologic play is a group of geologically related potential or known hydrocarbon accumulations that share a common history of hydrocarbon generation, accumulation, and entrapment in a reservoir.

BOEM subsequently reports estimates of undiscovered technically recoverable resources (UTRR) as "risked." The information from exploratory wells in frontier areas can provide the empirical evidence necessary to determine the presence of hydrocarbons within the assessment units or geologic plays. If hydrocarbon resources are encountered, these geologic play risks would be eliminated, resulting in a dramatic increase in UTRR estimates reported by BOEM. For example, in BOEM's 2021 *National Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf* (BOEM 2021a), referred to as the "2021 National Assessment," the elimination of all petroleum system risk from conceptual plays on the Atlantic OCS would increase BOEM's reported UTRR in that region.

Where possible, BOEM considers recent geophysical, geological, and technological information to estimate the potential presence and amount of technically recoverable oil and gas resources on the OCS. BOEM also considers economic parameters, such as exploration and development costs and oil and gas prices, to estimate the economically recoverable resources on the OCS. Current BOEM oil and gas resource estimates in the 2021 National Assessment (BOEM 2021c) form the basis for the unleased UERR used in the economic analysis provided in this chapter.

The life cycle of OCS oil and gas activities often includes a multi-year process consisting of several phases. The initiation and duration of activities varies by water depth and OCS Region, with a more rapid pace expected in mature areas like the shallow water GOA where significant oil and gas information and infrastructure already exist. Figure 5-1 depicts a schematic timeline of typical development activities for frontier and deepwater areas, where first production from large fields is often not achieved until 10 years or more after lease award. For smaller discoveries, the use of subsea tiebacks to an existing production facility can facilitate earlier first production. Once production begins, it can continue for several decades.

Figure 5-1: Oil and Gas Development Timeline for Frontier & Deepwater Areas



5.2 Introduction to Hydrocarbon Resources on the OCS

While each of the OCS Regions includes geologic characteristics and petroleum system elements that provide an opportunity for the existence of oil and gas resources, the petroleum system elements are not ubiquitous across the entire OCS. Thus, the assessment of hydrocarbon resources requires geologic play and assessment unit delineation, which allows for the incorporation of petroleum system elements that reflect local geologic conditions. BOEM defines two types of geologic plays in its resource assessment, as follows:

- **Established play:** geologic play in which hydrocarbons have been discovered and a petroleum system has been proven to exist.
- **Conceptual play:** geologic play in which hydrocarbons have not been discovered and the petroleum system has not been proven to exist.

Geologic plays consist of oil and gas pools, where a pool is defined as a discovered or undiscovered accumulation of hydrocarbons. In many instances, a prospect (if undiscovered) or a field (if discovered) comprises one or more pools. A prospect or field is an area consisting of a single reservoir or multiple reservoirs all grouped on, or related to, a shared geologic structural feature or stratigraphic trap.

Figure 5-2 through Figure 5-5 show the established and conceptual geologic plays assessed in the 2021 National Assessment. Most plays are defined based on reservoir rock stratigraphy and are delineated by the extent of the reservoir rocks; however, a few plays are defined based on structural characteristics of prospective traps. Geologic plays often spatially overlap because they exist at different depths below the seafloor and, in many cases, are stacked on top of each other in the subsurface. Therefore, the figures showing geologic play outlines do not represent the full 3-D extent of an individual geologic play.

5.3 Resource Commodities Assessed

BOEM assesses crude oil, natural gas liquids (condensate), and natural gas that exist in conventional reservoirs and are producible with conventional recovery techniques. Crude oil and condensate are reported jointly as billion barrels of oil (Bbo); natural gas is reported in aggregate as trillion cubic feet (Tcf) of gas. Oil-equivalent gas is a volume of gas expressed in terms of its energy equivalence to oil (i.e., 5,620 cubic feet of gas per barrel of oil). The combined volume of oil and oil-equivalent gas resources is referred to as barrel of oil equivalent (BOE) and is reported in billion barrels of oil equivalent (BBOE).

The technically and economically recoverable resources reported by BOEM do not include potentially large quantities of hydrocarbon resources that could be recovered by enhanced recovery techniques. For example, the injection of carbon dioxide (CO_2) into an oil reservoir can significantly increase recoverability, but the technique is not currently in use on the U.S. OCS, and the economics have not been evaluated. Furthermore, the 2021 National Assessment does not consider gas in geopressured brines, methane hydrates, or oil and natural gas that could be present in insufficient quantities or quality (low-permeability, “tight” reservoirs) to be produced by conventional recovery techniques.

Figure 5-2: Extent of Geologic Plays in the Alaska Region Planning Areas

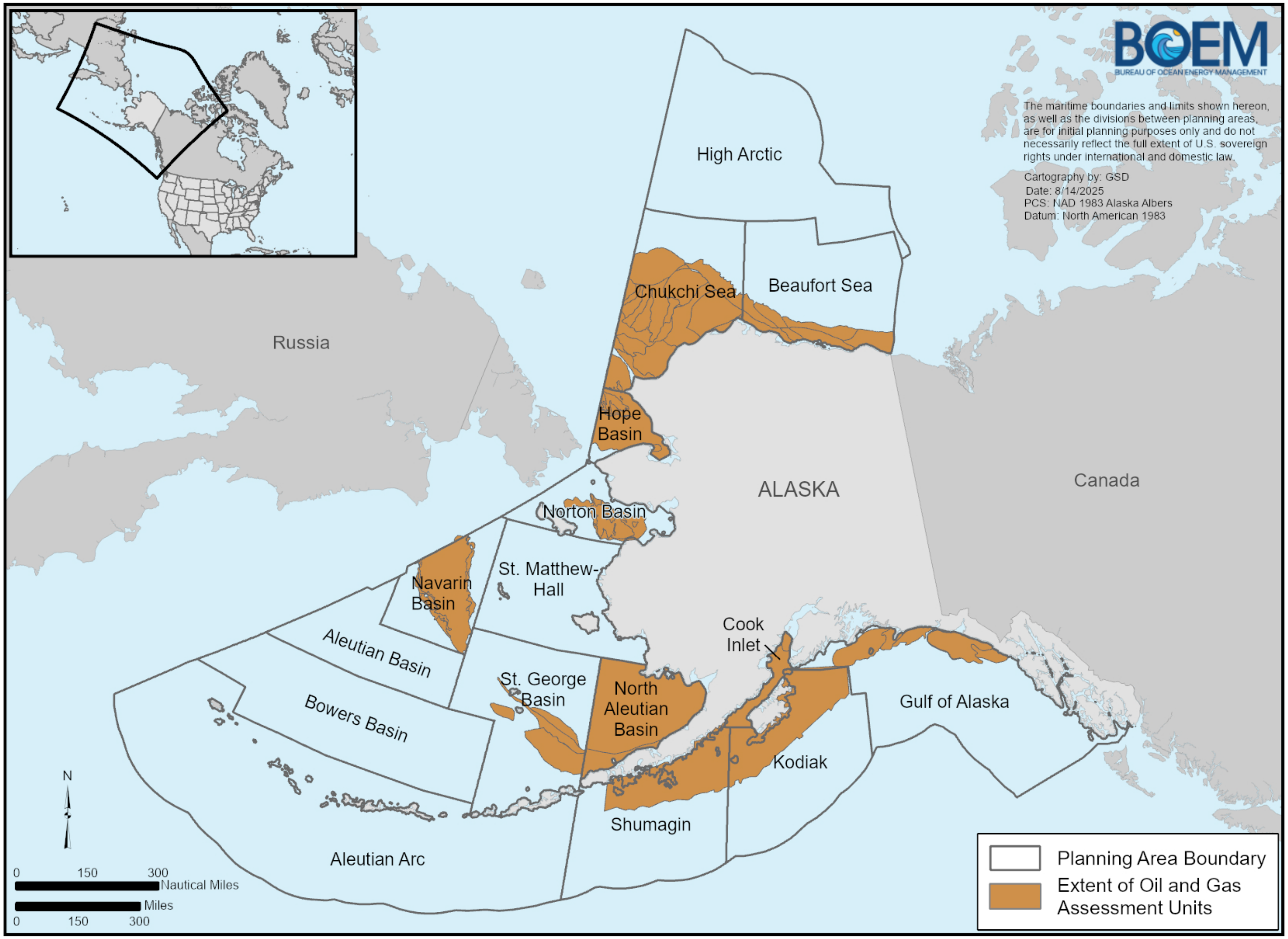


Figure 5-3: Extent of Geologic Plays in the Pacific Region Planning Areas

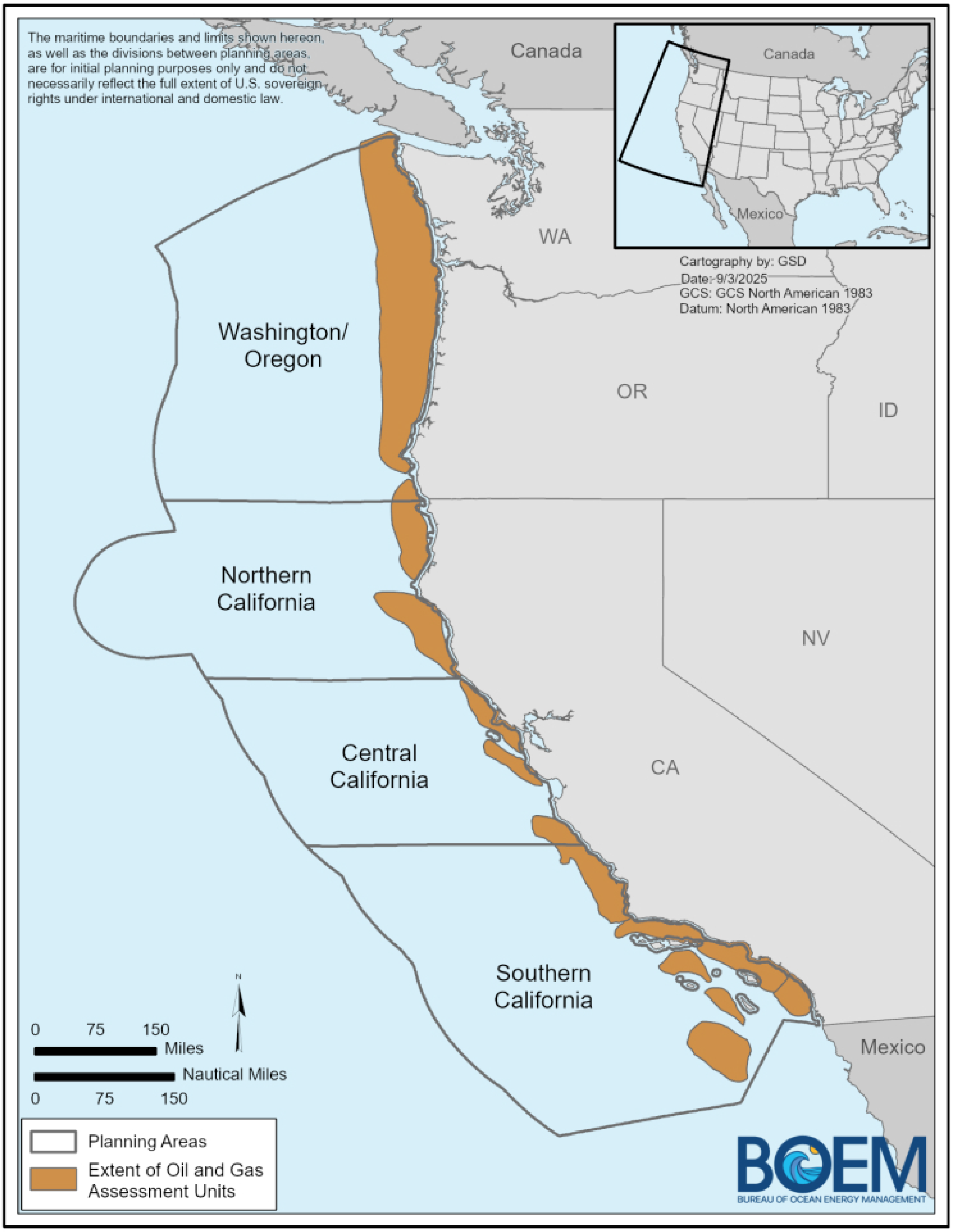


Figure 5-4: Extent of Geologic Plays in the Gulf of America Region Planning Areas

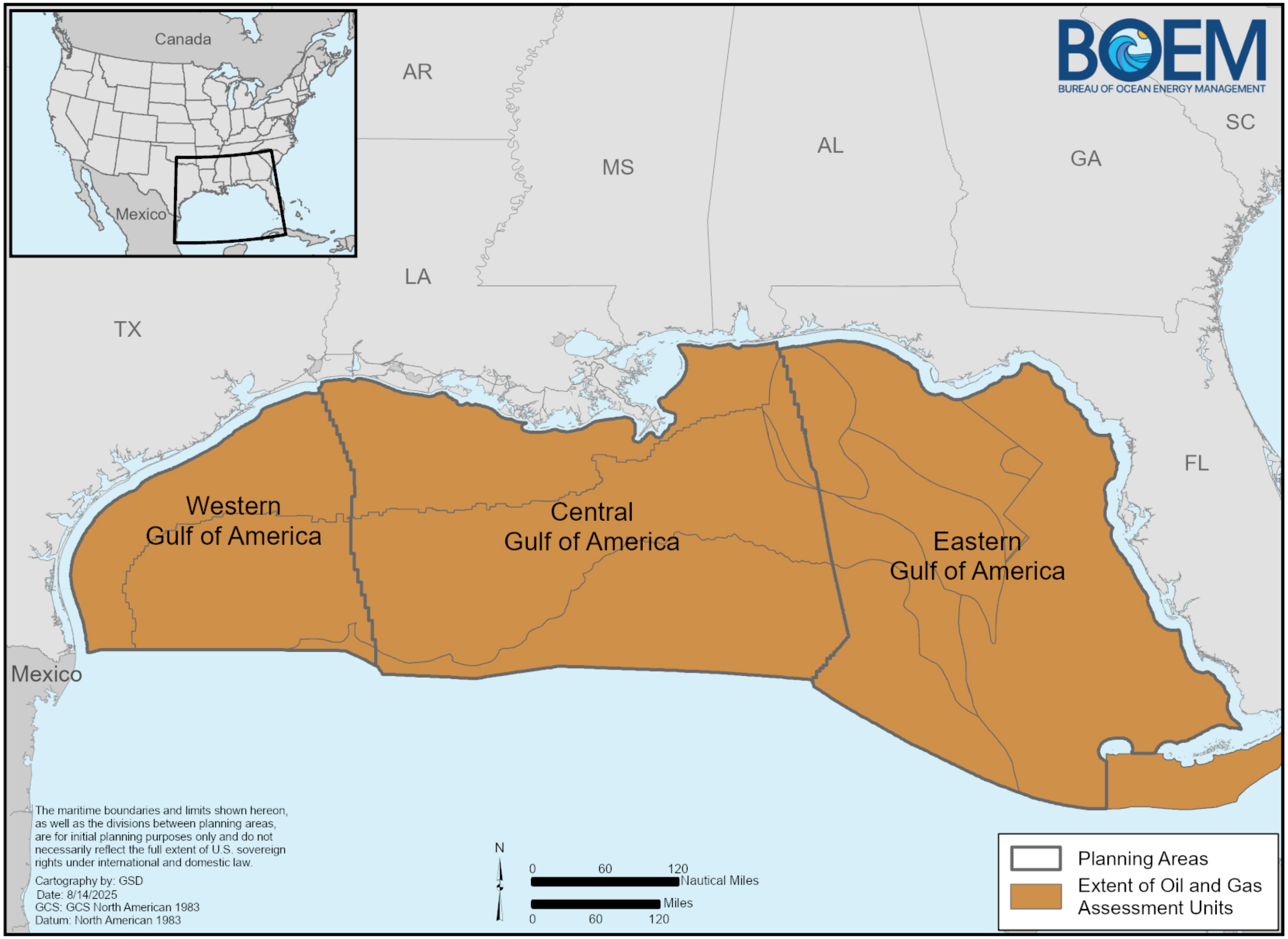
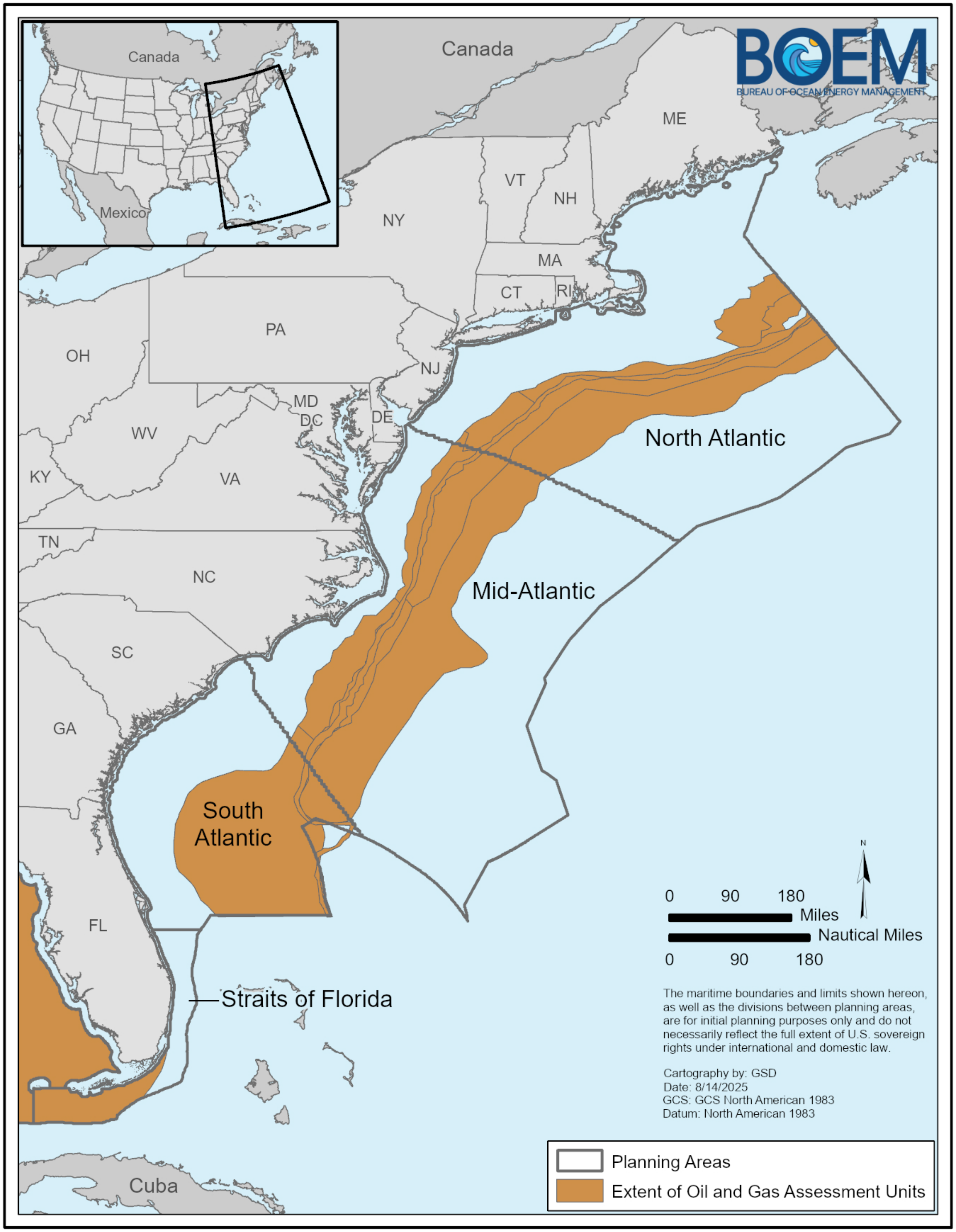


Figure 5-5: Extent of Geologic Plays in the Atlantic Region Planning Areas



5.3.1 Sources of Data and Information

Estimating undiscovered oil and gas resources on the OCS is a complex process and requires incorporating a variety of geological, geophysical, economic, and engineering data along with the application of professional judgment. The petroleum geologic play characteristics (i.e., volumes and qualities of source rocks, reservoir rocks, and traps) are defined using play-specific information from wells, seismic reflection profiles, and analogous information from geologically similar reservoirs in other parts of the world. In areas where oil and gas production is associated with mature plays (such as established plays in the GOA), data and information typically are derived from producing reservoirs and fields within the play. In these cases, volumetric estimates of discovered oil and gas pools within the play are used to develop probability distributions for the size and number of undiscovered pools and fields in assessment areas.

Due to sparse data directly associated with many of the conceptual plays in the Alaska and Atlantic regions, BOEM developed analog-based parameters using professional judgment to cover the range of uncertainties associated with these plays. The analog development process includes extensive research into the geological, geophysical, geochemical, and lithological characteristics of productive oil and gas discoveries in analogous plays. Specific information analyzed within analog plays includes the style of oil and gas traps, reservoir depositional environment and lithology, reservoir age, and analysis of existing drilling and wellbore information. Conceptual play models are developed using regional G&G data and global analogs.

5.3.2 Geophysical Data Collection (Seismic Surveys)

There are many types of geophysical data collected for oil and gas exploration, but the primary type collected is seismic reflection data. Seismic surveying is a method of imaging below the seafloor using sound waves. The sound source is generated using acoustic energy from air guns that release sound waves. These bursts of compressed air are reflected from rock layers below the seafloor and recorded. Geophysicists use these data to identify areas most suitable for the accumulation of hydrocarbons. Geophysical surveys are conducted subject to appropriate conditions of approval and use mitigation and monitoring measures to limit impacts on marine mammals and protected species.

Geophysical data provide important information for oil and gas resource assessments; 2-D seismic surveys often are designed to cover thousands of square miles or entire geologic basins to assess large areas for hydrocarbon potential. In contrast, 3-D surveys can focus on a few to several hundred OCS blocks and provide higher resolution to evaluate hydrocarbon potential in structurally complex areas that could be poorly imaged on 2-D seismic surveys. In general, the acquisition and processing of marine seismic data is a complex process often requiring significant time and investment measured in years and millions of dollars.

BOEM maintains an inventory of industry seismic data that includes more than 400,000 OCS blocks of 3-D coverage and approximately 3.4 million line-miles of 2-D coverage (BOEM 2025a). The distribution of seismic data for the OCS Regions is generally coincident with the maturity of existing oil and gas development in the regions. For example, more than 99% of the 3-D seismic data and approximately 70% of the 2-D seismic data on the OCS have been acquired in the GOA. BOEM publishes an annual geological and geophysical data inventory (BOEM 2025a), which provides information on the various data types collected on the OCS and describes those data in the BOEM inventory.

The National OCS Program does not authorize collection of G&G data on the OCS, and National OCS Program approval is not a prerequisite to collect G&G data. Existing regulations (30 CFR Part 551) govern the approval process for G&G exploration for oil, gas, and sulfur resources on unleased OCS lands or OCS lands leased to third parties, including permit issuance to acquire 2-D and 3-D seismic data. Seismic data acquisition by lessees or operators on their existing oil and gas leases may be authorized as part of their lease rights (i.e., as ancillary activities) or as part of an exploration plan (e.g., for airgun surveys in the GOA).

5.3.3 Uncertainty in Resource Assessment

All methods to assess potential quantities of undiscovered technically and economically recoverable resources represent an attempt to quantify a value that will not be reliably known until the resource is nearly depleted. Thus, there is considerable uncertainty intrinsic to any estimate, and resource estimates should be used as general indicators and not predictors of absolute volumes. There is uncertainty regarding, among other things, the presence and quality of petroleum source rocks, reservoir rocks, seal rocks, and traps; the timing of hydrocarbon generation, migration, and entrapment; and the location, number, and size of accumulations. The value and uncertainty regarding these petroleum geologic factors are often qualitatively expressed. However, to develop volumetric resource estimates, the value and uncertainty regarding these factors must be estimated quantitatively. Each of these factors, and the volumetric resource estimate derived from them, is expressed as a range of values, with each value having a corresponding probability.

For this 1st Analysis, estimates of unleased UERR are derived from a geologic play-based approach that spans large geographic areas. This approach differs from that which is used for individual OCS tract evaluations to determine the FMV of OCS blocks receiving bids in a particular lease sale. For the sale-specific evaluations, a more detailed prospect analysis is performed and subsequently subjected to economic parameters and fiscal regimes specific to the timing and location of that particular lease sale.

As mentioned in Section 5.1, BOEM accounts for assessment uncertainty by applying a chance of geologic success to geologic plays and assessment units where a working petroleum system has not been established. If hydrocarbons are encountered through well drilling, the petroleum system chance of success would increase to 100%, resulting in an increase of UTRR for a given geologic play. Depending on the uncertainty associated with a given play, increases of up to 300% in UTRR are possible.

5.4 Resource Assessment Methodology and Output

The general methodology that BOEM uses to assess undiscovered OCS oil and natural gas resources in the 2021 National Assessment (BOEM 2021a) is a multi-step process using existing empirical data, professional judgment of geologic play teams, and probability distributions in conjunction with the BOEM Geologic Resource Assessment Program (GRASP) model. GRASP is a geologic play-based model that compiles oil and gas play data to generate a range of values of undiscovered resources for each geologic play.

The execution of the GRASP model comprises the following steps to assess OCS oil and gas resources:

1. Compile play data
2. Generate a cumulative probability distribution of pool sizes from probabilistic distributions of reservoir parameters
3. Generate a number of pools probability distribution
4. Determine the probabilities for individual oil, natural gas, and mixed pool types
5. Establish individual pool size estimates and compare to the ranked sizes of discovered pools
6. Generate potential resources of the play (i.e., estimate volume of hydrocarbons).

Volumetric estimates of UTRR and UERR are based on the geologic and petroleum engineering information developed through petroleum geological analysis and quantified through play analysis. These estimates are developed in two stages. First, UTRR are assessed for each play, where UTRR are defined as oil and gas that could be produced using conventional extraction techniques without any consideration of economic viability. Second, following UTRR assessment, the economic and petroleum engineering factors are determined for each assessment area to estimate the portion of the UTRR that is economically recoverable over a broad range of commodity prices.

UERR are defined as the portion of the UTRR that is economically recoverable under specified economic and technologic conditions, including prevailing prices and costs. The economic portion of the assessment incorporates a range of oil and gas price points[16] and uses a relationship

[16] Because oil and gas typically are produced together, BOEM estimates UERR at specific combinations of oil and gas prices, or “price pairs.”

between the cost of exploration and development and commodity prices. Estimates of UERR are derived for each designated oil-gas price pair using the following methodology:

1. Subjecting the distributions to multiple computer iterations simulating the development of the hydrocarbon accumulations associated with the areas
2. Performing a discounted cash-flow analysis to determine the area's economically recoverable resources using specified economic parameters.

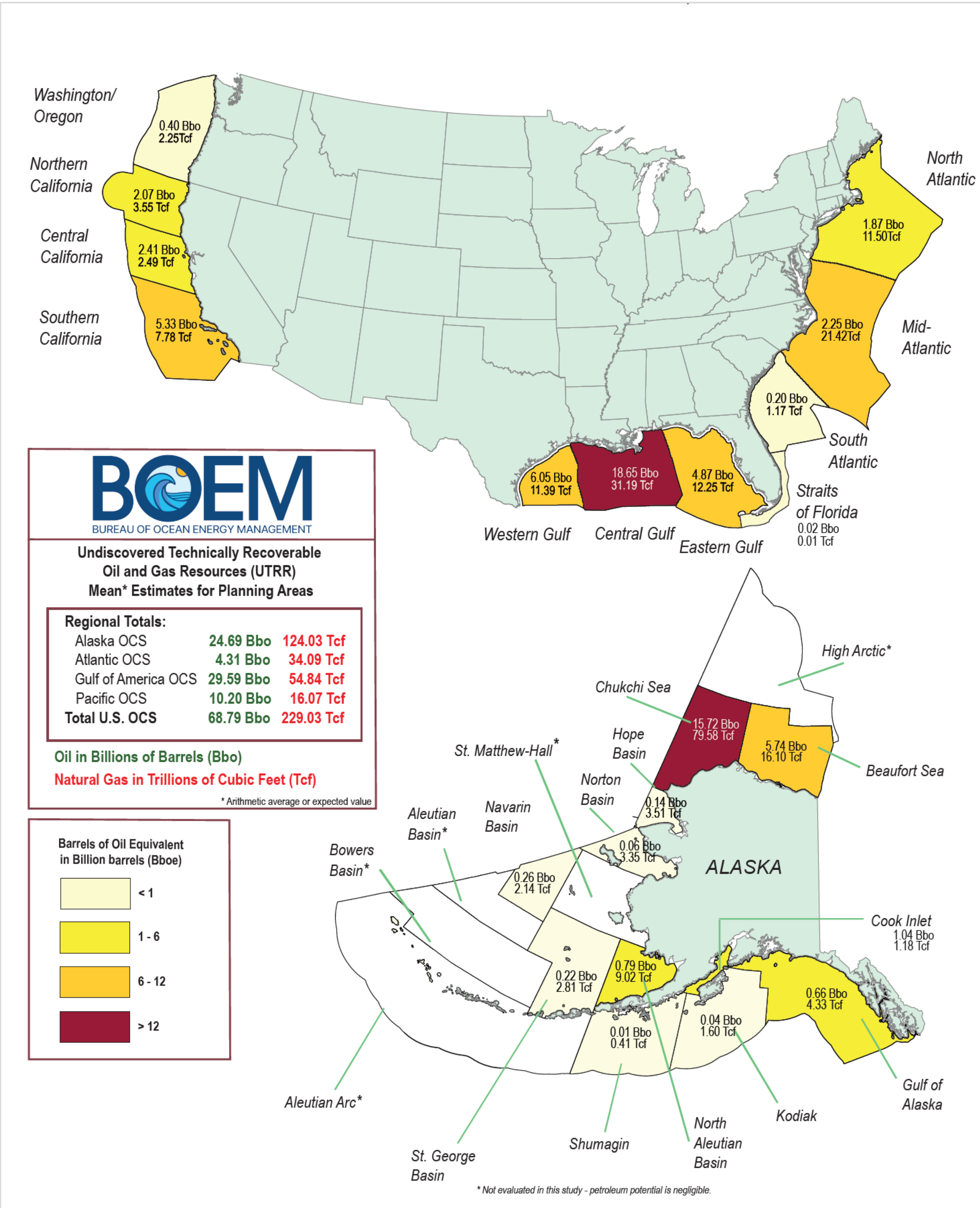
BOEM publishes a formal, national-scale assessment of undiscovered oil and gas resources every 5 years. A complete description of the BOEM methodology and a summary of the results is available in BOEM's most recent assessment, *2021 National Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf* (BOEM 2021a).

The UTRR estimates from the 2021 National Assessment provide the foundation from which UERR estimates are derived for this 1st Analysis. The mean UTRR for each planning area is shown in Figure 5-6. The 2021 National Assessment is available at https://www.boem.gov/sites/default/files/documents/oil-gas-energy/2021-NA_1.pdf.

The High Arctic Planning Area (Figure 5-6) was recently established as a new BOEM planning area and was not formally evaluated by BOEM using the conventional oil and gas assessment process as part of the 2021 National Assessment. Approximately 1,850 line-miles of modern 2-D seismic data were collected between 2007 and 2011 by a joint U.S./Canada expedition to support the delineation of the extended continental shelf; otherwise, G&G data are limited with no exploratory wells and sparse, widely spaced deep penetration seismic data of various vintage.

The U.S. Geological Survey assessed parts of the High Arctic Planning Area as part of their 2009 Circum-Arctic Resource Appraisal (Gautier et al. 2009) and identified two assessment units — the Chukchi Borderland and the Canada Basin — but neither were quantitatively assessed as these units did not meet the criteria of possessing a greater than 0.1 probability of having the presence of at least one hydrocarbon accumulation of at least 50 million BOE. The Canada Basin is characterized by poorly known basement rock where no active petroleum systems are currently recognized. However, regional considerations suggest that shale representing organic-rich condensed sections are likely present in the Cretaceous- and Paleogene-aged parts of the sequence. Ultradeep water depths (~10,000 feet), as well as persistent sea ice coverage, present technical challenges to the exploration and development of oil and gas accumulations within the planning area. Currently, BOEM describes the High Arctic Planning Area as having negligible resource potential.

Figure 5-6: Assessment of Mean UTRR by OCS Planning Area



Note: UTRR include leased and unleased areas. Because geologic plays within the Straits of Florida are extensions of plays in the Eastern GOA, the UTRR for the Straits of Florida are included in GOA estimates.

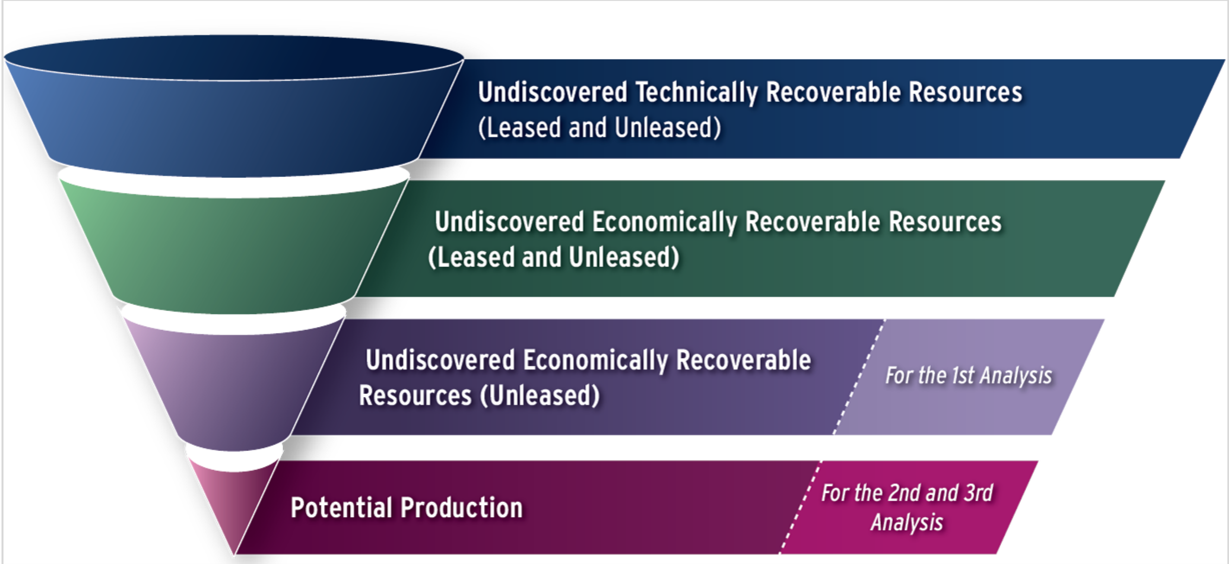
5.5 Unleased Undiscovered Economically Recoverable Resources

This 1st Analysis requires an assessment of the UERR in each planning area that is expected to be available for lease during the 11th Program. BOEM uses the unleased portion of the UERR from the 2021 National Assessment to create exploration and development scenarios (E&D scenarios) for this 1st Analysis.

This analysis follows a multi-step process listed below and shown graphically in Figure 5-7:

1. Assess all oil and gas that could be produced using conventional extraction techniques without any consideration of economic viability (this is the UTRR, as published in the 2021 National Assessment (BOEM 2021c)).
2. Reduce the UTRR to that portion of oil and gas resources that are economically recoverable under specified economic and technologic conditions, including prevailing prices and costs (this is the UERR, as published in the 2021 National Assessment (BOEM 2021c)).
3. Further reduce the UERR to only the portion expected to be available for lease for the 11th Program.

Figure 5-7: Conceptual Workflow Showing Transition from UTRR to Potential Production



The conceptual workflow shown in Figure 5-7 also includes a final step ("potential production") that is not included in this 1st Analysis. Potential production is considered for analysis in the subsequent 2nd and 3rd analyses.

BOEM analyzed all 27 planning areas for resource potential. Fifteen planning areas, preliminarily analyzed and estimated to have negligible resources or negligible development value, are not analyzed further in the hydrocarbon and economic analyses. Of these 15 planning areas, 10 areas have measured resource potential, but negligible development value, including the Gulf of Alaska, Hope Basin, Kodiak, Navarin Basin, Norton Basin, Shumagin, and St. George Basin planning areas in the Alaska Region, South Atlantic and Straits of Florida planning areas in the Atlantic Region, and Washington/Oregon in the Pacific Region.

Five of the planning areas (Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and St. Matthew-Hall planning areas, all in the Alaska Region) are excluded from further hydrocarbon and economic analysis because they are estimated to contain negligible resource quantities. Negligible development value refers to planning areas that are assessed to have marginal resources, but the value associated with development of those resources is insignificant for analytical purposes. Negligible resources refer to assessed geological oil and gas resources that are insignificant due to the poor quality or absence of critical petroleum system elements.

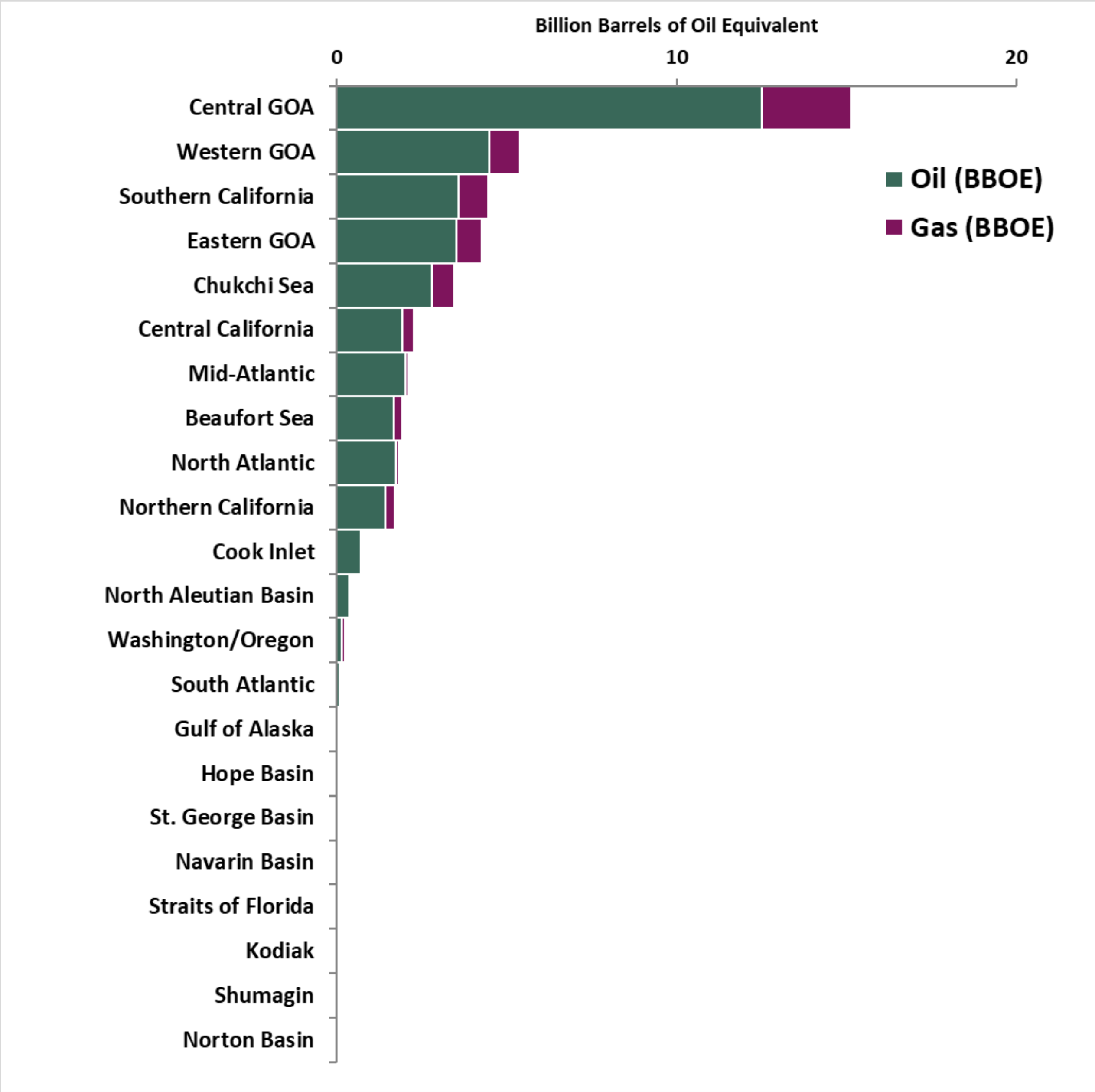
Figure 5-8 shows the relative ranking of the planning areas based on the estimates of unleased UERR in BOE for an oil price of $100/bbl and a natural gas price of $5.34/thousand cubic feet (mcf).[17] The planning areas are ranked from those with the largest amount of resources to those with the least. These UERR-based rankings consider the geologic risk associated with finding oil and gas on the OCS. As explained in Section 5.3.3, the UERR estimates associated with underexplored and/or underdeveloped areas on the OCS would significantly increase following successful well drilling and field discovery.

To account for some of the uncertainty surrounding oil and natural gas prices and the likelihood that prices will vary during development and implementation of a National OCS Program, this analysis is conducted using three different price scenarios and corresponding sets of resource estimates. The price scenarios are based on price pairs of $40/bbl and $2.14/mcf, $100/bbl and $5.34/mcf, and $160/bbl and$8.54/mcf.[18] Table 5-1 displays the unleased UERR at three different price scenarios. The estimate of resources is provided at each of these three price cases to show the different level of available resources at three different sets of energy market conditions and associated activity levels. The unleased UERR for the 22 OCS planning areas with non-negligible resource estimates at the $100/bbl price case are displayed in Figure 5-9. The price scenarios are discussed in more detail in Section 6.1.

Figure 5-10 shows the portion of total unleased UERR for each of the 12 fully analyzed planning areas at the $100 oil price case.

17 Prices are discussed in Section 6.1.
18 The price pairs reflect possible levels over the life of production from the National OCS Program rather than near-term prices, and the mid-range price is roughly comparable to EIA's projections for the 15–20 years after the early sales would occur (EIA 2025d).

Figure 5-8: Unleased UERR by Planning Area ($100 Oil Price Case)



Notes: The $100 price case assumes an inflation-adjusted price of $100/bbl for oil and $5.34/mcf for natural gas over the life of the 11th Program. Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and St. Matthew-Hall planning areas are estimated to contain negligible resource quantities and are not shown in this figure.

Table 5-1: Unleased UERR as of April 2025, Ranked by BOE for the $100 Oil Price Case

Rank	Planning Area	Oil (Bbo)			Gas (Tcf)			BOE (BBOE)		
		Low	Mid	High	Low	Mid	High	Low	Mid	High
		$40/bbl $2.14/mcf	$100/bbl $5.34/mcf	$160/bbl $8.54/mcf	$40/bbl $2.14/mcf	$100/bbl $5.34/mcf	$160/bbl $8.54/mcf	$40/bbl $2.14/mcf	$100/bbl $5.34/mcf	$160/bbl $8.54/mcf
1	Central GOA	7.43	12.52	13.36	6.74	14.59	16.56	8.63	15.11	16.30
2	Western GOA	2.62	4.48	4.79	2.11	5.11	5.93	3.00	5.39	5.85
3	Southern California	2.33	3.57	3.80	3.45	4.92	5.23	2.94	4.45	4.73
4	Eastern GOA	1.85	3.53	3.80	1.73	4.12	4.58	2.16	4.27	4.61
5	Chukchi Sea	0.00	2.80	7.69	0.00	3.75	14.97	0.00	3.47	10.35
6	Central California	1.33	1.92	2.04	1.38	1.99	2.10	1.57	2.27	2.41
7	Mid-Atlantic	1.50	2.02	2.08	0.00	0.42	2.12	1.50	2.10	2.46
8	Beaufort Sea	0.00	1.67	2.99	0.00	1.42	2.89	0.00	1.92	3.50
9	North Atlantic	1.37	1.73	1.77	0.00	0.50	2.25	1.37	1.82	2.15
10	Northern California	0.92	1.43	1.53	0.98	1.57	1.71	1.10	1.71	1.83
11	Cook Inlet	0.02	0.71	0.88	0.01	0.28	0.35	0.02	0.76	0.94
12	North Aleutian Basin	0.00	0.37	0.47	0.00	0.17	0.24	0.00	0.40	0.51
13	Washington/Oregon	0.07	0.15	0.18	0.24	0.49	0.58	0.11	0.24	0.28
14	South Atlantic	0.03	0.09	0.11	0.00	0.00	0.01	0.03	0.09	0.11
15	Gulf of Alaska	0.00	0.02	0.08	0.00	0.03	0.22	0.00	0.03	0.12
16	Hope Basin	0.00	0.02	0.03	0.00	0.02	0.05	0.00	0.02	0.04
17	St. George Basin	0.00	0.02	0.05	0.00	0.01	0.05	0.00	0.02	0.06
18	Navarin Basin	0.00	0.01	0.04	0.00	0.01	0.05	0.00	0.01	0.05
19	Straits of Florida	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
20	Kodiak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	Shumagin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	Norton Basin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: All price scenarios represent a constant, inflation-adjusted price throughout the life of the 11th Program. The Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and St. Matthew-Hall planning areas contain negligible hydrocarbon resources and are not shown in this table.
Key: bbl=barrels of oil, Bbo=billion barrels of oil, BBOE=billion barrels of oil equivalent, BOE=barrel of oil equivalent, mcf=thousand cubic feet of natural gas, Tcf=trillion cubic feet of natural gas, UERR=undiscovered economically recoverable resources.

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Figure 5-9: Unleased UERR for the $100 Price Case

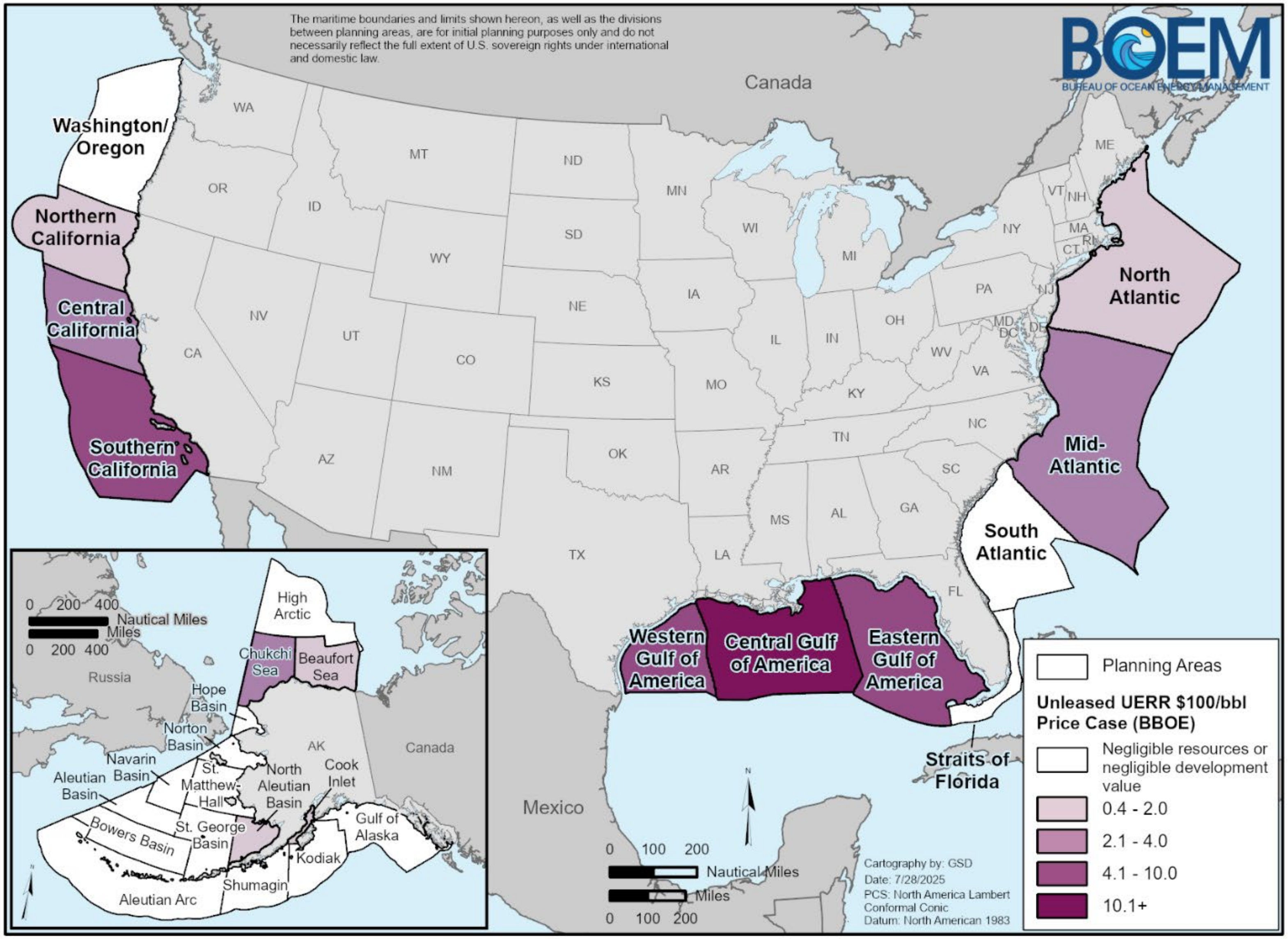
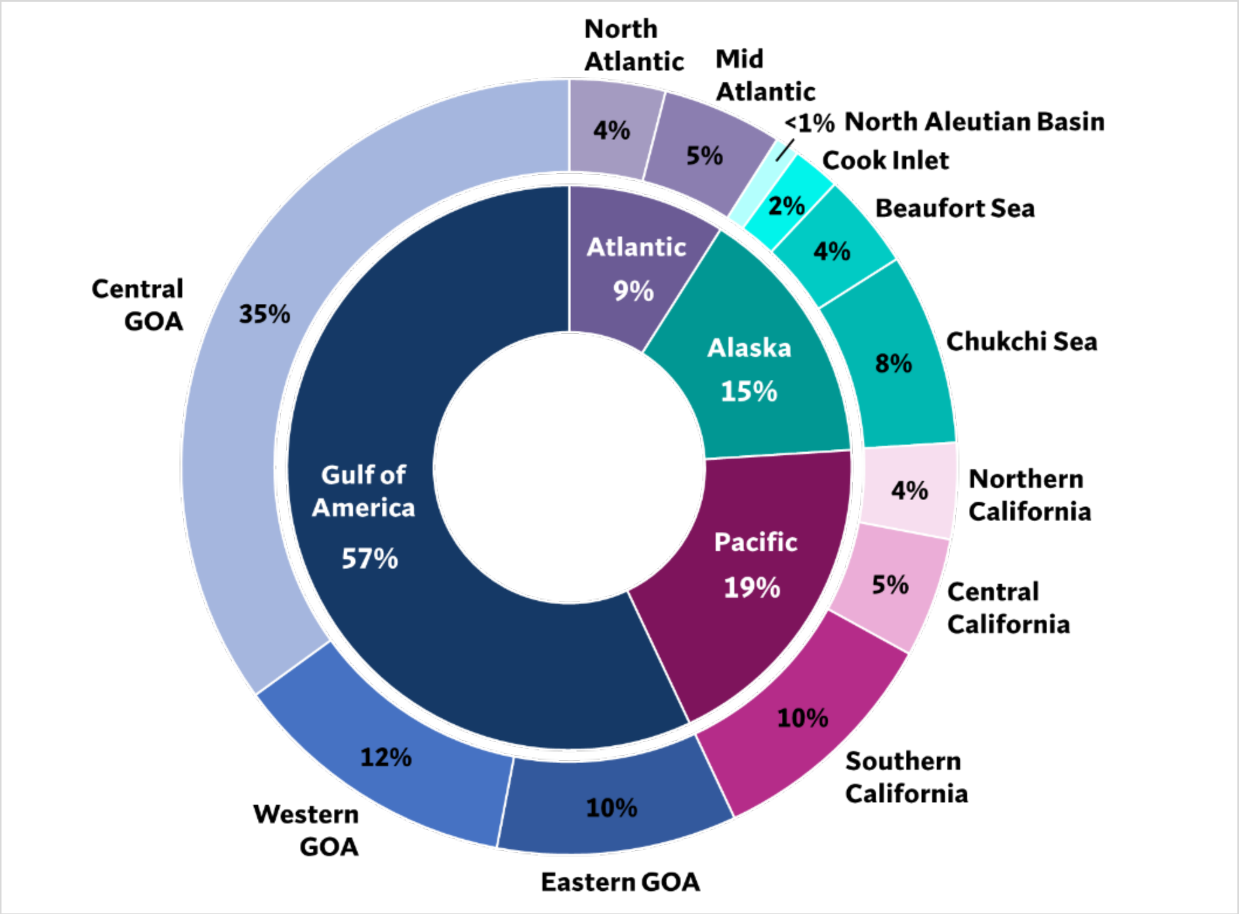


Figure 5-10: Distribution of Unleased UERR by Planning Area & Region ($100 Oil Price Case)



Notes: Gulf of Alaska, Hope Basin, Kodiak, Navarin Basin, Norton Basin, Shumagin, St. George Basin, South Atlantic, Straits of Florida, and Washington/Oregon planning areas are excluded from this figure because they have only negligible development value. Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and the St. Matthew-Hall planning areas are estimated to have only negligible resources and are excluded from this figure. Numbers may not sum due to rounding.

5.6 Exploration and Development Scenarios

Because the 1st Analysis is conducted before the 1st Proposal to support the Secretary's decisionmaking, BOEM provides the Secretary with relative rankings of planning areas based on estimated unleased UERR quantity and value.[19] These rankings assist the Secretary in his decision as to which planning areas should be further considered in the preparation of the new National OCS Program. To estimate the social value of planning area resources, BOEM calculates both the economic value and the social costs associated with producing the oil and gas resources.

To estimate these costs, BOEM constructs E&D scenarios, which describe the annualized exploration, development, and production activities required to explore for, extract, and transport

19 Subsequent analysis performed at the 2nd and 3rd Analysis focus on the value of production and related activities anticipated to result from forthcoming Secretarial decisions related to size, timing, and location of specific lease sales.

to market the resources estimated within an OCS planning area. Activity categories are designed to incorporate both capital cost and operating expense and include geophysical data acquisition; exploration, delineation, and production wells; production platforms and subsea production equipment; offshore pipeline installation; and decommissioning activities. To avoid pre-supposing Secretarial decisions on the timing of lease sales, the E&D scenarios assume that all currently available (unleased) UERR are leased during the initial year of the 11th Program and then explored, developed, and produced expeditiously.

The aggregate values and scenarios are calculated by incorporating empirically based assumptions around the type and amount of infrastructure required to produce the UERR volumes and assume schedules of activities that recognize historical trends and regional differences. The schedules of activities cover exploration, development, production, and transportation of the produced oil and gas. The activity estimates included in the E&D scenarios are used for the comprehensive analyses that describe the range of direct and indirect social, economic, and environmental impacts that could result from lease sales proposed in the National OCS Program. Historical leasing trends, drilling trends, oil and gas discovery volumes, production activity, and other BOEM short-term forecasts are analyzed to generate the data and information used in the development of E&D scenarios.

Chapter 6
Economic, Social, & Environmental Values

Chapter 6 Economic, Social, & Environmental Values

For the 1st Analysis, BOEM provides the Secretary with a quantitative ranking of planning areas based on the Section 18 requirement to consider the economic, environmental, and social value of OCS resources. BOEM calls this analysis the OCS Inventory Net Benefits for the DPP (Inventory Net Benefits) as it evaluates the net benefits associated with the OCS inventory of resources in each planning area. The Inventory Net Benefits analysis is the benefits of the resources in a planning area less private, social, and environmental costs of extracting these resources. This quantitative ranking compares the full inventory of resources in the planning areas and assumes the ultimate recovery of all UERR estimated to be available as of April 2025 (see Table 5-1).

This 1st Analysis presents the Inventory Net Benefits without pre-supposing any decision on the size, timing, and location of lease sales. BOEM assumes that all UERR currently unleased will be leased during the initial year of the National OCS Program and then explored, developed, and produced. Accordingly, the Inventory Net Benefits is an appraisal of each planning area's value of the inventory of resources after considering the costs associated with extracting those resources. This information is used in preparation for the Secretary's 1st Proposal, which is the initial decision on size, timing, and location of lease sales for the 11th Program. The results of the analysis, included in Sections 6.4 and 6.5, are presented in the form of a ranking of planning areas by Inventory Net Benefits.

Because currently leased OCS resources are not available for inclusion in the 1st Proposal, this analysis does not incorporate the societal benefits and associated costs from their continued use.

As noted in Figure 5-7, this 1st Analysis differs from future stages of the National OCS Program analysis wherein BOEM only considers the volume of oil and gas that could be leased, discovered, and produced under a specific leasing proposal. These subsequent analyses will also account for other important factors in evaluating specific National OCS Program decisions, such as rig availability, demand conditions, supply-induced price changes on domestic consumers and producers, and the impacts of energy substitutes that would compensate for forgone OCS production in the absence of lease sales under an approved National OCS Program. However, consideration of the full UERR at the 1st Analysis stage provides the decisionmaker with a uniform metric of the inventory of resources available for potential leasing and development across all planning areas. The Inventory Net Benefits provides a comparative analysis of the full inventory of resources within all planning areas for possible inclusion in the subsequent stage, the

2nd Analysis. The analysis is referred to as the net benefits analysis at the later stages of National OCS Program development.

When the 2nd Analysis is prepared, the subsequent net benefits analysis will focus only on the planning areas and portions of planning areas (then to be referred to as "program areas") identified for leasing consideration in the 1st Proposal. The 2nd Analysis will only include economic benefit and cost estimates associated with those resources that could be discovered and produced because of the new National OCS Program (as opposed to total available economic resources). Further, the 2nd Analysis will include an estimate of consumer surplus benefits for each program area and will subtract environmental and social costs associated with the energy market substitutes displaced by the anticipated oil and natural gas production of the new National OCS Program.

Out of the 27 planning areas included in the 1st Analysis, 15 are characterized as containing negligible resources or assumed to have negligible development value and are not included in the Inventory Net Benefits analysis. BOEM did not formally evaluate the new High Arctic Planning Area as part of the 2021 National Assessment using conventional oil and gas assessment techniques, but notes that other assessments (USGS 2008) have described limited oil and gas resource availability. The limited availability of geological and geophysical data, characterized by a lack of exploratory wells and inadequate seismic surveys, limits the ability to provide a quantitative assessment of hydrocarbon resources. Given these factors, the High Arctic is characterized as having negligible resource potential. See Section 5.4 and 5.5 for additional information on UERR estimates for the various planning areas.

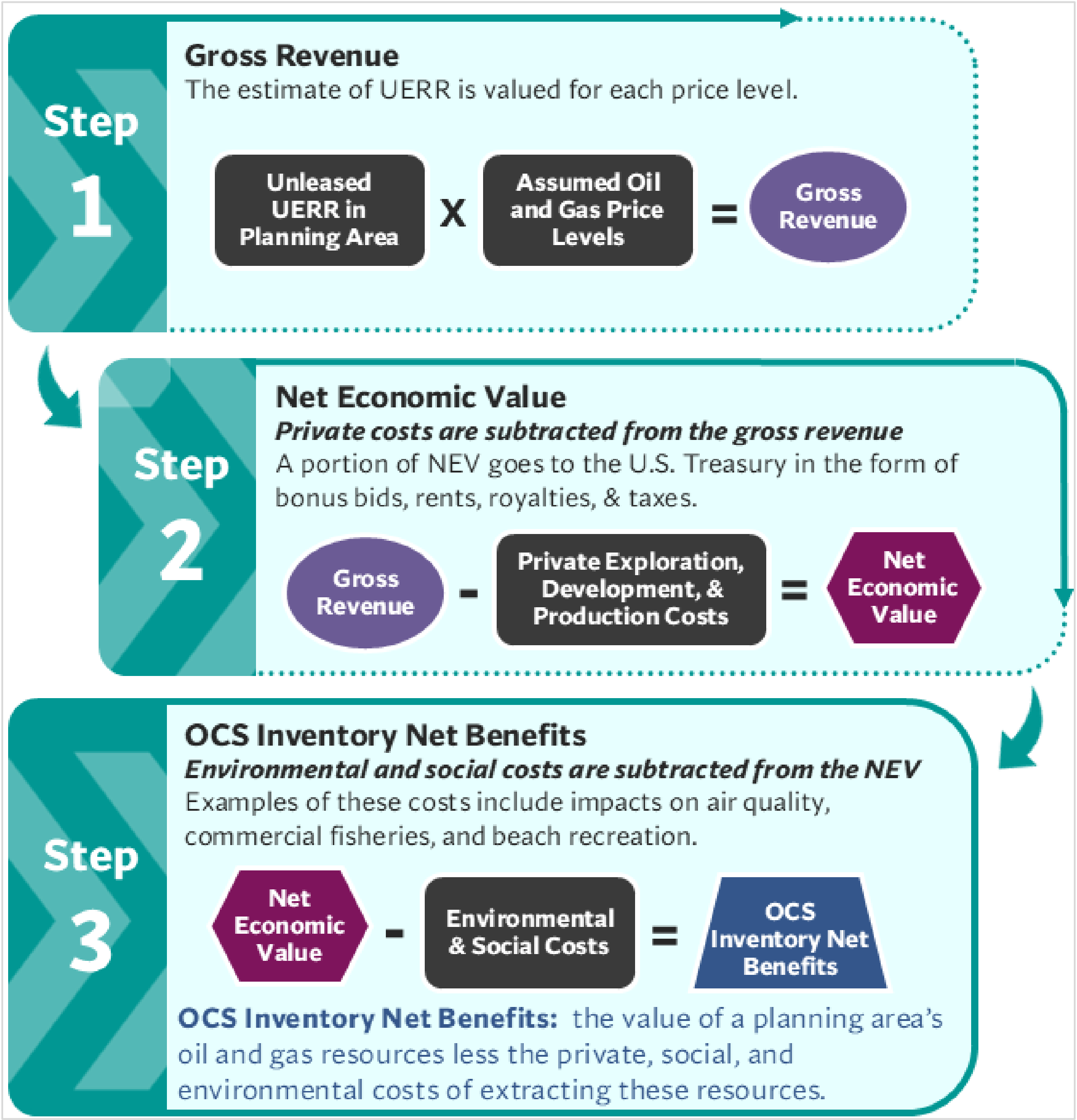
The calculation of the Inventory Net Benefits is a three-step process as shown in Figure 6-1. Each component is described below.

6.1 Step 1: Gross Revenue

To calculate the Inventory Net Benefits, BOEM begins with the calculation of the gross revenue associated with the inventory of all unleased UERR in each planning area. Gross revenue equals the production of each resource multiplied by the assumed price level (see Figure 6-1).

Historical oil price volatility shows that unanticipated market and political events, new technologies, weather, geopolitical unrest, or economic changes can cause energy price paths to deviate considerably from even the most respected forecasts. Moreover, use of a trend forecast or fluctuating prices in the analysis would render it difficult to separate out the effects of assumed price changes and their timing from the resource and cost differences in planning areas on the measures of Inventory Net Benefits. Given the extreme uncertainty surrounding oil and natural gas prices over the life of leases sold during this National OCS Program, the analysis includes resource and net benefits evaluated at three sets of oil and gas price pairs, or cases, as shown in Table 6-1.

Figure 6-1: Components of the OCS Inventory Net Benefits for the 1st Analysis



Key: UERR = Undiscovered economically recoverable resources

Table 6-1: Price Case Assumptions

$40/bbl Price Case	$100/bbl Price Case	$160/bbl Price Case
$40/barrel of oil $2.14/mcf of gas	$100/barrel of oil $5.34/mcf of gas	$160/barrel of oil $8.54/mcf of gas

Key: bbl = barrel; mcf = thousand cubic feet

These price cases are consistent with BOEM's 2021 National Assessment (BOEM 2021a). These price cases are not meant to imply or represent price expectations, forecasts, or even upper and lower bounds of possible prices. The price cases are simply meant to provide a representative range of possible oil and gas prices, which could occur over the life of this National OCS Program, to assist in the quantitative analysis. The revenue is discounted back to present value using a 3% discount rate as recommended by the Office of Management and Budget (OMB 2003).

6.2 Step 2: Net Economic Value

After BOEM estimates the resources' gross revenue, the second stage of the Inventory Net Benefits analysis is to calculate the NEV. The NEV is the value to society derived from developing hydrocarbon resources on the OCS. Consistent with standard practices in benefit-cost analyses, the NEV equals the discounted gross revenues from the produced oil and natural gas minus the private costs required to realize the economic value of the resources.

The costs subtracted from the gross revenue include the discounted costs of exploring for, developing, producing, and transporting oil and natural gas to the market. The NEV can be considered as the present value of the expected economic rent for all available unleased UERR. A portion of the NEV goes to the U.S. Government as lessor and steward for the public in the form of bonus bids, rents, royalties, and taxes. The lessees, as private firms, retain the remainder of NEV as economic profits that could be distributed to shareholders.[20] Based on the calculated government share and general estimates of foreign shareholder proportions in foreign companies, BOEM uses only 95% of the NEV estimate to measure the domestic portion of NEV from a planning area.

The NEV analysis treats the private expenditures on exploration, development, production, and transportation as costs. In a broader macroeconomic context, this spending is sometimes treated as a benefit. For example, use of labor and capital to search for and extract oil and natural gas resources contributes to the national income. Also, this spending generates regional economic impacts and multiplier effects arising from the job creation, infrastructure investment, and other activities, which are discussed in more detail in Chapter 11. Additional benefits of OCS production are addressed in **Appendix B** under the discussion on non-monetized benefits.

Figure 6-2 shows the range of estimated NEV for each of the 12 planning areas between the $40/bbl oil and $160/bbl oil price cases. The areas are ranked based on NEV under the $100/bbl oil price case, which is indicated in the figure with the vertical orange line for each planning area.

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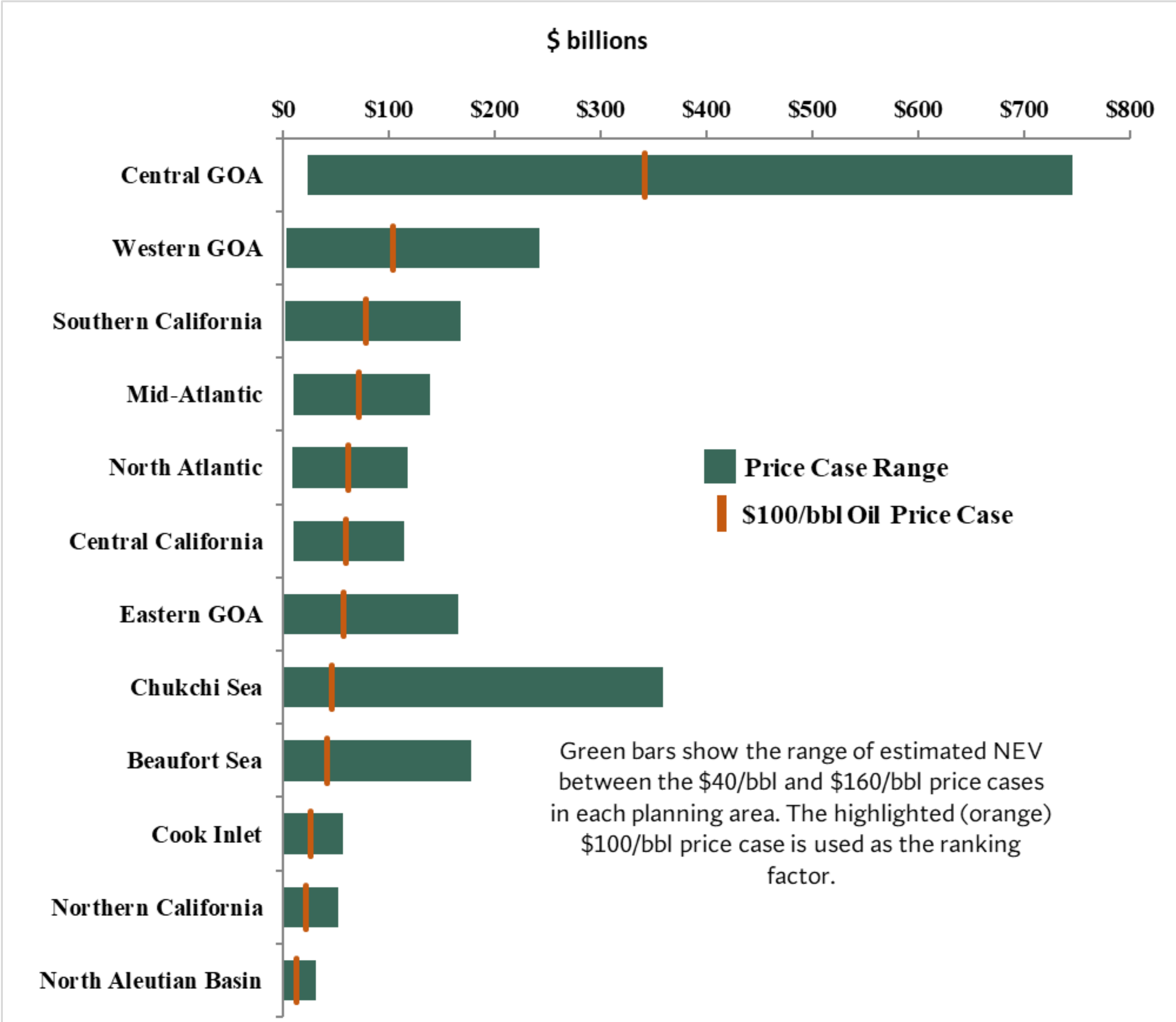
[20] The Final EAM paper for the 10th Program discusses the adjustment factor applied to the NEV to account for (remove) profits going to foreign shareholders (BOEM 2023b). BOEM maintains the same methodology for this 1st Analysis. This adjustment to NEV means that what remains, and what is considered in this 1st Analysis, is an estimate of the domestic value only.

Figure 6-2: Net Economic Value Ranges by Planning Area (Ranked by $100/bbl Oil Price Case)



Notes: Estimated NEV is provided as a range from the $40/bbl oil price case to the $160/bbl oil price case. The $100/bbl oil price case is represented by the vertical line (orange) intersecting each solid bar. The Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and the St. Matthew-Hall planning areas are all excluded from this figure because they are estimated to contain only negligible resource quantities. The Gulf of Alaska, St. George Basin, Kodiak, Navarin Basin, Hope Basin, Shumagin, Norton Basin, Straits of Florida, South Atlantic, and Washington/Oregon planning areas are all excluded from this figure because they have an estimated negligible development value. The North Aleutian Basin, Chukchi Sea, and Beaufort Sea planning areas have negligible developmental value at the $40/bbl oil price case and are not modeled; instead, they are shown as 0 at the $40/bbl oil price case. All values are discounted at a real discount rate of 3%.

The NEV ranking of planning areas is slightly different than the resource rankings presented in Table 5-1. For example, the Chukchi Sea ranks 5th in total resources, but drops to 8th in the ranking of NEV. Considerable operational challenges drive higher operating costs in the Arctic, which generate a lower NEV per BOE produced. In contrast, mature areas like the Central GOA generally have lower operating costs, and thus generate a higher NEV.

Similar to the resource-to-price relationship, the NEV-to-price relationship is not linear. While costs do rise as prices increase, higher prices prompt companies to pursue resources that are more difficult and more expensive to develop and produce. If prices advance toward the levels of the $160/bbl oil price case, that will allow for a mix of lower-cost and higher-cost fields to be developed at the same time. Conversely, if prices settle near or below the $40/bbl oil price case, as they did in 2015, 2016, and 2020, companies will focus more of their efforts on the most profitable projects. Given the differences in resources and costs under the different price cases, the NEV estimates for each area and price case are provided in the first three columns of Table 6-2.

6.3 Step 3a: Environmental and Social Costs

The next step of the analysis is the calculation of environmental and social costs. Beyond the private costs used to calculate the NEV, society incurs environmental and social costs from the activities and facilities associated with OCS oil and natural gas exploration and development. These can include, but are not limited to, impacts on air quality, water quality, commercial fisheries, and beach recreation. BOEM uses the Offshore Environmental Cost Model (OECM) to calculate the environmental and social costs associated with OCS oil and gas activity. The OECM was initially developed in 2001 and has undergone several successive revisions. A discussion of the model and updates are discussed in Chapter 1 of the EAM for the 10th Program (BOEM 2023b). More detailed descriptions of the models are included in the OECM documentation *Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development – Volume 1: The 2023 Revised Offshore Environmental Cost Model (OECM)* (Industrial Economics Inc. 2023) and *Volume 2: Supplemental Information to the 2018 Revised Offshore Environmental Cost Model (OECM)* (Industrial Economics Inc. 2018).

The OECM is designed to model the impact of typical activities associated with OCS production and oil spills (other than possible catastrophic oil spills, which are analyzed separately) occurring on the OCS. The model uses economic inputs, environmental resource estimates, and E&D scenarios as the basis for calculations. Costs are calculated for the following six categories:

- Recreation
- Air quality
- Property values
- Subsistence harvests
- Commercial fishing
- Ecological impacts.

While the model captures a wide range of environmental and social costs, it is not designed to represent impacts on unique resources. The model assesses the impact of OCS oil and gas activities on subsistence harvests by estimating oil spill-related mortality effects among general subsistence species groups. This assumes that all organisms killed by oil spills would have been harvested for commercial or subsistence purposes, estimating the subsistence component of this lost harvest, and calculating an estimated replacement cost. The model also is limited to the impact of OCS oil and natural gas activities on subsistence harvests in Alaska planning areas, reflecting the significance of this issue in Alaska relative to other regions and the availability of Alaskan subsistence harvest data.

Although subsistence harvests do occur in other regions of the coastal U.S., they are not readily characterized. The model reflects monetized values related to subsistence harvest in Alaska, but it is not intended to represent a full and accurate value of the unique importance of subsistence in rural Alaska. Unique aspects of subsistence in Alaska include the cultural and ecological importance, as well as its economic importance reflected in a mixed subsistence-cash economy. BOEM recognizes that subsistence is irreplaceable as a social and cultural matter, which is described in more detail in **Appendix B**.

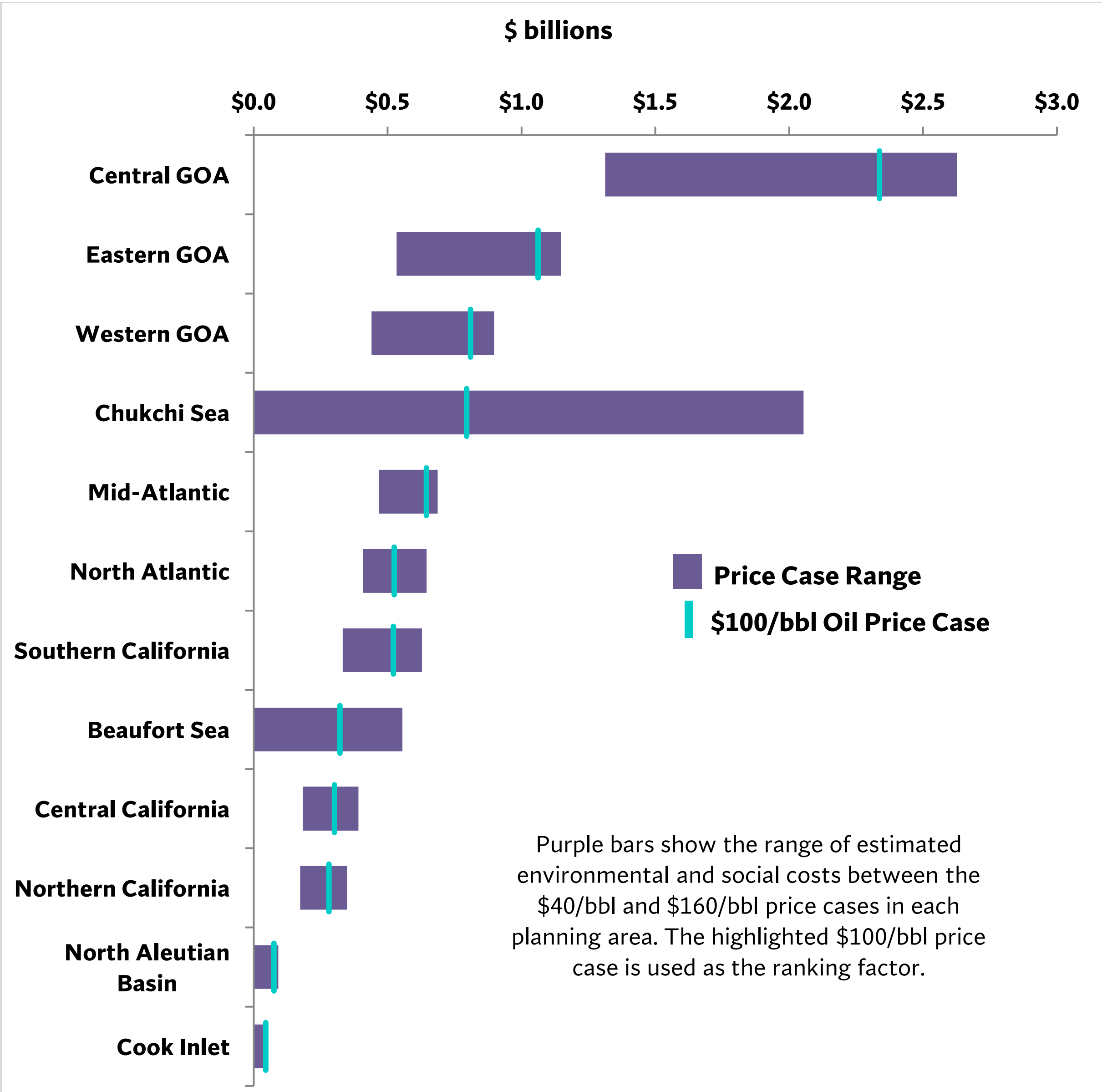
Subsistence use and impacts on other unique environmental resources, such as endangered species, are discussed in Chapter 9 and in more detail in the subsequent environmental evaluation for the 2nd Analysis. Further, impacts on unique resources could be subject to mitigation measures at later stages of development. The OECM and resulting cost estimates do not include or monetize other conceivable effects such as impacts from onshore infrastructure, non-use values, or national energy security, among others. Additional information on unique resources and OECM limitations, including a discussion of non-market values, is available in **Appendix B**. BOEM specifically requests public comments on the quantification and monetization of environmental and social costs, particularly impacts on subsistence resources.

The OECM is also not designed to represent impacts from catastrophic oil spill events. The OECM only considers a range of oil spills up to 100,000 barrels. Historically, the number of catastrophic spills has been low, and have occurred under a wide range of conditions with a broad range of impacts (see Section 9.4). The lack of robust data and the unpredictable nature of catastrophic oil spills, including the many factors that determine their severity, make efforts to quantify their costs much more uncertain than those to quantify other measures considered in the Inventory Net Benefits analysis.

In addition to the difficulty in calculating the cost of the potential impacts of a catastrophic spill, there are similar difficulties in calculating the risk. For these reasons, the risks and impacts of catastrophic oil spills are not considered in the Inventory Net Benefits analysis. Catastrophic oil spills are discussed and considered in Chapter 9. Additional information is also available in the *Economic Inventory of Environmental and Social Resources Potentially Impacted by a Catastrophic Discharge Event within OCS Regions* (BOEM 2014). All the assumptions in the model are based on historical information and do not account for future improvements in technology and decreasing rates of emissions and oil spills.

Figure 6-3 shows a ranking of the range of environmental and social costs for the three price levels based on the environmental and social costs of the $100/bbl oil price case. These costs are also shown in the middle three columns of Table 6-2.

Figure 6-3: Environmental and Social Costs by Planning Area (Ranked by $100/bbl Oil Price Case)



Notes: The range of estimated environmental and social costs from the $40/bbl oil price case to the $160/bbl oil price case is represented by the solid bars (purple). The $100/bbl oil price case is represented by the vertical line (blue) intersecting each solid bar. The Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and the St. Matthew-Hall planning areas are all excluded from this figure because they are estimated to contain only negligible resource quantities. The Gulf of Alaska, St. George Basin, Kodiak, Navarin Basin, Hope Basin, Shumagin, Norton Basin, Straits of Florida, South Atlantic, and Washington/Oregon planning areas are all excluded from this figure because they have an estimated negligible development value. The North Aleutian Basin, Chukchi Sea, and Beaufort Sea planning areas have negligible developmental value at $40/bbl and are not modeled; instead, they are shown as 0 at the $40/bbl oil price case. All values are discounted at a real discount rate of 3%.

The ranking of the planning areas in terms of environmental and social costs in Figure 6-3 varies from their rankings based on UERR resources in Figure 5-8. The ranking differences stem from the relative environmental and social impact of OCS activities in the different planning areas and the levels of exploration and development activity per barrel extracted in the area. For example, Eastern GOA ranks 4th in UERR resources, but has higher relative environmental and social costs, ranking 2nd, due in part to its higher levels of activity per barrel (e.g., wells drilled, platforms installed) and the environmental and social costs associated with those activities relative to the activity and environmental and social costs of other planning areas. The Mid-Atlantic Planning Area, which ranks 7th in resources, ranks 5th in environmental and social costs, due in part to higher impacts on recreation relative to other areas.

Recreation and air quality impacts are two of the largest monetized components of the OECM and vary widely between planning areas. An oil spill in the Mid-Atlantic Planning Area could threaten recreational activities, but a spill of equal magnitude in the Arctic potentially would not have the same effect on activities such as recreational fishing and beach visitation because fewer people participate in these activities in the Arctic. As such, the OECM will show a greater reduction in social welfare in the Mid-Atlantic Planning Area when compared to the Arctic even although the Arctic would incur other costs such as damages to subsistence harvests.

The OECM contains an air quality model based on the Air Pollution Emission Experiments and Policy analysis model that evaluates the onshore damages caused by dispersed criteria pollutants emitted offshore. Because the Mid-Atlantic seaboard is more developed and populous than the Arctic, air emissions create larger monetized environmental impacts on human health, agriculture, and material damage. Also, the model monetizes potential subsistence harvest impacts from those spills modeled in the OECM (of less than 100,000 barrels) for Alaska, but not for other regions.[21] Additional information on the OECM environmental and social cost components and calculations is included in Chapter 1 of the 10th Program EAM paper (BOEM 2023b), as well as the OECM model documentation.

The estimates of environmental and social costs do not include cost estimates for greenhouse gas (GHG) emissions. However, **Appendix B** shows the GHG emissions from upstream activities (i.e., emissions associated with the initial exploration, production, and transport of OCS oil and gas resources).

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[21] The OECM is limited to subsistence harvests in Alaska planning areas because of the relative importance of subsistence harvests in Alaska and the availability of Alaskan subsistence harvest data (Industrial Economics Inc. 2015a). Although other OCS Regions have some subsistence harvests, data of the type needed for the OECM are not available. BOEM continues to review existing information on subsistence harvests in other regions, and if data on the scope and value of these harvests become available, BOEM can modify the OECM to incorporate these impacts. Some information on the presence of subsistence harvests in the other regions is discussed in the separate report, *Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development – Volume 2: Supplemental Information to the 2015 Revised Offshore Environmental Cost Model (OECM)* (Industrial Economics Inc. 2015b).

There is an important difference between the environmental and social cost calculation done for the 1st Analyses versus the subsequent phases of National OCS Program development (i.e., 2nd and 3rd analyses). The 1st Analysis only considers the environmental and social costs of extracting OCS resources. However, for the 2nd and 3rd Analyses, BOEM also accounts for the environmental and social costs of the displaced energy substitutes. With new OCS production, substitute energy sources, which have their own environmental and social costs, will be displaced. At those later stages of analyses, BOEM characterizes the total project costs as the costs associated with OCS exploration, development, and production from a lease sale under the project after accounting for the costs from displaced substitute energy sources which are not produced or consumed under the project.

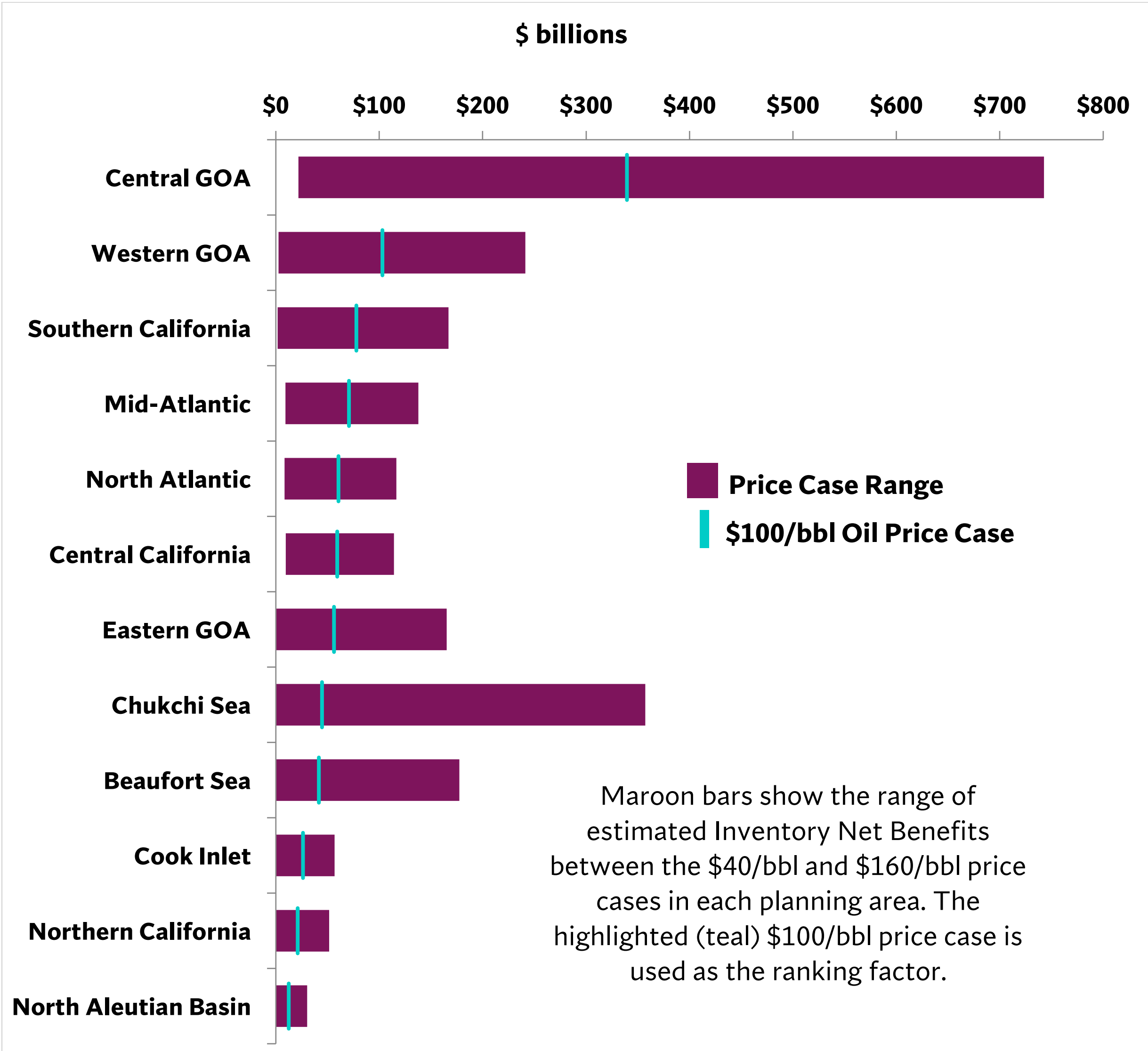
As stated above, the scope of the 1st Analysis is inherently different than in later National OCS Program development stages. The 1st Analysis estimates the value of the resources less the private and social costs of extraction. This analysis considers the large volumes of all available UERR with no leasing or market constraints such as rig or worker availability and defers the assessment of specific planning area proposals and options until later development stages. At the 2nd and 3rd Analysis stages, the analysis shifts to one that considers domestic demand, the supply of other energy resources, including imports, and other substitute sources of energy that would be displaced by the new OCS production. The analysis at later stages includes the displacement analysis and calculation of total environmental and social costs for a subset of all available UERR (potential oil and gas production).

6.4 Step 3b: OCS Inventory Net Benefits

The result at this National OCS Program stage, the Inventory Net Benefits, is the NEV less the present value of environmental and social costs anticipated from each planning area. The range of Inventory Net Benefits is shown in Figure 6-4, ranked relative to the $100/bbl oil price case estimates from largest to smallest. **Appendix B** includes a discussion of relevant costs and benefits that are not monetized in the 1st Analysis. There are some costs and benefits that do not lend themselves easily to quantification and monetization, whereas others are more appropriately estimated in later National OCS Program stages.

In addition to the inclusion of total environmental and social costs, the net benefits analysis is expanded in subsequent stages (for the 2nd and 3rd analyses) to include domestic consumer surplus. Domestic consumer surplus measures the additional benefits that U.S. consumers receive from the slight energy market price decreases that occur through the production of OCS resources. Calculating consumer surplus is not applicable at the 1st Analysis stage since BOEM's consideration of all available resources would skew the results when combined with other real-world energy market information and forecasts. More information on the treatment of environmental and social costs and consumer surplus in later National OCS Program stages can be found in Chapter 3 of the 10th Program EAM paper.

Figure 6-4: OCS Inventory Net Benefits Ranges by Planning Area (Ranked by $100/bbl Oil Price Case)



Notes: The range of estimated Inventory Net Benefits from the $40/bbl oil price case to the $160/bbl oil price case is represented by the solid bars (green). The $100/bbl oil price case is represented by the vertical line (orange) intersecting each solid bar. The Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and the St. Matthew-Hall planning areas are excluded from this figure because they are estimated to contain only negligible resource quantities. The Gulf of Alaska, St. George Basin, Kodiak, Navarin Basin, Hope Basin, Shumagin, Norton Basin, Straits of Florida, South Atlantic, and Washington/Oregon planning areas are all excluded from this figure because they have an estimated negligible development value. The North Aleutian Basin, Chukchi Sea, and Beaufort Sea planning areas have negligible developmental value at $40/bbl oil price case and are not modeled; instead, they are shown as 0 at the $40/bbl oil price case. All values are discounted at a real discount rate of 3%.

6.5 Results and Conclusion

Detailed estimates of the NEV, environmental and social costs, and Inventory Net Benefits for each planning area are shown in Table 6-2. Planning areas are ranked by the Inventory Net Benefits at the $100/bbl oil price case. The first three columns (green) show the NEV per planning area, the second three columns (magenta) show the environmental and social costs, and the final three columns (blue) show the results of the Inventory Net Benefits calculation (NEV less environmental and social costs). The three different price cases show what the estimated benefits and costs would be under vastly different energy market conditions. However, these estimates are rooted in uncertainty at many levels beyond just price. In addition to the price uncertainty, there is also resource uncertainty, extraction cost uncertainty, environmental and social cost uncertainty, and others. The estimates will vary depending on the assumptions used. The nature of these uncertainties is discussed in Chapter 11.

Figure 6-5 shows a map of the Inventory Net Benefits for each planning area at the $100/bbl oil price case. The Inventory Net Benefits is only one of the metrics that the Secretary uses to help evaluate the multiple Section 18 factors and requirements; simply because a planning area ranks high (or low) does not necessarily mean it warrants inclusion (or exclusion) in the National OCS Program.

Table 6-2: Ranking of Planning Areas (by $100/bbl Oil Price Level OCS Inventory Net Benefits)

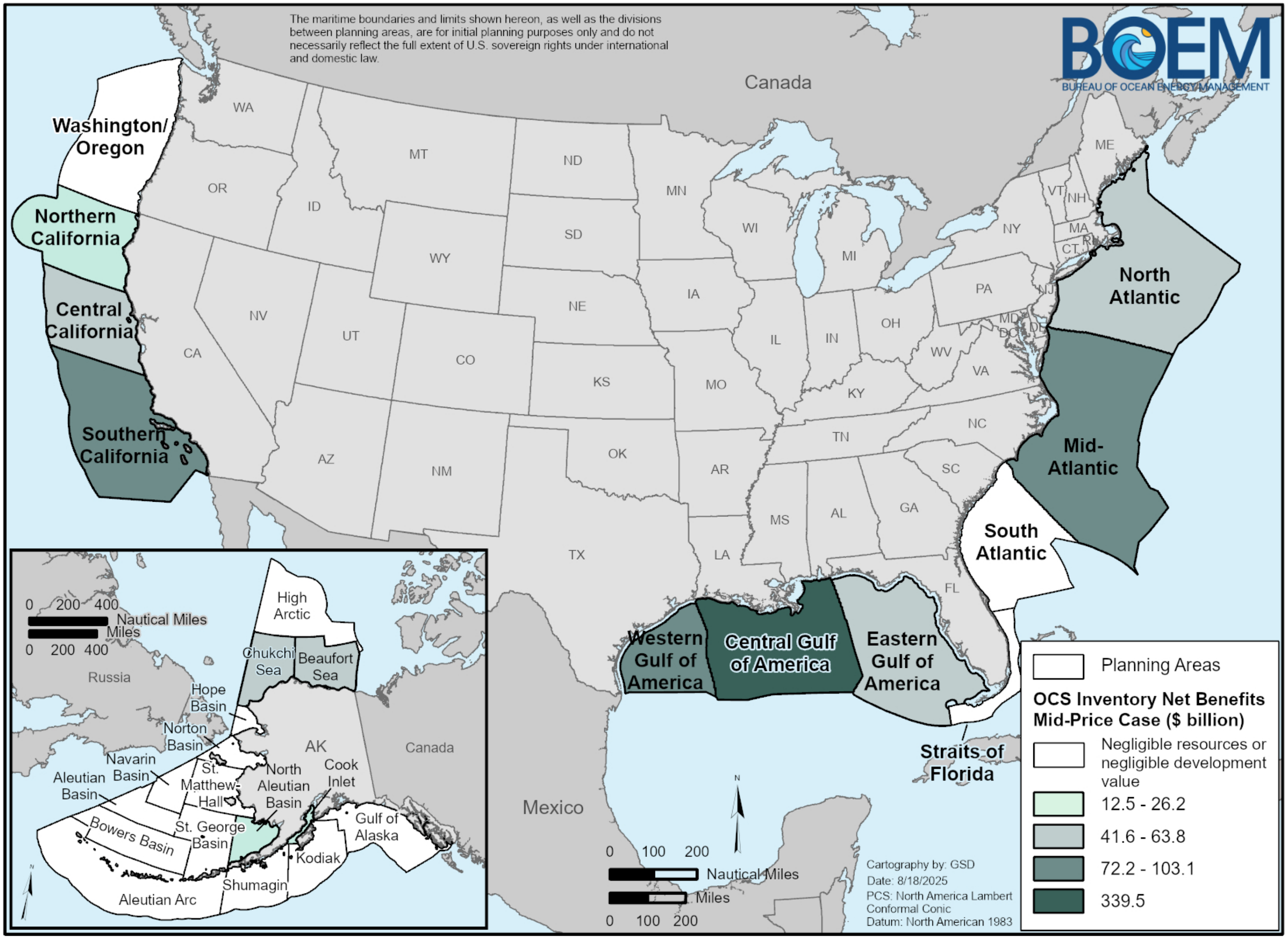
Rank	Planning Area	Net Economic Value ($ billion)			Environmental & Social Costs ($ billion)			OCS Inventory Net Benefits ($ billion)		
		Low	Mid-	High	Low	Mid-	High	Low	Mid-	High
		$40/bbl $2.14/mcf	$100/bbl $5.34/mcf	$160/bbl $8.54/mcf	$40/bbl $2.14/mcf	$100/bbl $5.34/mcf	$160/bbl $8.54/mcf	$40/bbl $2.14/mcf	$100/bbl $5.34/mcf	$160/bbl $8.54/mcf
1	Central GOA	23.3	341.8	745.5	1.3	2.3	2.6	21.9	339.5	742.9
2	Western GOA	2.9	103.9	242.2	0.4	0.8	0.9	2.5	103.1	241.3
3	Southern California	2.0	78.4	167.5	0.3	0.5	0.6	1.7	77.9	166.8
4	Mid-Atlantic	9.6	71.3	138.4	0.5	0.6	0.7	9.2	70.7	137.7
5	North Atlantic	8.8	61.1	117.0	0.4	0.5	0.6	8.4	60.5	116.4
6	Central California	9.9	59.6	114.6	0.2	0.3	0.4	9.7	59.3	114.2
7	Eastern GOA	(7.3)	57.3	158.5	0.5	1.1	1.1	(7.9)	56.2	157.4
8	Chukchi Sea	*	45.4	359.2	*	0.8	2.1	*	44.6	357.2
9	Beaufort Sea	*	41.9	178.1	*	0.3	0.6	*	41.6	177.6
10	Cook Inlet	(1.3)	26.3	55.4	**	**	0.1	(1.3)	26.2	55.3
11	Northern California	(1.8)	21.4	49.8	0.2	0.3	0.3	(2.0)	21.1	49.5
12	North Aleutian Basin	*	12.5	30.4	*	0.1	0.1	*	12.5	30.3

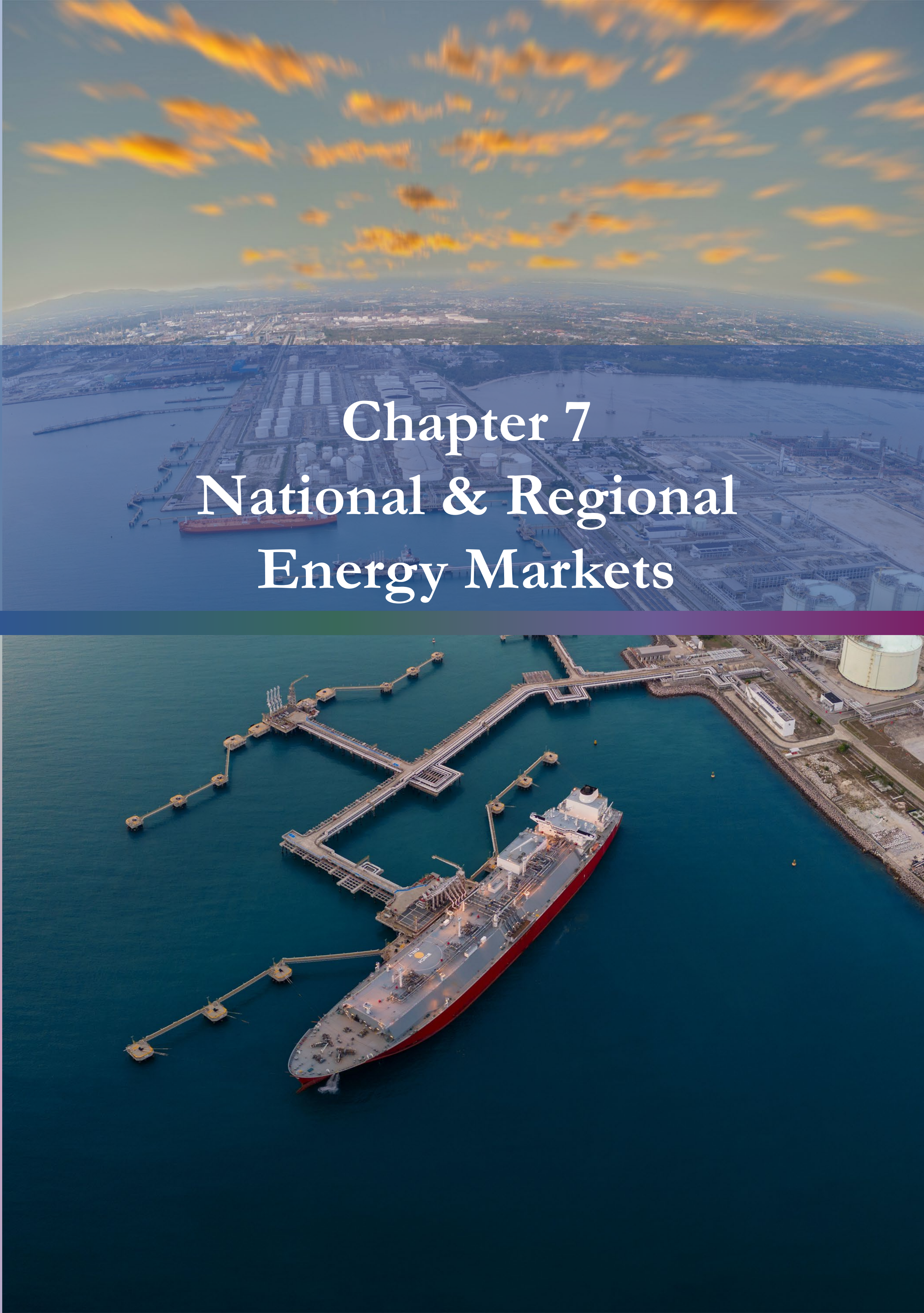
Notes: The Aleutian Arc, Aleutian Basin, Bowers Basin, High Arctic, and the St. Matthew-Hall planning areas are all excluded from this table because they are estimated to contain only negligible resource quantities. The Gulf of Alaska, St. George Basin, Kodiak, Navarin Basin, Hope Basin, Shumagin, Norton Basin, Straits of Florida, South Atlantic, and Washington/Oregon planning areas are all excluded from this table because they have an estimated negligible development value. All values are discounted at a real discount rate of 3%.

Key: * = For the North Aleutian Basin, Chukchi Sea, and Beaufort Sea planning areas, there is negligible developmental value in the $40/bbl oil–$2.14/mcf gas price case. As a result, Inventory Net Benefits is not calculated for these areas at the $40/bbl oil price case.

** = Not truly zero, but between -0.05 and 0.05 billion and so; rounds to zero.

Figure 6-5: OCS Inventory Net Benefits ($ billion) Mid-price Case: $100/bbl, $5.34/mcf





Chapter 7
National & Regional Energy Markets

Chapter 7 National and Regional Energy Markets

This chapter includes a discussion of regional and national energy markets as required by the OCS Lands Act Section 18(a)(2). The Secretary must consider regional and national energy needs (Chapter 4) when determining the location for National OCS Program lease sales. Section 7.1 presents national energy markets and Section 7.2 presents regional energy markets.

7.1 National Energy Markets

As the United States implements President Trumps' E.O. 14154, *Unleashing American Energy*, and E.O. 14156, *Declaring a National Energy Emergency*, alongside S.O. 3417, *Addressing the National Energy Emergency*, and S.O. 3418, *Unleashing American Energy*, the Nation's abundant OCS energy resources are available to strengthen national security and drive economic prosperity. These directives emphasize maximizing domestic oil and gas production to enhance energy independence and bolster domestic crude oil and natural gas supplies.

The following sections discuss national energy markets and the location of OCS planning areas relative to the needs of national energy markets, a factor the Secretary must consider under Section 18(a)(2)(C). To assist the Secretary in his decisions on the size, timing, and location of lease sales, this chapter includes an analysis of the markets for crude oil, natural gas, and refined petroleum products.[22]

7.1.1 Recent Developments

The domestic oil and gas markets for the past couple of decades have been affected by significant changes. First, onshore production in the United States has grown rapidly. In 2024, the United States produced 4.8 billion barrels of oil; 14% was produced from the OCS (EIA 2025l). The U.S. produced 41.42 Tcf of natural gas in 2024 (EIA 2025j).[23] Federal offshore production accounted for approximately 2% of natural gas. This caused ripple effects throughout national and global oil markets, leading in part to fundamental changes in oil markets, especially with respect to relatively moderate and stable prices. Another closely related change is the growth of both oil

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[22] Petroleum products are the output of refineries and made from crude oil (e.g., gasoline, diesel fuel, jet fuel, kerosene). The OCS Lands Act focuses on crude oil and natural gas; nevertheless, petroleum, or "refined" products are included in this analysis primarily because they represent the form in which end users consume oil that, in its crude form, is used only by refineries.

[23] This value represents marketed production, which equals gross withdrawals less gas used for (1) re-pressuring, (2) quantities vented and flared, and (3) non-hydrocarbon gases removed in treating or processing operations.

and natural gas exports from the United States. These structural changes have resulted in the U.S. becoming a net exporter of natural gas and crude oil and petroleum products (combined).

Onshore production, specifically from tight formations, is a more price-responsive source of supply than OCS production, given the short time required to drill and complete tight oil wells and the fact that planned or existing projects can be ramped up or down relatively quickly (EIA 2016). In contrast, OCS projects can take 10 years or more from lease award to initial production, and are, therefore, subject to general long-term price expectations rather than short-term price swings. While still affected by price expectations, OCS projects generally provide a steadier and more predictable source of oil and gas for long periods once production begins.

7.1.2 Developments in Domestic Crude Oil and Petroleum Markets

The increase in domestic crude oil production for the past couple decades has also led to a shift in the quantities of the different types of crude oil produced (EIA 2025l). Figure 7-1 shows crude oil production in the contiguous U.S. (excluding Alaska) by API gravity (a measure of crude oil density) since 2015. Most of the crude oil produced from tight (onshore) formations is light, sweet crude oil with a higher API gravity. This contrasts with the heavier, sour crude oil with a lower API gravity that generally comes from other domestic production, including offshore and imported sources.

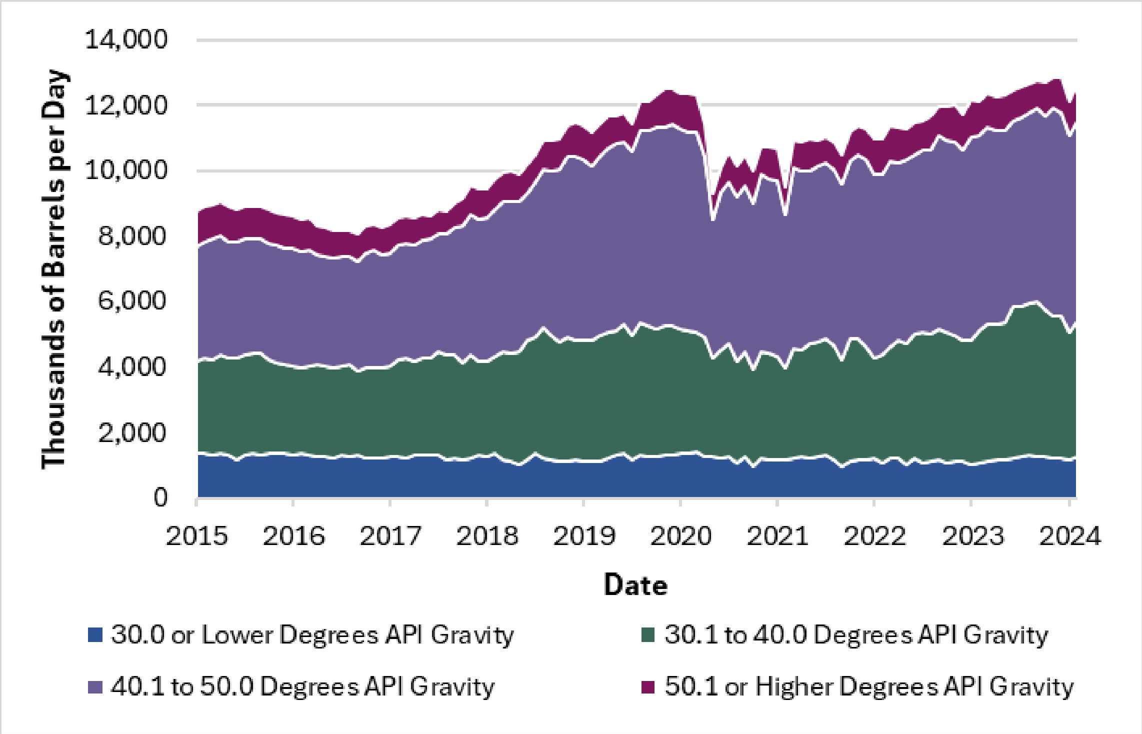
Is All Crude Oil the Same?

Density and sulfur content are two important characteristics of crude oil. Density ranges from light to heavy, and sulfur content is characterized as sweet (low sulfur) or sour (high sulfur).

Petroleum refineries are the primary consumers of crude oil, using it as feedstock to create various refined petroleum products for domestic and international markets. Refineries are typically designed to refine specific grades and qualities of crude oil. Due to the high cost of reconfiguration, refineries blend crude oil of different grades to achieve the most cost-effective feedstock suited to their facilities.

Refineries along the Gulf Coast typically process medium-to-heavy crude oil, while East Coast refineries are tailored for light, sweet crude. West Coast refineries are designed to process the heaviest crude oils (EIA 2019). Domestic refineries along the Gulf Coast can augment domestically produced crude petroleum with relatively heavy crude petroleum imports, which improves the U.S.'s ability to export refined products (EIA 2020).

Figure 7-1: Crude Oil Production in the Contiguous U.S. by API Gravity



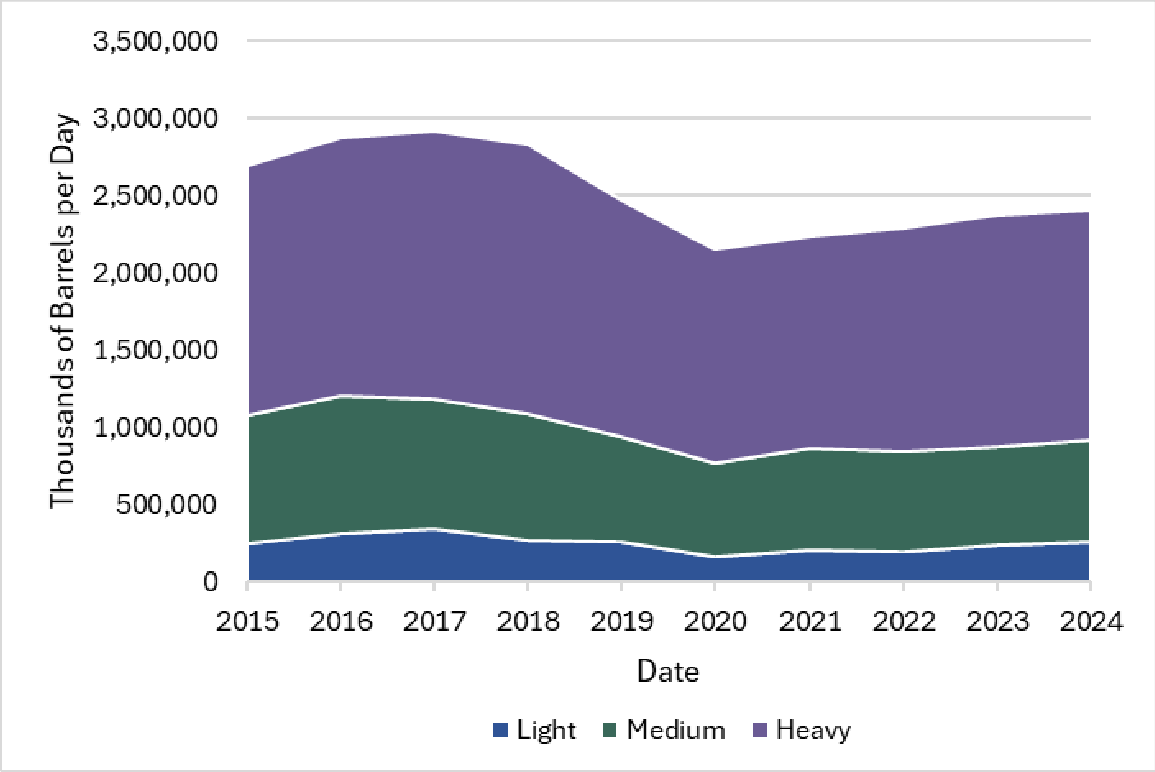
Source: EIA (2025k)

Figure 7-2 shows U.S. imports of light, medium, and heavy crude oil since 2015. U.S. imports of light crude have increased 5% between 2015 and 2024, despite some volatility in import volumes. Medium crude oil imports decreased 21% in the same period, while heavy crude imports decreased 7%. Since 2018,[24] crude oil with an API gravity of 27.0 degrees (°) or lower (i.e., heavy) represents more than 50% of imports, while crude oil with an API gravity above 35.0° represent approximately 10% or less of imports (i.e., light oil) (EIA 2025e).

Another development in the domestic crude oil market is the increase in crude exports. Crude petroleum that is not well-suited for domestic refineries can be sold overseas since the U.S. lifted its export ban at the end of 2015. As seen in Figure 7-3, export volumes are not closely correlated to the New York Mercantile Exchange (NYMEX) contract price for crude petroleum. Europe, Asia, and Oceania are the primary destination for U.S. crude petroleum exports. This was partially driven by a 2022 European ban of seaborne crude petroleum imports from Russia (EIA 2025x).

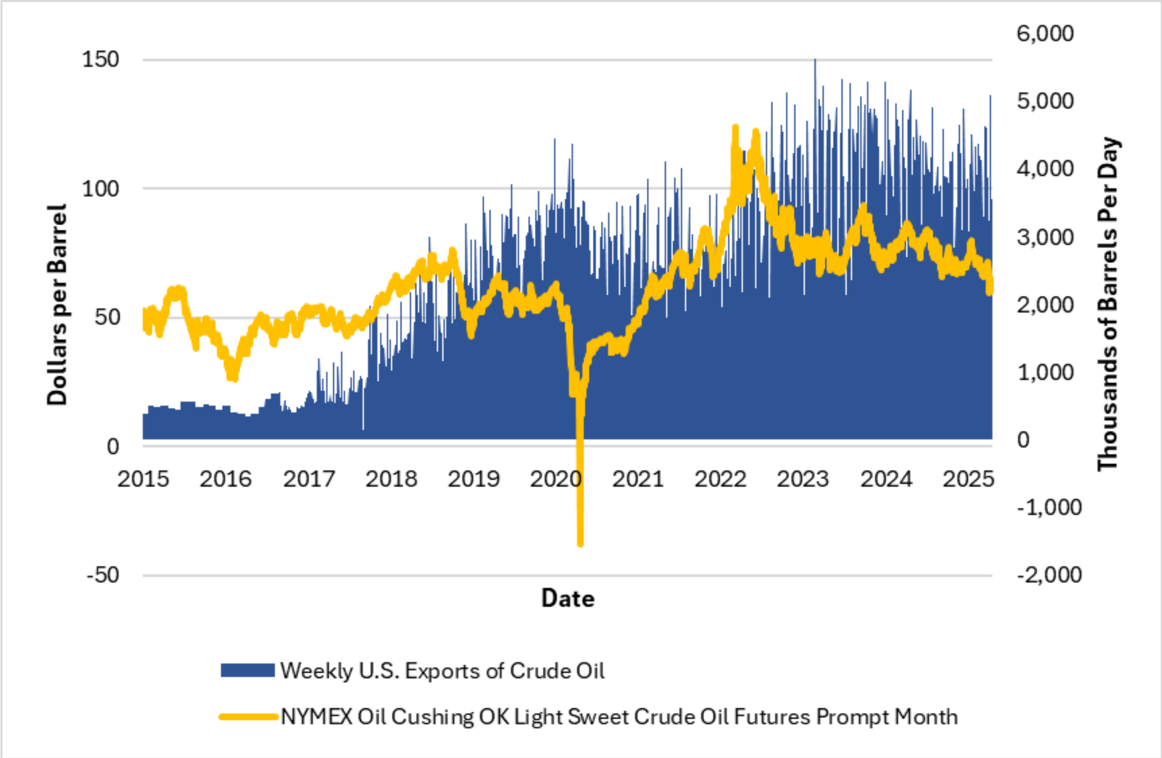
[24] This is the latest available data from Form EIA-814 that incorporates final revisions. The data is pulled from EIA's Crude Imports dashboard, which is regularly updated. Form EIA-814 defines heavy crude petroleum as having less than or equal to 27° API gravity, light crude petroleum as having greater than equal to 35° API gravity, and medium crude as having API gravity between 27° and 35°.

Figure 7-2: U.S. Crude Oil Imports by API Gravity



Source: EIA (2025e)

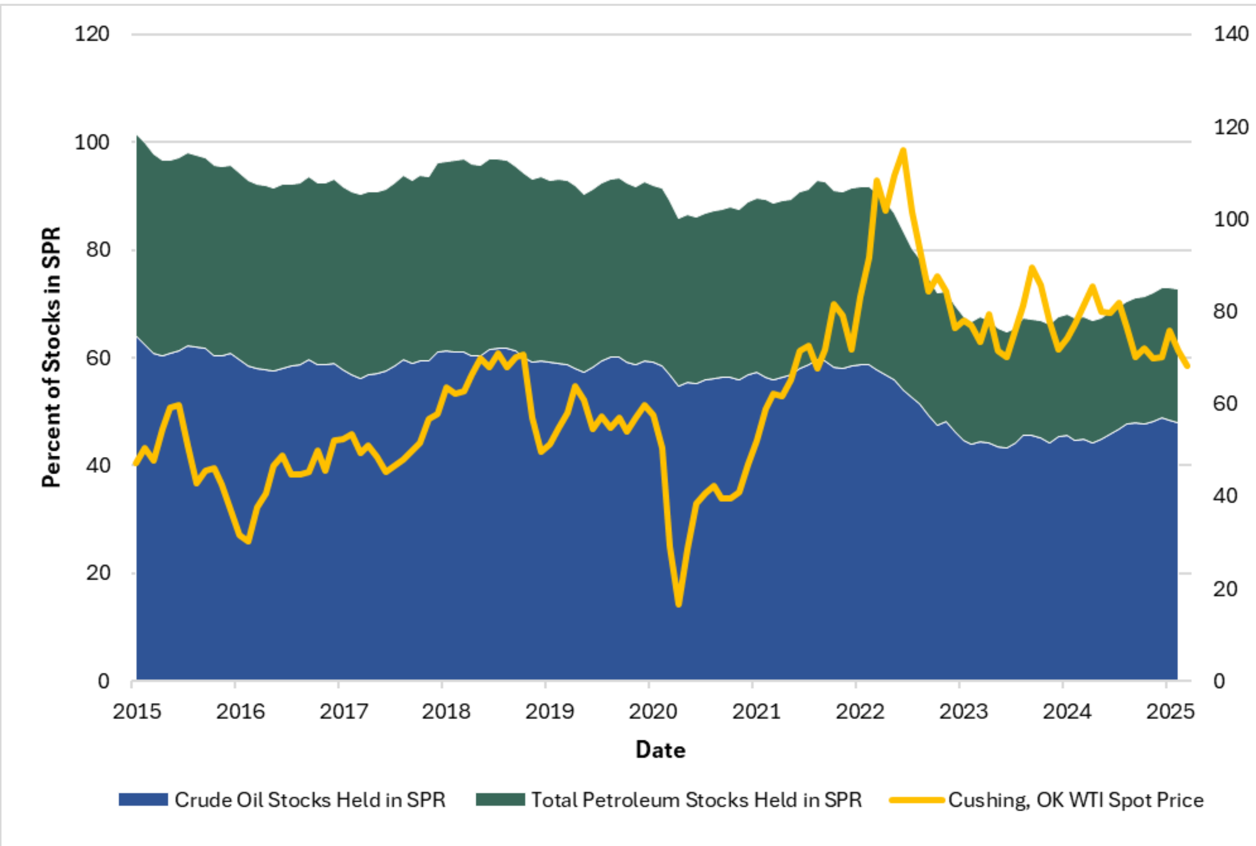
Figure 7-3: Crude Petroleum NYMEX Contract Price & Export Volumes (January 2015 – April 2025)



Sources: EIA (2025s), S&P Capital IQ (2025)

The U.S. government maintains a Strategic Petroleum Reserve (SPR) to mitigate the impact of major supply interruptions. Historically, the President authorizes emergency releases and sales to minimize disruptions that threaten the U.S. economy or Congress will approve sales to reduce the Federal deficit or modernize reserves (DOE 2024, Undated–a). Once a release or sale is authorized, the oil enters the domestic market within 13 days (DOE Undated–b). In 2022, the Department of Energy (DOE) issued a rule to replenish the SPR when the price of West Texas Intermediate (WTI) crude oil is at or below \$67 to \$72 per barrel (EIA 2022a). However, elevated spot prices have reduced opportunities to fully restore the Nation's petroleum reserves. Figure 7-4 illustrates the status of the SPR.

Figure 7-4: Stocks Held within the Strategic Petroleum Reserves (2015 to 2025) Compared to WTI Spot Price



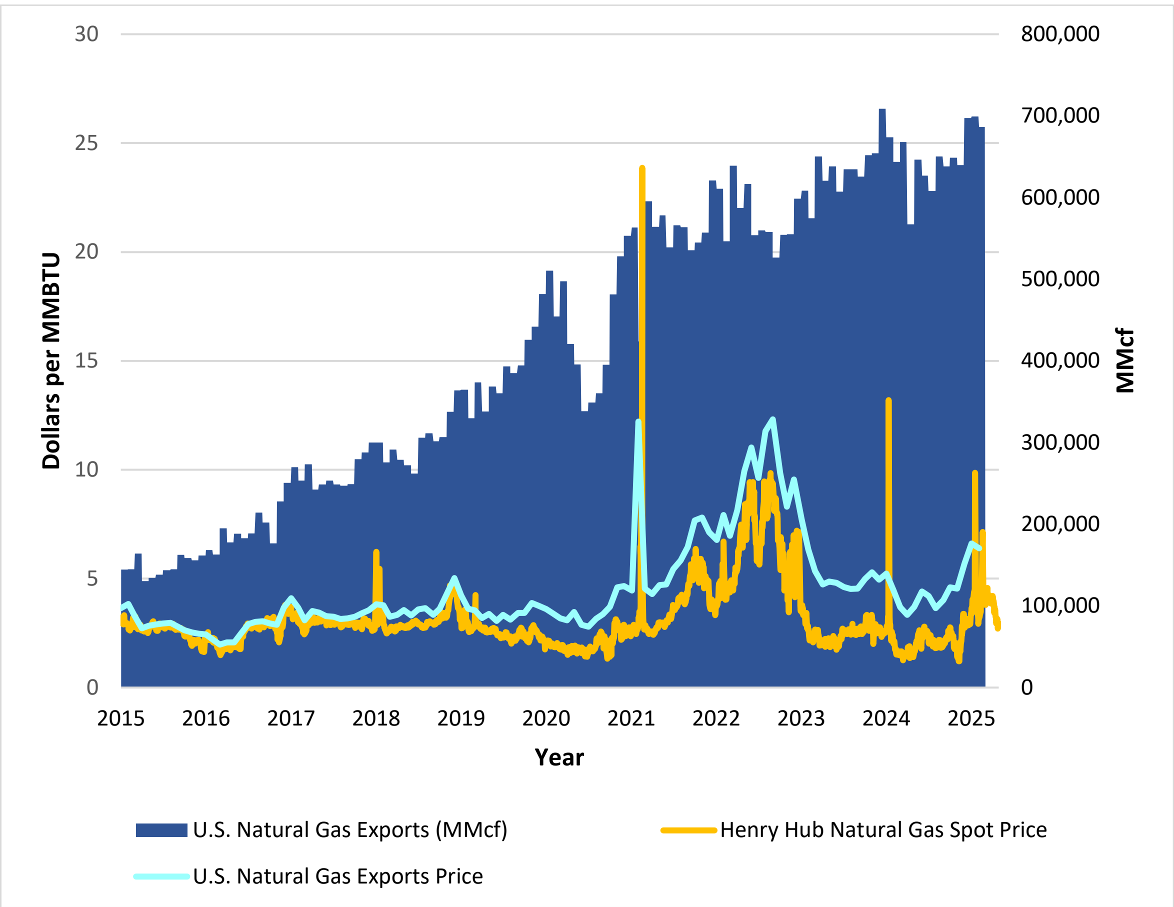
Sources: EIA (2025l, 2025m)

7.1.2.1 Developments in Domestic Natural Gas Markets

New technologies for developing onshore tight formation plays have played a role in decreasing domestic natural gas prices. The contribution of the Federal offshore production to total national marketed gas production has been in a steady decline since 1997 when gas production in the GOA represented approximately 26% of the national marketed production total. From 1997 through 2024, domestic marketed natural gas production increased more than 107%.

Given the plentiful supply of natural gas and the differences between world prices and domestic prices, natural gas exports have also increased. Figure 7-5 depicts the domestic Henry Hub spot price, the price of U.S. exports, and the export volume of natural gas. In 2023, the U.S. exported approximately 7.61 Tcf of natural gas (EIA 2025i). Of those exports, 3.27 Tcf (approximately 43%) were exported by pipeline (to Canada and Mexico), while 4.34 Tcf of natural gas was exported as liquefied natural gas (LNG) (EIA 2025i). LNG exports have grown rapidly during the past few years as new LNG export facilities have come online. After 2021, exports ramped up in part due to ongoing geopolitical disruptions in Europe (EIA 2023b).

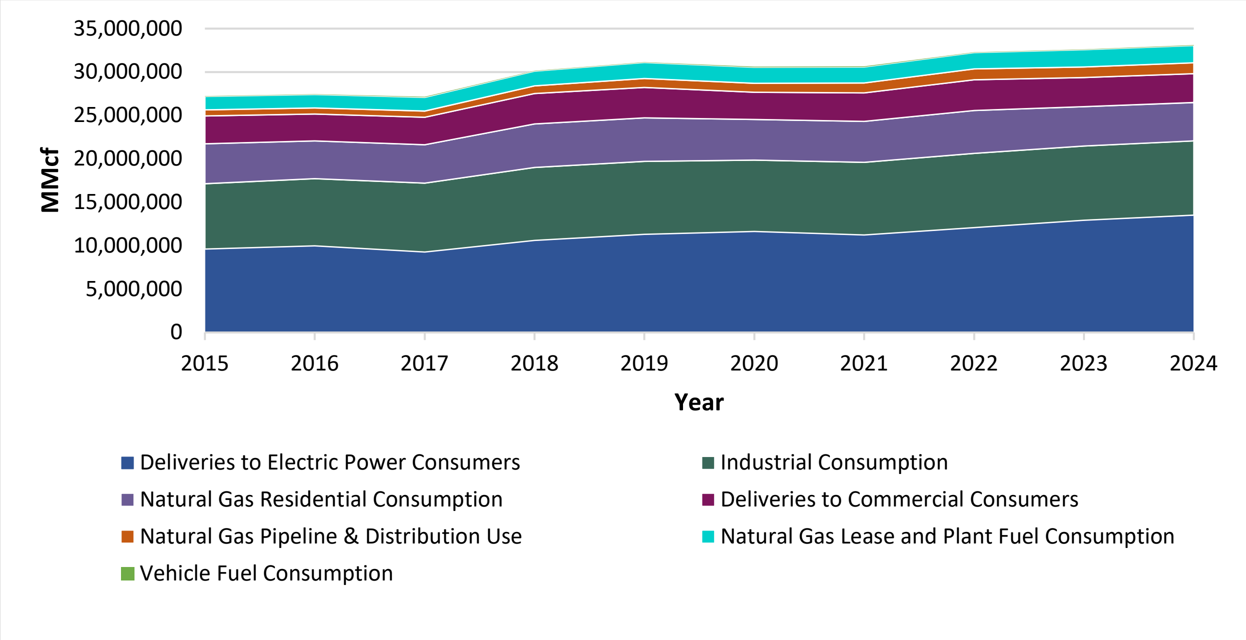
Figure 7-5: Natural Gas Prices & Export Volumes (January 2015 – April 2025)



Key: MMBTU = million British thermal units; MMcf = million cubic feet
Note: Export prices are converted to dollars per mmBTU for consistency.

Natural gas has several end-uses within the domestic economy, as shown in Figure 7-6. In 2023, 40% of natural gas was used as a fuel in the electric power sector, and 26% of natural gas was used by the industrial sector. The industrial sector uses natural gas to directly power an industrial plant, or as a chemical feedstock. Natural gas is also used in other industries such as mining, mineral extraction, agriculture, forestry, and fisheries. Residential and commercial sectors, which rely on natural gas for heating, powering air conditioning systems, cooking, and heating water, account for approximately 25% of total U.S. natural gas consumption (EIA 2025g, Undated). Figure 7-6 depicts how the mix in end-use consumption has changed in recent years. The largest categories of consumption are deliveries to electric power consumers, industrial consumption, and residential consumption.

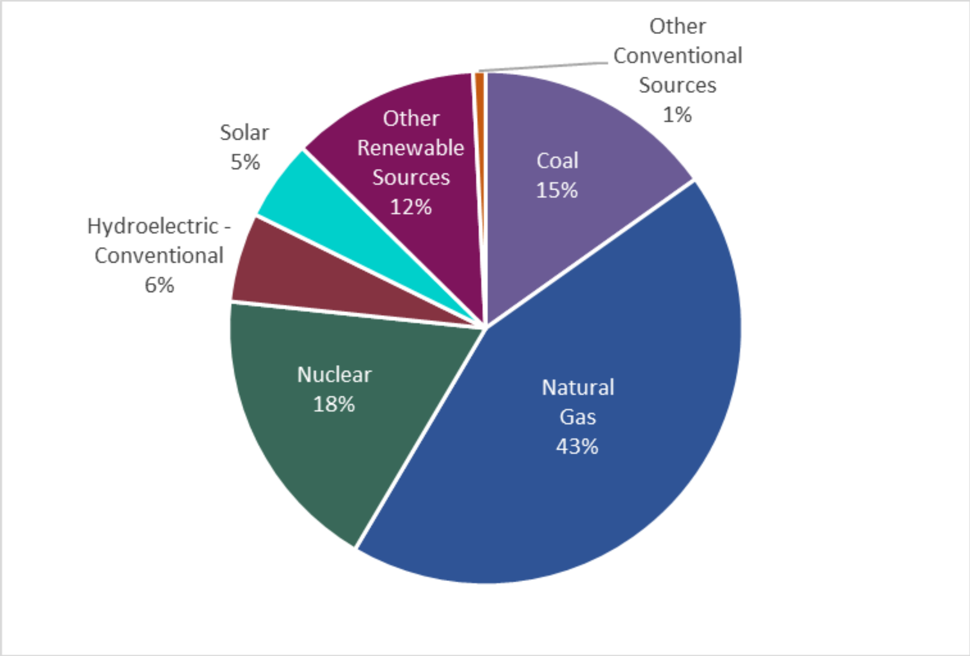
Figure 7-6: Natural Gas Consumption by End Use (2015 to 2024)



Source: EIA (2025g)
Key: MMcf = million cubic feet

As a baseload fuel for electricity generation, natural gas provides a reliable, continuous power supply. Natural gas also plays a critical role in U.S. electricity markets as peaker fuel, addressing the intermittency of renewable energy generation like wind and solar. As a peaker fuel, its fast-ramping capabilities allow it to quickly respond to sudden spikes in electricity demand or drops in renewable output, ensuring grid reliability and stability. Figure 7-7 shows the composition of electricity generation by source for the U.S electric power sector.

Figure 7-7: Net Electricity Generation at Utility Scale Facilities by Source, 2024



Source: EIA (2025u)

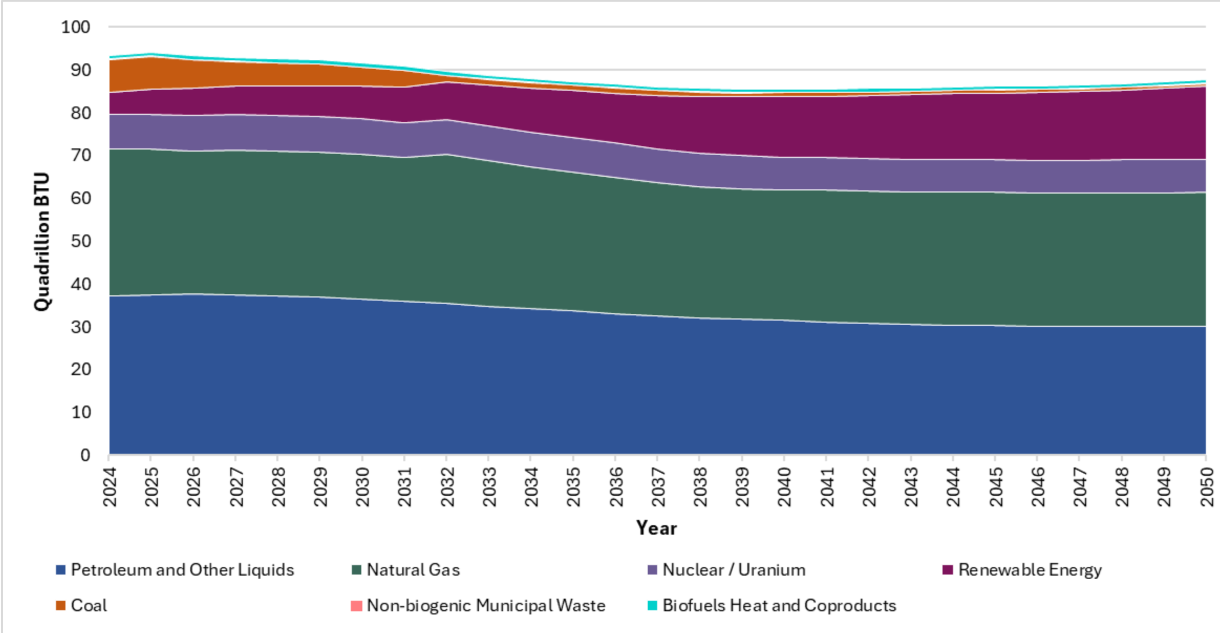
7.1.3 Future Energy Market Changes

Many factors influence crude oil and natural gas production, prices, and consumption. Examples include domestic and foreign GDP growth rates; technology development (affecting the supply and/or demand side); geopolitical events; access to crude oil and natural gas resources; and changes in laws, regulations, and policies.

The 2025 AEO depicts the U.S.'s continued reliance on crude petroleum and natural gas to meet a significant share of its energy needs through 2050 reinforcing their critical role in energy security and economic growth.[25] As shown in Figure 7-8, petroleum, natural gas, and other conventional energy sources will still be required even with significant renewable energy generation. These projections underscore the importance of sustaining oil and natural gas production to support national security and drive economic prosperity.

[25] EIA's 2025 AEO reference case forecast relied on laws that existed in December 2024, which do not incorporate President Trump's recent E.O.s as discussed in Chapter 4. Given that the initiatives outlined in the recent E.O.s have only begun to be implemented, at this time it would be difficult and uncertain to determine how these will affect the AEO 2025 baseline.

Figure 7-8: Total Energy Use Projections (2024—2050)



Source: EIA (2025b)

7.1.4 The Contribution of OCS Oil and Natural Gas

An important factor when considering national energy markets in the context of the Section 18 factors is how the National OCS Program fits in with U.S. energy markets. The National OCS Program planning process is designed to support decisions regarding long-term energy security. As discussed earlier, the OCS is a major long-term supplier of reasonably predictable conventional crude oil, and, to a lesser extent, natural gas. OCS production is an important part of the President's efforts to strengthen U.S. energy security, relations with allies and partners and add value through the supply chain. National OCS Program advanced planning is necessary to ensure future lease sales can support the Nation's energy needs. Absent new legislation, adding areas that were originally excluded from a National OCS Program requires a multi-year process prior to providing leasing opportunities. Figure 5-1 illustrates the timeline for crude oil and natural gas development for frontier and deepwater areas.

Of particular importance is the timing for when any production from areas included in the National OCS Program might occur and how this relates to the Nation's energy markets and future needs. The Secretary has flexibility to re-evaluate the Nation's energy needs and market developments and can revise lease sale offerings in accordance with the Section 18 process. Should demand for OCS resources substantially decrease, the Secretary can respond accordingly by canceling or limiting any scheduled lease sales.

OCS production is less responsive to price fluctuations than onshore tight formation production given the longer lead times required for investments to yield offshore production. From both governmental and engineering perspectives, it takes several years, and in some cases, more than a decade, before industry can begin production on new OCS leases. Unlike onshore operations, OCS production cannot rapidly scale up to address sudden national energy crises, such as a significant disruption in global crude oil supply. Successful OCS production requires complex and multi-year planning and is subject to delays from factors including rig availability, engineering challenges, and weather impacts (e.g., hurricanes). The statutory and regulatory processes for OCS planning, leasing, exploration, and development are lengthy and robust, making it difficult to swiftly adapt to fluctuating energy demands.

Historically, OCS crude oil production has provided a stable “baseload” source of supply that is less sensitive to short-term oil price fluctuations. Unlike onshore production, which can adapt quickly and decrease the quantities produced in response to falling prices, OCS production would typically continue, particularly given the front-loaded capital investments. While this production inelasticity could pose challenges (companies operating at a temporary loss), it offers important benefits including maintaining diverse sources of crude oil supplies and lowering overall production volatility.

Even with increased exports, there are several factors influencing why the U.S. might export crude oil to some countries while importing crude oil from others. These including logistic constraints (e.g., lack of pipelines to transport crude oil to certain U.S. regions, Jones Act restrictions),[26] crude oil compatibility (e.g., refinery feedstock needs), and international market dynamics. As noted earlier, the medium-to-heavy sour crudes produced from the OCS are mainly processed in GOA refineries, which are optimized for these crudes rather than the light, sweet crude produced onshore.

New production from the OCS would help meet the United States’ ongoing energy needs while ensuring a diverse energy supply. A varied supply reduces the impact of disruptive events and market fluctuations. OCS oil, combined with onshore production, has boosted global oil supply, fostering greater price stability by minimizing the impact of supply disruptions.

7.2 Regional Energy Markets and the Location of OCS Regions

In making decisions about the size, timing, and location of OCS crude oil and natural gas leasing for the National OCS Program, the Secretary must consider “…the location of [OCS] regions with respect to, and the relative needs of, regional and national energy markets” (Section 18(a)(2)(C) of the OCS Lands Act). The following regional energy considerations provide information on the markets for crude oil and natural gas as well as overall energy production and consumption.

[26] The Merchant Marine Act of 1920, also known as the Jones Act, requires that all goods transported by water between U.S. ports be carried on ships that are U.S.-flagged, are constructed in the U.S., and are owned and crewed by U.S. citizens (and/or U.S. permanent residents).

To analyze energy markets regionally, BOEM uses Petroleum Administration Defense Districts (PADDs), which group all 50 states into five separate districts. The PADDs, shown in Figure 7-9, allow us to analyze regional movements of natural gas and petroleum. This analysis considers energy markets broadly, and how, if production occurred, it would impact regional energy markets. Any discussion about production from lease sales in the National OCS Program is conditional on lease sales occurring and companies choosing to lease, explore, and develop any resources from those leases.

7.2.1 Regional Production and Refinery Consumption

Regional energy markets are characterized by the levels of crude production, refining, and consumption that occur in each region. Figure 7-10 illustrates the proportional crude oil and natural gas production and consumption across domestic regions. Crude oil refinery consumption corresponds to the U.S. refining capacity by region. The Gulf Coast PADD (which includes the GOA) produces a majority of both domestic crude petroleum and natural gas but consumes about half of the domestic crude petroleum and roughly a third of the domestic natural gas. The Midwest PADD consumes just under a quarter of domestic crude petroleum. The East Coast PADD consumes roughly 30% of natural gas domestically, while the Midwest PADD uses just over 25% of natural gas. As shown in Chapter 5, the coastal PADDs all have significant OCS resources that could be used to meet regional energy needs.

Figure 7-9: PADDs & OCS Planning Areas

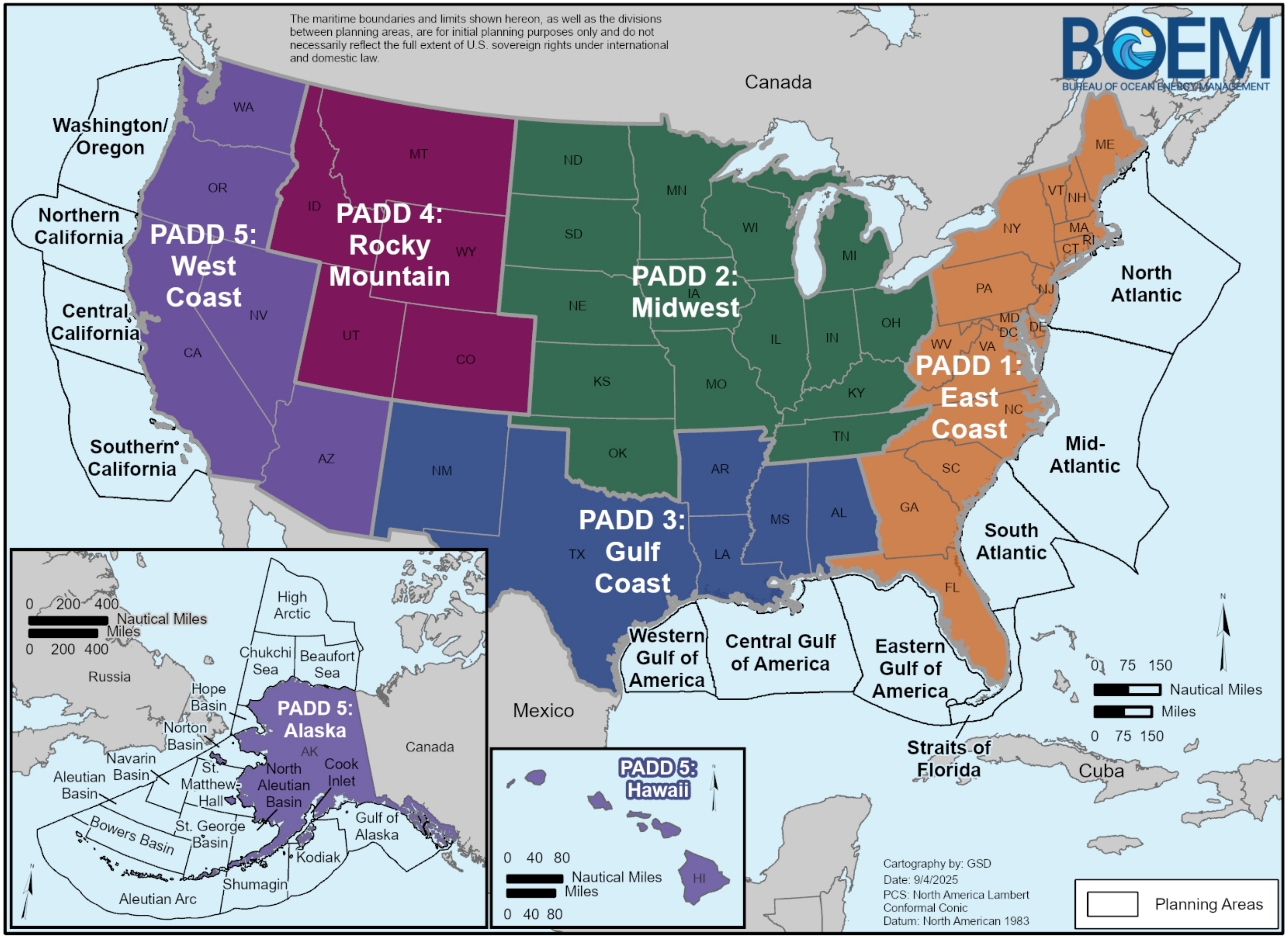
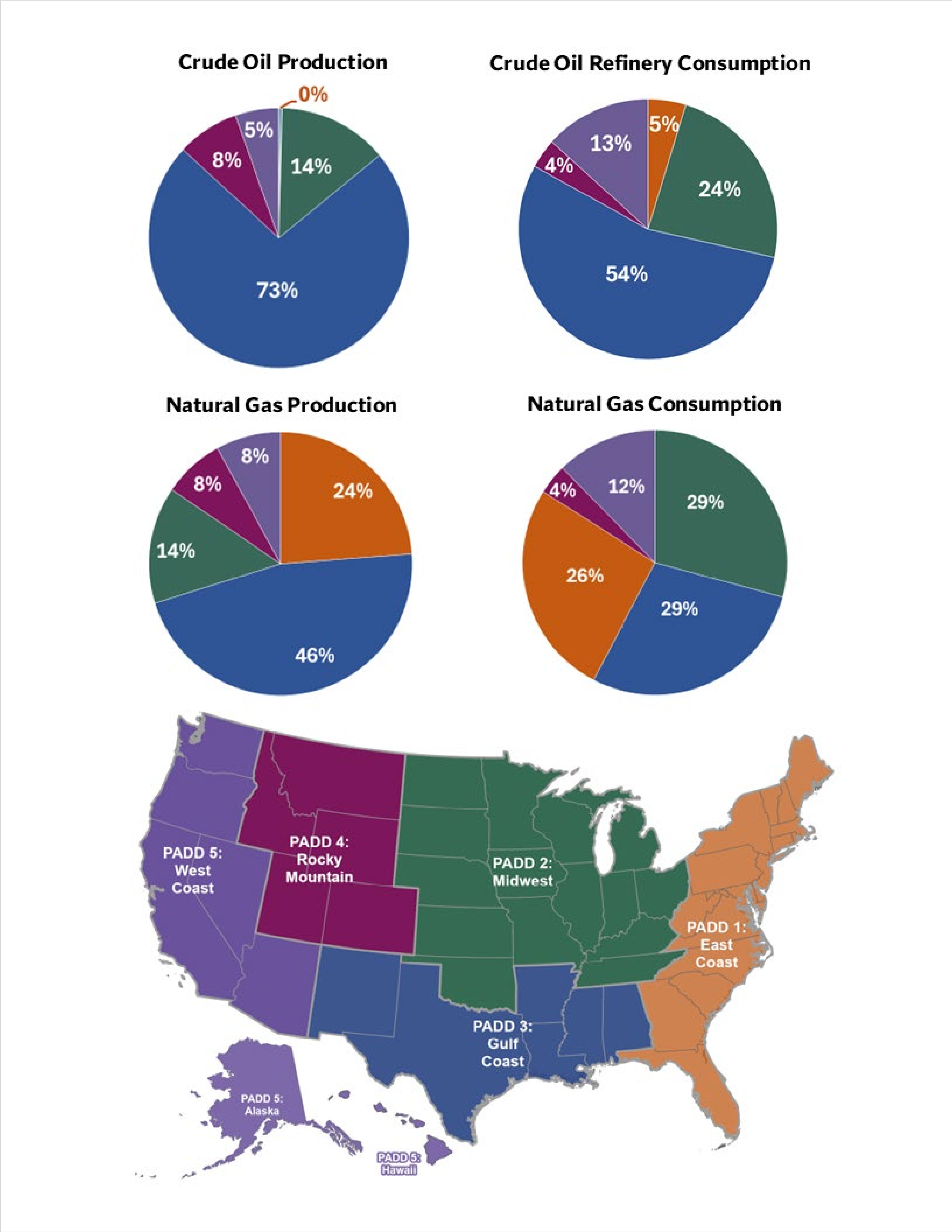


Figure 7-10: Crude Oil and Natural Gas Production and Consumption by PADD, 2023 and 2024



Sources: EIA (2025g, 2025h, 2025l, 2025r)
Notes: Crude oil graphics use 2024 data. Due to data reporting lags, 2024 natural gas data are not yet available. Data from 2023 is used for natural gas graphics to provide full coverage of the regional energy markets.

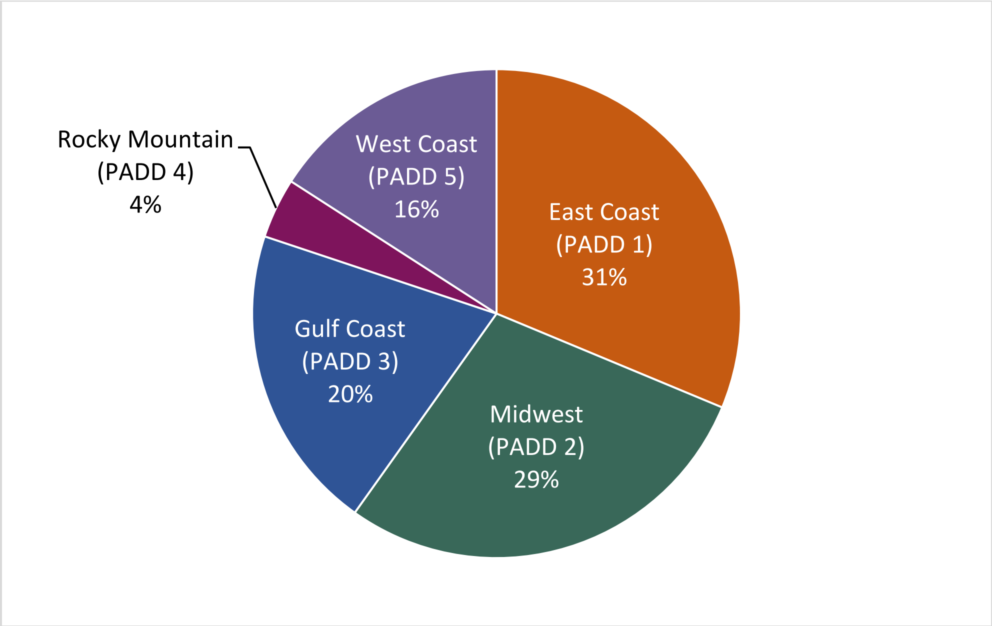
7.2.2 Regional Transportation

Given the differences between production and consumption levels of every PADD, as discussed in Section 7.2.1, crude petroleum and natural gas must be transported inter-regionally to ensure that each PADD can meet its consumption needs. Crude petroleum and natural gas require refining or processing to convert them into usable final products; this makes refineries and natural gas processing facilities the primary markets for crude petroleum and natural gas. Once refined and processed, these commodities become fungible, which reduces the significance of the refinery/processing location at later stages, except for transportation costs. Intra-regional refinery and processing capacity is a critical component of each region's ability to satisfy its own demand as well as national energy needs.

A network of pipelines, trains, trucks, and barges is necessary to transport resources to refineries and then ultimately to consumers. Figure 7-10 above illustrates the regional production, consumption, and refinery levels for crude petroleum and natural gas. For instance, it shows the Gulf Coast produces 73% of the Nation's crude petroleum and accounts for 54% of the refining capacity. Figure 7-11 below shows that the Gulf Coast consumes 20% of the refined finished petroleum products with the remaining being transported to other PADDs.

Comparing each figure allows readers to envision how products are transported between PADDs. Where crude oil is consumed in greater percentages in one PADD, but refined finished products are produced in greater quantities in other PADDs, refined petroleum must move between PADDs. For example, the East Coast accounts for only 5% of total U.S. crude oil consumption by refineries, but accounts for 31% of domestically supplied finished petroleum products.

Figure 7-11: PADDs & OCS Planning Areas



Source: EIA (2025q)

Each of the PADD regions accesses crude oil and petroleum products through three different channels of local production, regional imports, and foreign imports. Most of the regions have at least some regional and foreign exports. The Gulf Coast PADD has the most throughput of crude oil and petroleum products because it has the most production, refining capacity, and a robust import/export infrastructure.

Figure 7-12 shows the 2024 inter-PADD movements of crude oil. Figure 7-13 shows the 2024 inter-PADD movement of petroleum products by tanker, pipeline, barge, and rail.[27] Together, these maps illustrate the regional trade of crude petroleum and petroleum products between PADDs. Approximately 49% of the petroleum product movements by tanker, pipeline, barge, and rail originated in the Gulf Coast PADD, which includes the GOA OCS. Approximately 71% of these shipments from the Gulf Coast PADD went to the East Coast PADD. While these tables illustrate the inter-PADD movements, the U.S. also exports crude oil, as shown in Figure 7-14.

The interconnectedness of national and international markets underscores the critical role of domestically produced fuel in bolstering U.S. energy security and market stability, regardless of where it is consumed. BOEM does not track the portion of OCS-derived fuels consumed domestically but instead considers how the impact of OCS production enhances national energy security to meet the needs of domestic and international markets. This approach was upheld in *Center for Sustainable Economy v. Jewell*, 779 F.3d 588 (D.C. Circuit 2015). The court found that "what matters in determining whether OCS-derived fuel meets national needs is not whether the additional OCS fuel is consumed domestically, but whether it helps to satisfy domestic needs for fuel security and net supply, both in aggregate and over time" (*CSE* at 609).

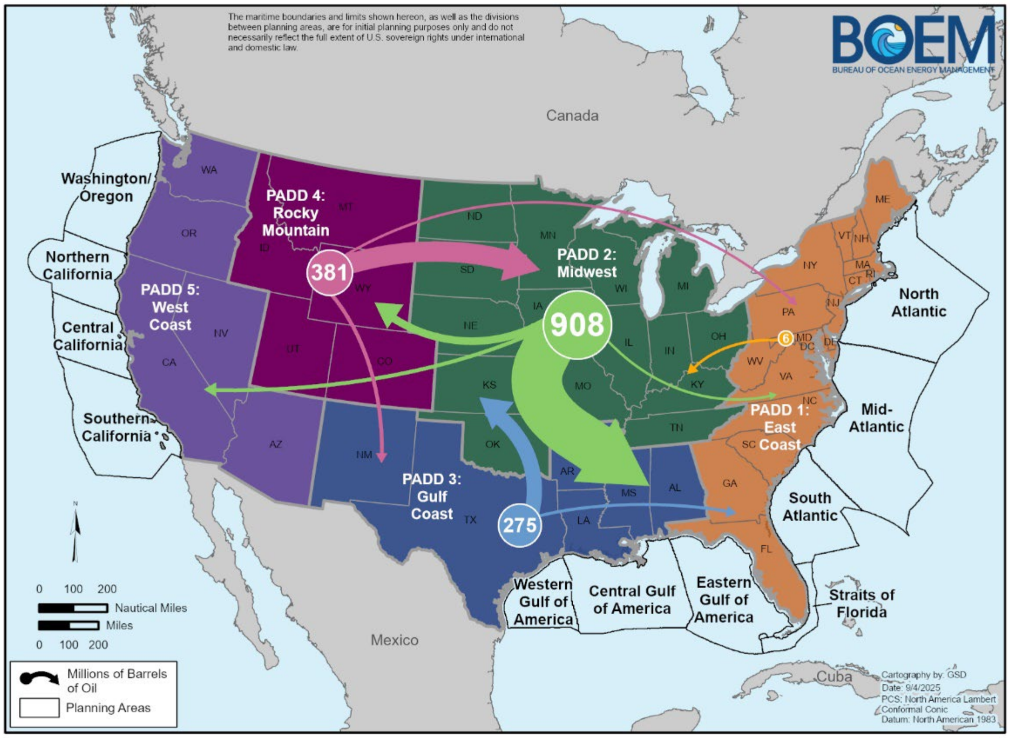
7.2.3 Regional Energy Prices

Regional consumption proximity to production areas and existing transportation infrastructure can affect regional prices for petroleum and natural gas products. The cost of crude oil remains the primary driver and largest component of gasoline prices. The EIA estimates that from 2013 through 2023, crude oil contributed approximately 52% to the price of a gallon of gasoline, Federal and state taxes contributed 17%, refining costs and profits contributed 15%, and distribution and marketing contributed 15%. Regional differences in gasoline characteristics, crude oil inputs, and processing technology contribute to prices disparities.[28] After refining, gasoline is typically transported by pipeline from the refinery to terminals near final markets, then distributed to gas stations by tanker truck. Thus, the distance from refinery to consumption point can also affect the cost of refined fuels such as gasoline (EIA 2024a).

[27] EIA does not track petroleum products transport by truck.

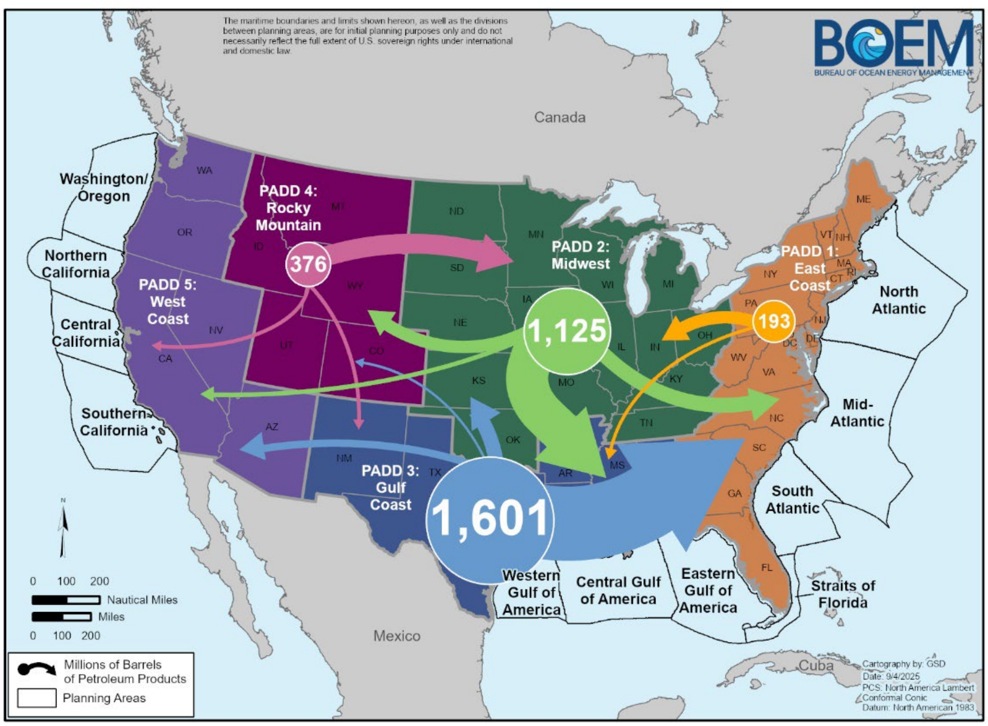
[28] States and some local jurisdictions have responded to air quality requirements with varying standards for gasoline composition, creating the need for refineries to modify their output for specific markets. Specific refineries produce only a subset of gasoline varieties required for different markets.

Figure 7-12: 2024 Crude Oil Shipments by Tanker, Pipeline, Barge, & Rail (Million Barrels)



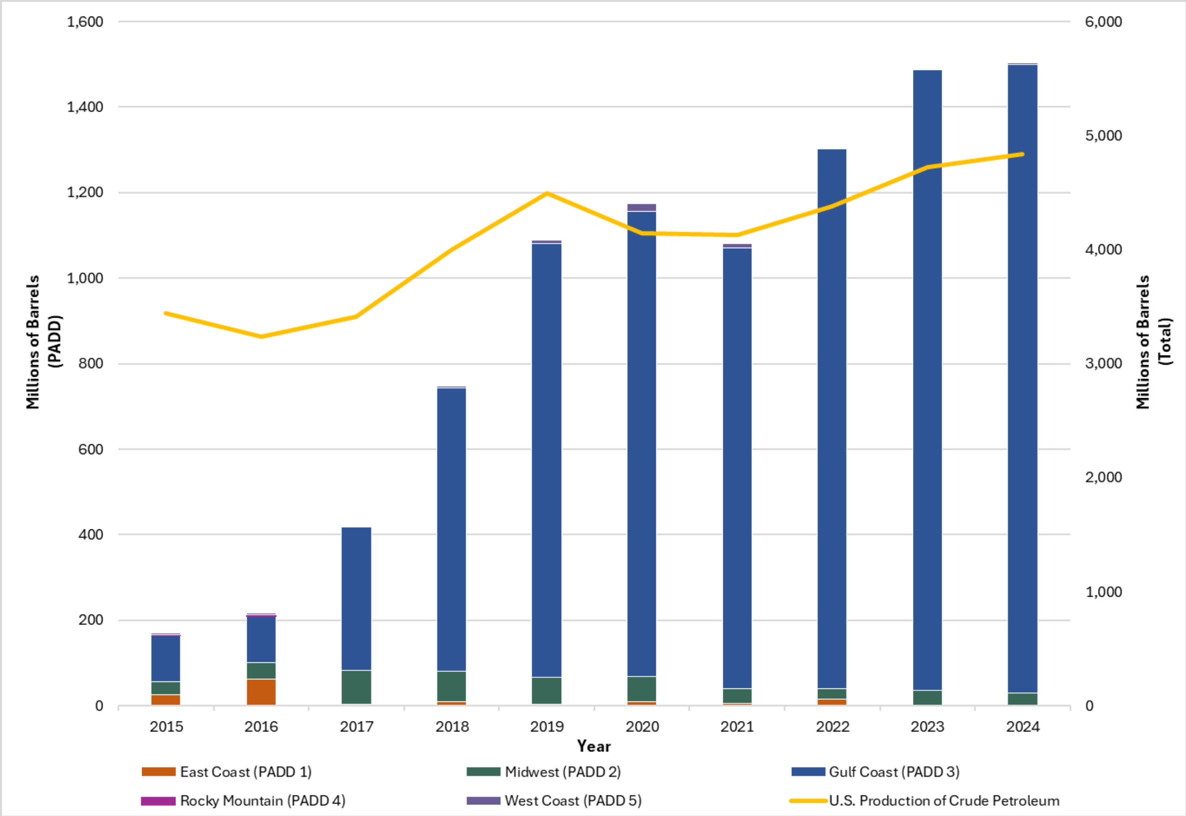
Source: (EIA 2025o)

Figure 7-13: 2024 Petroleum Products Shipments by Tanker, Pipeline, Barge, & Rail (Million Barrels)



Source: EIA (2025p)
Note: Values may not sum to totals due to independent rounding.

Figure 7-14: Crude Petroleum Exports Compared to Domestic Production (2015–2024)



Sources: EIA (2025f, 2025l, 2025n)

7.2.4 Alaska Regional Energy Markets

In 2024, Alaska consumed the most energy per capita of all the U.S. states (EIA 2024d). Alaska's crude oil production steadily declined from its peak of 2 million barrels per day in 1988 to 421,000 barrels per day in 2024. Alaska has five operating refineries, and both imports and exports petroleum products (EIA 2025l). In 2024, Alaska produced approximately 355 billion cubic feet (Bcf) of dry natural gas, with natural gas production being relatively stable for the past few years (EIA 2025h).

Most natural gas produced on the North Slope is reinjected back into fields to increase crude petroleum production, but some of the natural gas produced from the North Slope is used to power energy infrastructure in the region. There is no pipeline to transport natural gas production from the North Slope to the rest of the state or for export, but an LNG pipeline is in the planning stages to bring natural gas from the North Slope to southern parts of the state (AGDC 2024). If built, the first gas is expected as soon as 2031 (Mitchell 2025).

The Cook Inlet's proximity to Anchorage's commercial markets and infrastructure serves as a vital energy source for south-central Alaska. Federal and state leases could help support the region's energy needs, since the ability to import energy from outside the region is limited.[29] In particular, most of Anchorage's electrical generation is fueled by natural gas from state leases in Cook Inlet (Deerstone Consulting 2017). However, a 2022 State of Alaska study estimated that, due to a shrinking resource base, Cook Inlet gas production from state lands can only meet the estimated south-central Alaska demand, around 70 Bcf per year, until 2027 (Redlinger et al. 2018).

This demand and supply imbalance has caused at least one Fairbanks utility company to consider an alternative to Cook Inlet natural gas to support natural gas customers (ADNR 2016). Although BOEM has eight active Federal leases in the Cook Inlet, there is no active crude oil or natural gas production, and no development and production plans have been received. Any new OCS natural gas production would primarily be consumed locally and could further ease natural gas prices in south-central Alaska. OCS crude oil production would also support the Alaska economy with crude oil refined locally in Alaska or transported by tanker to other West Coast refineries.

7.2.5 Pacific Regional Energy Markets

West Coast gasoline prices, particularly in California, are considerably higher than those in all other PADDs. Gasoline in California is required to be "reformulated" to reduce the environmental impact of the combusted gasoline. This process requires a special blend of fuels, which is only produced at a limited number of refineries. In addition, California refineries are already running at capacity to meet demand. Because supplies are already limited, any disruption in supply can cause prices to spike even higher. Given the large distance between the West Coast PADD and most refineries in the Gulf Coast PADD, as well as a lack of pipelines crossing the Rocky Mountains, replacement supplies are farther away and could cause the price spikes to last longer. These constraints in supply chain heighten price volatility, as any disruption—such as refinery outages or increased demand during the summer driving season—can trigger sharp price increases. Only a few refineries outside of California meet the states' strict blending requirements, and while imports can supplement unmet demand, they often are only relied upon during refinery outages or the summer driving season (EIA 2025z).

The Pacific OCS holds significant oil and natural gas resources (see Table 5-1), offering a considerable opportunity to help meet West Coast energy needs. However, the West Coast PADD could need additional refinery capacity for the region to use those resources.

7.2.6 Gulf of America Regional Energy Markets

The states surrounding the GOA are a vital hub for domestic energy production, refining, and transportation. The region has the greatest ability to use its resource potential and infrastructure to supply crude oil, natural gas, and refined products to the United States and other countries.

[29] There is an LNG liquefaction and terminal complex on the Cook Inlet. According to the EIA, the Federal Energy Regulatory Commission approved a request to convert the facility to allow for imports by December 2025 (EIA 2023a).

Production from the OCS is essential to U.S. energy markets and meeting the Gulf Coast refineries' demand for medium-to-heavy and sour crudes.

In 2024, Texas was responsible for approximately 43% of U.S. crude oil production and 27% of U.S. natural gas production (EIA 2025l). With 34 petroleum refineries that provide petroleum products domestically and internationally, including the Houston-Galveston port district, which is the largest refining center in the United States, Texas ranks first in energy consumption and sixth in per capita energy usage (EIA 2025v). Texas also consumes more natural gas and petroleum than any other state, driven by the industrial sector. Additionally, Texas operates an extensive natural gas pipeline network, enabling distribution across the Nation and global exports via LNG terminals.

Louisiana ranks second in energy use in per capita energy consumption, driven by its chemical, petroleum, and natural gas industries. With 15 petroleum refineries, the state has extensive pipeline networks that transport refined petroleum products throughout the U.S. Louisiana has significant natural gas storage facilities and pipeline networks, which provide natural gas to other states. Excluding the crude oil and natural gas production that flows to Louisiana from the OCS, the state ranks third in natural gas production and eleventh in crude oil production (EIA 2024b).

Despite having limited onshore and state waters crude oil and natural gas production, both Mississippi and Alabama play significant roles in energy transportation and refining (EIA 2018). Alabama boasts the eleventh largest refinery in the Nation, which processes up to 356,000 barrels of oil per day into gasoline, diesel fuel, and other petroleum products (EIA 2024e). Both states share extensive pipeline networks to distribute crude oil, natural gas, and refined petroleum products to domestic or international markets.

7.2.7 Atlantic Regional Energy Markets

The East Coast PADD is heavily dependent on imports of crude for its refineries. Despite the Gulf Coast being a major exporter of refined petroleum products, and considering infrastructure and Merchant Marine Act of 1920 (Jones Act) constraints, it is still more efficient for the East Coast to import many refined petroleum products, especially during winter demand periods (EIA 2022b). This reliance on imports underscores the East Coast's vulnerability to global energy market disruptions.

The Atlantic OCS contains significant resources (see Table 5-1). Depending on refinery capability, production from OCS areas along the Atlantic Coast could potentially meet a portion of the market's crude oil and natural gas demand.

7.3 Possible OCS Production Substitutes

A reduction in OCS oil and gas production would not lead to an equal reduction in the quantity of oil and gas demanded by energy markets for ultimate consumption. Instead, other energy sources—such as greater imports, and more onshore production, as well as a reduction in consumption—would substitute for most of the forgone OCS production. BOEM uses its Market Simulation Model (*MarketSim*) at the 2nd and 3rd Analysis stages to estimate the amount and percentage of substitute energy sources that would be needed to fulfill demand in the absence of all, or even some, new OCS production.

MarketSim is based on authoritative and publicly available estimates of price elasticities, which reflect the changes in quantities supplied and demanded in response to changes in price. *MarketSim* calculates what fuel sources would replace forgone OCS production. This includes increases in onshore oil and natural gas production, imports of oil and natural gas, fuel switching to coal or other sources of electricity, and reduced consumption. At the 2nd Analysis stage, BOEM evaluates the energy market substitutions that would be required to replace the OCS production based on the Secretary's initial decision on OCS leasing (see the 1st Proposal).

Available documentation provides a detailed discussion of the data and methodology underlying *MarketSim* (Industrial Economics Inc. 2023). In addition, the forthcoming 2nd and 3rd Analysis will contain specific estimates of production and quantities of other energy sources substituted for oil and gas should the Secretary select the No Sale Option for any program area. Additional information on substitute energy sources is included in *Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development – Volume 2* (Industrial Economics Inc. 2015b).

The absence of new leasing in a National OCS Oil and Gas Program would result in loss of future OCS oil and gas production. This shortfall would likely be offset by incremental increases in other oil and gas supply and other energy sources. While this could, in some instances, be renewable energy technologies, the reality of renewable energy sources is that their growth is heavily dependent on policy and tax initiatives rather than relative changes in the price of oil and natural gas. Besides renewable energy policy and tax incentives, other factors such as technological change could substantially increase the use of renewable energy sources during the life of this National OCS Program.

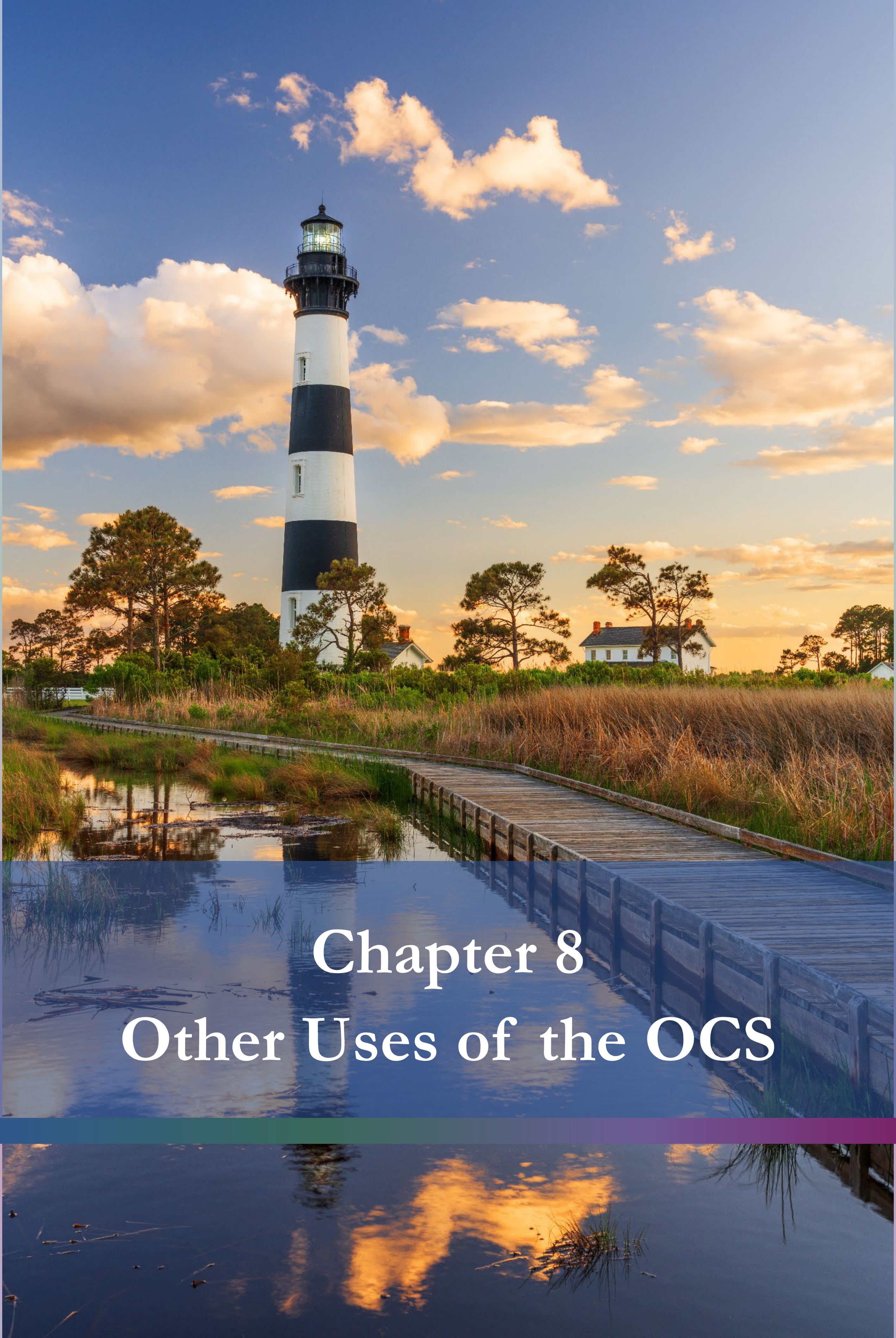
EIA data indicate that renewable energy sources are unlikely to be a major substitute for forgone OCS production. This is because different kinds of energy are used for varying purposes. For example, in 2024, 70% of petroleum consumed was used in the transportation sector, while 24% was used in the industrial sector. During the same period, 41% of natural gas consumed was by the electric power sector, and 32% was used in the industrial sector (EIA 2025y).

7.4 Energy Markets Conclusion

The President's energy strategy, as outlined in the January 2025 E.O.s, aims to encourage energy exploration and production to maintain the United States' position as a global energy leader. The strategy prioritizes continued reliance on traditional energy sources like oil and natural gas, which remain critical for energy reliability and other petroleum products such as plastics and fertilizers. By providing additional opportunities for leasing, exploration, and development, and establishing regulatory certainty, domestic energy production will provide energy security, jobs, and revenue for the Nation.

The OCS Lands Act requires long-term planning for OCS oil and gas lease sales through the National OCS Program. The National OCS Program development process allows the Secretary to consider the current and anticipated future energy needs of the United States. This energy market analysis relies on assumptions reflecting current laws and policies. These assumptions provide a consistent dataset for the Secretary to consider potential impacts of decisions at this programmatic stage.

At this 1st Analysis stage, the Secretary selects areas to continue to evaluate for future oil and gas lease sales. This allows the Secretary to continue to evaluate these areas with newly available information to determine the areas to be included in the 2nd Proposal. Despite significant changes in domestic energy markets due to increased onshore production and moderate oil prices, the OCS remains a vital source of stable energy production and is a critical component of national and regional energy markets.



Chapter 8
Other Uses of the OCS

Chapter 8 Other Uses of the OCS

Section 18(a)(2)(D) requires the Secretary to consider OCS Regions "with respect to other uses of the sea and seabed, including fisheries, navigation, existing or proposed sea lanes, potential sites of deepwater ports, and other anticipated uses of the resources and space of the outer continental shelf." This chapter provides a discussion about other uses of the OCS, including the following:

- Commercial and recreational fishing
- Aquaculture
- Coastal and marine recreation and tourism
- Subsistence uses
- Ports, marine navigation, commercial shipping, and submarine cables
- Military and National Aeronautics and Space Administration (NASA) uses
- Other energy uses and foreseeable developments in carbon capture and storage
- OCS renewable energy
- Non-energy marine minerals, including sand.

OCS Renewable Energy

In 2009, USDOI announced the final regulations for the OCS renewable energy program, which was authorized by the Energy Policy Act of 2005. These regulations provide a framework to issue leases, easements, and rights-of-way for OCS activities that support energy production and transmission from sources other than oil and natural gas. Further directives pertaining to offshore wind development were included as part of P.L. 117–169, the IRA.
Section 50265(b)(2) of the IRA requires BOEM to offer at least 60 million OCS acres for oil and gas leasing within the 12 months prior to issuing an offshore wind lease. This requirement is effective until August 16, 2032.

On January 20, 2025, the Administration announced an E.O. temporarily withdrawing all areas on the OCS from offshore wind leasing and ordered a review of the Federal government's leasing and permitting practices for wind projects. This memorandum pauses new or renewed approvals, rights-of-way, permits, leases, or loans for offshore wind projects pending a comprehensive review. Additional renewable energy development on the OCS will be contingent upon the findings of this review, which includes analysis of potential impacts on navigational safety, transportation, national security, commercial interests, and marine mammals.

Non-energy Marine Minerals

The OCS Lands Act assigns USDOI responsibility for leasing OCS non-energy minerals such as sand for shore protection, beach restoration, and coastal wetland restoration; this responsibility has been delegated to BOEM. Section 8(k) of the OCS Lands Act sets forth requirements for this activity. To date, BOEM has negotiated non-competitive agreements and issued leases for sand for beach nourishment and coastal restoration projects. OCS resources dredged for these projects are typically in water depths of less than 100 ft. Section 11 of the OCS Lands Act also allows BOEM to oversee G&G exploration to identify new potential mineral resources.

In addition to conveying access to OCS sand and other sediments, BOEM is also responsible for competitive leasing for non-energy minerals, including but not limited to cobalt, copper, lead, manganese, zinc, gold, platinum, and rare earth minerals. On April 24, 2025, the Trump Administration issued E.O. 14285, *Unleashing America's Offshore Critical Minerals and Resources*. Under this order, USDOI is working to establish an expedited process to review and approve permits for prospecting and granting leases for exploration, development, and production of seabed mineral resources on the OCS. All OCS Regions have opportunities for the development of critical minerals and resources.

BOEM is currently working with the USGS, NOAA, and the Department of State to determine which OCS areas have potentially significant critical marine mineral resources, with a focus on cobalt, manganese, nickel, and rare earth elements. These minerals, typically found in marine deep sea areas, are used in a wide range of applications across a variety of sectors. Mineral deposits found on the OCS include polymetallic nodules, ferromanganese crusts, seafloor massive sulfides, and heavy mineral sands—collectively, they contain at least half of the 50 critical minerals designated by the USGS. Visit BOEM's critical minerals webpage for more information.

OCS Carbon Capture and Geologic Sequestration

In addition to renewable energy and marine minerals activity, BOEM is responsible for oversight of the U.S.'s carbon capture and sequestration industry. The passage of the Infrastructure Investment and Jobs Act on November 15, 2021, gave the Secretary the authority to grant a lease, easement, or right-of-way on the OCS for long-term geologic sequestration of CO_2 that would otherwise be emitted into the atmosphere.

BOEM and BSEE are working to draft a proposed rule establishing carbon sequestration regulations for the OCS, which will be published and available for public comment once complete. BOEM's analysis of existing data demonstrates that the geology of the GOA OCS could be suitable to store large amounts of CO_2 in subsurface saline aquifers and depleted oil and gas reservoirs. Similar storage potential in other areas and geologic settings could be assessed by BOEM to establish safe and long-term geologic carbon sequestration on the OCS.

Appendix A contains a summary of the individual comments BOEM received in response to the April 30, 2025, RFI related to other uses of the OCS and potential conflicts between these other uses and oil and gas leasing activities. Many of the comments received from Federal agencies, state agencies, governor's offices, and environmental advocacy groups highlight the critical importance of other existing, diverse coastal and ocean uses to both regional and statewide economies and request that BOEM fully consider any potential use conflicts.

8.1 Alaska Region

The Alaska Region comprises 16 planning areas that are grouped into three subregions for this discussion: (1) Arctic subregion (High Arctic, Beaufort Sea, Chukchi Sea, and Hope Basin); (2) Bering Shelf subregion (Navarin Basin, North Aleutian Basin, St. George Basin, Norton Basin, St. Matthew-Hall, Aleutian Basin, and Bowers Basin); and (3) Pacific Margin subregion (Cook Inlet, Gulf of Alaska, Shumagin, Kodiak, and Aleutian Arc). The High Arctic Planning Area is new for the 11th Program. Documentation of other uses of the OCS in the High Arctic Planning Area is sparse, and the area's remote location and distance from shore limits its accessibility for many uses.

In addition to the other uses of the Alaska OCS discussed below, scientific research continues to be conducted in the Alaska Region and involves water-based (e.g., vessels, buoys), air, and over-ice activities. Table 8-1 and Figure 8-1 show the other uses of the OCS for the Alaska Region.

8.1.1 Commercial Fisheries

The Alaska Region generated 60.7% of landings (4.8 billon pounds) and more than 35.5% of value ($2.1 billion dollars) of the U.S. commercial fisheries in 2022 (NMFS 2024d, NOAA Fisheries 2024f). Several ports along Alaska's coast are identified as top U.S. ports for commercial fish landings. In 2022, the top U.S. ports for commercial fish landings in Alaska were Dutch Habor, Kodiak, Naknek, Cordova, and other Aleutian Island ports (see Figure 8-2). Dutch Harbor led the Nation as the port with the highest volume of seafood landed (613.5 million pounds valued at $159.9 million) for the 25th consecutive year in 2022 (NMFS 2024d).

Table 8-1: Other Uses of the OCS within the Alaska Planning Areas

Activity	High Arctic	Beaufort Sea	Chukchi Sea	Hope Basin	Norton Basin	St. Matthew-Hall	St. George Basin	Cook Inlet	Shumagin	Kodiak	Aleutian Arc	Gulf of Alaska
Commercial Fishing	None	None	None	None	None	✓	✓	✓	✓	✓	✓	✓
Recreational Fishing	None	✓	✓	None	None	✓	✓	✓	None	✓	✓	✓
Aquaculture	None	None	None	None	None	None	None	✓	✓	✓	None	✓
Tourism	None	✓	None	None	✓	✓	None	✓	None	✓	✓	✓
Subsistence	None	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ports/Shipping/Cables	None	✓	✓	None	✓	None	✓	✓	✓	✓	None	✓
Federal Agency Activity	None	✓ NASA	None	None	None	None	None	None	None	✓ DOD	None	✓ DOD
State Oil and Gas Activity	None	✓	None	None	None	None	None	✓	None	None	None	None
Current OCS Oil and Gas Activity	None	✓	None	None	None	None	None	✓	None	None	None	None
OCS Renewable Energy	None	None	None	None	None	None	None	None	None	None	None	None
Potential OCS Marine Minerals Activity	✓	✓	✓	None	✓	None	None	None	None	✓	✓	✓

Note: The Navarin Basin, Aleutian Basin, and Bowers Basin planning areas are surrounded by open ocean, with negligible commercial activity or public uses, and are therefore excluded from this table.
Key: DOD = Department of Defense; OCS = Outer Continental Shelf; NASA = National Aeronautics and Space Administration

Figure 8-1: General Areas of Other Uses of the Alaska Planning Areas

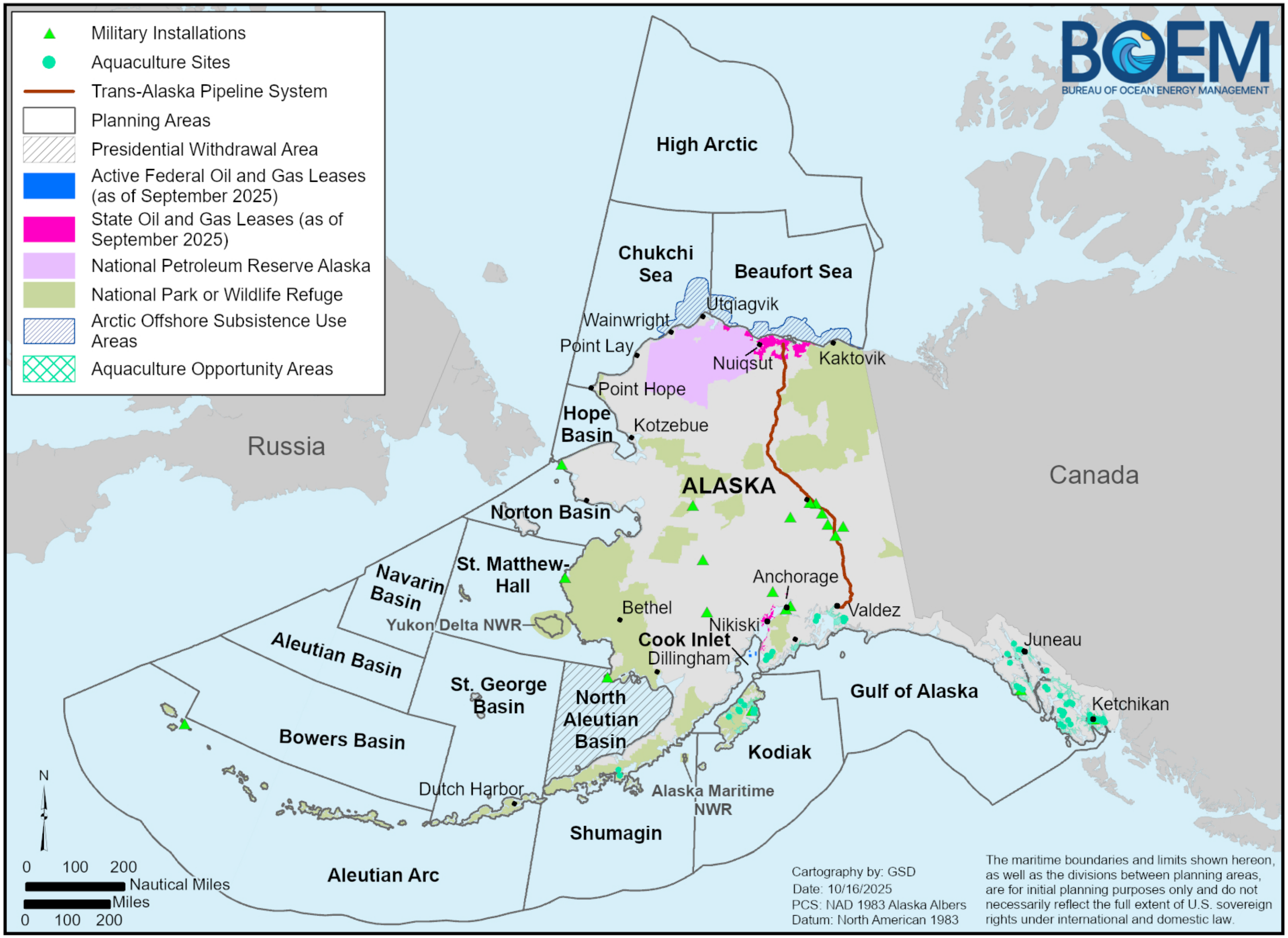
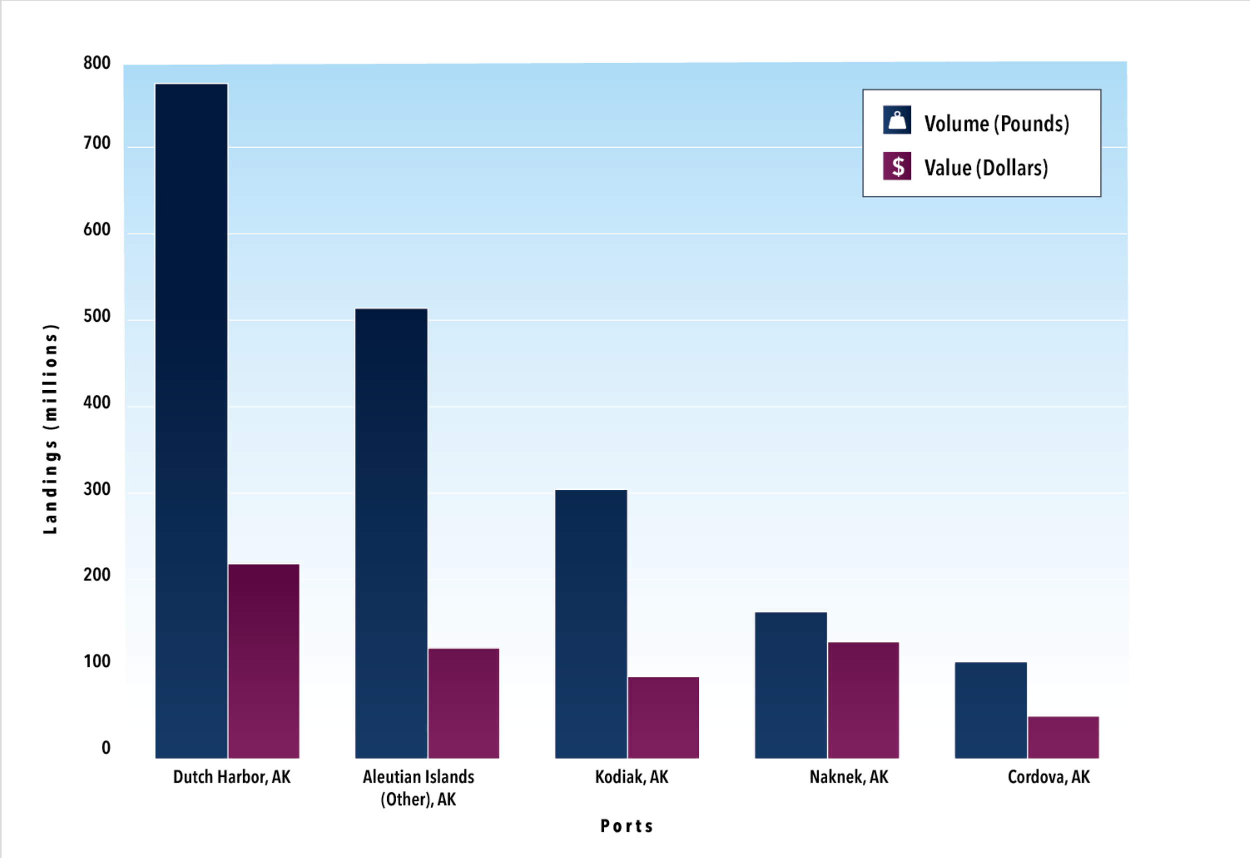


Figure 8-2: Top Alaska Commercial Landings by Volume & Value, 2023



Source: NOAA Fisheries (2023b, 2023d)

In 2022, Alaska's commercial fishing and seafood industry supported 74,424 full- and part-time jobs and generated $5.1 billion in sales, $2.3 billion in income (income from salaries), and $2.8 billion in value added impacts (value added in production by the labor and capital) (NOAA Fisheries 2024f). Commercial harvesters generated the largest sales impacts ($3.6 billion), value added impacts ($2 billion), income impacts ($1.6 billion), and employment impacts (53,938 jobs) (NOAA Fisheries 2024f).

8.1.1.1 Arctic Subregion

Prolonged ice-free seasons, coupled with warming waters and changing ranges of fish species, could lead to commercial fishery development in the U.S. Arctic EEZ (NPFMC 2025). However, Federal waters north of the Bering Strait of the U.S. Arctic were closed to commercial fishing by the North Pacific Fishery Management Council (NPFMC) in 2009. This closure was implemented under the Arctic Fishery Management Plan (Arctic FMP) to provide a framework for sustainably managing potential future commercial fishing in the Arctic Management Area, which includes the Chukchi and Beaufort seas (North Pacific Fishery Management Council 2009). Gillnetting and mechanical jigging for finfish is allowed in the Hope Basin Planning Area, particularly in Kotzebue (Alaska Sea Grant 2025).

8.1.1.2 Bering Shelf Subregion

Commercial fishing is the most important other use of the OCS in terms of economic significance in the Bering Shelf subregion (BOEM 2014, Price et al. 2025). Salmon and herring are the most important fishery resources in this region (Alaska Department of Fish and Game Undated).

Groundfish—including halibut, Pacific cod, pollock, rockfish, and sablefish—occur in Bristol Bay, Kuskokwim, Lower Yukon, and the Norton Sound. Gillnetting for finfish (e.g., herring, salmon) and pot fishing (for red king crab) occurs in the Norton Sound. The halibut longline fishery occurs in Bristol Bay, Kuskokwim, Lower Yukon, and the Norton Sound. The Bering Sea, including areas north of the Aleutian Arc, have active halibut, sablefish, Tanner, and blue king crab fisheries (Alaska Sea Grant 2025).

Commercial fishing is the primary employment source for many residents of the North Aleutian Basin area (Alaska Sea Grant 2009). Bristol Bay hosts one of the largest sockeye salmon fisheries in the world (USEPA 2025a). The Bristol Bay commercial salmon fishery is the largest component of economic activity. The wholesale value of all commercial salmon in Bristol Bay averaged about $465 million from 2010 to 2019, and in 2019 the industry provided employment for approximately 14,600 full- and part-time workers at the peak of the season (Alaska Sea Grant 2025, McKinley Research Group 2021, USEPA 2025a).

8.1.1.3 Pacific Margin Subregion

Commercial fishing and seafood harvesting and processing are economically important industries along the Gulf of Alaska, Aleutian Arc, Kodiak, and Shumagin planning areas. Living resources, such as commercial fishing and seafood processing, represent 98.9% of employment within the total marine economy in the East Aleutian Islands and 100% of the employment in the West Aleutian Islands (NOAA 2021c).

Although commercial fishing is economically important along Cook Inlet, it is somewhat less important than in other parts of the Pacific Margin subregion. Gillnetting for salmon and herring are particularly important in Cook Inlet, Kodiak, Chignik, and the South Alaskan Peninsula (BOEM 2022c). Approximately 3.1 million salmon[30] were commercially harvested in the Lower Cook Area (ADF&G 2024). Federal oil and gas leases in Cook Inlet included a stipulation to protect this fishery by prohibiting lessees from conducting on-lease marine seismic surveys during the fishing season and requiring coordination with the United Cook Inlet Drift Association (BOEM 2016a).

[30] Of the 3.1 million salmon commercially harvested, there were approximately 2.7 million pink salmon (*Oncorhynchus gorbuscha)*, 350,427 sockeye (*O. nerka)*, 39,441 chum (*O. keta*), 661 coho (*O. kisutch*), and 328 Chinook salmon (*O. tshawytscha)* (Alaska Department of Fish and Game 2023).

8.1.2 Recreational Fishing

Recreational fishing trips occurring in the OCS exceeded 744,000 trips in Alaska in 2022, generating more than $685 millon in total trip expenditures (NOAA 2022a) (see Table 8-2). Saltwater anglers in Alaska, on charter fishing trips, catch approximately 500,000 salmon and 350,000 halibut annually (NMFS 2024d), and generate more than $400 million dollars annually in economic activity (NOAA 2022a).

Table 8-2: Economic Impact and Expenditures of Alaska's Recreational Fishing by Sector, 2022

Impact Type	For-Hire	Private Boat	Shore
Sales	$606,835,510	$280,706,221	$34,191,748
Value Added	$365,309,235	$153,157,223	$19,253,646
Income	$278,814,548	$79,961,655	$9,491,174
Number of Jobs	6,520	1,507	180

Source: NOAA Fisheries (2022)

Most recreational fishing activity in the Arctic is limited by the harsh Arctic climate, difficulty in physically accessing the area, and logistics costs. Vessel traffic in the Arctic is highly affected by seasonal variability and ice cover (BOEM 2018).

In the Bering Shelf subregion, recreational angling represents the most economically significant public use of natural resources in and near the Bristol Bay area (i.e., St. Matthew-Hall). In 2009, recreational fishing trips in the Bristol Bay area generated approximately $60 million (USEPA 2014).

The Pacific Margin subregion (and more specifically, the south-central portion) had the highest number of resident and non-resident anglers from 2006 to 2011 (ADF&G 2015).

Key recreational fishing species are the five species of Pacific salmon, halibut, and other groundfish, such as lingcod and rockfish (Table 8-3) (NOAA 2022a). King salmon are caught year-round, while coho, sockeye, and pink salmon are typically caught July through September. Sport fishing for halibut occurs February 1 through December 31 annually. The Alaska Department of Fish and Game's (ADF&G's) Sport Fishing Regulations provides the most up-to-date sport fishing regulations.

Table 8-3: Total Number of Key Recreational Species Harvested & Released, 2022

Key Species	Harvested	Released
Rockfish species	380,379	182,224
Pacific halibut	349,725	190,572
Coho salmon	334,482	50,032
Pink salmon	114,456	144,617
Chinook salmon	70,510	92,630
Pacific cod	52,564	35,200
Lingcod	40,567	42,959
Sockeye salmon	68,595	8,607
Chum salmon	18,725	24,121
Sablefish/black cod	30,869	7,895
Total	**1,460,872**	**778,857**

Source: NOAA Fisheries (2022)

8.1.3 Aquaculture

Aquaculture production has grown throughout Alaska over the preceding decades, with a recent maximum of 1,915,831 oysters sold to the public in 2021 and a growing interest in marine plant aquaculture (NOAA Fisheries 2025g). In 2019, aquaculture production sales in Alaska totaled $1.4 million. Aquatic farm products currently grown in Alaska comprise mostly Pacific oysters and blue mussels; finfish farming is prohibited. However, as the industry continues to expand and culturing techniques are refined, other products such as the geoduck clam, littleneck clams, and marine plants are gaining prominence within the industry (State of Alaska 2018).

Aquaculture development opportunities continue to emerge in Alaska, including the following:

- Alaska Mariculture Task Force (2016): established a goal to develop Alaskan mariculture into a $100 million industry by 2040
- Alaska Mariculture Cluster (2022): secured a $49 million grant from the Economic Development Administration’s Build Back Better regional challenge
- NOAA Fisheries’ announced preliminary results for the Draft Aquaculture Opportunity Area (AOA) and requested public comments.

Developing AOAs is consistent with sustaining and conserving marine resources and applicable laws, regulations, and policies. BOEM and NMFS are working together to address and resolve multiple use issues regarding use of the OCS for aquaculture and energy programs. The intent of this effort is to support long-term planning for offshore aquaculture in Alaska.

Aquaculture production occurs along the vast coastline of Alaska, stretching from southeast Alaska to Kodiak and the Aleutians (Alaska Department of Fish and Game 2025a) (Figure 8-1). The highest acreage of aquaculture operations is found in the Pacific Margin subregion, specifically, in the Gulf of Alaska, where 690 total acres were permitted by late 2023. These 690 acres contain 40 individual aquafarming sites dedicated to seaweed and shellfish aquaculture.

Cook Inlet and Kodiak predominantly produce seaweed and shellfish, where a total of 331 acres are permitted for aquaculture. As of 2023, 30 aquafarming sites are permitted from Cook Inlet to west of Yakutat (NOAA Fisheries 2024k).

No aquaculture production occurs in the Arctic subregion. Aquaculture in the Bering Shelf subregion boasts 337 permitted acres, including in the Aleutian Islands. There are 12 permitted aquaculture plots from as far west as the Aleutian Islands and as far east as the Kodiak Island (NOAA Fisheries 2024k). The primary species grown in Alaska's aquaculture industry are seaweed and invertebrates, such as oysters and mussels (NOAA Fisheries 2024k).

8.1.4 Coastal and Marine Recreation and Tourism

8.1.4.1 Arctic Subregion

Most recreational activity in the Arctic is limited by the harsh Arctic climate, difficulty in physically accessing the area, and logistics costs. Recreation and tourism activities in the Arctic involve wildlife viewing, wilderness adventure, hiking, sport hunting, and fishing (BOEM 2017b). Cruise ships are also increasingly becoming available and popular, and the tourism economy in coastal Alaska is dependent, in part, on cruise ship visits along the state's coastline. In 2023, leisure and hospitality industries in the North Slope and northwestern Arctic Boroughs accounted for 32 establishments, 692 jobs, and approximately $34.5 million in wages (NOEP 2024).

In 2024, the Bering Land Bridge National Preserve had 2,642 visitors, and the Cape Krusenstern National Monument had more than 17,000 visitors (NPS 2025). A small number of people (less than 2,000 per year) visit the Arctic National Wildlife Refuge (Alaska Tours 2021).

Arctic tourism has been increasing, with most expeditions occurring near shore in the Beaufort Sea.

8.1.4.2 Bering Shelf Subregion

Although tourism and recreation are less economically significant than commercial fishing in the Bering Shelf subregion, they are important to many local economies. Recreation and tourism revolve almost exclusively around outdoor recreation, including recreational fishing, sport hunting, hiking, and wildlife viewing in the North Aleutian Basin and Norton Basin (concentrated in the City of Nome). There are no coastal National Parks in the Bering Shelf subregion, but much of the coast is encompassed by the five national wildlife refuges (NWRs) in the region. Coastal areas near the St. Matthew-Hall Planning Area, particularly in and near the Yukon Delta NWR, make up one of the premier birding areas of North America (WHSRN 2019). Recreational angling represents the most economically significant public use of natural resources in and near the Bristol Bay area. Recreational activity in and near the St. George Basin Planning Area is limited due to its remoteness.

In 2023, leisure and hospitality industries in the Bethel Census Area (adjacent to the St. Matthew-Hall Planning Area) accounted for 28 establishments, 144 jobs, and approximately $6.2 million in wages (NOEP 2024). These industries in the Nome Census Area (adjacent to the Norton Basin Planning Area) accounted for 25 establishments, 142 jobs, and about $4.8 million in wages (NOEP 2024).

8.1.4.3 Pacific Margin Subregion

Tourism is a key component of the Cook Inlet and Gulf of Alaska planning areas' economies, but is fairly limited in and near the Kodiak, Shumagin, and Aleutian Arc planning areas. The area surrounding the Cook Inlet Planning Area is popular for outdoor recreational activities, particularly fishing, hiking, boating, hunting, and wildlife viewing. Ports in the Pacific Margin subregion support Alaska's cruise industry and rely on tourism from cruise ships to support local economies, particularly the state's three busiest ports in Juneau, Ketchikan, and Skagway in southeastern Alaska (BREA 2020). In the Gulf of Alaska area in 2023, leisure and hospitality industries in Juneau accounted for 129 establishments, 1,624 jobs, and approximately $48.5 million in wages (NOEP 2024). In 2024, recreation visitors to the 7 National Park Service (NPS) -protected areas in this subregion totaled more than 1.6 million (NPS 2025).

8.1.5 Subsistence

8.1.5.1 Arctic Subregion

Subsistence fishing and hunting are important economic and cultural activities embedded in Arctic Alaskan communities. Among Alaska Native communities along the Beaufort and Chukchi seas (such as the Iñupiat), subsistence fishing and hunting practices hold a high cultural value and provide a substantial portion of many communities' annual food supply. Coastal and marine resources important for subsistence include bowhead and beluga whales, ice seals, walruses, waterfowl, and fish. Annual subsistence harvest by coastal communities along the Beaufort and Chukchi seas accounts for more than 7 million pounds, the majority of which is marine and terrestrial mammals, although fish, birds, and eggs are also important. The average community per capita harvest is more than 600 pounds per year of subsistence foods, consisting mostly of marine mammals (more than 250 pounds per capita), terrestrial mammals (almost 190 pounds per capita; primarily caribou) and fish (more than 140 pounds per capita) ((Alaska Department of Fish and Game 2025b).

8.1.5.2 Bering Shelf Subregion

Within the Bering Shelf subregion, subsistence activities are negligible in the Navarin Basin, Aleutian Basin, and Bowers Basin planning areas because they are surrounded by open ocean and are far from coastal communities. Therefore, the discussion of subsistence uses of resources in and along the Bering Shelf subregion focuses on the remaining four planning areas (North Aleutian Basin, St. George Basin, St. Matthew-Hall, and Norton Basin).

These planning areas are adjacent to communities in the Kotzebue Sound region, Yukon-Kuskokwim river delta areas, Bristol Bay region, and parts of the Alaska Peninsula and Aleutian Islands. More than 5.7 million pounds of subsistence resources are harvested annually by communities along the Bering Shelf subregion, with an average community per capita harvest of 510 pounds (Alaska Department of Fish and Game 2025b). In the northern Bering Sea, important marine subsistence resources include bowhead whales, beluga whales, walruses, ice seals, fish, and various sea birds (Raymond-Yakoubian 2018).

Communities in the northern portion of the Bering Shelf subregion harvest an average community per capita of approximately 340 pounds of marine mammals and 150 pounds of salmon and other fish. All five species of Pacific salmon are a critical marine subsistence resource in communities in the southern Bering Shelf subregion, particularly in the Yukon-Kuskokwim delta and Bristol Bay, along with other fish species and marine mammals. In Bristol Bay, communities harvest approximately 250 pounds per capita of salmon (Alaska Department of Fish and Game 2025b).

8.1.5.3 Pacific Margin Subregion

Subsistence fishing and hunting are critically important uses of coastal and marine resources in communities throughout the Pacific Margin subregion, including Aleutian Island, Alaska Peninsula, Kodiak Island, Cook Inlet, and Gulf of Alaska (including Prince William Sound and southeastern Alaska). Communities engage in subsistence hunting and fishing for their economic, social, cultural, and spiritual value, and to meet basic nutritional needs.

Coastal communities in the Pacific Margin subregion harvest more than 5 million pounds of subsistence foods annually, with an average community per capita harvest of slightly more than 250 pounds. Salmon, consisting of all five species of Pacific salmon, comprises most of the subsistence harvest, with an average community per capita of almost 120 pounds. Harvest of marine invertebrates is higher in the Pacific Margin subregion than in the other subregions (almost 20 pounds per capita), while the quantity of marine mammals harvested (approximately 8 pounds per capita) is considerably lower than in other subregions (Alaska Department of Fish and Game 2025b). However, marine mammal harvest remains an important cultural activity in some Alaska Native communities in the region.

8.1.6 Ports, Marine Navigation, Commercial Shipping, and Submarine Cables

8.1.6.1 Arctic Subregion

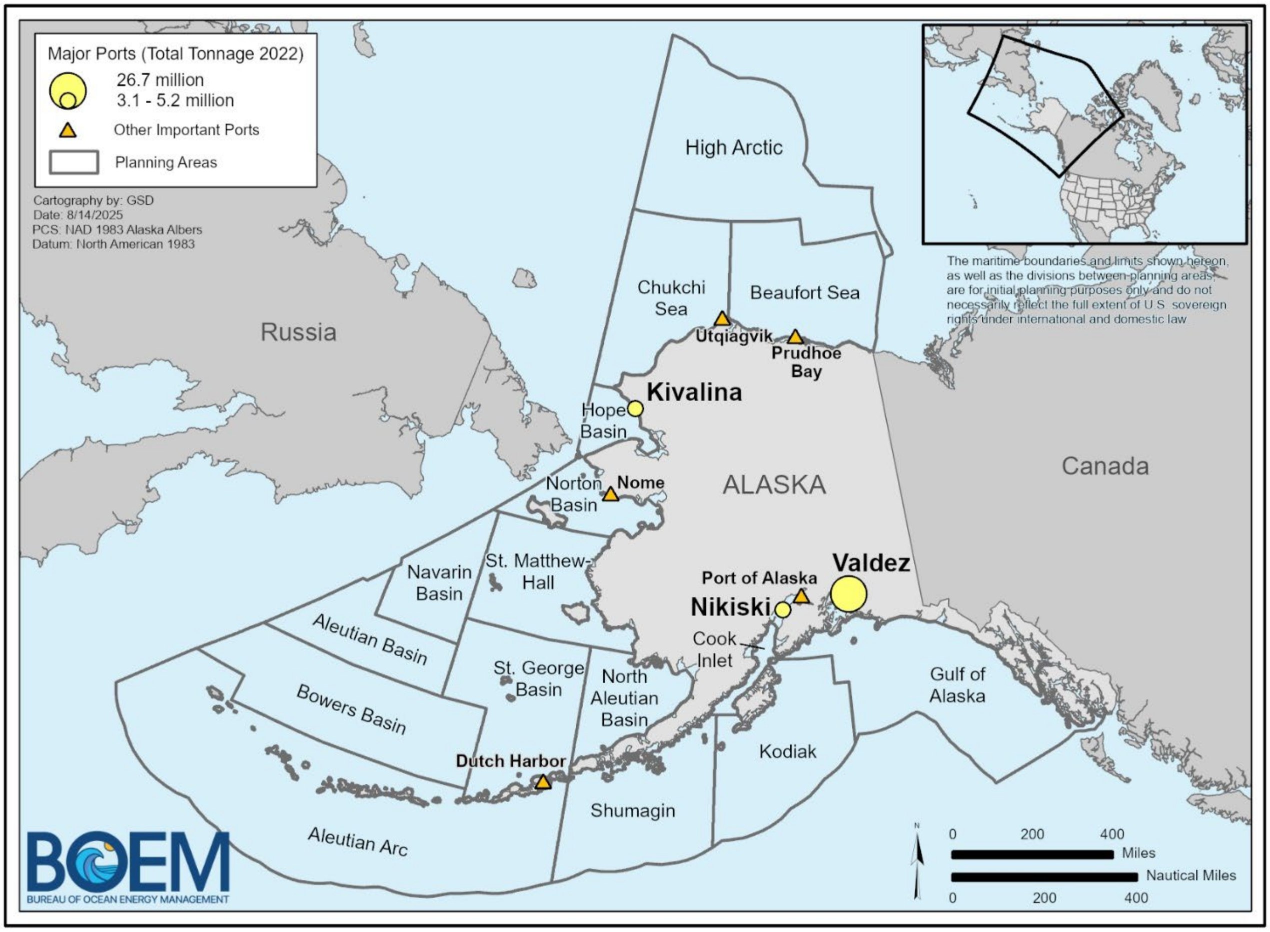
Ports in Prudhoe Bay (Beaufort Sea) and Utqiaġvik (Chukchi Sea) are not large in terms of tonnage (USACE 2022b), but are important to support communities, scientific research, military activities, and petroleum exploration and development. Each September, sea ice coverage is at its minimum, and shipping activity is at the highest levels (Eguiluz et al. 2016, USCG 2016). Arctic-wide ice loss is expected to continue, with nearly ice-free seas in the late summer months by the 2040s (Taylor et al. 2017).

From 2013 to 2023, the volume of marine vessel activity in the Arctic increased by 37%, and fishing vessels constituted the largest segment (41%). Marine navigation and traffic patterns are expected to continue evolving due to decreased ice cover and longer ice-free periods, further increasing the levels of Arctic shipping and number of vessels in the region associated with industrial transportation, tourism, and non-subsistence fishing (Arctic Council 2020). See Figure 8-3 for a map of the major ports by tonnage in Alaska. Other ports with less tonnage that are also important within Alaska are discussed in the following sections.

Marine infrastructure is generally lacking in most of the area north of the Aleutian Islands; water transportation during ice-free months remains an important means to transport fuel and supplies for area residents. This route significantly reduces travel times and is transforming maritime trade as its accessibility increases (USCG 2016). Expected increases in natural resource activities in the Arctic subregion will drive demand for infrastructure improvements to support these activities (U.S. Committee on the Marine Transportation System 2019). Increases in shipping and vessel traffic could contribute to potential impacts on the subregion's marine species, commercial and recreational fishing, and subsistence practices (Marine Mammal Commission 2023, Todorov 2023).

The recently created High Arctic Planning Area is very remote, with no ports and negligible documented activity. If offshore development were to occur there, it would require similar onshore infrastructure and support services as projects in the Beaufort Sea and Chukchi Sea planning areas.

Figure 8-3: Ports in Alaska



Note: The shipping facility indicated for Kivalina, Alaska serves shipments of lead and zinc concentrates for the Red Dog Mine.

8.1.6.2 Bering Shelf Subregion

The St. George Basin and the St. Matthew-Hall planning areas do not have any major commercial ports; however, the "Great Circle" shipping route between the Pacific Northwest and Asia passes through the St. George Basin Planning Area. The Port of Nome (Norton Basin) services many villages and communities on the western coast of Alaska from Utqiaġvik in the far north to Dutch Harbor in the Aleutian Islands chain in the south. Uniquely positioned along the Bering Strait transportation route, the Port of Nome was selected to serve as the first deep draft port in U.S. Arctic waters (City of Nome 2024). In February 2025, the U.S. Army Corps of Engineers (USACE) solicited bids for the first phase of the Port of Nome modification project, with proposals due April 14, 2025 (USACE 2025).

8.1.6.3 Pacific Margin Subregion

The Pacific Margin subregion is also important for commercial shipping. The Port of Valdez in the Gulf of Alaska is the largest port in Alaska in terms of land cover and total tonnage, largely due to oil shipments (Association of Pacific Ports Undated, USACE 2022b). The Port of Alaska (formerly the Port of Anchorage) on the eastern end of Cook Inlet is an essential port for many Alaska residents, since more than 90% of all consumer goods are provided to Alaska's population through the port (Port of Alaska 2025). In addition, thousands of commercial vessels pass through the Gulf of Alaska, Kodiak, Shumagin, and Aleutian Arc annually along the "Great Circle" shipping route from the Pacific Northwest to Asia.

Cook Inlet has five deep draft ports, including the Port of Alaska, Port MacKenzie, Nikiski Industrial Facilities, Port of Homer, and City of Seldovia (BOEM 2022b). Vessel types include cargo ships, tankers, tugs, cruise ships, commercial fishing boats, and research vessels.

The Port of Alaska is a Department of Defense (DOD) National Strategic Seaport and can provide deployment and staging areas to respond to war or national emergencies. The port has been undergoing improvements and modifications since 2014. The near-term focus will be on improving docks and terminals. Cargo and petroleum terminals will be replaced once construction of a joint-use petroleum/cement terminal is completed (Port of Alaska 2025). The Port of Alaska was 19th on the 2025 list of the top 25 U.S. ports for containerized cargo volume measured in 20-foot equivalent units (TEU) (BTS 2019).

The ports at Akutan and Dutch Harbor are important to the local economy in the western reaches of the Aleutian Islands. The Port of Dutch Harbor, adjacent to the Aleutian Arc Planning Area, ranked number one for the highest volume of seafood landed, with more than 613 million pounds in 2022. The Port of the Aleutian Islands and Port of Kodiak ranked third and sixth, respectively (NOAA Fisheries 2024f).

Subsea telecommunications cables are critical infrastructure that overlay the seafloor within the OCS. Four submarine cable systems connecting Alaska to the lower 48 states lay under the Gulf of Alaska: ACS Alaska-Oregon Network (AKORN), AU-West, North Star, and AU-EAST. Numerous regional systems interconnect with these lines to provide connectivity within the state. The North American Submarine Cable Association (NASCA) provides detailed cable maps of the area, most recently updated in June 2024 for this subregion. There could be other cables not identified on NASCA maps from non-NASCA Association members. Coordination between ocean users and submarine cable operators is important prior to conducting OCS operations.

A commercial activity that could impact use of the OCS adjacent to the Cook Inlet area is the development of the Donlin Gold Mine, about 10 miles from Crooked Creek Village near the Kuskokwim River. This mine uses both marine and air transport, and a new dock and pipeline are planned adjacent to the Upper Cook Inlet. Drilling at the mine commenced in February 2020 (Barrick Novagold 2020). On July 20, 2021, the Alaska Department of Natural Resources granted land use rights for a proposed 315-mile-long natural gas pipeline along the western side of Cook Inlet to supply power for the site (Ebertz 2021).

8.1.7 Military and NASA Uses

DOD maintains a persistent maritime presence in Arctic waters, including aerospace and maritime warning capabilities, submarine deployments, and periodic naval exercises. U.S. Navy submarines routinely conduct under-ice patrols and participate in exercises to test Arctic maritime operations and integrated deterrence. USCG activities support DOD objectives by maintaining icebreaker patrols and by collaborating on logistics (DOD 2024).

As part of its 2024 Arctic Strategy, DOD plans to maintain foundational maritime surveillance capabilities in the Arctic. This includes maritime warning systems essential for monitoring the northern approaches to the United States. Current intelligence, surveillance, and reconnaissance (ISR) operations in the region include use of manned and unmanned aircraft to monitor surface and undersea activities.

Maritime and air patrols are ongoing throughout the Arctic subregion to monitor foreign vessel movements and support freedom of navigation and maritime domain awareness. DOD regularly deploys submarines into Arctic waters to maintain underseas awareness and support integrated deterrence. The Navy continues its biennial Operation *Ice Camp* submarine exercise, which is a 3-week operation designed to research, test, and evaluate operations capabilities in the Arctic subregion; this exercise occurred most recently in 2024 within the Beaufort Sea (U.S. Navy 2024).

The plan identifies the Arctic subregion as significant to the execution of Indo-Pacific operations, as the northern flank for projecting military force from the U.S. homeland to that region. The plan identifies multiple strategically significant maritime chokepoints, and notes that increases in navigability are making these points more economically and militarily significant (DOD 2024).

Looking forward, the 2024 DOD Arctic Strategy calls for enhanced manned and unmanned ISR platforms, and monitoring capabilities. Potential participation in the North American Treaty Organization and ally-led maritime exercises such as *Arctic Challenge* and *Dynamic Mongoose* involve naval surface vessels and aircraft operating regularly in Arctic and subarctic seas. Infrastructure improvements, including port access, are under review.

DOD and USDOI will continue to coordinate extensively under a 1983 Memorandum of Agreement, which states that the two parties shall reach mutually acceptable solutions when the requirements for mineral exploration and development and defense-related activities conflict.

NASA has previously identified potential conflicts between OCS activities in the Beaufort Sea and operation of the Poker Flat Research Range, a University of Alaska Fairbanks-owned facility outside Fairbanks. This range remains active in 2025, with a portion of one launch area extending 12 nm offshore the northern coast of Alaska into the Beaufort Sea. BOEM remains committed to working with NASA to discuss and address potential mission conflicts.

The 2024 DOD Arctic Strategy includes the Bering Sea, and activities outlined above are similarly anticipated within this subregion. Transit of military vessels through OCS waters, submarine activities, aircraft overflights, and related maneuvers are present in the area.[31]

Previously identified DOD activities involving OCS areas, including Cook Inlet, consist of transit of military vessels through OCS waters, submarine activities, aircraft overflights, and related maneuvers. DOD has previously established surface and subsurface Operating Areas for use in military training, exercises, and system qualification tests. This area includes two components, the Temporary Maritime Activities Area (TMAA) and larger Western Maneuver Area. Also present is the Warning Area (W)-612 over Blying Sound, toward the northwestern corner of the TMAA. The warning area encompasses 2,256 square nautical miles (nm^2) and is used by the U.S. Air Force and USCG to fulfill training requirements (U.S. Navy 2022). The biennial exercise *Northern Edge* involves multiple military departments making use of these areas; the most recent iteration of this exercise occurred in August 2025.

Analysis of DOD uses of the OCS will be considered throughout the 11th Program development process.

8.1.8 Renewable Energy

BOEM has not received applications for renewable energy in any of the Alaska planning areas and is not aware of any specific plans or proposals to develop OCS renewable energy resources in these areas. Therefore, BOEM does not expect that commercial leasing for OCS renewable energy resources would occur in the Alaska planning areas during the 11th Program's timeframe. Any renewable energy leasing that could occur during the approximate 40- to 70-year lifespan of any producing leases issued during the 11th Program will be coordinated during the later stages of BOEM's oil and gas leasing process.

Recent efforts have been made to evaluate the potential for hydrokinetic and wind power. In 2021, the National Renewable Energy Laboratory (NREL) collected detailed tidal resource measurements in Cook Inlet state waters, north of the Cook Inlet Planning Area. Physical characteristics of this area provide potentially significant tidal power resources, with an estimated capacity of 6–18 gigawatts (GW) of theoretical tidal power (NREL 2021). A feasibility study conducted by NREL on behalf of BOEM in 2023 found significant potential wind, wave, and tidal energy resource capacity on the Alaska OCS, including a technical power potential of 95 GW of combined offshore wind and tidal energy in the Cook Inlet Planning Area (BOEM 2023c).

[31] For purposes of its Arctic strategy, the Department of Defense uses the definition of the Arctic found in the Arctic Research and Policy Act of 1984. This area includes all the Beaufort, Bering, and Chukchi seas, as well as the Aleutian Chain.

8.1.9 Non-energy Marine Minerals

BOEM has not received applications for marine mineral leasing in any of the Alaska planning areas. The seabed offshore Alaska contains ferromanganese crust, heavy mineral sands, and possibly sulfide deposits. An interagency expedition to Alaska's remote western Aleutian Islands was conducted in June 2025 to characterize potential hydrothermal mineral sulfide deposits and the associated environment. Heavy minerals and crusts are expected to be found elsewhere in the region.

8.2 Pacific Region

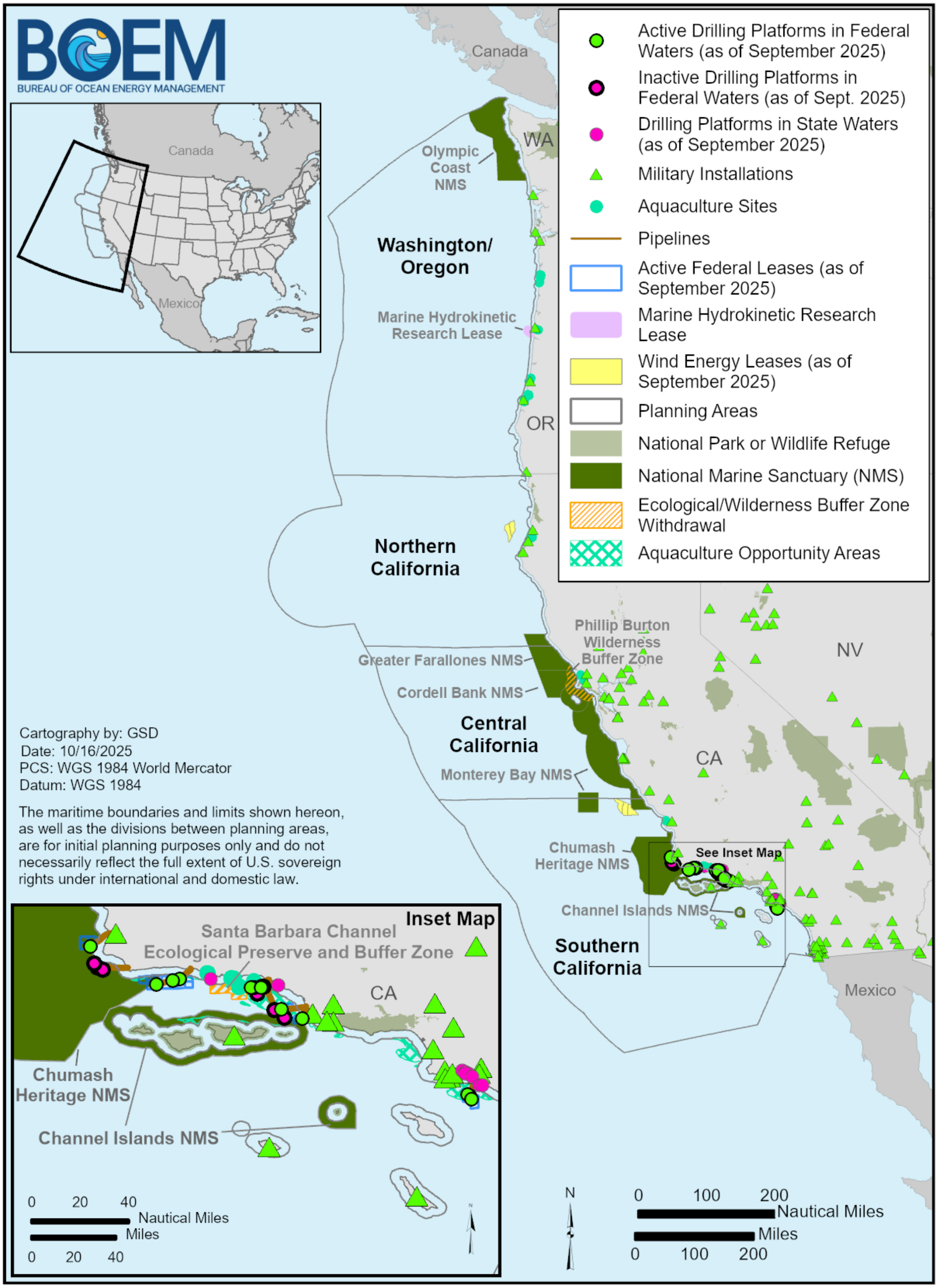
Table 8-4 and Figure 8-4 show the other uses of the OCS within the Pacific Region. In addition to the other uses of the Pacific OCS discussed below, scientific research is conducted in all planning areas and involves water-based (e.g., vessel, buoys) and air-based activities.

Table 8-4: Other Uses of the OCS within the Pacific Region by Planning Area

Activity	Washington/ Oregon	Northern California	Central California	Southern California
Commercial Fishing	✓	✓	✓	✓
Recreational Fishing	✓	✓	✓	✓
Aquaculture	✓	✓	✓	✓
Tourism	✓	✓	✓	✓
Subsistence	✓	✓	✓	✓
Ports/Shipping /Cables	✓	None	✓	✓
Federal Agency Activity	✓ DOD	✓ DOD	✓ DOD	✓ DOD
Current OCS Oil and Gas Activity	None	None	None	✓
OCS Renewable Energy	✓	✓	None	✓
Potential OCS Marine Minerals Activity	None	None	✓	✓

Key: DOD = Department of Defense; OCS = Outer Continental Shelf

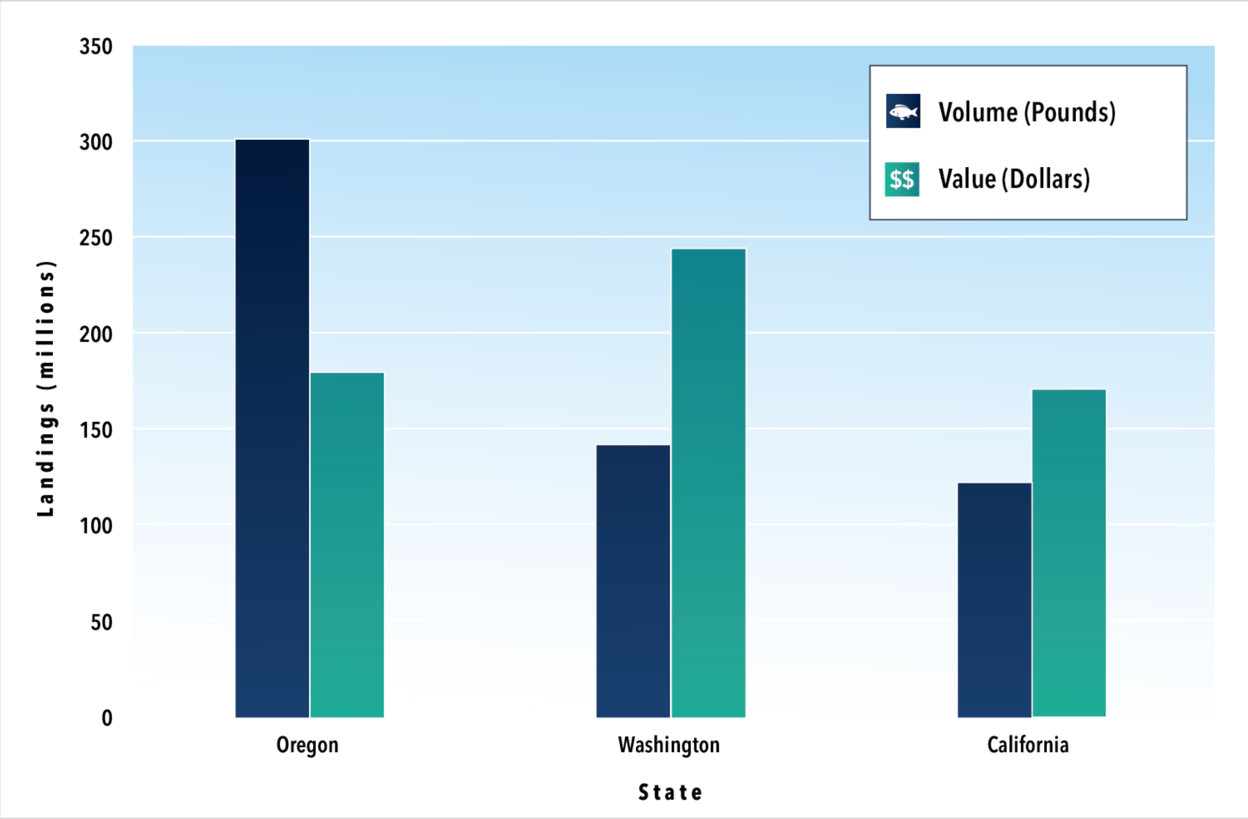
Figure 8-4: General Areas of Other Uses of the Pacific Planning Areas



8.2.1 Commercial and Recreational Fisheries

The Pacific Region generated 8% of landings (555 million pounds) and more than 11% of value ($594 million dollars) of the U.S. commercial fisheries in 2022 (NOAA Fisheries 2022). Figure 8-5 shows the comparison between commercial fishing landings volume (pounds) and value (dollars) by state for 2023 in the Pacific.

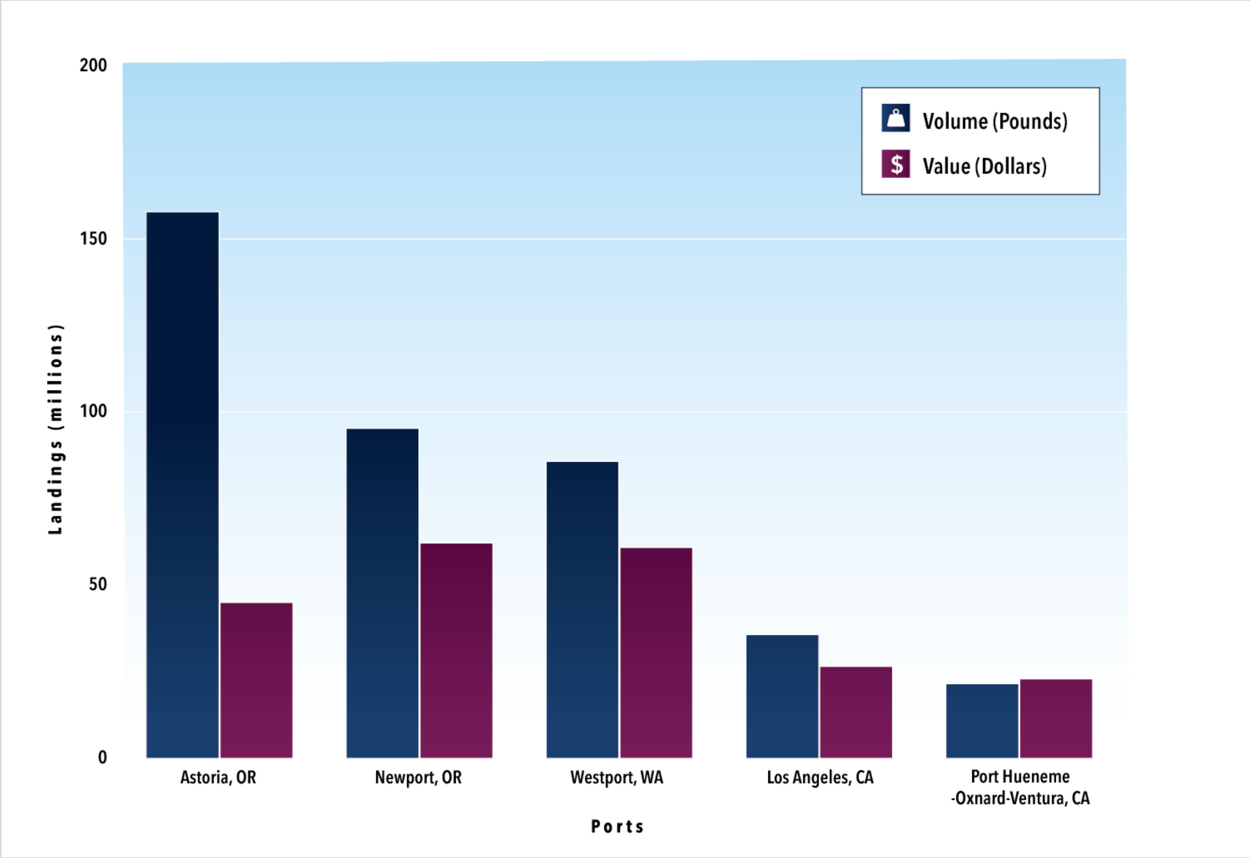
Figure 8-5: Commercial Fishing Landings Volume & Value for the Pacific Region, 2023



Source: NOAA Fisheries (2023b)

Several ports along the Pacific Coast are named top U.S. ports for commercial fish landings. In 2023, the top U.S. ports for commercial fish landings in the Pacific Region were Astoria and Newport, Oregon; Westport, Washington; and Los Angeles and Port Hueneme-Oxnard-Ventura, California (Figure 8-6).

Figure 8-6: Top Pacific Commercial Landings for Ports by Volume & Value, 2023



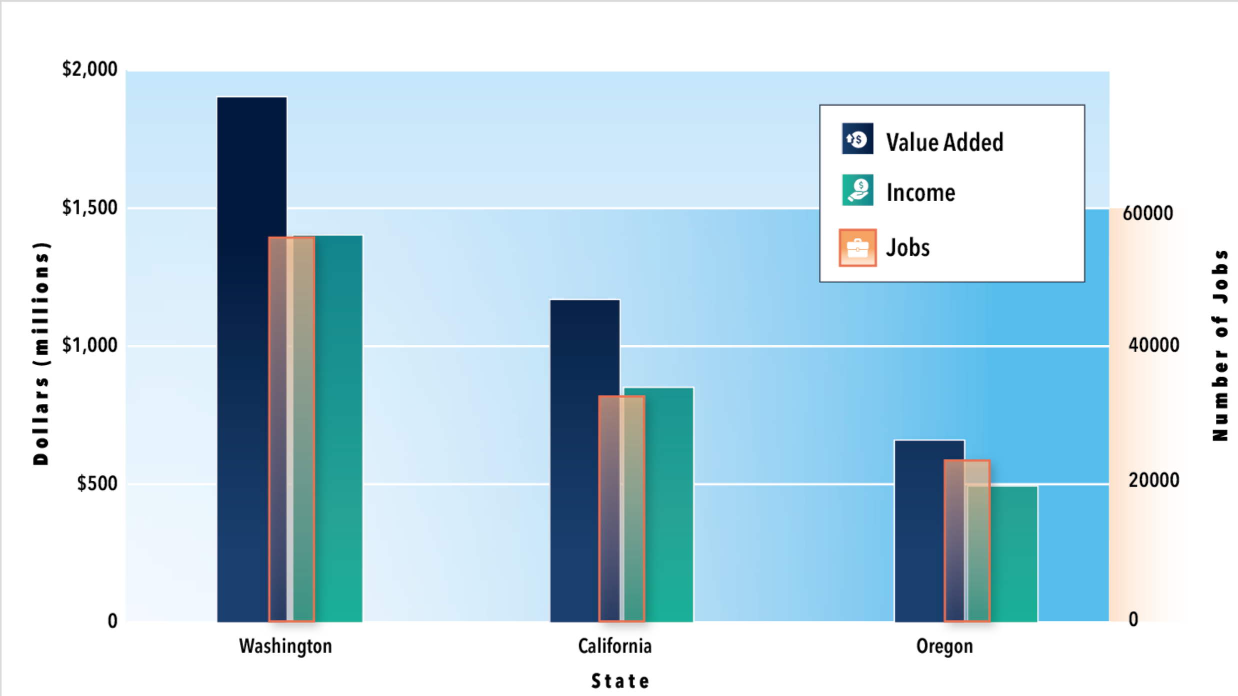
Source: NOAA Fisheries (2023b)

Pacific hake, California market squid, and ocean shrimp are the largest commercial fishery species by volume. Sablefish, Dungeness crab, and Chinook salmon are economically important fisheries in terms of volume, value, and geographic spread (i.e., occur in Washington, Oregon, and Northern and Central California) (NOAA Fisheries 2023b).

In Southern California, key species by value, include California market squid, California spiny lobster (*Panulirus interruptus*), red urchin (*Mesocentrotus franciscanus*), spot prawn, and tunas (i.e., big eye and bluefin) (CDFW 2014, 2025b). Pacific mackerel and Pacific sardine are the top fisheries, second to market squid, by volume (CDFW 2025b).

Washington, excluding exports, contributes the highest amount of economic impact (i.e., income and value added) and jobs to the Pacific Region. Figure 8-7 describes the economic impact of seafood supply chains—including value added and income, and total number of jobs—across seafood supply chains consisting of harvesters, processors, and dealers, wholesalers and distributors, and retail seafood outlets (e.g., markets and restaurants).

Figure 8-7: Economic Impacts of Commercial Fishery Landings & Seafood Supply Chains, 2022



Source: NOAA Fisheries (2023b)

In 2022, more than 3 millon recreational fishing trips were taken in the Pacific Region, generating more than $589 millon in total trip expenditures. Key recreational fishing species are California halibut, albacore tuna, lingcod, and various species of rockfish (NOAA Fisheries 2023b). California is the most lucrative for recreational fishing effort (i.e., trips) and total fishing expenditures in the Pacific Region. Table 8-5 shows the sum of total trips and total fishing expenditures by state below.

Table 8-5: Sum of Total Recreational Fishing Trips & Total Expenditures, 2022

State	Total Trip Expenditures	Total Trips
California	$589,693,136.00	2,697,860
Washington	$123,609,632.00	382,100
Oregon	$89,023,080.00	247,598
Total	**$802,325,848.00**	**3,327,558**

Source: NOAA (2022b, 2023)

8.2.2 Aquaculture

In 2022, ocean-based aquaculture production in the Pacific Region totaled nearly 6.2 million pounds (12% of national production) and more than $68 million (20% of national value) (NMFS 2024d). In this region, there are more than 300 commercial shellfish farms and five private hatcheries (Pacific Shellfish Institute, 2013), resulting in an industry valued at more than

$270 million and accounting for roughly two-thirds of all oyster, mussel, and clam aquaculture sales in the U.S. (Ward 2022).

In Oregon, marine aquaculture of Pacific oysters and dulse seaweed constitutes a significant portion of aquaculture operations. Washington is the Nation's lead producer of farmed clams, oysters, and geoducks, with a shellfish aquaculture averaging more than $1 in profit for each pound of shellfish produced and $510 in annualized profit for each acre under production (Scigliano 2016). Washington uses about 62% of its permitted aquaculture acreage and is the largest contributor to aquaculture in the region.

Northern and Central California primarily produce shellfish (e.g., oysters, mussels, and clams), contributing to the state and regional economies. Shellfish aquaculture is steeped in historical and cultural significance along the California coast, with the first commercial oyster fishery established in San Francisco in the 1850s (CDFW 2008). In 2018, California's shellfish aquaculture industry reported an annual revenue of $15.3 million and 4,960 acres of public tidelands were used for marine aquaculture of shellfish and seaweed (CDFW 2020). Southern California's marine aquaculture remains limited, focusing initially on shellfish and kelp farming, while reviewing potential finfish expansion in NOAA's West Coast AOAs.

Southern California was selected as one of the first two regions to identify one or more AOAs following E.O. 13921, *Promoting American Seafood Competitiveness and Economic Growth* (May 2020). The intent of developing AOAs is to support long-term planning for offshore aquaculture in the Pacific Region. Figure 8-4 shows the AOAs in Southern California and existing aquaculture production locations.

8.2.3 Coastal and Marine Recreation and Tourism

Outdoor coastal recreation is an important use of coastal resources in the Pacific Region. Washington and Oregon have almost a dozen NWRs and a few large NPs along their coasts supporting coastal recreational activities such as beach visitation, bird watching, and wildlife and scenery viewing. Washington is one of the top five states in the U.S. for scuba diving for the number of participants. Olympic NP in Washington had more than 3.7 million visitors in 2024 (NPS 2025).

The California coast is also home to a variety of NWRs and NPs that help support a range of outdoor recreational activities, particularly hiking, boating, and wildlife viewing in the northern region, as well as beach visitation, swimming, and surfing in the central and southern regions. In 2024, the Golden Gate National Recreation Area in coastal California had the most visitors of any coastal protected area in the continental U.S., with 17.2 million visitors that year (NPS 2025).

In 2023, the coastal leisure and hospitality industry accounted for 21,867 establishments, 362,218 jobs, and $13 billion in wages in Washington; and approximately 16,117 establishments, 216,328 jobs, and $6.6 billion in wages in Oregon. California had approximately

127,290 establishments, 2.1 million jobs, and $83.8 billion in wages (National Ocean Economics Program 2025a). There are 13 coastal NPS protected areas in the Pacific Region, with a combined total of more than 30 million visitors in 2024 (NPS 2025).

8.2.4 Subsistence

Data on subsistence fishing and shellfish harvesting in the Pacific Region is limited and primarily anecdotal. Washington and Oregon are home to a variety of indigenous, Asian, and Pacific Islander communities who rely on subsistence fishing as both a cultural tradition and for important dietary staples.

The Northwest Indian Fisheries Commission is a natural resources management support service organization for 20 Native American Tribes in western Washington. Four Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for groundfish on the OCS and exercise Treaty rights to harvest salmon in their respective, usual, and accustomed marine fishing areas (Pacific Fishery Management Council 2025b). These Tribes harvest native littleneck, manila, razor, and geoduck clams; Pacific oysters; Dungeness crabs; shrimp; and other shellfish along the Pacific Coast and in Puget Sound.

In 2022, treaty Tribes in western Washington commercially harvested 1.2 million pounds of manila and littleneck clams, 1.9 million pounds of geoduck, 2.2 million pounds of oysters, 4.3 million pounds of crab, 180,000 pounds of sea cucumbers, 348,000 pounds of green and red sea urchins, and 462,000 pounds of shrimp. As part of Tribal culture, shellfish harvested in ceremonial and subsistence fisheries provide a traditional diet (Northwest Indian Fisheries Commission 2024).

In California, official information on subsistence fishing is included within recreational fishing data. Subsistence fishing is likely most prevalent in areas with strong ties to commercial and/or recreational fishing. Isolated studies on fish harvest and consumption in specific coastal locations indicate fishing for personal consumption and to share with family members occurs from boats, the shore, and piers by urban residents (San Francisco Estuary Institute 2000, Steinberg and Moore 2017). Fishing from piers is an accessible and prevalent activity and does not require a recreational fishing permit (Quimby et al. 2020, San Francisco Estuary Institute 2000).

8.2.5 Ports, Marine Navigation, Commercial Shipping, and Submarine Cables

Tacoma is the largest port near the Washington/Oregon Planning Area and the 31st largest port in the United States based on cargo tonnage. Within California, commercial shipping activity is concentrated in ports near the Central California Planning Area (San Francisco) and the Southern California Planning Area (Los Angeles and Long Beach, two of the United States' 10 largest ports measured in terms of cargo tonnage). Table 8-6 shows ports in the Pacific Region in 2022 by tonnage.

Table 8-6: Ports Near the Pacific Planning Areas with U.S. Rank by Tonnage

U.S. Rank	Port	Planning Area
5	Long Beach, CA	Southern California
11	Los Angeles, CA	Southern California
28	Richmond, CA	Central California
29	Portland, OR	Washington/Oregon
31	Tacoma, WA	Washington/Oregon
32	Seattle, WA	Washington/Oregon
33	Oakland, CA	Central California
36	Kalama, WA	Washington/Oregon
41	Anacortes, WA	Washington/Oregon
45	Longview, WA	Washington/Oregon
47	Vancouver USA, WA	Washington/Oregon

Source: DOT (2023)

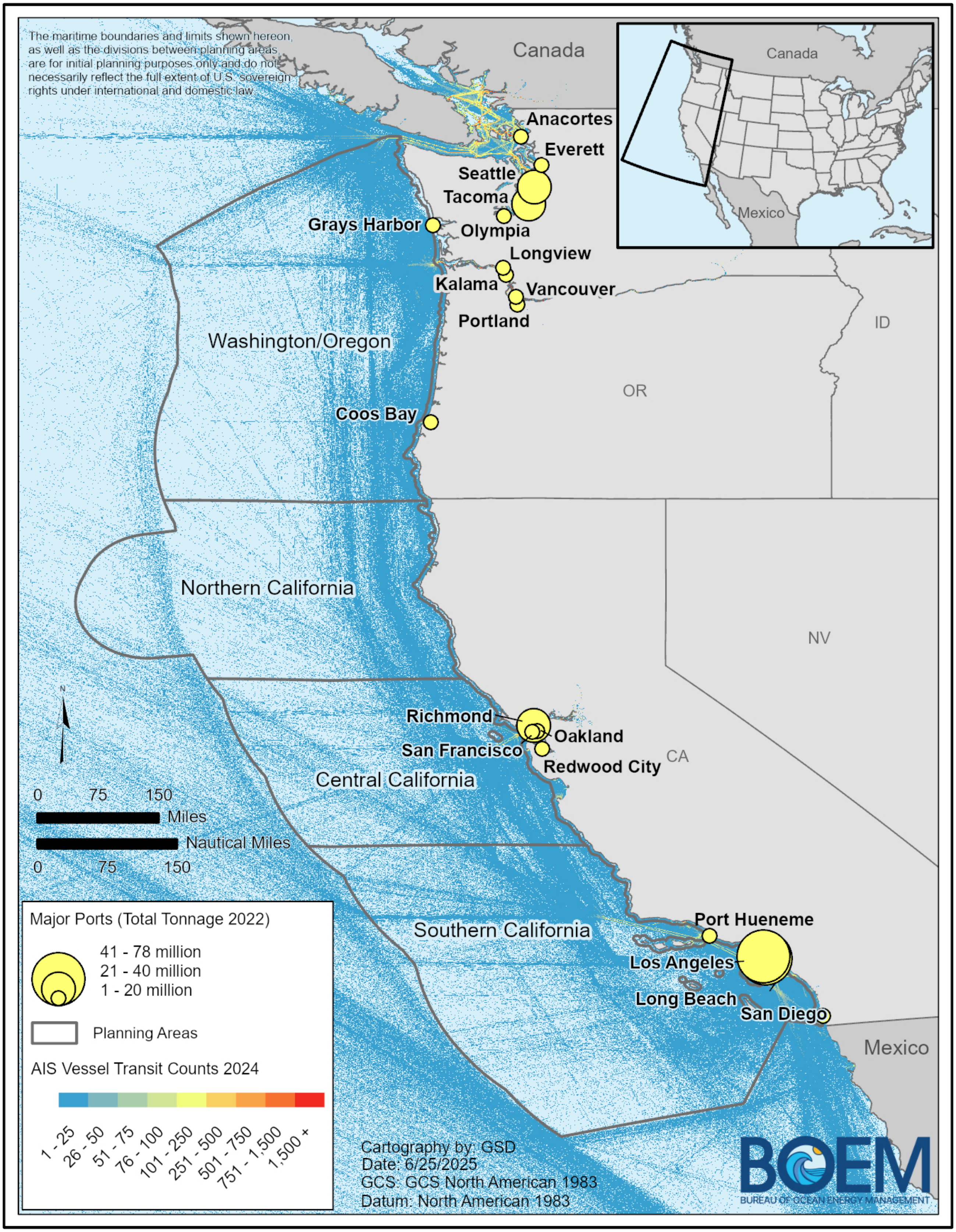
The USCG designates shipping fairways and establishes traffic separation schemes that control the movement of vessels as they approach ports as per 33 U.S.C. §1223. Figure 8-8 shows the major ports and vessel traffic in the Pacific Region.

Other critical infrastructure includes submarine cables, which are present in all Pacific Region planning areas. Submarine cables carry vital voice, data, and internet traffic. Coordination between ocean users and submarine cable operators is an important aspect to consider prior to conducting OCS operations. As of November 2024, the NASCA published maps identify more than 27 cable systems traversing the OCS. There could be other existing cables not identified on NASCA maps from non-NASCA Association members.

8.2.6 Military and NASA Uses

DOD conducts training, testing, and operations in offshore operating and warning areas, undersea warfare training ranges, and special use or restricted airspace on the OCS. These activities are critical to military readiness and to national security. The U.S. Navy uses the airspace, sea surface, subsurface, and seafloor of the OCS for events ranging from instrumented equipment testing to live-fire exercises. The U.S. Air Force conducts flight training and systems testing over extensive areas on the OCS. The U.S. Marine Corps' amphibious warfare training extends from offshore waters to the beach and inland. The USCG conducts search and rescue missions.

Figure 8-8: Major Ports by Tonnage & Vessel Traffic in the Pacific Planning Areas



Some of the most extensive offshore areas used by DOD include U.S. Navy at-sea Operating Areas (OPAREAs). An OPAREA is where training exercises and system qualification tests are routinely conducted. Testing and training do not occur on all days of the year but could occur during any season. These activities vary depending on where in the OPAREA they occur (e.g., open versus nearshore water) and could be concentrated within a smaller geographic area than the OPAREA footprint.

The Pacific Northwest OPAREA is off the Washington and Oregon coasts, and the Southern California-Point Mugu OPAREA is off the central and Southern California coasts and extends into waters south of the U.S.-Mexico border. Vandenberg Air Force Base is on the coast in the Southern California Planning Area and has an active launch program that has been considered in lease sale stipulations.

DOD and USDOI will continue to coordinate extensively under a 1983 Memorandum of Agreement, which states that the two parties shall reach mutually acceptable solutions when the requirements for mineral exploration and development and defense-related activities conflict.

8.2.7 Renewable Energy

BOEM works closely with states and other stakeholders to examine OCS renewable energy on the OCS Pacific Region. See https://www.boem.gov/renewable-energy/lease-and-grant-information for the status of all OCS renewable energy projects.

8.2.8 Non-Energy Marine Minerals

The Pacific OCS contains four different mineral deposit types: polymetallic nodules, cobalt-rich crusts, sulfide deposits, and phosphorites. Of these, phosphorites are the resource most likely to intersect with 11th Program activities. Although USDOI initiated the process to evaluate potential mineral leasing elsewhere in the Pacific (i.e., American Samoa), no leasing activity is underway within the Pacific Region.

BOEM has not issued leases for non-energy minerals in the Pacific Region. However, the State of California expressed interest in identifying OCS sand resources for remedial nourishment of severely eroded coastal beaches. In 2022, BOEM and the State of California Ocean Protection Council cooperated with USGS to create an evaluation of sand and gravel resources in Federal waters for potential use in future beach nourishment projects (Warrick et al. 2022).

8.3 Gulf of America Region

The most notable other uses within the GOA Region in terms of economic contribution are coastal tourism and recreation, commercial fishing and seafood harvesting, aquaculture, and commercial shipping. Table 8-7 and Figure 8-9 show the other uses of the OCS within the GOA Region. In addition to the other uses of the GOA OCS discussed below, scientific research is conducted in all planning areas and involves water-based (e.g., vessel, buoys) and air-based activities.

Table 8-7: Other Uses of the OCS Within the Gulf of America Planning Areas

Activity	GOA Planning Areas
Commercial Fishing	✓
Recreational Fishing	✓
Aquaculture	✓
Tourism	✓
Subsistence	✓
Ports/Shipping/Cables	✓
Federal Agency Activity	✓ (DOD)
State Oil and Gas Activity	✓
Current OCS Oil and Gas Activity	✓
OCS Renewable Energy	✓
OCS Marine Minerals Activity	✓

Key: DOD = Department of Defense; OCS = Outer Continental Shelf

8.3.1 Commercial and Recreational Fisheries

The GOA Region generated more than 17.4% of landings (1.2 billion pounds) and 15% of value ($794.3 million dollars) of the U.S. commercial fisheries landings in 2022 (NOAA 2022a). The key commercial fishery species in the GOA are menhadens, white shrimp, brown shrimp, blue crab, red grouper, and red snapper (NOAA 2022a). Figure 8-10 shows the comparison between commercial fishing landings volume (pounds) and value (dollars) by state for 2023 in the GOA.

Fisheries landings are brought to shore at various ports along the Gulf Coast. In 2023, the top U.S. ports for commercial fish landings in the GOA Region were Empire-Venice, Intracoastal City, and Dulac-Chauvin, Louisiana; Bayou La Batre, Alabama; and Port Arthur, Texas (Figure 8-11).

Figure 8-9: Other Uses of the Outer Continental Shelf, Gulf of America Region

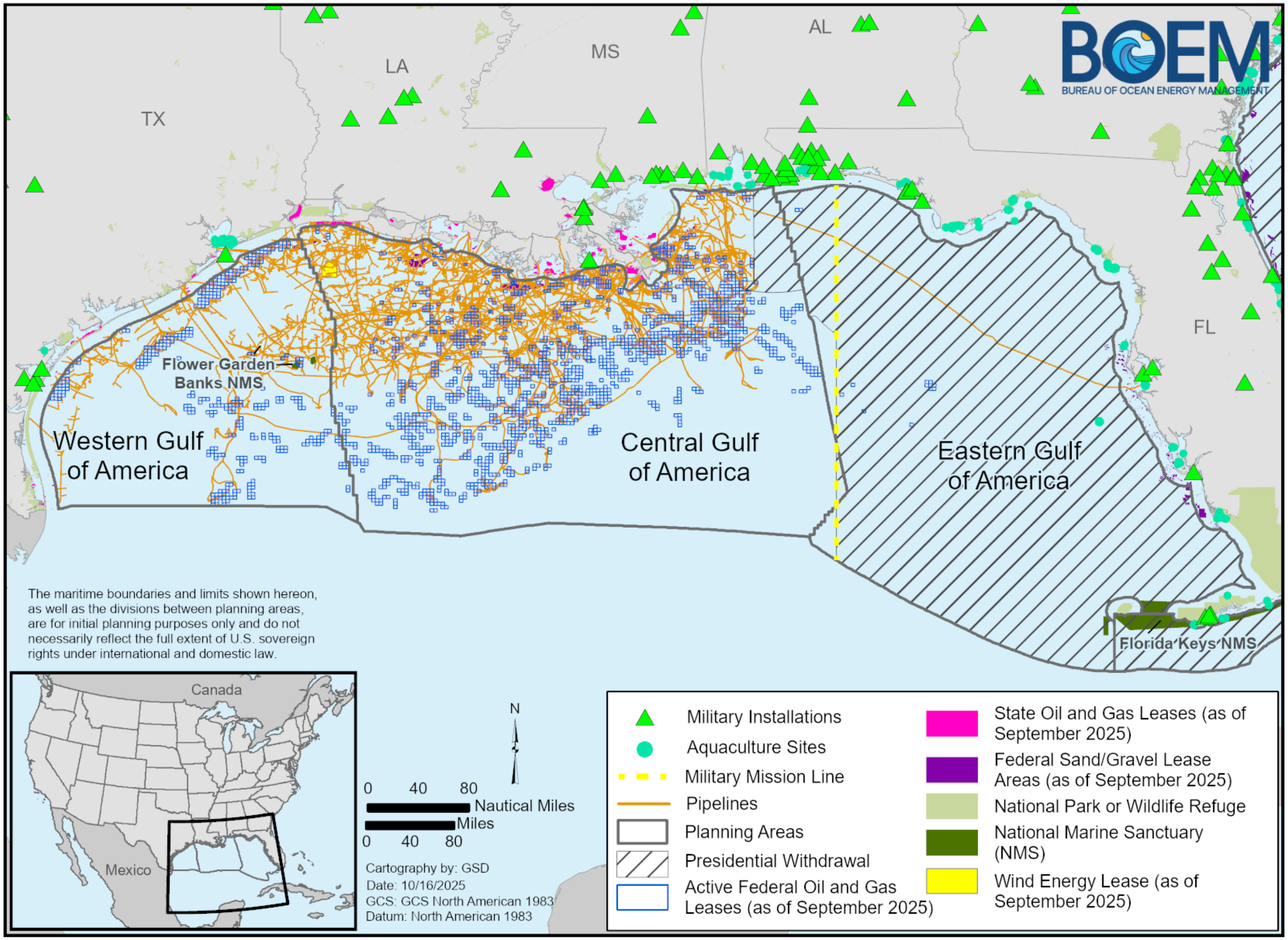
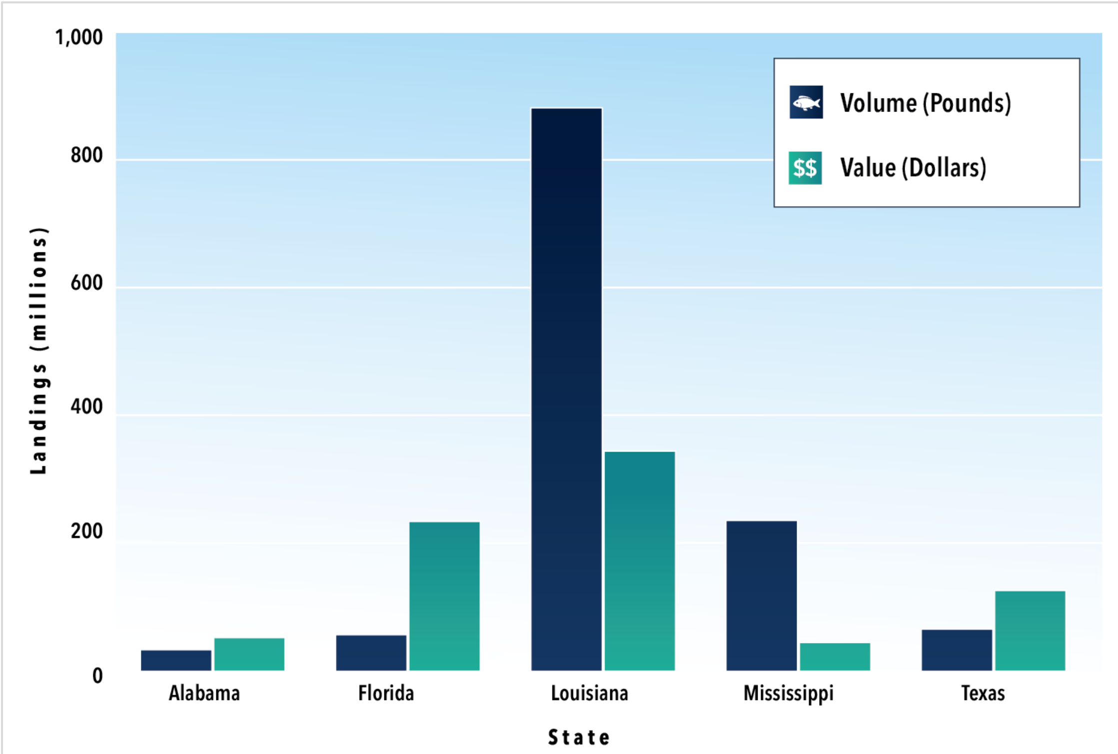
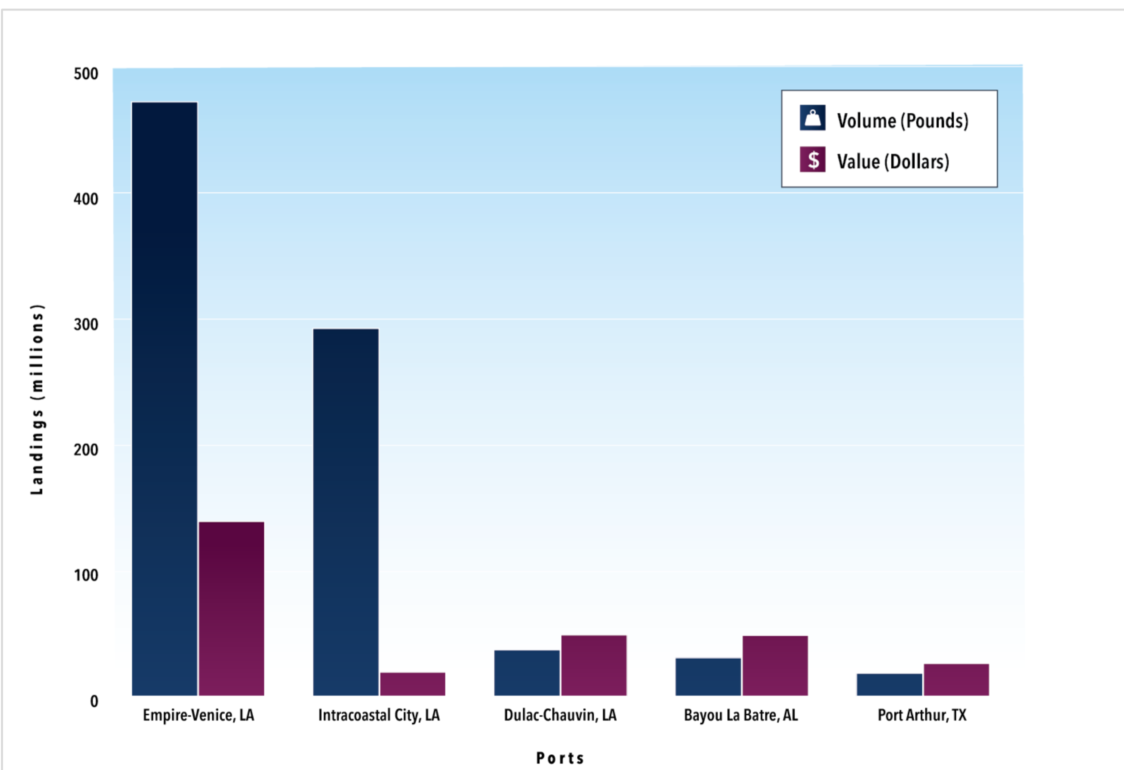


Figure 8-10: Commercial Fishing Landings Volume & Value for the Gulf of America Region, 2023



Source: NOAA Fisheries (2023b)

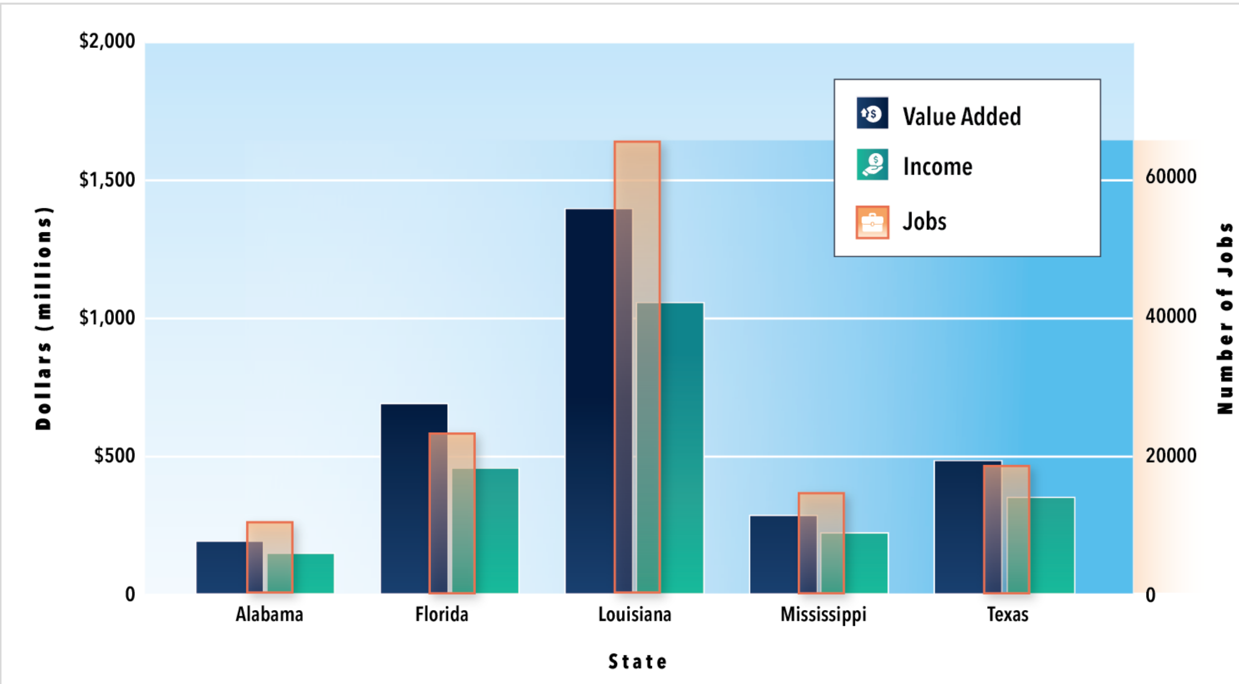
Figure 8-11: Top Commercial Landing Ports by Value & Volume, 2023



Source: NOAA Fisheries (2023d)

Louisiana, excluding imports, contributes the highest amount of economic impact (i.e., income and value added) and jobs to the GOA Region. Figure 8-12 shows the economic impact of seafood supply chains—including value added and income, and total number of jobs—across seafood supply chains consisting of harvesters, processors and dealers, wholesalers and distributors, and retail seafood outlets (e.g., markets and restaurants).

Figure 8-12: Economic Impacts of Commercial Fishery Landings & Seafood Supply Chains, 2022



Source: NOAA Fisheries (2023b)
Note: Portions of total Florida landings (West Florida and East Florida) were used to calculate Florida's economic contributions to the GOA Region.

In 2022, more than 55 million recreational fishing trips took place in the GOA, generating more than $5 billion in total trip expenditures. Key recreational fishing species are seatrouts, red drum, red snapper, striped mullet, Atlantic croaker, and Spanish mackerel (BOEM 2024b). West Florida is the most lucrative for recreational fishing effort (i.e., trips), total fishing expenditures, and economic impact in the GOA. Table 8-8 shows the sum of total fishing expenditures and trips by state below.

Table 8-8: Sum of Total Expenditures & Recreational Fishing Trips, 2022

Area	Total Trip Expenditures	Total Trips
West Florida	$3,395,237,707	40,293,496
Alabama	$673,788,944	7,424,334
Mississippi	$504,252,126	4,714,059
Louisiana	$478,054,505	1,609,250
Texas	$77,745,894	1,153,512
Total	**$5,129,079,176**	**55,194,651**

Source: NOAA Fisheries (2022)

8.3.2 Aquaculture

In 2022, ocean-based aquaculture production in the GOA Region totaled more than 16.5 million pounds (31% of national production) and more than $90 million (26% of national value) (NMFS 2024e). The Gulf states are important producers of farmed bivalves such as hard clams, oysters, bay scallops, and sunray venus clams. In 2016, the Gulf states produced more shellfish by volume than any other region in the Nation (NOAA Fisheries 2024f).

The Gulf States Marine Fisheries Commission (GSMFC) has contributed more than $2.5 million to support aquacultural innovation in the GOA Region since 2018, including two offshore finfish projects, one nearshore clam project, an urchin-oyster study, a continuation of work on hard clams, and seven projects focused on market development for unique and novel species (e.g., tripletail, anglewing clams, ponderous ark, and hybrid northern hard clams) (Gulf States Marine Fisheries Commission 2025). In late 2022, GSMFC funded a final round of pilot projects (Gulf States Marine Fisheries Commission 2025).

In 2020, the GOA was selected as one of the first two regions to identify one or more AOA following E.O. 13921, *Promoting American Seafood Competitiveness and Economic Growth* (May 2020). Developing AOAs is intended to support long-term planning for offshore aquaculture in the GOA.

8.3.3 Coastal and Marine Recreation and Tourism

Millions of individuals participate in a variety of recreational activities in the region's coastal environment each year, including recreational fishing, beach visitation, swimming, boating, and wildlife viewing. The tourism and recreation industries in Alabama and Mississippi compose sizable portions of state GDP as a percent of each state's total employment. Gulf Islands Seashore—which covers parts of coastal Mississippi, Alabama, and Florida—had 2.4 million recreation visitors in 2024 (NPS 2022). There are 10 NPS coastal protected areas in the region, totaling more than 12.5 million visitors in 2024. Both extant and decommissioned oil and gas platforms in the area are also important destinations for recreational fishing and diving trips (CSA Ocean Sciences and SWCA 2025).

Coastal leisure and hospitality industries constitute an important part of local economic activities for states adjacent to the planning area. In 2023, the leisure and hospitality industry accounted for approximately 52,537 establishments, 1 million jobs, and more than $30.8 billion in wages in coastal zone counties across Texas, Mississippi, Louisiana, Florida, and Alabama (National Ocean Economics Program 2025a).

8.3.4 Subsistence

Subsistence fishing and seafood harvesting are historically important public uses of coastal and marine resources within the GOA planning areas, particularly to rural communities, although research on subsistence fishing in the five Gulf Coast states is limited. Traditional subsistence harvesting (including fishing and hunting) is a valued element of coastal life for many families in the Gulf Coast, as documented for areas of Louisiana (MMS 2003, Regis and Walton 2022). Subsistence fishing is documented throughout the Gulf Coast region, including fishing from boats under either commercial or recreational fishing regulations and shore-based fishing from piers and banks (BOEM 2023d).

Several groups living along the Louisiana coast are central to the culture of the region and rely on fisheries and related marine resources. The Cajun population harvests fish and shellfish from the bayou as part of its subsistence activities (Henry and Bankston 2002). The United Houma Nation and Chitimacha Tribe in southeastern Louisiana depend on subsistence diets, recovering foods from coastal areas. Vietnamese anglers, who fish in nearshore and near-offshore areas, retain up to 25% of their catch for their families and for bartering (Alexander-Bloch 2010).

8.3.5 Ports, Marine Navigation, Commercial Shipping, and Submarine Cables

Total port calls in the United States are increasing, as are total port calls within the GOA Region. GOA port calls represent approximately 25% of all U.S. port calls (BTS 2025a). Of the top 25 ports by total tonnage for 2022, 12 are in the GOA (Table 8-9) (USACE 2022a). See Figure 8-13 for a map showing major ports and vessel traffic.

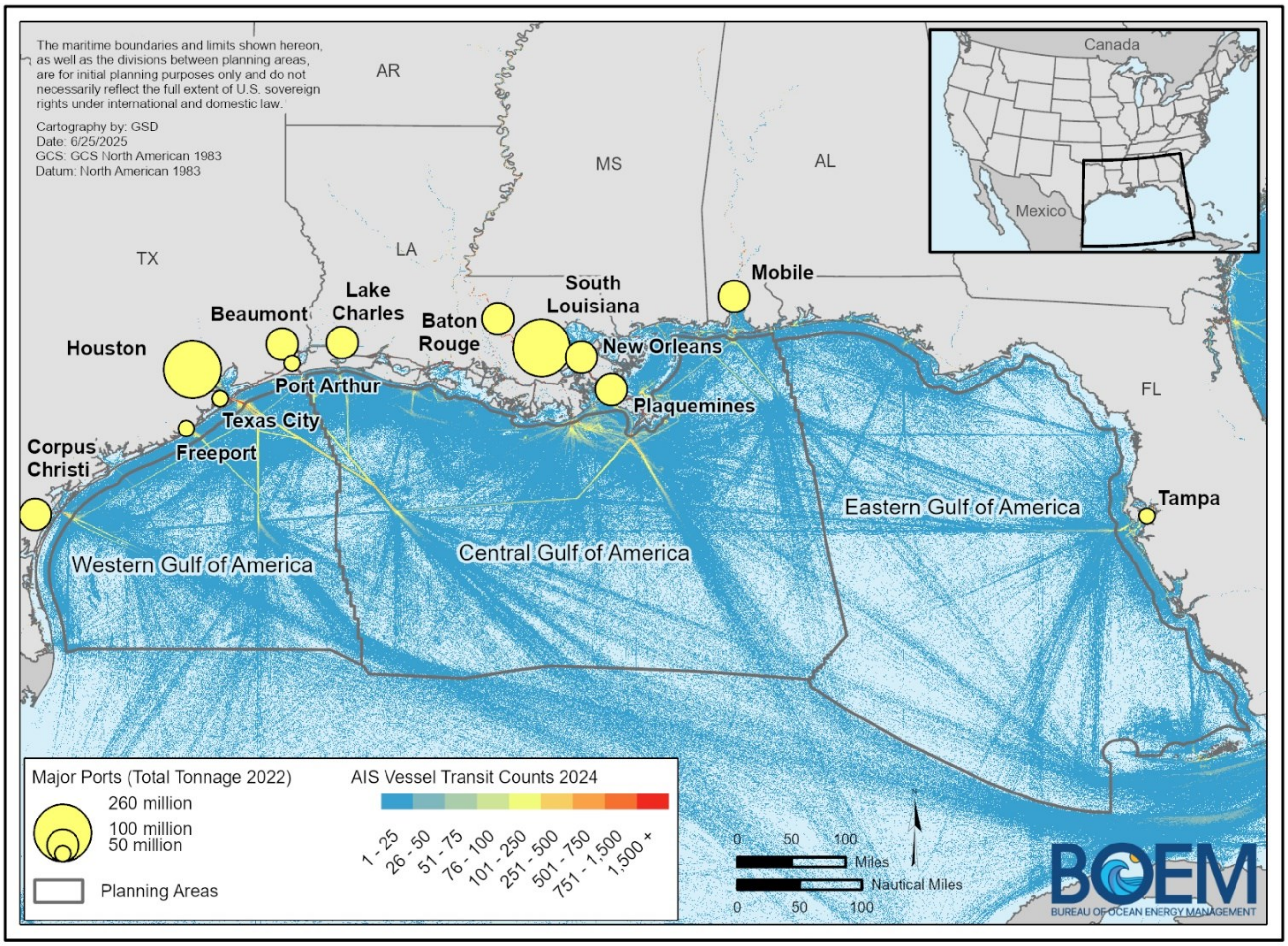
The United States has three operating deepwater ports, including the Louisiana Offshore Oil Port, which is near the GOA planning areas. The Louisiana Offshore Oil Port is approximately 16 miles southeast of Port Fourchon, Louisiana, and began operations in 1981 to serve as an oil import facility for unloading and distribution for incoming supertankers to the GOA Region. This port has a throughput capacity of up to 1.2 million bbl per day and is the only deepwater petroleum terminal in the United States (LOOP 2023).

Table 8-9: Ports Near the GOA Planning Areas with U.S. Rank by Tonnage

U.S. Rank	Port	Planning Area
1	Houston, TX	Western GOA
2	South Louisiana, LA	Central GOA
3	Corpus Christi, TX	Western GOA
6	New Orleans, LA	Central GOA
7	Beaumont, TX	Western GOA
8	Baton Rouge, LA	Central GOA
10	Lake Charles, LA	Central GOA
12	Plaquemines, LA	Central GOA
14	Mobile, AL	Central GOA
15	Port Arthur, TX	Western GOA
17	Texas City, TX	Western GOA
19	Freeport, TX	Western GOA
23	Tampa, FL	Straits of Florida

Source: USACE (2022a)

Figure 8-13: Major Ports & Vessel Traffic for the GOA



Additionally, a new floating LNG export project, Port Delfin, secured final permits for the first U.S. offshore LNG export facility. Port Delfin will be in Federal waters offshore Cameron Parish, Louisiana; it will consist of a deepwater port and is designed to support up to three floating LNG vessels, with a combined capacity of approximately 13 million tonnes (14.3 million tons) per annum of LNG (MARAD 2025, Pipeline & Gas Journal 2025, Wright 2022).

An extensive network of pipelines in the GOA Region carries all gas production and almost all OCS oil production from the OCS to onshore refineries and terminals. Many submarine power cables and related umbilicals are associated with oil and gas platforms and field development within the GOA Region (BOEM 2017c). The NASCA map for the GOA identifies one subsea marine data cable as of November 2024, the TampNet Backbone. This cable system provides subsea fiber connectivity for approximately 20 deepwater offshore assets. There also could be other existing cables not identified on NASCA maps from non-NASCA members.

8.3.6 Military Uses

DOD conducts training, testing, and operations in offshore operating and warning areas, undersea warfare training ranges, and special use or restricted airspace on the OCS. These activities are critical to military readiness and to national security. The U.S. Navy uses the airspace, sea surface, subsurface, and the OCS seafloor for events ranging from instrumented equipment testing to live-fire exercises. The U.S. Air Force conducts flight training and systems testing over extensive areas on the OCS. The U.S. Marine Corps amphibious warfare training extends from offshore waters to the beach and inland.

Some of the most extensive offshore areas used by DOD include U.S. Navy at-sea OPAREAs. Training and testing could occur throughout the GOA OCS waters but is concentrated in OPAREAs and testing ranges. These activities could vary depending on where they occur (e.g., open water versus near shore). Major testing and training areas in the GOA include the Corpus Christi and New Orleans OPAREAs, as well as portions of the Pensacola OPAREA; part of the Gulf Range Complex; the Naval Surface Warfare Center, Panama City Division; and the Key West Complex off the southwestern tip of Florida.

DOD and USDOI continue to coordinate extensively under a 1983 Memorandum of Agreement, which states that the two parties shall reach mutually acceptable solutions when the requirements for mineral exploration and development and defense-related activities conflict. Military operations and oil and gas exploration and production have coexisted for many years in the GOA Region (BOEM 2017c).

8.3.7 Renewable Energy

BOEM held its fifth Intergovernmental Renewable Energy Task Force meeting for the GOA on April 18, 2024. Established in 2021, the Task Force is a partnership between Federal, state, and local agencies and Tribal governments tasked with coordinating renewable energy planning activities on the GOA OCS. BOEM currently manages one approved lease in this region, which was awarded to RWE Offshore US Gulf, LLC, following a wind energy auction held on August 29, 2023. As of this writing, proposed work on the lease has been paused. See https://www.boem.gov/renewable-energy/lease-and-grant-information for the status of all OCS renewable energy projects.

8.3.8 Non-Energy Marine Minerals

Mixed sediment from the OCS is essential to coastal restoration initiatives in the GOA Region, such as the construction of wetlands. OCS sediment resources include sand, clay, silt, gravel-sized particles, and shell, found in deposits on or below the surface of the seabed on the OCS. Offshore sediment resources, particularly sand, in the GOA are limited in coastal areas where needed for nourishment and restoration projects. Compounding this scarcity of sand is the fact that vast areas of these offshore sand resources are not extractable because of the presence of oil and gas infrastructure and archaeologically sensitive subareas.

BOEM has executed 18 sand and gravel negotiated agreements within the GOA between 2001 and October 2025. These projects allocated more than 97 million yd^3 of sand for restoration projects, resulting in more than 72 miles of shoreline restoration. Eleven of these projects, totaling almost 66 million yd^3 of sand, were offshore Louisiana, restoring 65 miles of shoreline. One project, totaling 19.6 million yd^3, restored 7 miles of shoreline along Mississippi.

The State of Louisiana has invested hundreds of millions of dollars for the past two decades to restore barrier islands and shorelines, and plans to continue to invest in rebuilding these features (CPRA 2022). Billions of funding dollars are critical to supporting coastal resilience along the Louisiana coast, including *Deepwater Horizon* recovery funds (e.g., Natural Resource Damage Assessment; National Fish and Wildlife Foundation; Resources and Ecosystems Sustainability, Tourist, Opportunities, and Revived Economics of the Gulf Coast States Act), the Water Resources Development Act and other Federal funds with state cost shares (e.g., Coastal Wetlands Planning, Protection, and Restoration Act, GOMESA), and other emergency funds (through the Federal Emergency Management Agency).

The Louisiana Coastal Protection and Restoration Authority published the Louisiana Comprehensive Master Plan (CMP) in 2023, allocating nearly $16 billion for marsh and habitat creation using dredged material. Of the $25 billion Louisiana restoration budget, $2.5 billion was identified for programmatic restoration efforts, such as barrier island maintenance, as part of a regular state rebuilding program. The CMP builds on previous master plan efforts and invests in projects to reduce storm surge-based flood risks to communities, provide habitat to support commercial and recreational activities, and support infrastructure critical to the Louisiana coast.

BOEM also expects new requests for OCS sand related to the Texas Coastal Resiliency Master Plan, which was released in March 2023. This plan was developed in coordination with the Coastal Texas Study, a USACE-lead effort to "develop a comprehensive plan to determine the feasibility of carrying out projects for flood damage reduction, hurricane and storm damage reduction, and ecosystem restoration in the coastal areas of the State." Identified projects will occur for the next 12 to 20 years, depending on Congressional authorization and partnerships. Construction will begin after the final proposal is approved and fully funded by Congress.

Up to 200 million yd^3 of material is identified in the Texas Coastal Study for use in projects in the State of Texas over the next 50 years. The USFWS is in the planning and design phase of a project to restore the shoreline in the Texas Point NWR. OCS sediment resources from Sabine Bank are proposed for use with the construction planned for 2024.

BOEM has issued a Notice to Lessees and Operators and Pipeline Right-of-Way Holders to provide guidance for the avoidance and protection of significant sediment resources. This guidance is part of BOEM's work to prevent obstructions to the use of the most significant OCS sediment resources, reduce multiple use conflicts, and minimize interference with oil and gas operations (BOEM 2017c, d). Visit OCS sediment resource blocks for the most current listing.

Critical minerals found within the GOA Region include heavy mineral sands, nodule deposits, and salt brine lakes, which are bodies of dense mineral-rich water that form on the seafloor. BOEM is continuing a multi-year study to examine the critical mineral potential of these salt brine pools.

8.4 Atlantic Region

The Atlantic Region comprises four planning areas: North Atlantic, Mid-Atlantic, South Atlantic, and Straits of Florida. Table 8-10 and Figure 8-14 show the other uses of the OCS within the Atlantic Region. In addition to the other uses of the Atlantic OCS discussed below, scientific research is conducted in all planning areas and involves water-based (e.g., vessel, buoys) and air-based activities.

8.4.1 Commercial and Recreational Fisheries

The Atlantic Region generated 8% of landings (555 million pounds) and more than 11% of value ($594 million dollars) of the U.S. commercial fisheries in 2022 (NOAA 2022a). Figure 8-15 shows the comparison between commercial fishing landings volume (pounds) and value (dollars) by area (i.e., North, Mid-, and South) for 2023 in the Atlantic.

Table 8-10: Other Uses of the OCS within the Atlantic Region by Planning Area

Activity	North Atlantic	Mid-Atlantic	South Atlantic	Straits of Florida
Commercial Fishing	✓	✓	✓	✓
Recreational Fishing	✓	✓	✓	✓
Aquaculture	✓	✓	✓	✓
Tourism	✓	✓	✓	✓
Subsistence	✓	✓	✓	✓
Ports/ Shipping Routes	✓	✓	✓	✓
Federal Agency Activity	✓ DOD	✓ DOD, NASA	✓ DOD	✓ NASA
OCS Renewable Energy	✓	✓	None	None
OCS Marine Minerals Activity	✓	✓	✓	✓

Key: DOD = Department of Defense; OCS = Outer Continental Shelf; NASA = National Aeronautics and Space Administration

Several ports along the Atlantic Coast are named top U.S. ports for commercial fish landings in 2023. The top U.S. ports for commercial fish landings in the Atlantic Region were Reedville, Virginia; New Bedford and Glouster, Massachusetts; and Cape May-Wildwood and Point Pleasant, New Jersey (Figure 8-16). Atlough no ports in the Straits of Florida are "top ports," West Key, Florida, pays the highest average price per pound ($6/lb) for commerical fish landings (NOAA Fisheries 2025g).

Sea scallops ($13/pounds) and American lobster ($5/pounds) are the most lucrative species in the North Atlantic (NOAA Fisheries 2025g). In the Mid-Atlantic Planning Area, the primary commercial species is blue crab, which represents both a high-value and high-volume fishery. Atlantic menhaden is the highest volume fishery in the region, with landings reaching nearly 291 million pounds in Virginia, but averages less than $0.15 per pound (NOAA Fisheries 2025g). In the South Atlantic and Straits of Florida planning areas, the most targeted and lucrative species include northern brown shrimp, white shrimp, and blue crab (NOAA Fisheries 2025g).

Figure 8-14: General Areas of Other Uses of the Atlantic OCS

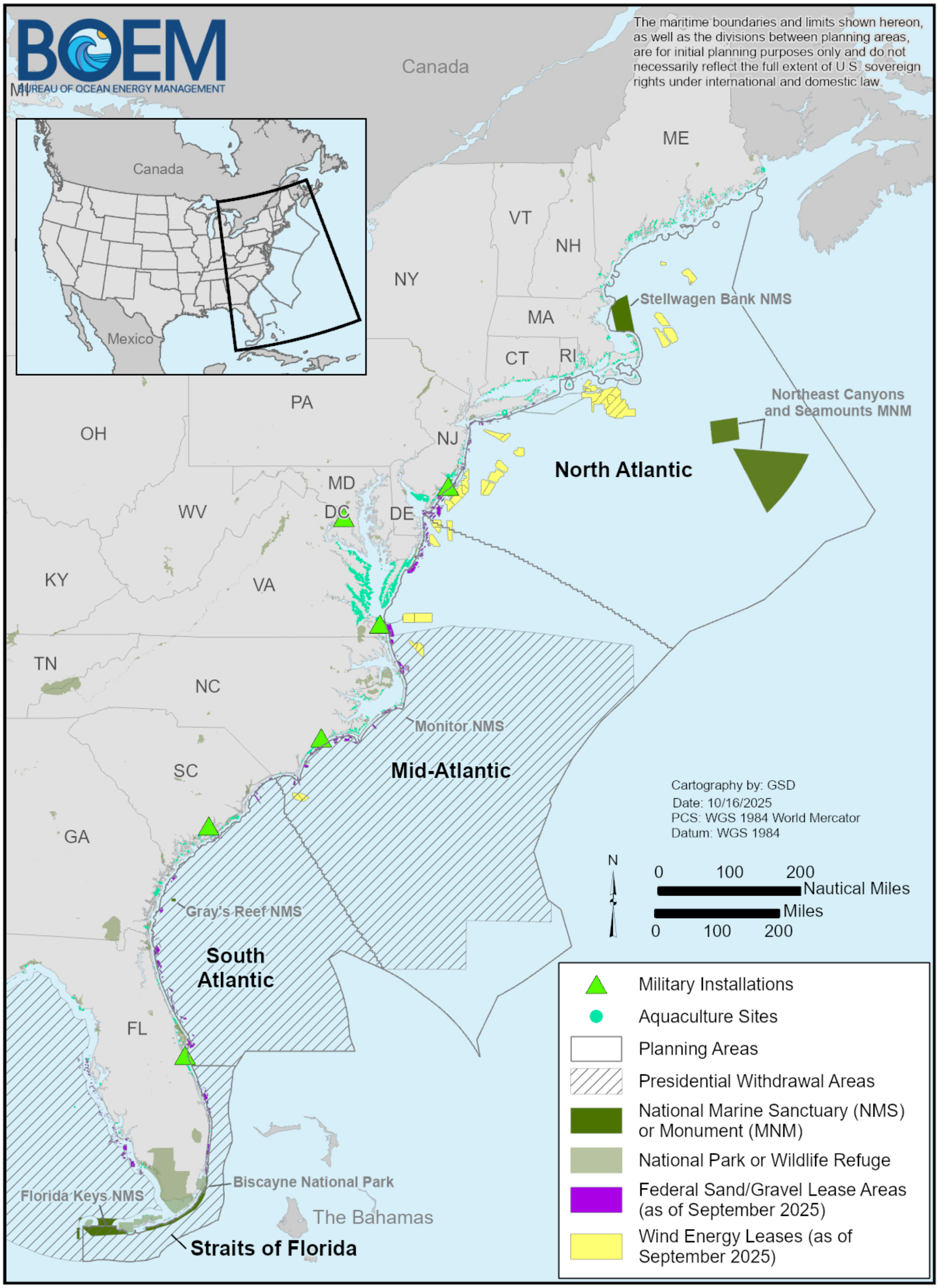
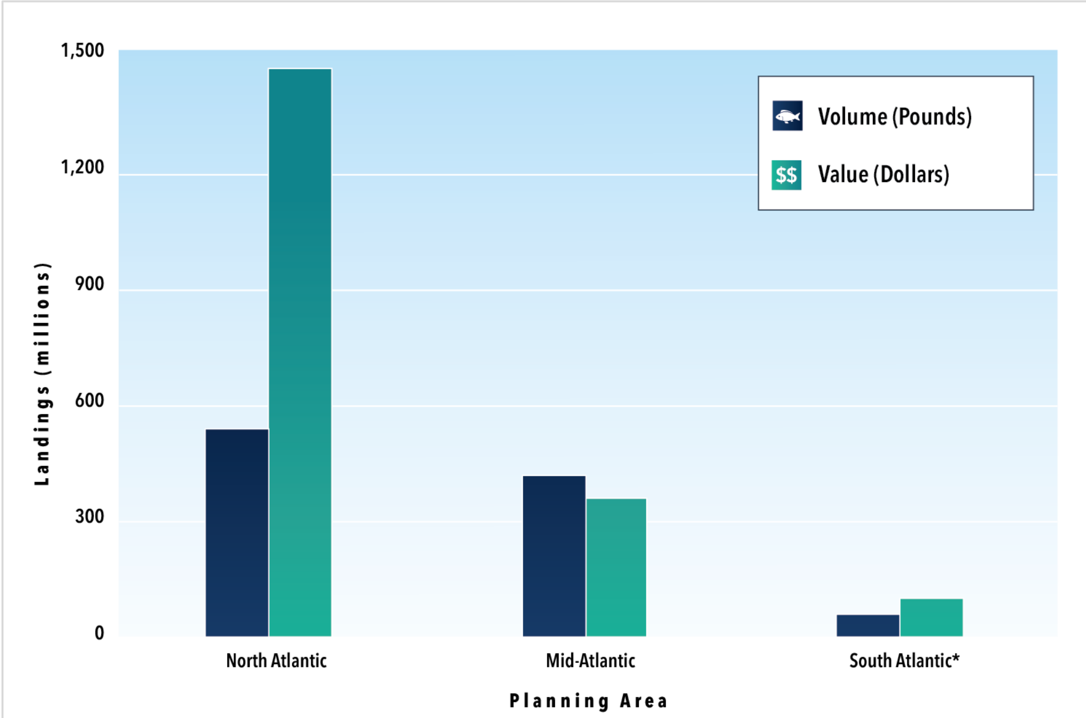
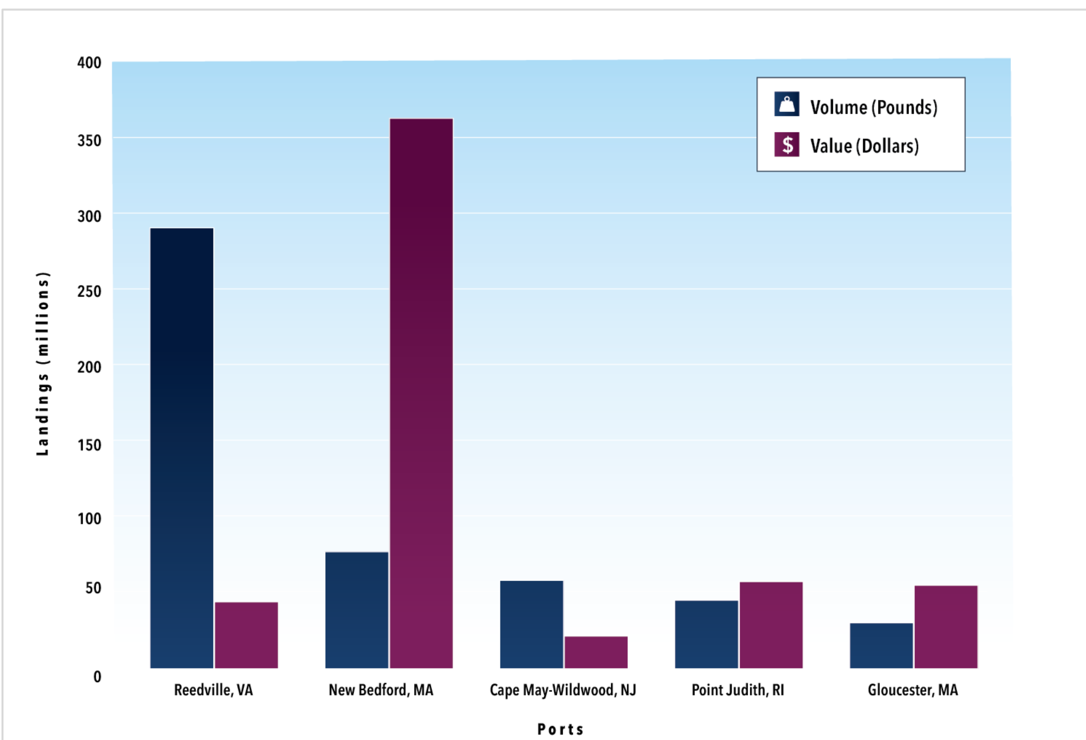


Figure 8-15: Commercial Fishing Landings Volume & Value for the Atlantic Region, 2023



Source: NOAA Fisheries (2023b)
Key: * = Includes all data from Florida's east coast, incorporating northeastern portions of the state in the South Atlantic Planning Area and the Straits of Florida Planning Area

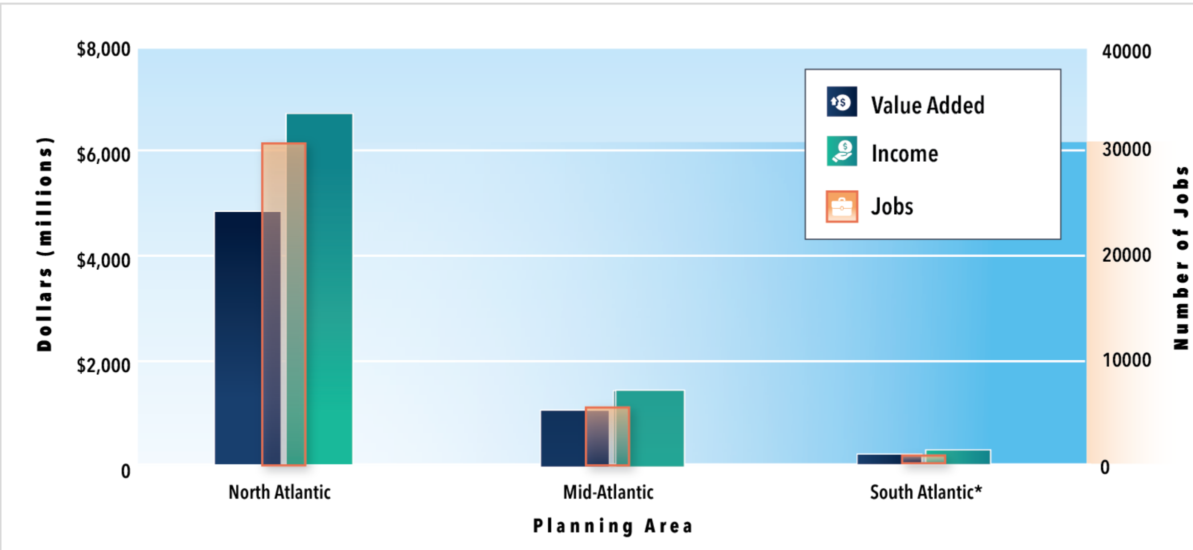
Figure 8-16: Top Commercial Landings by Volume & Value, 2023



Source: NOAA Fisheries (2023b)

Excluding exports, the North Atlantic Planning Area contributes the highest amount of economic impact (i.e., jobs, income, and value added) to the Atlantic Region. Figure 8-17 depicts the economic impact of seafood supply chains—including value added and income, and total number of jobs—across seafood supply chains consisting of harvesters, processors and dealers, wholesalers and distributors, and retail seafood outlets (e.g., markets and restaurants).

Figure 8-17: Economic Impacts of Commercial Fishery Landings & Seafood Supply Chains, 2022



Source: NOAA Fisheries (2023b)
Key: * = Includes all data from Florida's east coast, incorporating northeastern portions of the state in the South Atlantic Planning Area and the Straits of Florida Planning Area

In 2022, more than 13 millon recreational fishing trips took place in the Atlantic Region, generating more than $6 billion in total trip expenditures. Highly migratory species, including tunas, swordfish, sharks, and billfishes—as well as black sea bass, bluefish, and Atlantic striped bass—are key recreational species in Federal waters of the U.S. Atlantic Ocean (NOAA Fisheries 2025b). South Atlantic, namely the Straits of Florida, is the most lucrative for recreational fishing effort (i.e., trips) and total fishing expenditures in the Atlantic Region (NOAA Fisheries 2023b). Table 8-11 shows the sum of total fishing expenditures and trips by state.

Table 8-11: Sum of Total Recreational Fishing Trips & Total Expenditures, 2022

Planning Area	Total Trip Expenditures	Total Trips
Mid-Atlantic	$2,285,000,000	7,424,334
North Atlantic	$583,627,901	4,714,059
South Atlantic	$3,538,000,000	1,609,250
Total	**$6,406,627,901**	**13,747,643**

Notes: This includes all data from National Marine Fisheries Management Areas. The NMFS-designated region for the South Atlantic encompasses the coasts of North Carolina, South Carolina, Georgia, and the eastern coast of Florida, including northeastern portions of the state in the South Atlantic and the Straits of Florida planning areas. The Mid-Atlantic Fishery Management Council is responsible for managing fisheries in Federal waters (3 to 200 nm) off the coasts of New York, New Jersey, Pennsylvania, Delaware, Maryland, and Virginia.
Source: NOAA Fisheries (2022)

8.4.2 Aquaculture

In 2022, ocean-based aquaculture production in the Atlantic Region totaled more than 29.9 million pounds (57% of national production) and nearly $184 million (54% of national value) (NMFS 2024e). In the North Atlantic Planning Area, aquaculture is the third most valuable fisheries sector, in terms of economic revenue, behind scallops and American lobster (NOAA Fisheries 2024b). The North and Mid-Atlantic planning areas have a thriving commercial marine aquaculture industry that commonly farms oysters, mussels, Atlantic salmon, and kelp. The New England and Mid-Atlantic fishery management councils have developed aquaculture policy and strategy plans, guides for permitting, and conduct coordination to reduce user conflict and promote compatibility with commercial and recreational fisheries (New England Fishery Management Council 2025).

South Atlantic and Straits of Florida planning areas aquaculture activities almost exclusively consist of growing hard clams, oysters, and live rock (Florida Department of Agriculture and Consumer Services 2025). The South Atlantic Fisheries Management Council (SAFMC) manages fisheries, including aquaculture activities, in Federal waters from North Carolina to Florida. In 2007, the SAFMC developed *Policies for The Protection and Restoration of Essential Fish Habitats from Marine Aquaculture* to avoid, minimize, and offset potential impacts from activities related to marine aquaculture in offshore and coastal waters, riverine systems, and adjacent wetland habitats (South Atlantic Fishery Management Council 2007).

North and South Carolina both have growing marine aquaculture industries, mostly situated in their coastal and estuarine waters. South Carolina specializes in mariculture, which is the farming of marine species in their natural environment and grew more than 1.2 million oysters in 2019 (Sea Grant 2025, South Carolina Sea Grant Consortium Undated). North Carolina is also seeing growth in mariculture, with industries focused on soft crabs, clams, oysters, and finfish. In 2022, North Carolina's farmed oyster industry provided almost half, $14.69 million in economic impact and 283 jobs (Edwards 2023). NOAA has not initiated an AOA in the Atlantic Region, but there is significant capacity for increased aquaculture production in this region.

8.4.3 Coastal and Marine Recreation and Tourism

Table 8-12 shows the coastal leisure and hospitality establishments, jobs, and wages for each Atlantic planning area. The coastal counties are divided into three areas: Northeast (Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island), Mid-Atlantic (Delaware, Maryland, New Jersey, New York, Pennsylvania, and Virginia), and the Southeast (Florida, Georgia, North Carolina, and South Carolina).

Table 8-12: Atlantic Region Coastal Leisure and Hospitality Establishments, Jobs, & Wages, 2023

Area	Establishments	Jobs	Wages
Northeast	33,477	525,829	$19,167,339,928
Mid-Atlantic	104,546	1,615,641	$63,026,961,996
Southeast	48,661	989,150	$35,302,317,873

Source: NOEP (2024)

The Atlantic coastal region contains numerous NWRs (roughly 70), NPs, and national seashores (NSs), as well as many state parks and recreational areas, where the public engages in various recreational activities. NPS areas alone accounted for 38.6 million visitors in 2024 (NPS 2025). With more than 7 million visitors, Gateway National Recreation Area in coastal New York ranked number one in terms of most visited protected areas in the Atlantic Region (NPS 2025). The second most visited area in 2024 was Acadia NP in Maine, with 3.9 million visitors, followed by Cape Cod NS in Massachusetts, with 3.8 million visitors (NPS 2025). Beach visitation, swimming, wildlife viewing, boating, and fishing are the most popular coastal activities across the Atlantic Region. The cruise industry has a strong presence in the Atlantic, particularly at ports in Florida; Florida's five cruise ports account for approximately 60% of embarkations at all U.S. ports (BREA 2020).

8.4.4 Subsistence

Few data exist on subsistence fishing and shellfish harvesting in and along the Atlantic Region, and what information is available is largely informal or speculative or is highly location-specific for isolated areas. Subsistence is likely to be most prevalent in areas with strong ties to commercial and recreational fishing. NOAA identifies 29 communities in the U.S. Northeast region that are highly engaged in commercial and/or recreational fishing, including seven communities in Maine, one in New Hampshire, eight in Massachusetts, three in Rhode Island, two in New York, five in New Jersey, and three in Virginia (Jimenez 2021). Isolated studies on subsistence activities in Atlantic areas (including Connecticut, Rhode Island, the Washington D.C. area, and North Carolina) indicate harvest of fish and shellfish for personal uses occurs from shore-based locations under recreational fishing systems, with substantial levels of sharing of catch among families (Ebbin 2017, Fiske and Callaway 2020, Macinko and Schumann 2007, Shapiro-Garza et al. 2022).

8.4.5 Ports, Marine Navigation, Commercial Shipping, and Submarine Cables

North Atlantic Planning Area ports handle roughly 8% of the U.S. total imports and exports, and the Port of New York is one of the five largest ports in the United States (USACE 2022b). Mid-Atlantic commercial vessel activity is concentrated around the ports of Philadelphia, Baltimore, and the Virginia port complex area. The Port of Virginia is one of the 20 largest ports in the United States in terms of tonnage. The South Atlantic and Straits of Florida planning areas do not have as many adjacent ports as the other planning areas, but four are in the top 40 ports in the United States in terms of traffic. These include the Port of Savannah, Georgia; Port of Charleston, South Carolina; Port Everglades, Florida, and Jacksonville Port Authority, Florida. Of the top 25 ports in the United States by tonnage, seven are in the Atlantic Region (Table 8-13 and Figure 8-18).

Table 8-13: Ports Near the Atlantic Planning Areas with U.S. Ranking by Tonnage

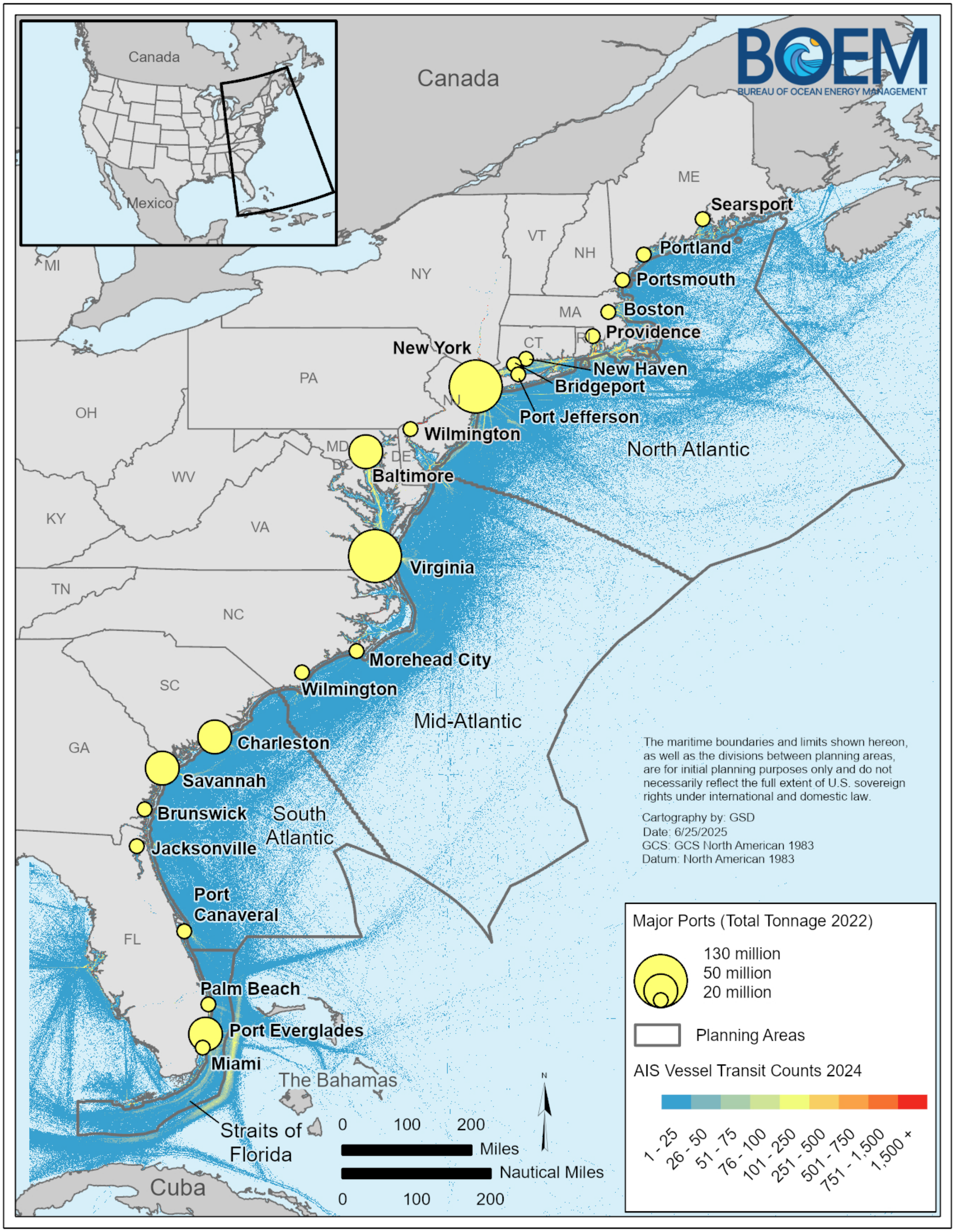
U.S. Rank	Port	Planning Area
4	New York, NY & NJ	North Atlantic
9	Virginia, VA	Mid-Atlantic
13	Savannah, GA	South Atlantic
16	Baltimore, MD	Mid-Atlantic
18	Philadelphia, PA	North Atlantic
23	Charleston, SC	South Atlantic
24	Port Everglades, FL	Straits of Florida
30	South Jersey Port Corp, NJ	North Atlantic
34	Jacksonville, FL	South Atlantic

Source: USACE (2022b)

There are 13 commercial ports designated as DOD National Strategic Ports, and seven are in the Atlantic Region. DOD National Strategic Ports in the South Atlantic are Jacksonville, Florida; Savannah, Georgia; and Charleston, South Carolina; in the Mid-Atlantic: Morehead City, North Carolina; Wilmington, North Carolina, and Hampton Roads, Virginia; and in the North Atlantic: Philadelphia, Pennsylvania (MARAD 2024).

Two of the four deepwater ports in the United States are in Massachusetts: Neptune LNG and Northeast Gateway. Neptune LNG is an LNG import facility 10 miles south of the City of Gloucester and has been idle since 2013 due to the increase in domestic gas production in the United States, which reduced any demand for gas imports (Global Energy Monitor 2025).

Figure 8-18: Ports and Vessel Traffic in the Atlantic OCS



Northeast Gateway is also an LNG import facility, sited approximately 13 miles south-southeast of the City of Gloucester in Federal waters. The peak throughput capacity for this facility is 800 million standard ft^3 per day. It last received an import delivery of nearly 3 Bcf during the winter of 2021–2022 and remains open to supplement winter demand in New England (EIA 2024c).

Submarine cables carrying critical voice, data, and internet traffic are present in the Atlantic Region, particularly in the North Atlantic Planning Area (offshore New Jersey, New York, and Rhode Island) and the South Atlantic and Straits of Florida planning areas (Florida). Coordination between ocean users and submarine cable operators is an important aspect to consider when conducting operations on the OCS. Updated maps maintained by NASCA segregate the Atlantic into northern and southern areas; the most recent updates are from November of 2024. There could be other existing cables not identified on NASCA maps from non-NASCA Association members.

8.4.6 Military and NASA Uses

DOD conducts training, testing, and operations in offshore operating and warning areas, undersea warfare training ranges, and special use or restricted airspace on the OCS. These activities are critical to military readiness and to national security. The U.S. Navy uses the airspace, sea surface, subsurface, and seafloor of the OCS for events ranging from instrumented equipment testing to live-fire exercises. The U.S. Air Force conducts flight training and systems testing over extensive areas on the OCS. The U.S. Marine Corps amphibious warfare training extends from offshore waters to the beach and inland. The USCG conducts search and rescue missions.

Some of the most extensive offshore areas used by DOD include U.S. Navy at-sea OPAREAs. Training and testing could occur throughout the U.S. East Coast OCS waters but will be concentrated in OPAREAs and testing ranges. On the East Coast, one major testing range is the Naval Undersea Warfare Center, Division Newport. In the North Atlantic, U.S. Navy OPAREAs include Atlantic City, Narragansett Bay, and Boston; in the Mid-Atlantic, range complexes include Virginia Capes, Navy Cherry Point, and portions of Chesapeake Bay; in the South Atlantic, range complexes include the Jacksonville and Charleston OPAREAs.,

DOD and USDOI will continue to coordinate extensively under a 1983 Memorandum of Agreement, which states that the two parties shall reach mutually acceptable solutions when the requirements for mineral exploration and development and defense-related activities conflict.

In addition to military installations, there are several facilities along the U.S. Atlantic Coast operated by NASA that incorporate marine components. Wallops Flight Facility on Wallops Island, Virginia, is a key location for operational testing, integration, and certification of NASA and commercial orbital launch technologies. The facility has an offshore launch hazard area in adjacent waters. It also supports many Federal agency activities, including U.S. Navy activities in the Virginia Capes OPAREA. Farther south in the Straits of Florida Planning Area, NASA operates the Kennedy Space Center, which is on Cape Canaveral and most well-known for its function as a former launch site for the U.S. space shuttles. The waters around the Kennedy Space Center are recognized as a *de facto* marine reserve since human entry is prohibited there.

8.4.7 Renewable Energy

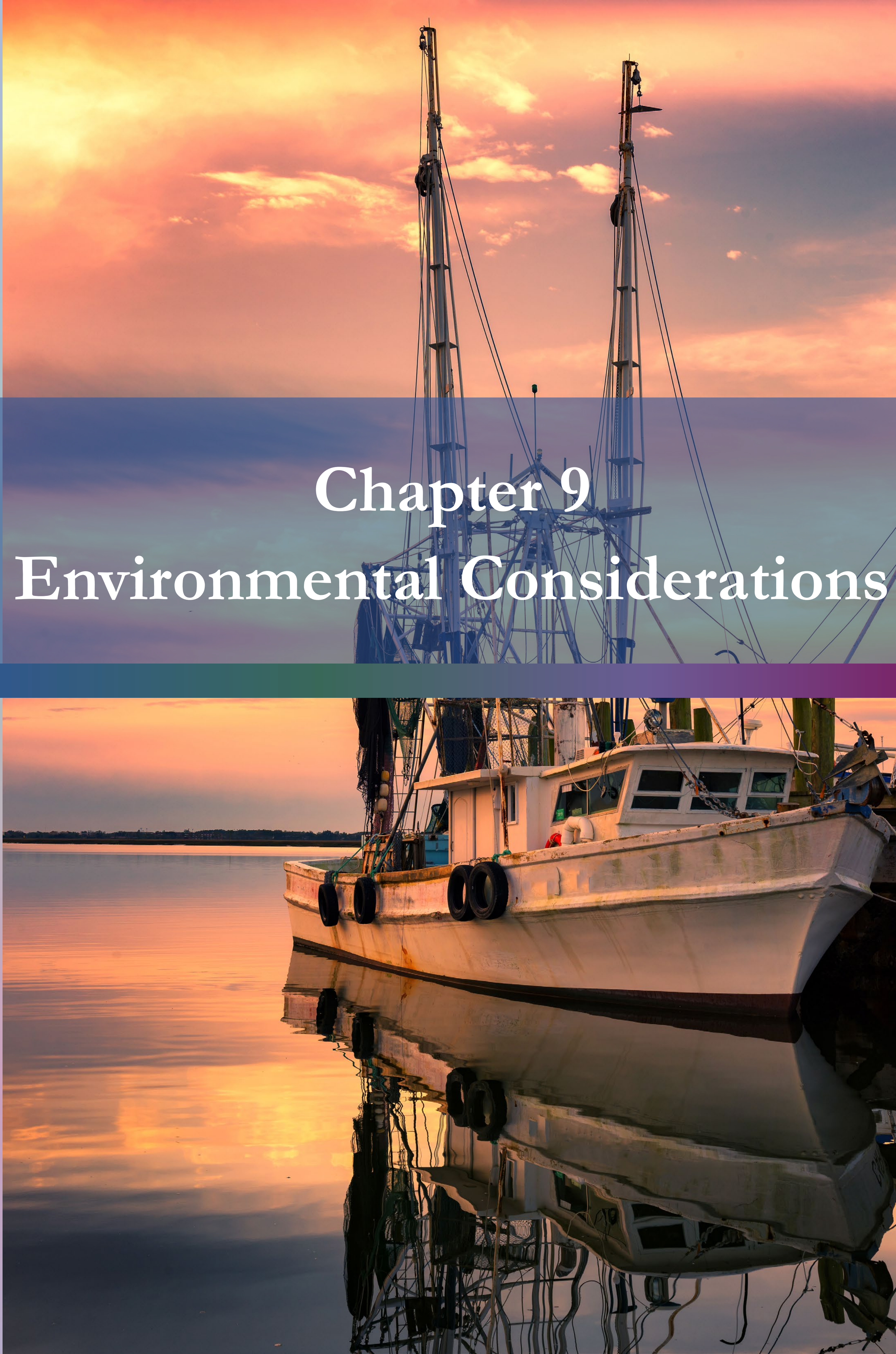
BOEM manages several offshore wind energy leases off the Atlantic Coast within the North and Mid-Atlantic planning areas. Site characterization surveys and construction and operations activities are possible during the 11th Program. See https://www.boem.gov/renewable-energy/lease-and-grant-information for the status of OCS renewable energy commercial wind projects in the Atlantic Region. Three research leases have also been issued, two studying offshore wind and one for marine hydrokinetic technology.

8.4.1 Non-Energy Marine Minerals

Through October 2025, BOEM issued 57 agreements for approximately 112 million yd^3 of OCS sand for beach nourishment and coastal restoration projects along the Atlantic Coast from New Jersey to Florida. Atlantic coastal states that have used OCS sand for shoreline restoration include New Jersey, Maryland, Virginia, North Carolina, South Carolina, and Florida. Typically, the borrow areas are in less than 100 ft of water and within 10 miles of the coast. Interest has previously been expressed in the potential future use of OCS sand offshore New York and Delaware. BOEM has also been working closely with the states and other Federal partners to identify new potential OCS sand resource areas.

Additionally, the Atlantic OCS Region is likely to contain critical minerals in heavy mineral sands, crusts, and nodules. BOEM continues to collaborate with USGS and NOAA on scientific studies focused on the geology and environment of the Blake Plateau seabed (including polymetallic nodules, corals, and benthic fauna) approximately 150 miles offshore Georgia. These activities included an expedition in 2022 by the NOAA Ship *Okeanos Explorer* to facilitate mapping and exploration of the plateau to better understand the long-term environmental impacts on the seafloor of experimental deep sea resource extraction technologies. The Blake Plateau was previously used to test nodule extraction equipment and could provide insight into ecological conditions post-activity. Further studies are planned for 2026 to study these resources.

Chapter 9
Environmental Considerations



Chapter 9 Environmental Considerations

9.1 Environmental Setting and Ecological Characteristics

The environmental setting of an area where oil and gas leasing activities could occur is defined by various ecological, geographical, and geological characteristics. *Ecological* characteristics encompass all facets of—and the interactions between—an area's species, habitats, and other environmental resources. *Geographical* characteristics include the location of the region and its associated planning areas, as well as any unique physical characteristics. *Geological* characteristics are discussed in Chapter 5, which includes a description of the hydrocarbon resources and a basic explanation of the geologic plays in each of the planning areas.

Environmental resources comprise the physical and biological components—and the socioeconomic and cultural factors—of an ecosystem. Environmental resources are defined, closely related components, such as species groups, interrelated habitats, or human dimensions. The same general environmental resources exist for all regions in which oil and gas leasing could occur. However, the relative importance of a given environmental resource can vary by geographic location due to factors such as abundance, environmental sensitivity, or the presence of federally protected species or critical habitats.

This environmental setting discussion supports the analysis to comply with the OCS Lands Act (43 U.S.C. 1344(1)), which directs USDOI to study and consider the impacts of oil and gas activities on coastal, marine, and human environments when making decisions on how to effectively meet national energy needs (see Chapter 4), while balancing between the potential for environmental damage, oil and gas resource potential, and potential impacts on the coastal zone (see Chapter 2). In addition, BOEM must comply with other statutes, regulations, and E.O.s (see https://www.boem.gov/about-boem/regulations-guidance/boem-governing-statutes for more information). For example, the ESA (16 U.S.C. 1531–1544) affords legal protection to individual animals and their critical habitats based on their status and the threats those animals could face in the future. The Marine Mammal Protection Act affords protection to all marine mammals and prohibits the "take" of them in U.S. waters (16 U.S.C. 1361–1423h).

Additionally, the United States has a unique political and legal relationship with the federally recognized American Indian and Alaska Native Tribes, as set forth in the Constitution of the United States, treaties, E.O.s, and court decisions. The Federal government's trust responsibility is a commitment to protect the rights and well-being of our Nation's Tribes while respecting their Tribal sovereignty. BOEM recognizes that indigenous peoples have long-standing dependencies on and relationships with the ocean and its resources—and fulfills our trust responsibility with careful consideration in the Bureau's analyses and decisionmaking. Section 13.5 includes a discussion of ongoing Tribal coordination and consultation for the 11th Program development.

This 1st Analysis provides an inventory-level overview of the environmental setting and potential impacts on resources in each of the four OCS Regions. Subsequent environmental evaluations for the 2nd and 3rd Analysis will fulfill the following:

1. Provide more detailed analysis of the environmental setting and potential impacts that could arise from oil and gas leasing activities
2. Summarize the condition of the environment and describe potential impacts from the 11th Program on physical, biological, and sociocultural and socioeconomic resources
3. Identify sensitive areas that could warrant exclusion from development and potential mitigation measures for activities within leased areas that could have environmental impacts
4. Discuss the potential for oil spills and oil spill impacts under the 11th Program.

The following sections provide a brief overview of the environmental settings by region.

9.2 Introduction to the Environmental Resources Examined

The environments and resources in this 1st Analysis include the following for each OCS Region:

Environment	Definition and Associated Resources
Physical Environment:	The non-biological elements of the OCS and adjacent waters, atmosphere, and lands, including the seafloor. Resources in the physical environment include the following: air quality and water quality.
Pelagic Environment:	The water column, from the sea surface to the waters immediately above the seafloor. Resources in the pelagic environment include the following: planktonic organisms, marine mammals, fish, sea turtles, pelagic birds.
Benthic Environment:	The interface between water column and seafloor. Resources in the benthic environment include the following: living organisms that occur on the seafloor, fish, shellfish, corals, sponges, and crabs.
Coastal Environment:	The interface between land and sea, loosely bounded by the portions of the land and water that are influenced by their proximity to each other. Resources in the coastal environment include the following: wetlands, estuaries, coastal vegetation, birds, fish, and marine mammals.
Human Environment:	The social, cultural, economic, and health-related conditions and values, including people's relationship with the natural and physical environment. BOEM focuses on dimensions that could be affected by OCS energy activities: socioeconomic factors, quality of life, fishing, cultural and archaeological resources, land use, infrastructure, recreation, and tourism.

Additional information about ESA-listed species, critical habitat, essential fish habitat (EFH), and habitat areas of particular concern (HAPC) discussed in the 1st Analysis are in **Appendix C**.

9.2.1 Alaska Region

9.2.1.1 Physical Environment

The Alaska Region includes 16 planning areas, spanning from the Arctic to the Gulf of Alaska (see Chapter 3).

The Arctic region includes the High Arctic, Chukchi Sea, Beaufort Sea, and Hope Basin planning areas. The High Arctic Planning Area is extremely remote, and there is little physical or biological information known about this area. The U.S. Chukchi Sea extends from the Bering Strait north and east along the coast of Alaska to approximately Point Barrow, Alaska. The Beaufort Sea extends from approximately Point Barrow eastward along the northern coast of Alaska to Canada. The Chukchi and nearshore Beaufort regions are generally shallow, with a broad (100- to 300-mile -wide), shallow shelf in the Chukchi Sea, and a narrower (< 60 mile) shelf in the Beaufort Sea; the shallow continental shelf drops off sharply northward to the Arctic Basin.

The Alaska Peninsula separates the Bering Sea from the Gulf of Alaska. The Bering Sea is bounded by Alaska to the east and northeast, Russia's Far East and Kamchatka Peninsula to the west, the Aleutian Islands to the south, and the Bering Strait to the far north. The continental shelf in the Bering Sea is very broad, extending more than 300 miles from shore at its widest extent. Water moves from the Bering Sea through the Bering Strait and into the Arctic Ocean via the Chukchi Sea. The planning areas within the Bering Sea include Norton Basin, North Aleutian Basin, St. George Basin, St. Matthew-Hall, Navarin Basin, Aleutian Basin, Bowers Basin, and the northern portion of the Aleutian Arc.

The Gulf of Alaska is a large, semi-circular bight bounded by the coast of mainland Alaska to the north and east and the Aleutian Islands to the west. It opens into—and is largely exposed to—the North Pacific Ocean. The Gulf of Alaska has a relatively narrow continental shelf, ranging from about 30 miles off southeastern Alaska to more than 100 miles near Kodiak Island. Cook Inlet is along the west-central coast of the Gulf of Alaska and bounded at the entrance by Kodiak and Afognak islands. The planning areas in the Gulf of Alaska include Cook Inlet, Gulf of Alaska, Kodiak, Shumagin, and the southern portion of the Aleutian Arc.

Physical Oceanography

The Alaska Region experiences extreme seasonal temperature and light variability due to its location. In the winter months, the Arctic Circle has limited daylight hours, and seasonal ice pack expands southward into the Bering Sea. The movement and presence of sea ice, and the extended periods of summer daylight and winter darkness, are dominant features of the Arctic seascape and impact the physical, biological, and cultural aspects of life in the area.

Sea ice, including breakup and formation patterns, varies throughout the entire Alaska Region. Sea ice covers the Chukchi and Beaufort shelves for about 8 or 9 months of the year and reaches its maximum extent in March, covering a large portion of the Bering Sea and Bristol Bay.

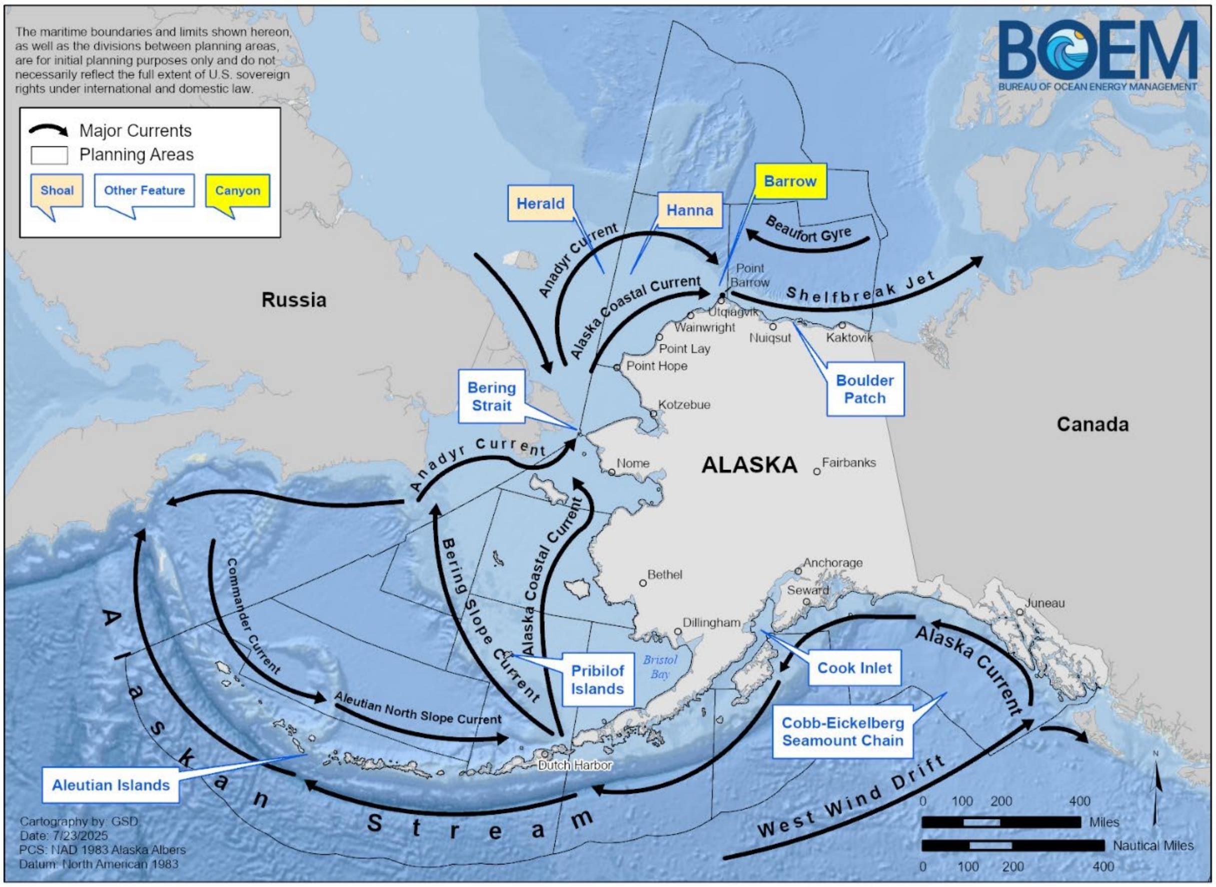
Landfast ice (ice that forms adjacent to and extends from the land) begins to form in October and can extend 25 miles or more from shore. As the summer months bring near-constant daylight, the pack ice retreats north through the Bering Strait and reaches its minimum extent in September. The climate of the Gulf of Alaska is warmer than the Arctic Ocean and northern Bering Sea. Sea ice does not regularly occur in the open Gulf of Alaska; however, Cook Inlet, Prince William Sound, and Glacier Bay have ice formations of various kinds in the winter, and nearshore ice forms along the Alaska Peninsula and the Aleutian Islands in some years.

Sea ice is a critical element of the Arctic climate system. For the past 40–60 years, significant changes in the Arctic and Alaska Region sea ice have been observed, including declining sea ice cover, decreasing age of sea ice, and thinning of ice cover (Kwok 2018, Meier and Stroeve 2022, Wang et al. 2022). These changes result in earlier spring melt, later freeze up in the fall, warmer ocean waters, increased open-water wave activity, more frequent storms, and coastal erosion (Farquharson et al. 2018, Henke et al. 2024, Semonov et al. 2019). Given current trends, a seasonally ice-free Arctic Ocean is likely in the coming decades (Jahn et al. 2024).

In the Alaska Region, there are several major ocean currents that bring nutrient-rich waters and drive primary productivity in the spring and summer months. The Chukchi Sea waterflow is characterized by several distinct currents running from south to north. The Alaska Coastal Current brings fresh, warm water from the Bering Sea into the Chukchi Sea and continues along the shelf break into the Beaufort Sea. The Chukchi Sea Current brings nutrient-rich waters from the Bering Sea and Anadyr Bay into the central Chukchi Sea; this current splits around Herald and Hanna shoals (Clement-Kinney et al. 2022). The Chukchi Sea also is influenced by upwelling, which occurs in shelf break canyons and brings warmer and saltier water to the surface, resulting in ice loss on the Chukchi Sea shelf (Li et al. 2022).

In the Beaufort Sea, waters from the Canadian Beaufort Sea enter the Alaskan Beaufort Sea from the east and continue along the shelf edge and northward. Arctic waters move from the northern Arctic Ocean and along the shelf break from northwest to southeast. The wind-driven Beaufort Sea gyre (Figure 9-1), is an important freshwater concentrator within the Arctic Ocean (Weingartner et al. 2017). Loss of sea ice intensifies gyre circulation; as it warms, the gyre increasingly transports older and thicker pack ice from other parts of the Arctic, especially during spring and summer months (Moore et al. 2022, Timmermans and Toole 2023). The Mackenzie River Delta on the Canadian Beaufort Sea also contribute to turbidity and decreased salinity in the Beaufort Sea region.

Figure 9-1: Major Currents and Features around the Alaska OCS



Circulation in the Bering Basin is typically described as a cyclonic gyre, bounded by the Kamchatka Current flowing southward and the Bering Slope Current flowing northward. Water transport is generally northward through several passes between the islands of the Aleutian chain (Stabeno et al. 1999).

Gulf of Alaska circulation is primarily controlled by two current systems, the subarctic gyre in the ocean basin and the Alaska Coastal Current (Stabeno et al. 2004). The gyre is formed and constrained by several currents that create an anticyclonic circulation. The West Wind Drift flows from the west and divides as it approaches North America into the southward-flowing California Current and the northward-flowing Alaska Current; the latter becomes the Alaskan Stream as it flows west toward the Alaska Peninsula.

The Alaska Coastal Current dominates circulation on the Gulf of Alaska shelf and is controlled by winds and freshwater input from rivers. It flows north and then west along the coast, where a portion joins the Alaskan Stream, but most enters the Bering Sea through Unimak and Samalga passes (Stabeno et al. 2016). Circulation in Cook Inlet is controlled by freshwater input from rivers and tidal flow in Upper Cook Inlet, while wind and interaction with the Alaska Coastal Current drive flow in lower Cook Inlet (Johnson 2021).

The Alaska Region also experiences freshwater inputs from rivers, land runoff, and ice melt. For example, the Yukon River provides a large source of freshwater input to the Bering Sea while numerous smaller rivers flow into the Gulf of Alaska with a greater combined discharge than the Mississippi River (Stabeno et al. 2004).

Air Quality

Air quality along the Alaskan coastline is relatively pristine, and there are no nonattainment areas. There are three coastal Class I Areas, which receive more stringent air quality protections than other locations: Bering Sea, Simeonof, and Tuxedni Wilderness Areas (USEPA 2024). Class I Areas are locations that receive additional scrutiny and for which no degradation of air quality is permitted. These locations are Federal lands, including some wilderness areas, NPs, and other protected lands.

Water Quality

Water quality in the Alaska Region is a complex issue shaped by both localized human activity and overarching environmental shifts. While historically considered pristine, new assessments reveal growing pressures (Alaska Department of Environmental Conservation 2024). In more populated regions like the Cook Inlet watershed, which is home to most of Alaska's population, water quality is directly impacted by a variety of anthropogenic sources. Discharges from municipal and industrial facilities, urban runoff, historical and ongoing oil and gas activities, mining operations, and seafood processing are recognized as significant local stressors.

Permitted discharges in Cook Inlet introduce a variety of contaminants, including heavy metals, petroleum products like polycyclic aromatic hydrocarbons (PAHs), and a range of chemical pollutants that can pose risks to the ecosystem (Alaska Department of Environmental Conservation 2024, Davey 2025). Despite these pressures, strong tidal currents in areas like lower Cook Inlet—where current speeds can reach 11.8 inches/second—help dilute point source pollutants, thereby minimizing their influence on water quality (Johnson 2021). Overall, the Alaska Department of Environmental Conservation continues to classify many of south-central Alaska's coastal waters as being in "good" condition based on evaluations of water quality, sediment characteristics, and fish tissue contaminants (Athanase et al. 2025).

Across the wider Alaska OCS, global and regional environmental changes are profoundly altering marine water chemistry. In the Arctic, the Beaufort Gyre has accumulated a significant amount of freshwater over the past two decades, strengthening water column stratification and potentially altering nutrient distribution and freshwater exports to the North Atlantic (Athanase et al. 2025).

Concurrently, ocean acidification is expected to remain an ongoing issue in this region. The Arctic Ocean is acidifying faster than other parts of the world's oceans (Cross et al. 2021). Ocean acidification is made worse by warming temperatures and melting sea ice, which enhances the ocean's absorption of atmospheric CO_2. This is a vulnerability for high-latitude waters (IPCC 2021, Qi et al. 2017).

High-latitude oceans have naturally lower carbonate concentrations than elsewhere, making them more susceptible to impacts from ocean acidification (Fabry et al. 2009). In fact, the surface waters of the Chukchi and Beaufort seas are experiencing some of the world's most rapid rates of ocean acidification. Research has documented that near-bottom waters in the Chukchi Sea can become highly corrosive to shell-building organisms like crabs and pteropods, which are crucial components of the arctic food web (Hauri et al. 2024).

Monitoring efforts also have identified the pervasive, low-level presence of chemical contaminants and microplastics. NOAA's National Mussel Watch Program has found not only legacy pollutants but also contaminants of emerging concern (CECs), such as per- and polyfluoroalkyl substances (PFAS), in marine life from the Aleutian Islands to the Beaufort Sea (Alaska Department of Environmental Conservation 2024, Fraley et al. 2023, National Centers for Coastal Ocean Science 2024). Additionally, microplastic pollution is now considered ubiquitous. Microplastic fibers and fragments have been found in the sediments of the Chukchi and Beaufort seas and are being ingested by a wide array of marine animals, including seabirds and seals (Dhineka et al. 2024, Taurozzi and Scalici 2024).

9.2.1.2 Pelagic Environment

Primary productivity in the Alaska Region is driven by major currents and river inputs (Terhaar et al. 2021)—which transport nutrient-rich water to the open ocean and continental shelf—and the seasonal melting of sea ice. When the sea ice melts each spring in the Bering, Beaufort, and Chukchi seas, ice-associated phytoplankton is exposed to warm water, a stabilized water column, and high light levels. Under these conditions, the phytoplankton bloom results in some of the world's highest marine productivity (Grebmeier et al. 2006). Additionally, warming conditions and thinning sea ice have allowed for massive phytoplankton blooms under sea ice to be observed in recent years (Arrigo et al. 2012, Payne et al. 2021).

In the Gulf of Alaska, where eddies and meanders drive mixing, high productivity is patchier but supports some of the largest fisheries in the United States (Coyle et al. 2019, Williams et al. 2021). Rising ocean temperatures and ongoing changes in the timing of sea ice formation and retreat are driving shifts in the abundance and composition of pelagic communities in northern Alaskan waters (Grebmeier 2012), while pelagic communities in the Gulf of Alaska have been affected by recurring marine heatwaves from 2014–2016 and 2019–2020 (Arteaga and Rousseaux 2023) (Nielsen et al. 2020, Suryan et al. 2021). In the Gulf of Alaska, these changes manifested in record low abundance of many important forage fish such as capelin, sand lance, and herring due to shifts in size and composition of their zooplankton prey (Arimitsu et al. 2021b); this decline negatively impacted recruitment on important fisheries species like Pacific cod (Williams et al. 2021).

Fish

In the Bering and Chukchi seas, warming temperatures are driving a shift in the larval fish assemblage: boreal species like walleye pollock are increasing, and Arctic species like Arctic cod are decreasing as they are displaced poleward (Axler et al. 2023, Levine et al. 2023). The habitats of many pelagic fish species, such as Pacific herring and capelin, span the Bering Sea and Arctic planning areas (Smith et al. 2017). The Chukchi/Beaufort region provides habitat for more than 100 species of fish, including sculpin, cod, and herring (Thorsteinson and Love 2016b) (Datsky 2015). The Bering Sea is home to extensive eelgrass beds—such as those found in Izembek NWR in Bristol Bay. Many of these species (e.g., king crab, pollock, salmon, and cod) are commercially valuable.

One of the most important fish species is the walleye pollock, which makes up a significant portion of the total amount of marine life in the offshore system and, along with other forage fish, is an important food source for nesting seabirds and seals. Walleye pollock is the most abundant fish species in the Bering Sea; Arctic and saffron cod are the most abundant gadids in the Chukchi Sea (Smith et al. 2017), but walleye pollock are encroaching into their habitat as waters become warmer (Levine et al. 2023).

The fish assemblages in the Gulf of Alaska are extremely diverse, including both subarctic and temperate species, with Arctic species favoring the western portions of the Gulf of Alaska and the temperate species occurring more in the eastern portions. Pacific herring is an important prey species for numerous commercial fish species, seabirds, and marine mammals in the Gulf of Alaska; fluctuations in its abundance during recent warming events is a concern (Arimitsu et al. 2021a, Surma et al. 2022).

Marine Mammals

The Alaska Region contains many marine mammals, ranging from semi-aquatic polar bears in the Arctic to whales that only migrate into the region seasonally. The endangered sei and sperm whales can be found throughout the entire Alaska Region. Polar bears, which are listed as threatened under the ESA, are the top predators in the Arctic planning areas and have critical habitat along the coast of the Chukchi, Beaufort, and East Bering seas. Pacific walrus; ribbon seals; and ESA-listed spotted, bearded, and ringed seals move with winter expansion of sea ice cover into the Bering Sea and back up to the Arctic region with the sea ice retreat in the summer (Gelatt and Gentry 2017, Smith et al. 2017).

Bearded and ringed seals have critical habitat that overlap with several Alaska planning areas throughout the Bering Sea and Arctic. ESA-listed bowhead whales also move seasonally between the coastal area of the Beaufort and Bering seas; they are typically found near edges of pack ice, where they feed on zooplankton (Clarke et al. 2015, Smith et al. 2017). ESA-listed gray whales migrate from tropical latitudes to as far north as the Chukchi Sea to feed on benthic prey in the summer (Clarke et al. 2015, Smith et al. 2017).

Steller sea lions and northern fur seals also move with sea ice retreat north into the Bering Sea during the summer and return south to the Aleutian, Pribilof, and Bogoslof islands during the winter (Gelatt and Gentry 2017, Smith et al. 2017). The Stellar sea lion has critical habitat in the Aleutian Arc Planning Area. Four humpback whale Distinct Population Segments (DPSs), three of which are ESA-listed, can be found feeding on zooplankton and small forage fish in the Bering Sea in the summer (Smith et al. 2017); humpback whales increasingly are observed in the Chukchi Sea as the region warms (Stafford et al. 2023). Killer whales are found throughout the Alaska Region, from the Gulf of Alaska into the Chukchi and Beaufort seas (Alaska Department of Fish and Game 2025c). Fin (endangered), blue (endangered), and minke whales also migrate to the Alaska Region in the summer and early fall (NOAA Fisheries 2024e, g, h).

The ESA-listed North Pacific right whale can be found in the Bering Sea and Gulf of Alaska; it has designated critical habitat in the Kodiak, North Aleutian Basin, and St. George Basin planning areas. There are five distinct stocks of beluga whales throughout Alaskan waters, including the ESA-listed Cook Inlet DPS (Hauser et al. 2014). Three stocks of northern sea otter, including the ESA-listed southwest DPS, forage in coastal waters of the Aleutian Islands and southern Alaska (Flannery et al. 2021, Gorbics and Bodkin 2001). Several marine mammal species were negatively impacted by marine heatwaves that affected the Gulf of Alaska in the past decade, including humpback and killer whales and Steller sea lions (Hastings et al. 2023, Suryan et al. 2021).

Birds

The Bering and Chukchi seas have some of the largest seabird breeding populations in the world (Stephensen and Irons 2003), and seabird colonies extend throughout most of the coastline of the northern Bering and southern Chukchi seas (Labunski et al. 2022). The highly productive Bering Sea supports large densities of seabirds, including the ESA-listed short-tailed albatross and taxa that use marine areas only during migration or for portions of their annual cycle (Labunski et al. 2022). The ESA-listed spectacled and Steller eiders have critical habitat that overlap with the Chukchi, Navarin, Norton, and St. Matthew-Hall planning areas.

Sea Turtles

Sea turtles are considered rare in the Alaska Region; all recorded occurrences have been in the Gulf of Alaska, primarily in southeastern Alaska. Only 48 sea turtle sightings were recorded in Alaska between 1963–2020; sightings included green, leatherback, olive ridley, and loggerhead sea turtles (NOAA Fisheries 2025ab).

9.2.1.3 Benthic Environment

The Alaska OCS seafloor is a vast and geologically complex area characterized by benthic habitats ranging from extensive soft-sediment plains to rugged hard-bottom features. The region's topography is a direct result of dynamic plate tectonics and volcanic activity, which formed the Aleutian Island chain and its associated deep sea trench. Across this region, seafloor depths vary from shallow nearshore areas to deep ocean abyssal plains.

Notable shallow features, such as Herald and Hanna shoals in the Chukchi Sea, with depths of only approximately 20 m, fundamentally influence regional sea ice dynamics, water circulation, and the aggregation of marine life. In contrast, numerous submarine canyons, including the highly productive Barrow and Pribilof canyons, incise the continental slope, acting as critical conduits for nutrient transport and serving as biodiversity hotspots (CSA Ocean Sciences Inc et al. 2019). Barrow Canyon, which bisects the Chukchi Sea and Beaufort Sea planning areas, is a critical migratory corridor and foraging area, concentrating nutrients and organisms that support a rich food web.

Structure-forming deepwater corals and sponges (found across a depth range of less than 25 m to more than 14,500 m) are vital to Alaska's benthic habitats. These organisms create complex habitats that provide essential refuge, feeding, and nursery grounds for commercially important fish and invertebrate species, including rockfish and golden king crabs (NOAA 2025a, NRC 1996).

Hanna Shoal in the Chukchi Sea is a persistent biological hotspot. Its shallow nature causes the grounding of sea ice, which stimulates early phytoplankton blooms and concentrates nutrients, making it a crucial foraging ground for walruses and bearded seals. The Chukchi Sea shelf is known for high biomass of benthic invertebrates, including clams, urchins, sea stars, amphipods, and polychaete worms, which sustain large populations of marine mammals and diving sea birds (Grebmeier 2012, Grebmeier et al. 2006).

The Beaufort Sea benthos, while generally less productive than those in the Chukchi Sea, supports communities dominated by brittle stars, mussels, and various worms adapted to its colder conditions and lower levels of nutrients (Smith et al. 2017). The Beaufort Sea's Boulder Patch represents a unique nearshore kelp bed community that supports highly diverse algae, invertebrates, and fish (Bonsell and Dunton 2021).

The Bering Sea shelf is one of the world's most productive marine ecosystems, largely driven by the "Green Belt," a zone of elevated primary production along the shelf break where nutrient-rich deep water is brought to the surface (Springer and McRoy 1993). The immense productivity resulting from these nutrient-rich waters fuels a rich benthic ecosystem that supports globally significant fisheries (Smith et al. 2017). Distinct benthic communities occur on the shelf, with a northern community in areas like Norton Sound and a southern community extending into Bristol Bay (Yeung and Yang 2025).

Bristol Bay is a key nursery area for the world's largest sockeye salmon fishery. In shallower waters, communities are often dominated by sea stars, bivalves, and soft corals, while deeper habitats host high densities of crabs, snails, and other gastropods. The sandy and muddy habitats along the Bering Sea shelf and slope are designated as EFH for commercially vital species such as snow and Tanner crabs. Commercially important red king crabs and snow crabs congregate in Bristol Bay (Dew 2010). While the Alaskan snow crab is not considered overfished, it has suffered population decline linked to a marine heat wave in 2017 (NOAA Fisheries 2024m). Pacific halibut, a highly valued species in Alaska's commercial fishery, inhabit the Bering Sea shelf and slope (NOAA Fisheries 2025u). The northern Bering Sea's abundant benthic invertebrates are a primary food source for marine animals.

In the Gulf of Alaska, the Aleutian Islands region is characterized by extreme topography, including deep trenches, volcanic seamounts, seeps, and tectonically active margins; these features create complex habitat supporting thriving benthic communities of worms, mussels, clams, other invertebrates, and fish (Levin 2005, Rathburn et al. 2009, Suess et al. 1998). Explorations of the Aleutian Trench and adjacent slope have revealed extensive and previously unknown cold seep communities. These ecosystems are fueled by methane and sulfide, supporting dense colonies of chemosynthetic tubeworms and clams (Ruppel et al. 2023). Hundreds of seamounts in the Gulf of Alaska and along the Aleutian Arc rise from the seafloor, creating hard-substrate islands that host diverse and dense communities of deep sea corals and sponges (NOAA 2024b).

These habitats are crucial for groundfish and have been the focus of recent mapping and characterization initiatives by BOEM and its partners (BOEM 2023e). Commercially important groundfish, Pacific halibut, and scallops can be found in the Gulf of Alaska (North Pacific Fishery Management Council 2014). The NPFMC has established numerous habitat protection measures to conserve these sensitive ecosystems from the impacts of bottom-contact fishing gear (North Pacific Fishery Management Council 2017). These measures include the designation of HAPC for corals, Habitat Protection Areas across the Gulf of Alaska slope and Aleutian Islands, skate nursey habitat in the Navarin and St. George Basin planning areas, fish habitat in the Aleutian Arc and Bowers Basin Planning areas, the Cobb-Eickelberg Seamounts in the Gulf of Alaska; and the closure of seamount areas, ensuring the protection of these benthic environments (North Pacific Fishery Management Council 2013, 2017, NPFMC 2023).

The unique physical environment of the Arctic OCS is heavily influenced by seasonal sea ice cover and supports diverse, highly productive benthic communities. An accelerating loss of seasonal sea ice in the Chukchi and Bering seas is reshaping the marine ecosystem by altering timing, composition, and predictability of primary production. This disruption to the base of the food web creates a critical mismatch for benthic communities, which are adapted to a previously reliable downward flux of organic matter, and is driving a northward shift of subarctic species in a rapidly changing environment (Frey et al. 2022, Grebmeier et al. 2018, Stabeno et al. 2023).

Concurrently, ocean acidification poses a significant threat to shell-building organisms. Increased acidity can impair the development and survival of crabs, clams, and other calcifying species that are both commercially valuable and fundamental to the benthic food web (NOAA 2025b).

These compounding stressors are expected to drive significant shifts in the distribution and abundance of benthic species across the Alaska OCS.

9.2.1.4 Coastal Environment

The coastal environments of the Alaska Region are vast and exceptionally diverse, encompassing a range of ecosystems from the ice-dominated Arctic to the temperate rainforests of the Gulf of Alaska. These habitats are shaped by dynamic physical processes and support a rich array of wildlife, much of which is of significant cultural and subsistence importance to Alaska Native communities.

In the northern reaches of the Alaska OCS, the Bering Sea and Arctic coastal environments are characterized by a mosaic of low-lying landforms, including extensive barrier islands, beaches, wetlands, tidal flats, and river deltas. The Arctic coastline is a dynamic and often harsh environment, profoundly influenced by the presence of sea ice and permafrost.

Alaskan coastal waters and the rivers that feed into them provide crucial habitat for many protected fish species. Several Evolutionarily Significant Units of salmon and steelhead are listed under the ESA. Five species of Pacific salmon (pink, chum, cockeye, Chinook, and coho) have EFH designated in coastal streams, estuaries, and marine waters for spawning, rearing, and migration (North Pacific Fishery Management Council 2024). The ESA-listed southern DPS of the green sturgeon is known to migrate into Alaskan waters (NMFS 2022). Additionally, the southern DPS of eulachon, a species of smelt listed as threatened, ranges into the southern portion of the Alaska Region as far as Bristol Bay.

The Arctic coastal ecosystem predominantly consists of tundra, marshes, wetlands, and thermokarst lakes and is frozen for much of the year (Arp et al. 2010, Hampton-Miller et al. 2022). This landscape is dominated by resilient, low-growing vegetation such as mosses, lichens, sedges, and shrubs (Hampton-Miller et al. 2022, Jorgenson and Brown 2005). Caribou, Arctic fox, and Arctic hare are year-round inhabitants, but the number of resident terrestrial animal species is relatively low. The region provides critical breeding and staging grounds for numerous migratory bird species. Notably, the Chukchi Sea coastline hosts some of the world’s most northern eelgrass beds, which serve as vital nursery and feeding areas for a variety of marine life (NPS 2016).

The coastal environments of the Gulf of Alaska present a dramatic contrast to the Arctic. The tectonic activity and glaciation have created a landscape of immense physical complexity. The shoreline is largely defined by high-relief, mountainous terrain, resulting in a complex and rugged coastline with extensive stretches of rocky shores, deep, glacier-carved fjords, thousands of islands, and numerous bays (Lees and Driskell 2004, Wilkinson et al. 2009). Sheltered habitats within this region include productive salt marshes, expansive mudflats, and beaches composed of sand and gravel (Arimitsu et al. 2016, Lees and Driskell 2004, Wilkinson et al. 2009). The variety of habitats supports a high level of biodiversity.

Caribou are an iconic species found across much of Alaska in more than 30 distinct herds. Many herds use coastal habitats for calving, migration, insect relief, and other critical life functions. Except for the Kodiak and Gulf of Alaska planning areas, all Alaska planning areas contain important coastal habitat for caribou (Alaska Department of Fish and Game 2022). For example, the Western Arctic Herd—one of the state's largest herds—undertakes extensive migrations that include coastal areas of the Chukchi Sea (Western Arctic Caribou Herd Working Group 2024).

Alaska's rocky coasts support tens of millions of nesting seabirds each summer (USFWS Undated). Many bird species are found on the shore and in the waters of the Arctic OCS, including waterfowl (e.g., eiders, long-tailed duck, swans, scoters, black brant, other geese), shorebirds (e.g., phalaropes, plovers, sandpipers, turnstones), and other marine birds (e.g., loons, fulmars, shearwaters, jaegers, gulls, murres, guillemots, puffins). The lagoons and river deltas along the Arctic coast are important foraging and molting areas for a variety and abundance of marine bird species.

The offshore, nearshore, and coastal habitats of the Gulf of Alaska provide feeding, nesting, wintering, and migratory areas for a variety of seabirds, sea ducks, and shorebirds (Arimitsu et al. 2021a, Renner et al. 2017). Kittlitz's murrelets can be found across the entire Alaska Region, especially in the Gulf of Alaska (Day et al. 2020). The ESA-listed threatened Marbled Murrelet can also be found in Bristol Bay, Aleutian Islands, and southern Alaska. Most of the North American population of Marbled Murrelet, which is ESA-listed in the U.S. continental West Coast states, breeds along the coasts of the Gulf of Alaska and Aleutian Islands (Alaska Department of Fish and Game 2017).

This region is subject to intense physical pressures, including the scraping and gouging of the seafloor and shoreline by sea ice movement, known as strudel scour. Furthermore, the coast is experiencing accelerated rates of erosion, driven by a combination of powerful Arctic storms, loss of protective sea ice, rapid thawing of coastal permafrost, and associated flooding (Creel et al. 2024, Overbeck and Buzard 2020). Some areas of the Beaufort Sea coast, for instance, have seen erosion rates increase by as much as 160% in recent decades (Jones et al. 2020).

9.2.1.5 Human Environment

Population

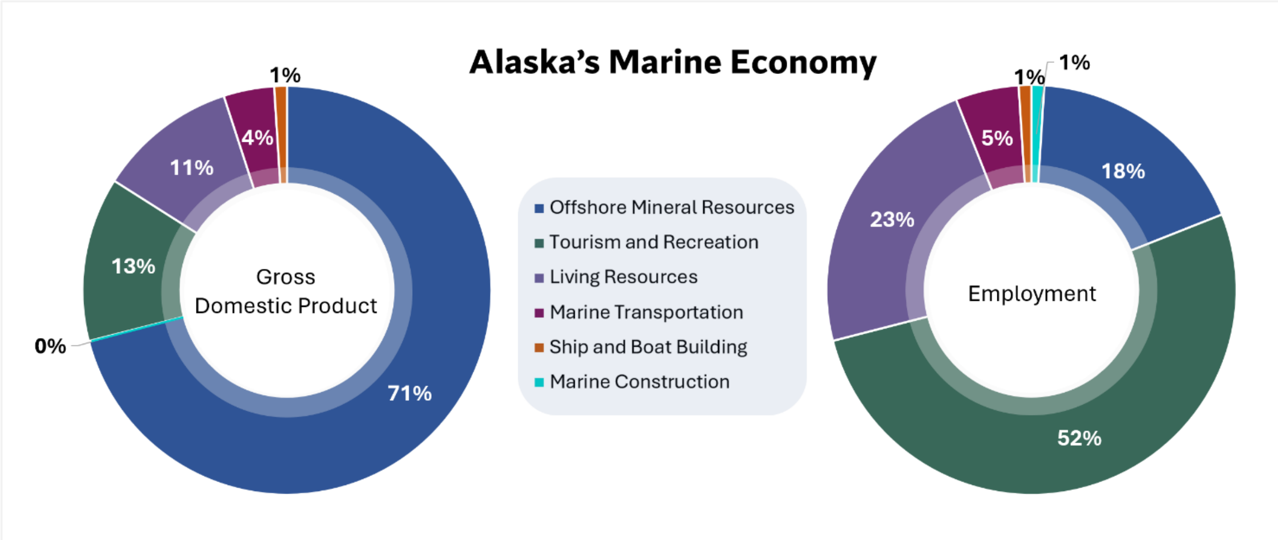
The State of Alaska is home to approximately 740,000 residents (U.S. Census Bureau 2024). Alaska's coastal population is approximately 511,000; this population reflects the residents in boroughs and U.S. Census-designated places along the coast (about 221,000) and residents of Anchorage (about 290,000)—the state's largest city, located at the northern terminus of Cook Inlet (U.S. Census Bureau 2024). About 40% of all federally recognized Tribes are in Alaska, with many residing in coastal areas (Bureau of Indian Affairs 2025). Many of Alaska's coastal residents depend on coastal and marine resources to support well-being and quality of life, such as for food, health, employment and income, and other socioeconomic and cultural factors.

Most of Alaska's coastal communities are small populations in towns and villages that are not connected to one another by road, with the exception of communities on the road system along the Kenai Peninsula and the Anchorage area, and a few communities in the Gulf of Alaska. Land use in much of coastal Alaska is consistent with rural, subsistence-based activities. The North Slope region of Arctic Alaska has concentrations of onshore oil and gas infrastructure that supports a mature industry, including a gravel road system, airstrips and docks, and a network of pipelines that connect to TAPS, which transports North Slope oil to the City of Valdez (North Slope Borough Assembly 2019). Areas in south-central Alaska on the road system from the Kenai Peninsula to Anchorage and beyond include a mix of urban and rural land uses (Cuyno et al. 2022). Many coastal communities that support commercial fishing also host shore-based support infrastructure, including fish processing facilities.

Ocean Uses

In the Alaska Region, the sectors that make up most of the marine economy are offshore mineral resources, tourism and recreation, and living resources, with a smaller contribution by marine transportation (NOAA 2021b). The marine construction and ship and boat building sectors contribute a negligible portion of the total marine economy (see Figure 9-2). The tourism and recreation sector represents the largest portion of the marine economy in terms of employment, comprising more than half of total employment; however, offshore mineral resources sector, which includes oil and gas, is the largest contributor in terms of GDP, providing more than 70% of overall marine economy GDP. The living resources sector, which includes commercial fishing, fish hatcheries, aquaculture, seafood processing, and seafood markets, is an important contributor to the marine economy, particularly for employment.

Figure 9-2: Alaska Region's Marine Economy Percentages by Sector



Source: NOAA (2024d)

Rural coastal communities throughout Alaska rely on subsistence fishing, hunting, and gathering as important sources of food and as critically important cultural activities. Subsistence in rural Alaska is the primary food source for many communities and is irreplaceable as a social and cultural matter. Most communities along the Beaufort, Chukchi, and Bering seas are predominately Alaska Native villages (the majority of which are federally recognized Tribes) with strong ties to marine subsistence activities.

For many coastal Alaska Native communities in the Arctic, seasonal bowhead whale hunting is an important activity in the spring and fall, coinciding with the whales' migration patterns (North Slope Borough Assembly 2019). Other marine mammal resources important for subsistence in Arctic and Bering Sea coastal communities include ice seals, Pacific walrus, and beluga whales. Both commercial and subsistence fishing—and some culturally important harvest of marine mammals—are highly important to communities in the Bering Sea and Aleutian Islands region, particularly in the Yukon-Kuskokwim Delta and Bristol Bay areas. Subsistence-reliant communities in Cook Inlet, Prince William Sound, and southeastern Alaska harvest salmon, halibut, and other fish species under both subsistence and personal use harvest regulations, with high levels of sharing among community members (Brown et al. 2023, Brown and Koster 2022, Keating et al. 2020).

Each year, communities across Alaska participate in marine-related activities that are central to their sociocultural traditions. In the Arctic, many community members participate in subsistence activities during the bowhead whaling season—either on actual hunting expeditions or to support the processing and sharing of harvest among the community and beyond (Alaska Eskimo Whaling Commission 2021, Kofinas et al. 2016). Annual festivals centered around whale hunting also are celebrated in several Arctic communities. In areas where subsistence harvest centers on seasonal salmon runs, families and community groups often gather to participate in the harvest and processing of salmon and other fish, which often involves devoting substantial time at seasonal fish camps. Many families in urban communities also structure part of their summer around fishing from boats for a variety of fish species and from shore and riverbanks for salmon, using rod-and-reel, dipnets, and other gear under personal use harvest regulations (Brown et al. 2023).

Commercial and Recreational Fisheries

Commercial fishing is a major economic contributor and is intertwined with community identity in many Alaskan communities. In 2023, the top species in Alaska by total volume and value were Alaskan pollock, pink salmon, Pacific cod, and sockeye salmon (NOAA 2022a). However, king crab, crusteaceans, weathervane scallop, Pacific geoduck, and Chinook salmon are the most lucrative species, with the highest price per pound (NOAA Fisheries 2023b).

Dutch Harbor, a major commercial fishing port in Unalaska on the Aleutian Islands hosts substantial onshore processing infrastructure associated with the industry. In the past, other communities in the Aleutian Islands, Bering Sea, and Gulf of Alaska hosted commercial fish harvesting and processing and industries. However, in recent years, several environmental and market factors have led to declines in catch and/or price, substantial revenue losses, and closures of several processing facilities, with substantial impacts on communities dependent on the industry (NOAA Fisheries 2024a).

Recreation and Tourism

Areas of the Alaska coast are especially valuable for marine recreation and tourism, including sport and recreational fishing. Tourism consists largely of sightseeing cruise ships and eco-tourism (including glacier and wildlife viewing), recreational fishing (including charter boats), camping, kayaking, and hiking. Cruise ship-associated tourism is of high importance in the Gulf of Alaska, with ships docking at several ports including Ketchikan, Juneau, Skagway, and Seward, among other locations (BREA 2020, McKinley Research Group 2023). Cruises often offer excursions by bus or train to Denali National Park and other interior locations, expanding the economic impact of the industry to Alaska beyond the coast. Charter fishing and other marine-based recreational activities are popular in areas of Cook Inlet (Cuyno et al. 2022).

Several popular national parks (NPs) are situated along coastal Alaska, including Glacier Bay, Kenai Fjords, Lake Clark, and Katmai National Park and Preserve. Guided fishing and hunting excursions are popular activities among visitors. Levels of tourism and recreation in northwest Alaska and the Arctic are lower than other areas of the state, but visitors from Alaska and from other states travel to these areas for outdoor recreation, recreational fishing, wildlife viewing, and birdwatching (NPS 2023). Chapter 8 provides additional information on commercial and recreational fishing, tourism and recreation, and offshore energy in the Alaska Region.

Cultural Resources

Alaska's coastline and offshore waters contain a variety of archaeological and cultural resources. Alaska has a rich maritime history; many shipwrecks in OCS waters are associated with military events dating from 1741 to the present, and those in the Arctic are predominantly from the commercial whaling industry. Alaska's historical reliance on air travel has resulted in downed aircraft on the OCS (Sassorossi et al. 2024). Additionally, submerged paleolandforms indicate areas of the Alaska OCS would likely have been exposed and available for human occupation at various time periods since the Last Glacial Maximum (19,000–25,000 years before present), with varying levels of potential for preserved archaeological evidence (Sassorossi et al. 2024).

9.2.2 Pacific Region

9.2.2.1 Physical Environment

The Pacific Region encompasses four planning areas along the U.S. West Coast: Washington/Oregon, Northern California, Central California, and Southern California. The U.S. West Coast is approximately 1,300 miles long from north to south—with the Coast of California accounting for 65% (about 845 miles) of that distance—and includes 7,863 miles of shoreline (NOAA 2016). The continental shelf along the West Coast is generally very narrow (10 to 70 miles wide) and drops off steeply at the shelf break.

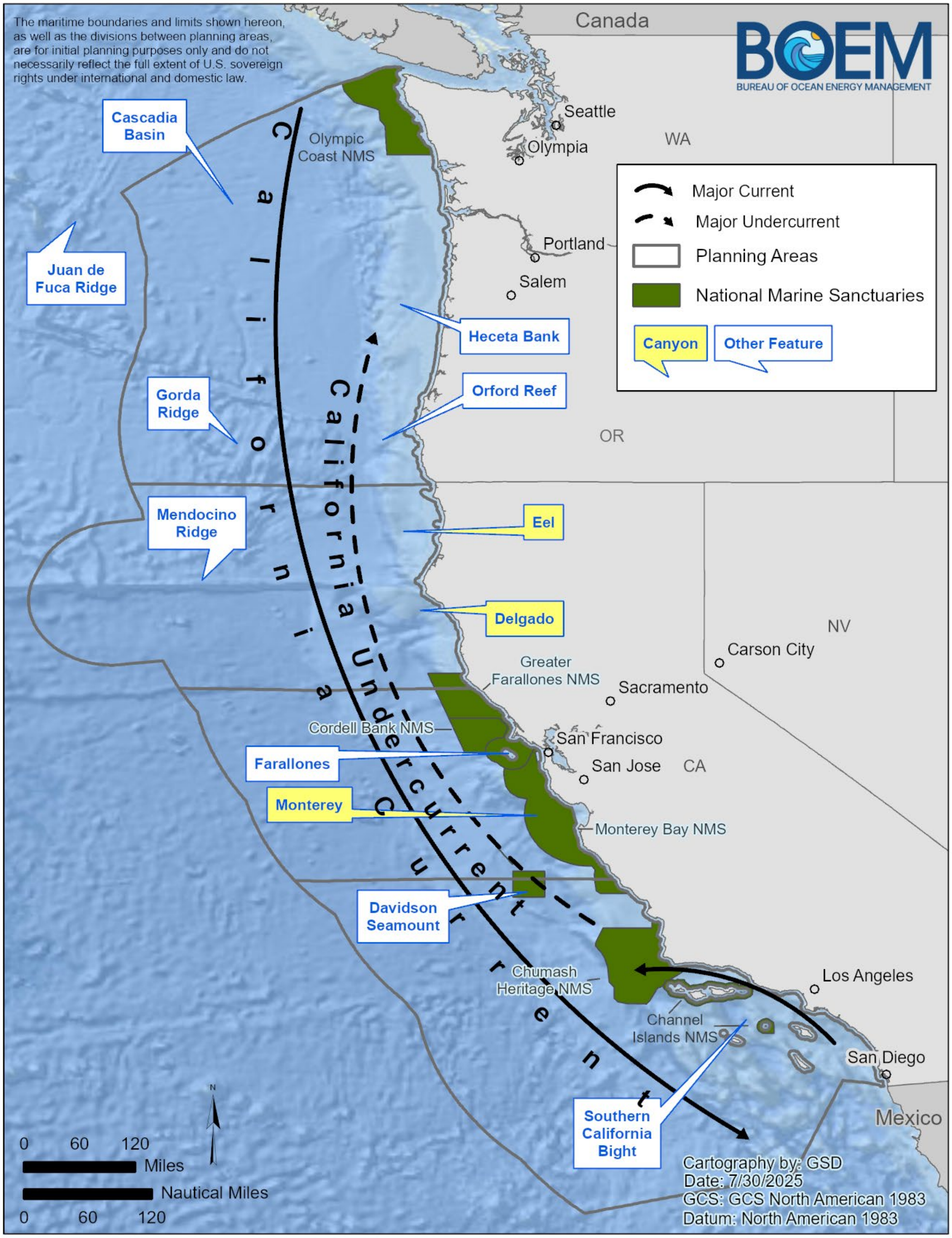
In 2023, the outer limit of the U.S. Continental Shelf in the Northern California Planning Area was extended approximately 327 miles to include the westward-projecting Mendocino Ridge (U.S. Department of State 2023). Mendocino Ridge is 6 to 12 ft wide and 0.62 to 1.2 miles above the deep ocean floor; it is a seismically active plate boundary that uplifts and accretes material to North America (U.S. Department of State 2023).

Offshore Southern California, the area beyond the shelf break consists of a topographically complex region, known as the continental borderland, which includes eight islands and associated banks and basins. This area is defined geographically as the Southern California Bight (SCB).

Physical Oceanography

The Pacific Region is influenced predominately by the California Current and its associated undercurrent (Figure 9-3). The California Current, which moves southward along the western coast of North America from British Columbia, Canada, to the tip of the Baja Peninsula in Mexico, is formed when the West Wind Drift approaches the continental shelf and splits into the northern flowing Alaska Current and the southern flowing California Current. The California Current is a broad and slow current extending from 93 to 807 miles offshore and transports colder water south along the entirety of the Pacific Region.

Figure 9-3: Major Currents & Features of the Pacific OCS



Seasonal winds generate coastal upwelling; inshore of the California Current, equatorial waters are transported north by the California Undercurrent and at the surface by the Davidson Current (Collins et al. 2003). Interaction between currents and winds makes the region very dynamic, with frequent formation of eddies, fronts, and filaments throughout the year (Kurian et al. 2011). This transitional zone of currents, eddies, and upwelling between subarctic and subtropical water masses is known as the California Current System.

The Pacific Region experiences significant upwelling of nutrient-rich bottom waters to the surface along the continental shelf that are driven by northwesterly winds. This upwelling leads to high levels of primary productivity, especially in the summer months, and supports many productive fisheries, a large and diverse marine mammal assemblage, and abundant seabird populations (Jacox et al. 2018, Largier 2020, Schwing et al. 1996). Despite winds being weaker as compared to California, primary productivity is higher off Washington and Oregon, indicating other contributing factors, including underwater topography, local nutrient supply, and riverine input from the Columbia River (Hickey and Banas 2008).

The California Current System can be affected by cyclical phenomena, such as El Niño Southern Oscillation (ENSO) events, which cause higher water temperatures, decreased upwelling, and wide swings in weather patterns. Under these circumstances, primary productivity decreases (Thompson et al. 2024), and subtropical species' ranges expand northward into the geographic area. In the past decade, the Pacific Region has been affected by several marine heatwaves that resulted in high mortalities of seabirds and marine mammals (Weber et al. 2021). Although the anchovy population has since recovered, marine heatwaves have also led to drastic declines in sardine and anchovies, which are important forage for higher trophic levels like birds, commercially important fishes, and marine mammals (Hinchliffe et al. 2025, Weber et al. 2021). In addition, studies have documented a general increase in the average temperature of the California Current Xiu (Pozo Buil et al. 2021, Xiu et al. 2018), a decrease in oxygen concentrations (Hoegh-Guldberg et al. 2014), and an increase in acidity in the ocean waters (Chan et al. 2017, Osborne et al. 2020).

Air Quality

The Pacific Region's air and water quality is shaped by a mix of legacy oil and gas infrastructure, heavy maritime commerce, ambitious state climate policies, and intensifying stressors such as ocean acidification, wildfires, and volcanic activity.

Much of the U.S. Pacific Coast meets National Ambient Air Quality Standards (NAAQS). However, large sections of the Southern California coast and the San Francisco Bay area are out of attainment for numerous pollutants, as are large inland sections of the state. The nonattainment areas cover ozone throughout the San Diego, Los Angeles, Central Valley, San Francisco, Oakland, and Sacramento metropolitan areas. Many inland areas of central and Southern California are in nonattainment for particulate matter. The only coastal area in nonattainment for particulate matter is the South Coast Air Basin, which covers much of the Los Angeles metropolitan area. Klamath Falls, Oregon, is also home to a small particulate matter nonattainment area (USEPA 2024).

There are Class I Areas throughout the Pacific Region. However, the only three areas that are directly along the coast are Redwood National Park, Point Reyes Wilderness Area, and Ventana Wilderness Area in California (USEPA 2024).

Water Quality

Water quality in the Pacific OCS is under substantial pressure from dense coastal populations, agriculture, and industry. While broad water quality evaluations (per required assessments under Section 305(b) of the Clean Water Act) suggest conditions are often good to fair, coastal and offshore waters are under increasing pressure from a combination of regulated point sources and pervasive non-point source pollution (California State Water Resources Control Board 2023). Key pollutants stem from agricultural and urban runoff containing fertilizers and pesticides, municipal wastewater discharges, and atmospheric deposition.

Additional stressors include vessel traffic, industrial discharges, and offshore oil and gas operations, which release a variety of pollutants including hydrocarbons (California State Water Resources Control Board 2023, Lyon and Stein 2010). This region is also home to the world's most prolific natural hydrocarbon seeps, especially in the Santa Barbara Channel and Santa Maria Basin. These natural seeps are the largest overall source of hydrocarbons to the marine environment in the region, frequently creating surface oil sheens and leading to tar balls washing ashore (Boles et al. 2023, Farwell et al. 2009, Hostettler et al. 2004, Luyendyk et al. 2003).

Monitoring indicates that contaminants are present in the area. NOAA's National Mussel Watch Program conducted a comprehensive survey along the Pacific Coast in 2024, assessing legacy pollutants, metals, and CECs. The survey continues to detect legacy organochlorine pesticides (like dichlorodiphenyltrichloroethane) and polychlorinated biphenyls (PCBs), particularly in urbanized coastal areas of Southern California (National Centers for Coastal Ocean Science 2024). The survey also screens for a wide array of CECs, including pharmaceuticals, industrial chemicals, and PFAS, which are increasingly detected in coastal ecosystems.

The impacts of chronic pollutant inputs are intensified by the effects of environmental changes, particularly ocean acidification and hypoxia (low oxygen levels). Nutrient loads from wastewater outfalls in the SCB exacerbate local acidification and hypoxia, and fuel harmful algal blooms (HABs), which have prompted shellfish advisories and harmed marine life (Ho et al. 2023, Kenitz et al. 2023, Southern California Coastal Ocean Observing System and Central and Northern California Ocean Observing System 2025). Plastic debris has also become a major water contaminant, with river and stormwater outfalls identified as primary pathways for microplastics entering the OCS (California Ocean Protection Council 2022, Sutton et al. 2016).

9.2.2.2 Pelagic Environment

In part due to its transitional nature, the California Current System hosts a wide variety of marine mammals, seabirds, sea turtles, marine fishes, and invertebrates. Subarctic species are more common in the northern portions of the region, while temperate and subtropical species generally are found farther south. The SCB represents either the northernmost or southernmost limit of distribution for 85% of species present there (Schiff et al. 2019). In years with warmer water temperatures, such as during an ENSO event or a marine heatwave, warm-water species can venture farther north with the warmer water. Spatial and temporal patterns of upwelling intensity and water mass variability influenced by large-scale cyclical climate processes like ENSO and the Pacific Decadal Oscillation (PDO) largely drive the distribution and abundance of pelagic communities in the Pacific Region (Keister et al. 2011, Lilly and Ohman 2021, Thompson et al. 2024).

Fish

In general, zooplankton communities are dominated by copepods and krill, but jellyfish can be locally dominant in upwelling systems like the California Current (Brodeur et al. 2008, Corrales-Ugalde et al. 2021). Marine heatwaves can generate warmer water icthyoplankton (e.g., larvae of anchovy, sardine, and hake and jack mackerel) off the coast of Oregon and Washington and cold-water fish larvae species close to shore in Southern California (Nielsen et al. 2020). HABs of the diatom *Pseudo-nitzschia sp*. can impact human and ecosystem health and are associated with warm phases of ENSO and PDO in Northern California and cool phases in Southern California waters (Sandoval-Belmar et al. 2023).

Large, open water, predatory species, such as white sharks, are present along the entire West Coast. Numerous commercially valuable pelagic species are also found in the Pacific Region, including salmon and steelhead, highly migratory species (Pacific tunas, swordfish, sharks, billfish), and coastal pelagic species (Pacific sardine, Pacific mackerel, northern anchovy, California market squid, krill) (NOAA Fisheries 2024l, 2025y). Two Pacific salmon stocks are overfished, the Klamath River fall Chinook and Queets River natural spring/summer Chinook (NOAA Fisheries 2024i). All OCS waters from the U.S.-Canada border to Point Conception, California, are designated EFH for Chinook, coho, and Puget Sound pink salmon (Pacific Fishery Management Council 2014).

In addition to fishing pressure, these commercially valuable fish species are affected by environmental changes within the California Current System. This pressure is particularly true for schooling pelagic fishes, such as herring, sardines, and anchovy; the Pacific sardine fishery has been closed (with limited exceptions) since 2015 due to low abundance linked to ocean temperature fluctuations, phytoplankton composition, and changes in upwelling strength (Villalobos et al. 2020) (Koenigstein et al. 2022, NOAA Fisheries 2024j). Fluctuations in the abundance of forage fish species can affect the entire ecological system, because many larger predators, such as birds and marine mammals, rely on them for food (Cury et al. 2000, Konar et al. 2019).

In 2024, the Chumash Heritage NMS was established. Covering 4,543 square miles of coastal and ocean waters, including the northern edge of the SCB, this newly established NMS overlaps with EFH and HAPCs for several fish species important to the Pacific Region (NOAA 2024c).

Marine Mammals

Marine mammals are abundant in the Pacific Region; some migrate through, while others are year-round residents. Humpback, including most Mexico and Central America DPSs, and blue whales travel to the Pacific Region to feed in the summer and fall; the central and southern California planning areas are particularly important feeding grounds for blue whales (Carretta et al. 2022). The eastern North Pacific DPS of gray whales travel through nearshore waters of the region each year during their migration between Alaska and Mexico (NOAA Fisheries 2024g). Harbor porpoises have resident populations in waters within 650 ft of the coast as far south as Point Conception in the Southern California Planning Area, while a wide variety of pelagic dolphin species are found farther offshore (Carretta et al. 2022, NOAA Fisheries 2025j).

Dall's porpoises are present along the entire West Coast in all four planning areas (NOAA Fisheries 2025f). In the Washington/Oregon and Northern California planning areas, killer whales are integral parts of the ecological setting. Southern resident killer whales generally reside in nearshore and inland waterways along the coast in the Washington/Oregon Planning Area; NMFS has extended critical habitat for this population to offshore waters of the Pacific Region to depths of 650 ft. Other populations of killer whales occur farther offshore. Additional cetaceans that occur in the Pacific Region include baleen whales (minke, sei, fin, and, rarely, Bryde's and North Pacific right whales) and toothed whales, including dolphins, porpoises, beaked whales, and sperm whales (Barlow and Forney 2007, Carretta et al. 2022).

Eight ESA-listed marine mammal species that occur or may occur in this region are the Guadalupe fur seal and blue, fin, humpback, North Pacific right, sei, Southern Resident killer, and sperm whales. In the California Coastal System, five main threats contribute to whale mortality: entanglement, vessel strikes, noise, water quality, and marine debris (Oldach et al. 2022). Resident semi-aquatic mammals of the California Current include California sea lions, Steller sea lion Eastern DPS, northern fur seals, northern elephant seals, and Pacific harbor seals (Barlow and Forney 2007, Carretta et al. 2022). These animals forage at sea and come to land to rest, give birth, and nurse their young.

Birds

The Pacific pelagic environment supports many seabirds year-round, including albatrosses, gulls, scoters, and brown pelicans (Leirness et al. 2021). Pelagic bird species spend much of their time on the water surface or diving for food in deeper waters farther from shore. Seabird species composition varies seasonally (Adams et al. 2014, Briggs et al. 1981, Leirness et al. 2021, Mason et al. 2007). In the Northern California Coastal System, Adams et al. (2014) reported similar densities of seabirds in the fall and winter and lowest densities in the summer. Species composition followed a similar trend, with highest diversity in the fall and lowest in the summer.

The occurrence of several marine heatwaves over the past decade has led to increased observations of tropical seabirds in the Northern California Coastal System (Russell et al. 2025). Seabird densities were highest along the inner shelf in waters less than 328 ft deep and lowest in offshore waters greater than 656 ft deep. Several ESA-listed species occur in the pelagic environment, including the short-tailed albatross, Hawaiian petrel, and Marbled Murrelet. Common offshore birds include storm-petrels, shearwaters, fulmars, phalaropes, jaegers, and alcids.

Sea Turtles

Sea turtles are occasionally observed in the Pacific Region, particularly in the southern regions of California. All sea turtles are listed and protected under the ESA. The most sighted species in this area is the leatherback sea turtle, which forages for prey along the coastal upwelling zone. The Pacific leatherback sea turtle makes a trans-Pacific journey from nesting beaches in Indonesia and the Solomon Islands to feed on dense aggregations of jellyfish off the coasts of California and Oregon (NOAA Fisheries 2025n). The warm currents along the California coast attract leatherbacks, especially during the feeding season, when they migrate from their nesting grounds in tropical regions (Benson et al. 2020). The North Pacific Ocean DPS of the loggerhead sea turtle and the East Pacific DPS of the green sea turtle also use the nutrient-rich waters OCS for foraging (NOAA Fisheries 2025o, Seminoff et al. 2021). Green sea turtles have been recorded in the SCB, primarily around kelp forests and coastal lagoons where they feed (Crear et al. 2016, 2017, MacDonald et al. 2012). Loggerhead turtles and olive ridley turtles have also been documented, although they are less frequently encountered in this region (Allen et al. 2013, Eguchi et al. 2018, NOAA Fisheries 2025t).

The continental shelf along the U.S. West Coast, particularly in California, offers diverse habitats that support sea turtles and their prey. As the continental shelf is relatively narrow and drops steeply at the shelf break, these turtles have access to rich feeding grounds in deeper waters. The complex topography of the continental borderland off Southern California further enhances the ecological diversity of the region, providing vital foraging and migratory routes for sea turtles.

9.2.2.3 Benthic Environment

The benthic habitats of the Pacific OCS are remarkably diverse, shaped by a narrow continental shelf, active tectonic processes, and dynamic oceanographic conditions. The seafloor encompasses vast stretches of soft-bottom habitats, rugged rocky reefs, and dramatic geological features such as submarine canyons and seamounts (CSA Ocean Sciences Inc et al. 2019). These varied environments support a complex mosaic of biological communities that are vital to the ecological health and economic productivity of the U.S. West Coast. Multi-agency initiatives, such as the EXPRESS (Expanding Pacific Research and Exploration of Submerged Systems) campaign, continue to map and characterize these deepwater habitats, providing crucial baseline information to inform resource management and decisionmaking for activities like offshore energy development (NOAA 2019b).

Deepwater coral and sponge communities are significant features of the Pacific benthic environment, creating structural hotspots of biodiversity. There are records of deepwater corals both on and off the shelf from Puget Sound, Washington, to San Diego, California. These communities are not vast reefs but tend to occur as discrete gardens or groves on hard substrates, serving as “islands” of productivity (within larger areas of homogeneous substrate) that provide essential shelter, feeding grounds, and nursery areas for a multitude of invertebrates and commercially important fish, particularly rockfish species (Duncan et al. 2023). These habitats occur across a wide range of depths and geologic features, from the continental slope to the steep walls of submarine canyons and the summits of seamounts.

Gorgonian corals (sea fans) are particularly abundant in areas like the Olympic Coast National Marine Sanctuary, within the canyons of the Monterey Bay National Marine Sanctuary, and on the slopes of the Davidson Seamount. Stony corals, such as *Lophelia* (now *Desmophyllum*), create reef-like structures in deeper waters off Southern California, while delicate sea pens and other soft corals can thrive in softer sediments throughout the region (Duncan et al. 2023, Kaplan et al. 2010).

Hard-bottom and soft-bottom habitats each support distinct biological assemblages. Rocky benthic zones in both shallow and deep waters are home to diverse macroalgae, sponges, sea urchins, octopuses, and California spiny lobsters. Soft-bottom habitats, composed of mud and sand, are the most common habitat type along the Pacific Coast. They support extensive benthic communities of burrowing organisms, including clams, polychaete worms, crustaceans, and various mollusks and echinoderms, which are a primary food source for bottom-dwelling fish (Cochrane et al. 2022, Henkel et al. 2014).

Within the Southern California Planning Area, rocky substrates interspersed with sand channels provide critical habitat for the endangered white abalone (NOAA Fisheries 2024n). This deep-dwelling mollusk, typically found at depths of 50 to 180 ft, feeds on drift kelp and suffers from critically low population densities that hinder reproduction (NOAA Fisheries 2024n).

Commercially vital crustaceans, such as the Dungeness and red rock crabs, are heavily dependent on coarse sandy and muddy substrates along the entire coast, supporting one of the most valuable fisheries on the West Coast (CDFW 2025a, Iribarne et al. 1995, NMFS 2018).

The Pacific Fishery Management Council (PFMC) has identified and designated EFH for more than 90 species of federally managed groundfish—including all rockfish, numerous flatfish, and some shark species—across all Pacific planning areas (Pacific Fishery Management Council 2025a). Key HAPC designations along the West Coast are focused on protecting structurally complex habitats like canopy kelp forests, rocky reefs, submerged aquatic vegetation (SAV) (e.g., seagrass beds) and estuaries. The PFMC has also identified “Areas of Interest”—including canyons, seamounts, and banks—as HAPCs and has implemented extensive “EFH Conservation Areas” prohibiting the use of bottom-contact fishing gear to protect sensitive benthic ecosystems such as deep sea coral and sponge gardens (Pacific Fishery Management Council 2025a).

Benthic ecosystems in the Pacific Region are increasingly threatened by changing environmental conditions and ocean acidification (Office of Environmental Health Hazard Assessment 2022). The California Current is naturally more acidic than other ocean regions and increasing atmospheric carbon dioxide is exacerbating this condition. Ocean acidification directly impedes the ability of calcifying organisms—including corals, crabs, and mollusks—to build and maintain their shells and skeletons. Negative impacts on the larval stages of oysters and other shellfish have been document and pose a significant threat to the survival of deep sea corals and the Dungeness crab fishery (NOAA Fisheries 2025ag, Office of Environmental Health Hazard Assessment 2022). Rising ocean temperatures also are causing shifts in species distribution and adding further stress to these vital benthic communities.

9.2.2.4 Coastal Environment

The coastal and marine environments of the Pacific Region are characterized by a remarkable diversity of habitats that support a rich biological assemblage. From the temperate rainforests of the north to the sunny southern shores, these ecosystems are shaped by dynamic oceanographic conditions, complex geology, and significant human interaction.

Along the entire U.S. Pacific Coast, wetlands—including estuaries, salt marshes, and tidal flats—represent foundational ecosystems. The Pacific OCS and its adjacent coastal habitats are a globally significant region for diverse species of birds. These highly productive areas are important for many resident and migratory bird species. Wetlands support enormous bird populations, with the San Francisco Bay Estuary being recognized as a site of hemispheric importance for shorebirds (National Audubon Society 2025, Western Hemisphere Shorebird Reserve Network 2025).

In Washington and Oregon, major estuaries such as Puget Sound, Willapa Bay, and Coos Bay serve as vital staging and wintering grounds for hundreds of thousands of shorebirds and waterfowl on the Pacific Flyway, including species like the western sandpiper, dunlin, and various geese and ducks (Bird Alliance of Oregon 2025, National Audubon Society 2025). Similarly, the Pacific Region's coastal wetlands, including California from Humboldt Bay to the Tijuana River Estuary, provide crucial nursery habitat for commercially important fish and invertebrates (Hughes et al. 2014).

While many terrestrial birds, such as songbirds and raptors, could transit the OCS during migration or weather-related displacement, the environment is of primary importance to seabirds and waterfowl. The coastline is a central thread in the Pacific Flyway, a migratory superhighway for billions of birds. Beyond providing stopover habitat, the offshore marine environment itself is a critical foraging ground for numerous pelagic (open-ocean) birds that spend most of their lives at sea, including various species of albatross, shearwater, Storm-Petrel, and murre.

The islands in the continental borderland and surrounding SCB waters serve as breeding and foraging habitat for seabirds such as Scripps's (Xantus's) murrelet (Leirness et al. 2021), pinnipeds (including northern elephant seals, California sea lions, harbor seals, northern fur seals, and Guadalupe fur seals), and many species of whales and dolphins. The SCB also contains important habitat for the early life stages of many commercially and recreationally valuable fish species, including several rockfish species and California halibut (Allen et al. 2022, Kramer 1991, Love et al. 1990, Thompson et al. 2016).

Although no sea turtle species are known to nest on the U.S. Pacific Coast, the California Current Large Marine Ecosystem, which encompasses the OCS, provides an essential migratory corridor and foraging area for several threatened and endangered species. Recent studies confirm a year-round presence of green turtles in Southern California, where they are increasingly observed foraging on seagrass and algae in coastal estuaries and using the warm-water effluent from power plants (Massey et al. 2023).

The region's rocky intertidal zones are renowned for their biological richness and distinct vertical zonation of life, shaped by wave energy and daily tidal fluctuations. These habitats are home to a dense and complex web of macroalgae and invertebrates, including mussels, sea stars, anemones, chitons, and limpets. These communities are now experiencing significant stress and reorganization due to environmental changes (Kaplanis et al. 2024).

Marine heatwaves, such as the 2014–2016 event, have triggered mass mortality events and regime shifts, with some species failing to recover, highlighting the low resilience of these ecosystems to sustained thermal stress (Meunier et al. 2024). Two of the most prominent inhabitants of these rocky shores are the federally listed endangered black abalone and white abalone; both species have suffered severe declines from historical overfishing and are susceptible to environmental changes. NOAA has designated critical habitat from the high tide line to a depth of 6 m along much of the central and Southern California coast to support the recovery of black abalone.

9.2.2.5 Human Environment

Population

The Pacific Region is home to approximately 32.7 million coastal residents (NOAA Office for Coastal Management 2025a, c, d), including the members of 147 federally recognized Tribes (109 in California, 29 in Washington, and 9 in Oregon) (Judicial Branch of California 2025, Oregon State Legislature 2016, Washington Tribes 2025). These communities often depend on coastal and marine resources for food, health, employment and income, and other socioeconomic and cultural factors.

There is diverse demography in the region. Approximately 40% of California residents are non-white. Some areas in Southern California and in the San Francisco Bay have 32% to 60% of non-white residents (NOAA Office for Coastal Management 2025b); in Washington and Oregon, 13% of residents are non-white (NOAA Office for Coastal Management 2025b). Northern California, urban Southern California, the Central Oregon Coast, and areas around the Salish Sea in Washington have the highest poverty rates (13% to 19%) in the Pacific Region (NOAA Office for Coastal Management 2025b).

Ocean Economy

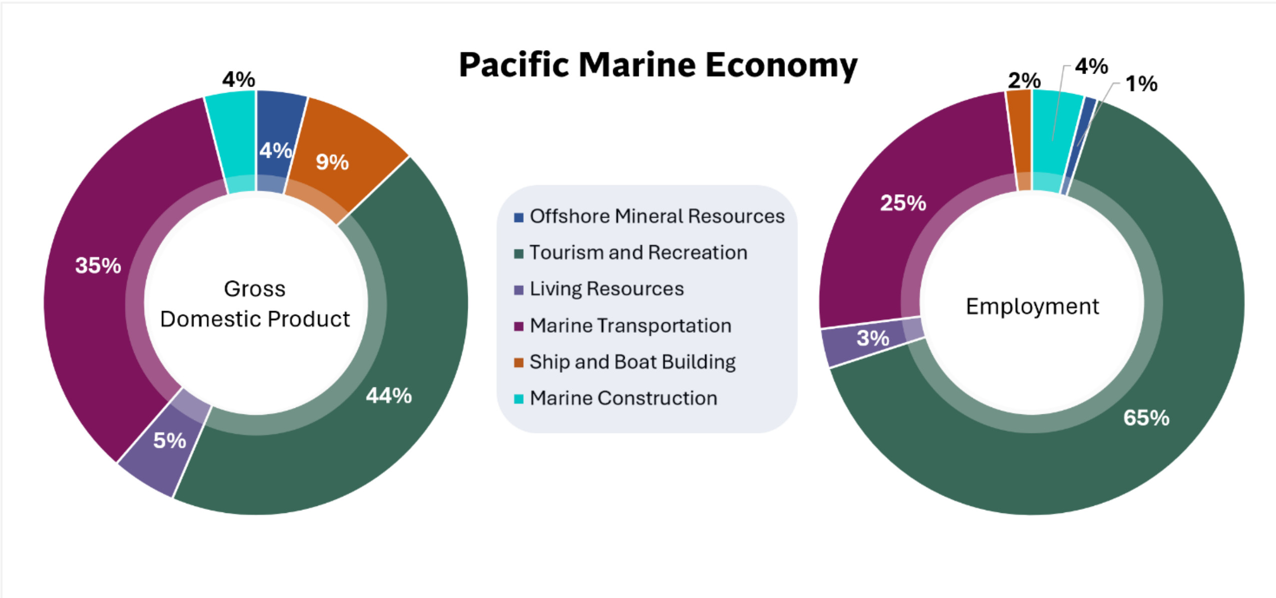
The Pacific Region has 39 coastal counties (U.S. Census Bureau 2023) and five major container ports (BTS 2025b). Northern and central California are primarily rural and forested (except for the San Francisco Bay area) and support agricultural production—primarily fruits, vegetables, and grapes (Cole et al. 2024). Southern California has large urban centers in Los Angeles, Orange, and San Diego counties (U.S. Census Bureau 2023). Apart from the greater Seattle area, which is near the Puget Sound and home to major U.S. ports, most coastal areas in Washington and Oregon are largely undeveloped or rural because most major population centers are inland (USDA 2017). Natural resource-based industries (i.e., timber and forest products, fishing, seafood processing, ship building, aquaculture, and tourism) play an important role in the coastal Washington and Oregon culture (Bates et al. 2018, Hoelting and Burkardt 2017).

The Pacific Region is ranked number two out of eight national coastal regions for employment and GDP (NOAA Office for Coastal Management 2024a). In 2021, the Pacific Region's marine economy[32] employed 673,697 people (3.4% of total regional employment), bringing in $69.6 billion dollars in GDP (NOAA Office for Coastal Management 2024a). In terms of employment and GDP, recreation and tourism are the most important sector for the Pacific Region's marine economy, producing 44% of the total GDP derived from the region's marine economy (NOAA Office for Coastal Management 2025b) (see Figure 9-4). Chapter 8 provides additional

[32] Marine construction, offshore mineral resources, tourism and recreation, living resources, ship and boat building, and marine transportation sectors make up the marine economy (NOAA 2021c).

information on other uses of the OCS, including the importance of commercial and recreational fishing in the Pacific Region.

Figure 9-4: Pacific Region's Marine Economy, Percentages by Sector



Source: NOAA Office for Coastal Management (2024a)

Commercial and Recreational Fisheries

Commercial and recreational fishing are economically and culturally important to several coastal communities of the Pacific Region. Salmon and crab are hallmark fisheries along the Pacific Coast (NOAA Fisheries 2023b). Forage fish species, such as squid and sardines (pre-1950), are important fisheries (CDFW 2014) and have long influenced dockside infrastructure in the Southern and Central California. Harvesting, sharing, and using wild resources, including coastal fishing activities, is part of the traditional livelihood, serving as a source of income and subsistence, for many rural coastal communities, most notably in Washington, Oregon, and Northern California (NMFS 2024d). Recreational fishing is especially economically important to coastal communities and harbors in Southern California (NMFS 2024d, NOAA Fisheries 2023b).

Recreation and Tourism

In the Pacific Region, visitors and residents alike enjoy and partake in various onshore and offshore marine recreational activities—such as surfing, wildlife-viewing tours, recreational fishing and boating, beach-going, hiking, scuba diving, and paddleboarding—to support their well-being and quality of life (Barfield and Landry 2019, Best Surf Destinations 2023, Point 97 and Surfrider Foundation 2015). The Washington coast provides opportunities for visiting coastal NWRs, whale watching in the San Juan Islands, beach-going and marine fishing (Industrial Economics Inc. 2014b). Scully-Engelmeyer et al. (2021) concluded that Oregonians most value coastal aesthetics, biodiversity/wildlife, beach recreation, and non-motorized recreation (e.g., surfing, kayaking). BOEM (2024a) presents a detailed table of recreational hot spots and popular activities in California.

Cultural Resources

Several thousand historical and pre-contact sites, some dating from the 18th century, have been identified along the coasts and offshore waters of Washington, Oregon, and California (Braje et al. 2019, ICF International et al. 2013, Ludwin et al. 2005). Submerged archaeological artifacts—including shipwrecks, pre-contact sites, submerged villages, and inundated paleolandscapes—have been identified on the Southern California and central Oregon OCS. These sites offer insights into Native American history, Spanish missions, and the Gold Rush era.

Many indigenous people, minorities, and low-income coastal residents rely on subsistence from the Pacific Region. Chinook salmon and steelhead are the most known, particularly in Northern California (PFMC 2025) and Washington; however, other species—such as soles, rockfish, and Pacific whiting and sablefish—are important marine subsistence species (NOAA Fisheries 2025v).

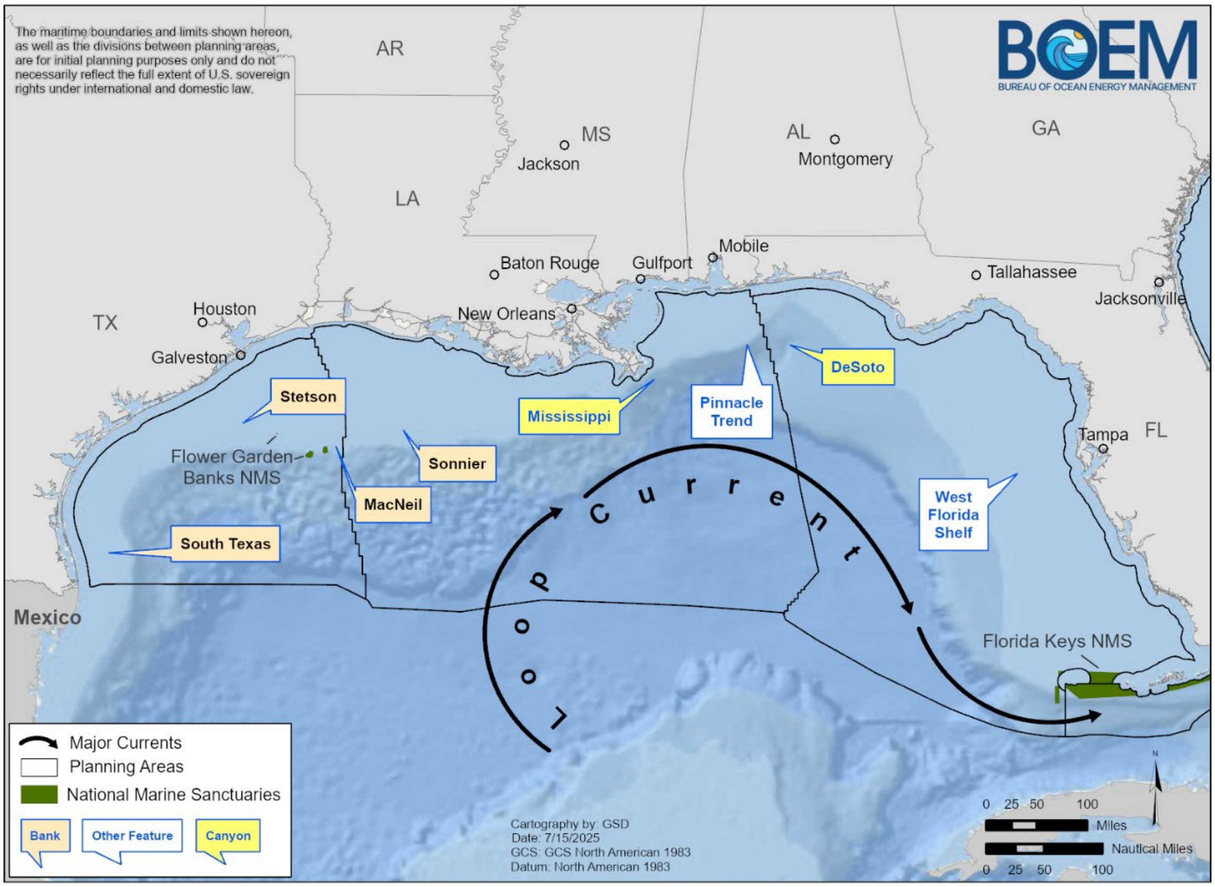
Each year, Tribal communities in Washington, Oregon, and Northern California participate in marine-related activities that are central to their sociocultural traditions. For example, the Makah Tribe in Washington is renowned for its whaling traditions (NOAA Fisheries 2025p). Additionally, the Pacific Region is home to the first-ever Indigenous Marine Stewardship Areas, where the Resighini Tribe of the Yurok People, the Tolowa Dee-ni' Nation, and the Cher-Ae Heights Indian Community of the Trinidad Rancheria agreed to collaboratively steward nearly 700 square miles (mi^2) of ocean and coast from the California-Oregon border to Trinidad, California (Tolowa Dee-ni' Nation 2025). Additionally, the new Chumash Heritage NMS was established in 2024 in part to honor the cultural significance and submerged ancestral lands of the Chumash Peoples (NOAA 2024c).

9.2.3 Gulf of America Region

9.2.3.1 Physical Environment

The GOA Region comprises the U.S. portion of the GOA, which is a semi-enclosed water body with a diameter of roughly 950 miles. The GOA has a surface area of roughly 600,000 mi^2 and 17,141 miles of shoreline from the southern tip of Texas east to the Florida Keys (National Centers for Environmental Information 2020, NOAA 2016) (Figure 9-5). The maximum depth is more than 14,000 ft (Turner and Rabalais 2019).

Figure 9-5: Major Features of the GOA OCS



The U.S. GOA OCS waters are in the northern part of the GOA, offshore the states of Texas, Louisiana, Mississippi, Alabama, and Florida. The southern part of the GOA is below the U.S-Cuba and U.S.-Mexico maritime boundaries. The focus of this analysis is on the U.S. OCS; therefore, this discussion does not include Mexican or Cuban waters.

There are geologic differences between the Eastern GOA continental shelf along Florida and the remainder of the northern GOA continental shelf (Buster and Holmes 2011). The continental shelf in the Western GOA is broadest (up to 135 miles) off Houston, Texas, and east to offshore the Atchafalaya Delta, Louisiana. It reaches its narrowest point (less than 10 miles) near the mouth of the Mississippi River southeast of New Orleans, Louisiana. The continental shelf is narrow offshore Mobile Bay, Alabama, but broadens significantly offshore Florida to almost 200 miles wide (Brooke and Schroeder 2007).

Physical Oceanography

The GOA is a subtropical, semi-enclosed sea that is connected to the Atlantic Ocean through the Florida Strait and the Caribbean Sea through the Yucatan Channel.

Circulation in the open GOA is dominated by the Loop Current, a warm-water segment of the Gulf Stream that flows into the Gulf through the Yucatan Channel, looping counterclockwise into the northeastern Gulf before exiting through the Florida Strait (Hamilton et al. 2015, Sturges et al. 2005). The northward extent of the Loop Current is variable and forced by seasonal winds in the Caribbean and the GOA, with the greatest Loop Current transport in the summer and winter, when trade winds in the Caribbean are strongest (Chang and Oey 2012).

The Loop Current sheds anticyclonic (counterclockwise) eddies—also known as warm-core rings—at irregular intervals of 4–18 months. These eddies typically move west-southwest through the Gulf until they interact with the shelf (Hamilton et al. 2015). Smaller cyclonic eddies (clockwise)—or cold-core rings—collect around the periphery of the Loop Current and any shed warm-core rings, leading to a patchwork of upwelling and downwelling in the open Gulf (Sturges et al. 2005).

Seasonal hurricanes occur in late summer and fall, and these storms can intensify when interacting with warmer waters of the Loop Current (Radfar et al. 2024, Shay and Uhlhorn 2008). Hurricanes also cause water column mixing, cooling, and coastal surges and can disrupt and dissipate Loop Current eddies as they transit the Gulf (Potter et al. 2021).

Rivers deliver vast amounts of freshwater, nutrients, and sediment into the GOA. The Mississippi and Atchalafaya rivers in the northern Gulf contribute the most, although smaller rivers can be important locally throughout the Gulf Coast. The Mississippi River alone drains 41% of the continental United States (McKinney et al. 2021, Turner and Rabalais 2019). In coastal waters, especially the wide West Florida Shelf, circulation is driven by local winds, freshwater stratified coastal currents, and occasional interactions of the Loop Current with the shelf (Weisberg and Liu 2021). The tidal range of the GOA is small—usually less than 2 ft—but tides can play a major role in the circulation of the Gulf's many large estuaries, like Charlotte Harbor and Tampa Bay in Florida and Mobile Bay, Alabama (Justić et al. 2021).

Air Quality

Oil and gas operations, combined with other anthropogenic activities, have the potential to degrade air quality along the Gulf Coast. Historically, air pollution along the Texas and Louisiana coasts has been higher than other coastal areas in the GOA due to oil and gas operations.

Most of the Gulf Coast meets the NAAQS. The primary exception is the Houston area, which is in nonattainment for ozone. There are also several smaller sulfur dioxide nonattainment zones in Texas and Louisiana (USEPA 2025b) (i.e., the St. Bernard Parish in Louisiana, which includes the eastern portions of the New Orleans metropolitan area) and the Breton Wilderness Area (a Class I Area). Other Class I Areas in the region are within attainment, including Bradwell Bay, St. Marks, and Chassahowitzka Wilderness Areas and Everglades National Park in Florida (USEPA 2024).

Water Quality

Water quality in the GOA is a multifaceted issue. It is generally rated as fair and is shaped by the immense drainage basin of the North American continent. The Mississippi River brings freshwater, nutrients, sediment, and pollutant loads to the GOA (Turner and Rabalais 2019). This system delivers vast loads of agricultural runoff, which is the primary driver of the Gulf's biggest recurring environmental issue: an area of hypoxia (low oxygen) that forms each year near the mouth of the Mississippi. The influx of nutrients stimulates huge algal blooms, whose subsequent decomposition depletes bottom waters of oxygen, harming marine life and vital fisheries (Mississippi River/Gulf of Mexico Watershed Nutrient Task Force 2023, Rabalais and Turner 2019, Turner and Rabalais 2019). For summer 2025, NOAA forecasts this dead zone to be approximately 5,574 mi^2, fueled by above-average phosphorus loads from the watershed (National Ocean Service 2025).

In addition to this hypoxia zone, HABs, often referred to as red or brown tides, occur almost annually in the Gulf. The most prominent HAB threat is from the dinoflagellate *Karenia brevis*, which produces potent neurotoxins and can cause respiratory irritation in humans along Gulf beaches. These blooms present direct risks to marine ecosystems and human health (Florida Fish and Wildlife Conservation Commission 2025c, Florida Health 2024, Heil and Muni-Morgan 2021). Localized water quality is also frequently impaired by high bacteria levels, leading to regular public health advisories and beach closures, as seen in Florida and Louisiana in 2025 (Florida Health 2024, Louisiana Department of Health 2025, Wagner 2024). Storm events also have a substantial impact on the quality of coastal waters in the GOA by causing turbidity and runoff.

The GOA's water quality is further impacted by a mix of natural and industrial activities. Natural geologic seeps are the largest overall source of oil in the Gulf (contributing 95% to the total oil inputs from natural and anthropogenic sources combined), but chronic spills and operational discharges from the extensive oil and gas infrastructure also affect water quality (Daneshgar Asl et al. 2016, Kvenvolden and Cooper 2003, MacDonald et al. 2015, Uribe-Martínez et al. 2024).

Monitoring across the GOA yields mixed results in levels of detected chemical contaminants, with higher concentrations often clustered around industrialized coastal zones. NOAA's most recent basin-wide mussel watch survey analyzed sediment and bivalve tissues, detecting a range of pollutants such as trace metals, legacy organic compounds like PCBs and PAHs, and numerous CECs, such as PFAS (National Centers for Coastal Ocean Science 2023).

The highest contaminant levels were typically found near major urban and petrochemical hubs, although most concentrations remained below established seafood consumption advisory thresholds (Kennicutt II 2017, National Centers for Coastal Ocean Science 2023). Recent studies show that "forever chemicals" are entering coastal food webs, with measurable levels found in organisms like sand dollars in Tampa Bay (Bowden et al. 2025, Swam et al. 2023). Microplastic pollution has emerged as another pervasive challenge, with debris found throughout the marine environment. Bays can act as transport systems, continuously exporting microplastics into the open Gulf, where they are ingested by marine life (Grace et al. 2022).

9.2.3.2 Pelagic Environment

Nutrient inputs to the GOA are highest in coastal areas due to freshwater discharges from rivers like the Mississippi and Atchafalaya, creating a cross-shelf gradient in productivity that declines offshore (Cardona et al. 2016, Karnauskas et al. 2013, Selph et al. 2022). Too much nutrient input can lead to hypoxia in shallower waters, which can decrease zooplankton concentrations (Kimmel et al. 2010). Beyond the shelf, the Loop Current introduces low-nutrient waters to the GOA and nutrient levels and phytoplankton productivity are low, with phytoplankton assemblages dominated by small species (Selph et al. 2022). The nitrogen-fixing cyanobacteria *Trichodesmium* can be abundant in Gulf surface waters, providing a local source of nitrogen to otherwise nutrient-poor waters and acting as a nutrient source for the red-tide-producing dinoflagellate *Karenia brevis* in coastal waters (O'Neil et al. 2024).

The brown algae *Sargassum* is an important feature of GOA pelagic waters; it can form floating mats large enough to be detectable by satellite (Hardy et al. 2018, Hu et al. 2016). These mats can originate in the GOA or be transported into the Gulf from the Caribbean through the Yucatan Channel (Zhang et al. 2024). *Sargassum* mats provide food and protection from predation for a wide spectrum of fauna, including larval and juvenile fish and sea turtles (Casazza and Ross 2008, Dooley 1972). Because of the abundance of small fishes that typically assemble under *Sargassum* mats, larger predatory fish, birds, and marine mammals routinely forage in the vicinity of *Sargassum* mats (Casazza and Ross 2008, Moser and Lee 2012). More recently, large rafts of *Sargassum* washing ashore onto beaches have become a public health concern (Jouanno et al. 2025).

Fish

Loop Current eddies form productive fronts that serve as key spawning and feeding zones for pelagic species (Gerard et al. 2022, Zimmerman and Biggs 1999). These features are vital for larval transport and influence zooplankton distribution and abundance (Biggs and Ressler 2001, Lindo-Atichati et al. 2012, Muller-Karger et al. 2015). The GOA supports one of the most species-rich larval fish assemblages in the world (Sutton et al. 2017), providing important food resources for higher trophic levels (Biggs and Ressler 2001, Gerard et al. 2022), including the ESA-listed endangered Rice's whale (Kiszka et al. 2023).

The composition of pelagic fish varies from the inner shelf (e.g., seatrout and cobia), to middle shelf (e.g., snappers and jacks), and to deep waters (e.g., tunas and mesopelagic fish like lanternfish and bristlemouths) (Biggs and Ressler 2001, Ditty et al. 1988, Wang et al. 2021). Pelagic species such as blue marlin, tuna, and sharks are often among the top predators. These open-ocean animals can travel long distances and occupy a wide geographic area. Many fish spawn in the GOA, including some highly migratory species such as Atlantic bluefin tuna, which spawn in late spring and early summer (Gerard et al. 2022, NOAA Fisheries 2025ah). Many pelagic fishes have EFH in the GOA and are present seasonally or year-round.

The ESA-listed oceanic whitetip and scalloped hammerhead sharks are both found in the GOA offshore waters (NOAA Fisheries 2025s, 2025aa). Gulf menhaden inhabit GOA shelf waters to 328-ft (100 m) depth and support one of the largest commercial fisheries in the United States. The GOA Region is home to three different types of shrimp: brown, white, and pink. Pink shrimp are most abundant off the western coast of Florida in the Eastern GOA Planning Area, while brown and white shrimp are found throughout the GOA (NOAA Fisheries 2025d, w, 2025ai).

The *Deepwater Horizon* oil spill had lasting effects on the pelagic food web and throughout the water column in the GOA (Fisher et al. 2016, Pulster et al. 2020, Sutton et al. 2022), with chronic exposure to hydrocarbons affecting pelagic populations years after the spill. Phytoplankton and zooplankton were vulnerable to the spill's impacts but were able to recover from the spill relatively rapidly and showed high resilience (Daly et al. 2021). Additionally, large numbers of fish eggs and larvae were killed or potentially impaired, which could have lasting effects on species' demographics and pelagic food webs (Deepwater Horizon Natural Resource Damage Assessment Trustees 2016, Sutton et al. 2022).

Birds

Common pelagic birds include shearwaters, storm-petrels, boobies, gannets, jaegers, phalaropes, petrels, gulls, and terns (Duncan and Havard 1980, Haney et al. 2025). Species abundance and presence vary by season and in relation to mesoscale features (e.g., the Mississippi River freshwater plume and oceanic eddies) (Ribic et al. 1997). A recent study identified 117 marine and water bird species in the northern GOA waters (Haney et al. 2025). Several of these seabirds rely on the *Sargassum* mats to feed and rest (Moser and Lee 2012). Recent studies indicate that the black-capped petrel, listed as endangered under the ESA, can be found in the northern GOA and is highly associated with dynamic waters of the Loop Current (Jodice et al. 2021).

Sea Turtles

All sea turtles that occur in OCS waters are listed under the ESA. Five species occur in the GOA planning areas: loggerhead, green, hawksbill, Kemp's ridley, and leatherback (NOAA Fisheries 2025h, k, m, n, o, Sasso et al. 2021). These species rely on coastal and pelagic waters for foraging (Bjorndal 1997, Collard 1990, Davis and Fargion 1996, Fritts et al. 1983a, Fritts et al. 1983b, Godley et al. 2008, NMFS and FWS 2015, Sasso et al. 2021). Loggerhead turtles range from tropical to temperate regions around the world, but the GOA is a particularly important area for this species.

In the pelagic environment, floating *Sargassum* patches in the Western and Central GOA planning areas are federally designated under the ESA as critical habitat for loggerhead turtles.

Both green and loggerhead sea turtles have had increasing numbers in the GOA (Lasala et al. 2023).

Marine Mammals

Twenty-one species of marine mammals regularly occur in the GOA pelagic environment: one baleen whale (Rice's whale, which was previously considered to be the GOA subpopulation of Bryde's whale) and 20 species of toothed whales and dolphins (Hayes et al. 2022, Hayes et al. 2023). Both the Rice's and sperm whales are ESA-listed and have presumed year-round resident populations in the GOA (NMFS 2024a, Van Parijs 2015). The best abundance estimate available for northern GOA Rice's whales is 51 individuals (Garrison et al. 2024); therefore, any mortality events could affect the population's survival. Sperm whales occur throughout the GOA and can dive to depths exceeding 10,000 ft to feed. The best abundance estimate available for sperm whales in the GOA is 1,180 individuals (Garrison et al. 2020).

Sighting records and acoustic detections of Rice's whales in the northern GOA occur almost exclusively in the northeastern Gulf in the DeSoto Canyon area (Hayes et al. 2023). However, recent limited evidence shows that the Rice's whale could be present in the area between the 100-m and 400-m isobaths across the northern GOA (Soldevilla et al. 2022). In 2023, NMFS issued a proposed critical habitat designation for Rice's whale; the proposed designation includes waters from the 100-m isobath to the 400-m isobath in the GOA. The final rule designating critical habitat for the endangered Rice's whale in the GOA is delayed until July 2027.

9.2.3.3 Benthic Environment

The benthic environment of the GOA OCS is a complex and varied seascape shaped by unique geological formations and dynamic oceanographic processes. The seafloor across the northern GOA is distinctly influenced by the upward movement of vast, underlying salt deposits, which create hundreds of salt domes. These structures are not only linked to significant oil and gas reservoirs but also give rise to brine pools and widespread hydrocarbon seeps that support unique biological communities.

The seabed is predominantly composed of soft, unconsolidated muddy and sandy sediments that blanket the wide continental shelf. These soft-bottom areas, which extend from the coast to the shelf break, are vital habitats for a diverse array of infaunal (living within the sediment) and epifaunal (living on the sediment) organisms. This benthic invertebrate community, in turn, supports commercially important demersal fish populations.

Interspersed across the shelf are scattered hard-bottom habitats, including relict coral reefs, carbonate banks, and rocky pinnacles, which provide critical structural complexity in an otherwise relatively flat environment (Rowe and Kennicutt II 2009). Major bathymetric features, such as seamounts and canyons (e.g., Mississippi and DeSoto Canyons), are found along the continental shelf and slope, funneling nutrients and serving as crucial feeding grounds and corridors for pelagic predators, turtles, and marine mammals (Brooks and Darnell 1991) (CSA Ocean Sciences Inc et al. 2019, National Centers for Environmental Information 2013, Spies et al. 2016).

Extensive nearshore and shelf areas in the GOA have been recognized for their ecological and economic importance and are designated as EFH for many federally managed species, including brown shrimp, spiny lobster, stone crab, and red snapper (Gulf Council 2005, NMFS 2024c). Coral reefs and their associated hard-bottom habitats are particularly significant—providing shelter, foraging, and spawning sites for numerous invertebrate and fish species, notably those in the valuable snapper-grouper complex (Gulf Council 2005). Consequently, these areas have also been designated as EFH.

Furthermore, specific high-value subsets of EFH have been identified as HAPC due to their rarity, sensitivity to disturbance, or important ecological function. Many HAPCs have been established in the GOA to protect living coral communities on banks and pinnacles, including those that harbor coral species listed as threatened under the ESA, such as elkhorn and staghorn corals in shallower waters (Gulf Council 2005, NOAA Fisheries 2024c, 2025af). Coral EFH includes hard-bottom areas on the scattered pinnacles in the Central and Eastern GOA planning areas, and banks in the Central and Western GOA planning areas (Gulf Council 2016).

The Flower Garden Banks National Marine Sanctuary (FGBNMS) is a biodiversity hotspot renowned for its vibrant coral, algal, and benthic communities (BOEM 2016b, Johnston et al. 2013, NOAA 2020). The sanctuary protects the northernmost coral reefs in the continental United States, which exhibit exceptionally high coral cover. In 2021, the sanctuary was expanded significantly from 56 to 160 mi^2, adding 14 additional banks and reefs that provide critical habitat for a wide range of marine life, from deep sea corals to commercially important fish spawning aggregations (Flower Garden Banks National Marine Sanctuary 2021).

Deeper still, beyond the shallow reefs, deepwater coral and sponge communities thrive in the cold, dark waters of the continental slope at depths of up to 3,000 m (BOEM 2012, Brooks et al. 2012, Demopoulos et al. 2017). Reef-building stony coral *Desmophyllum* (formerly *Lophelia*) and various octocorals like *Callogorgia* create extensive, three-dimensional habitats. These deep sea ecosystems, along with newly discovered sponge gardens, are hotspots of biodiversity, providing essential habitat for a multitude of associated invertebrates and fish. These habitats are often found on hard substrates on the continental slope, including the submerged structures of offshore oil and gas platforms (BOEM 2021b, Brooke and Schroeder 2007, Demopoulos et al. 2017, NOAA 2013, NOAA Fisheries 2023a, Sammarco 2014).

The GOA is also home to at least 330 known chemosynthetic communities. These remarkable ecosystems derive their energy from chemical reactions involving hydrocarbons seeping from the seafloor. These communities, often associated with salt dome geology, form oases for life in the deep sea, creating long-lived, complex habitats (BOEM 2016b, Byrnes et al. 2017). Foundation species, such as tubeworms and mussels, form dense aggregations that provide shelter, nursery grounds, and feeding opportunities for a diverse suite of associated fauna (BOEM 2017c, Fraser and Sedberry 2008). Some tubeworm individuals have been estimated to live for centuries, and the slow growth rates and longevity of the foundation species mean that the communities they form can be thousands of years old, representing stable, ancient ecosystems (Joye 2020, MacDonald et al. 1996, Powell 1995).

The GOA's extensive oil and gas infrastructure has also become a significant component of the region's benthic habitat. Thousands of submerged platform legs and cross-braces function as *de facto* artificial reefs, attracting vast numbers of fish and other marine organisms. Through the Federal Rigs-to-Reefs Policy, many decommissioned platforms have their underwater structures (jackets) left in place or relocated to designated areas, where they are managed by coastal states as permanent artificial reefs. These structures provide a significant amount of hard substrate, which is otherwise limited in the GOA, and support robust reef fish communities (BSEE 2023). In addition to repurposed platforms, other materials such as concrete pyramids and intentionally sunk vessels are strategically deployed to create and enhance reef fish habitat.

The benthic environments of the GOA face mounting pressures from a combination of stressors. Rising average water temperatures are altering species distributions, enabling the northward expansion of some tropical species while compelling others to seek refuge in deeper, cooler waters (Fodrie et al. 2010, Pinsky et al. 2019, Pinsky et al. 2013, Precht and Aronson 2004). Increasing ocean acidification threatens the ability of corals, shellfish, and other calcifying organisms to build and maintain their skeletons and shells (Osborne et al. 2022). The invasion of the Indo-Pacific lionfish, first documented in the GOA in 2010, has had profound ecological impacts. These voracious predators compete with and prey upon native species, including economically important vermilion snapper and various reef fish, and have been shown to reduce the recruitment of juvenile native fish on reefs by more than 75% (Dahl et al. 2019, Dahl and Patterson III 2014, NOAA Fisheries 2025l).

Furthermore, the long-term effects of the *Deepwater Horizon* oil spill continue to be studied. The spill caused significant injury to deep sea coral communities, soft-sediment benthic organisms, and a range of EFHs. While some fish populations have shown signs of recovery, persistent contamination in deep sea sediments and chronic impacts on long-lived, slow-growing species like deep sea corals remain a significant concern (Deepwater Horizon Natural Resource Damage Assessment Trustees 2016, Fisher et al. 2014, White et al. 2012).

9.2.3.4 Coastal Environment

The coastal and marine environments of the GOA Region represent one of the most productive and ecologically significant systems in the United States. This vast area, encompassing more than 750 bays and estuaries, is a complex mosaic of habitats that provide vital nursery and adult functions for a dense and diverse array of fish, invertebrates, sea turtles, birds, and marine mammals such as manatees (Byrnes et al. 2017, NOAA 2025d, USEPA 2021). The region's immense biological productivity supports some of the Nation's most valuable commercial and recreational fisheries. However, these invaluable coastal ecosystems face a suite of intense and compounding pressures, including historic and ongoing wetland loss, habitat degradation from coastal development, and the long-term ecological consequences of events like the *Deepwater Horizon* oil spill (Ballut-Dajud et al. 2022, Rabalais and Turner 2016, Zengel et al. 2002).

The Gulf's nearshore environment is characterized by a broad diversity of habitats, including extensive salt marshes, mangrove forests, seagrass beds, and non-vegetated mudflats and shoals (Gulf Restoration Network 2001, Lang et al. 2024, Mendelssohn et al. 2017). The region's coastal wetlands are of global importance but have experienced catastrophic losses, particularly in Louisiana. Since the 1930s, Louisiana alone has lost nearly 1,900 mi^2 of coastal land, primarily due to the combined impacts of leveeing of the Mississippi River—which has starved the delta of crucial, land-building sediment—combined with subsidence and sea level rise (Couvillion et al. 2017, Lang et al. 2024, USFWS 2023). This loss continues at an alarming rate, fundamentally altering the coastal landscape and reducing its capacity to buffer inland communities from storm surge.

In the warmer waters of the Eastern Gulf, particularly Florida, mangrove forests and expansive SAV, or seagrass meadows, are important habitats. SAV, including 26 seagrass species and attached macroalgae, underpin critical ecological functions and serve as essential foraging grounds, provide habitat for marine life, improve water quality, and provide foundational nursery habitat for commercially important fish and invertebrate species (Carter et al. 2011, Cosentino-Manning et al. 2015, Yarbro and Carlson Jr. 2016).

These nearshore habitats are also important for numerous federally protected species. The Eastern GOA includes most of the habitat for the ESA-listed threatened West Indian manatee (Florida manatee), whose range is primarily centered in the bays, sounds, and estuaries of Florida but can extend into Texas (Cornish 2015, FWS 2025a, USFWS 2013)2025). The shallow bays, sounds, and seagrass beds of Florida are the core habitat for the threatened West Indian manatee, which feeds upon SAV. Mangroves and estuaries serve as nurseries for species like the ESA-listed smalltooth sawfish and Gulf sturgeon, and support oyster and shrimp fisheries (National Centers for Environmental Information 2025, NOAA Fisheries 2025ae, Whitfield 2016). Mangrove-fringed estuaries in southwestern Florida are designated as critical habitat for the U.S. distinct population segment of the smalltooth sawfish, and the Gulf sturgeon relies on a network of coastal rivers and estuaries for spawning and foraging (NOAA Fisheries 2025i, 2025ae).

Stretching along more than half of the Gulf Coast, barrier islands are dynamic ecosystems that provide a first line of defense against storms (mitigating erosion) and provide critical habitat for migratory birds, sand-dwelling crustaceans (e.g., mole crabs, ghost shrimp, clams), and burrowing small mammals (e.g., ESA-listed beach mice, rabbits) (BOEM 2015, Britton and Morton 1989, Dolan and Lins 1987, McLachlan and Brown 2006, Rosati 2009, Zinnert et al. 2019). These islands support unique communities of sand-dwelling crustaceans and are the primary nesting grounds for colonial seabirds and migratory shorebirds. They also harbor several subspecies of ESA-listed beach mice, which are dependent on intact dune systems for their survival (FWS 2025b).

The Gulf Coast is a globally important region for birds, supporting immense populations of resident and migratory species that rely on its diverse habitats. Both resident and migratory bird species rely heavily on the coastal habitats (i.e., beaches, mudflats, salt marshes, coastal wetlands, and embayments) found in the GOA Region. Resident species are present throughout the year and do not migrate. Eight ESA-listed bird species occur in the northern GOA, including black-capped petrel, cape sable seaside sparrow, Mississippi sandhill crane, piping plover, roseate tern, rufa red knot, whooping crane, and wood stork.

Coastal wetlands, beaches, and mudflats are crucial stopover and wintering sites for hundreds of species using the Mississippi and Central flyways. In the northern GOA, federally listed bird species, including the piping plover, depend on undisturbed beaches and sandflats for wintering. Large-scale restoration projects, funded through the *Deepwater Horizon* settlement, have demonstrated remarkable success, creating and enhancing vital nesting habitat for thousands of brown pelicans and other colonial waterbirds and offering a model for future coastal resilience efforts (Khalil et al. 2020, NOAA Fisheries 2025x).

The Gulf Coast barrier islands are also indispensable for ESA-listed sea turtles, such as Kemp's ridley and loggerhead turtles (Ceriani et al. 2019, National Centers for Environmental Information 2013, Valverde and Holzwart 2017). The Kemp's ridley turtle has primary distribution in the GOA and nests almost exclusively on certain beaches in southern Texas and Tamaulipas, Mexico (National Centers for Environmental Information 2013). In contrast, the threatened loggerhead sea turtle in the GOA nest in the Eastern Gulf, primarily along the beaches of Florida and Alabama (National Centers for Environmental Information 2013).

In 2023, NMFS proposed to designate marine critical habitat in nearshore waters (from the mean high water line to 20-meter depth) for green sea turtles off the coasts of Florida and Texas. Proposed marine critical habitat also includes *Sargassum* habitat in the GOA from 10-meter depth to the U.S. EEZ.

The entire Gulf ecosystem continues to grapple with the long-term impacts of the *Deepwater Horizon* oil spill, which caused widespread mortality and lingering health effects in sea turtle and marine mammal populations, with deep sea coral communities still showing little sign of recovery 15 years later (Deepwater Horizon Natural Resource Damage Assessment Trustees 2016, Fisher et al. 2014, NMFS 2025, White et al. 2012).

9.2.3.5 Human Environment

The GOA Region is home to 16.5 million coastal residents (NOAA 2025c). Thirteen Tribes are either within the GOA Region or have historical ties to the area after being involuntarily relocated inland (89 FR 944). Many residents in communities in the GOA Region depend on coastal and marine resources to support well-being and quality of life, such as for food, health, employment, and income.

The GOA Region has diverse natural and developed landscapes and seascapes, beaches, barrier islands, estuarine bays and sounds, river deltas, tidal marshes, protected areas, and other public lands. These include historic and natural sites and landmarks, wilderness areas, wildlife sanctuaries, and scenic rivers. There are also private recreational facilities and establishments that attract residents and visitors (e.g., resorts, marinas, amusement parks, and botanical gardens).

Population

Coastal counties in the GOA are diverse and have significant non-white populations when compared to the national average (National Academies of Sciences 2024). Coastal areas in Florida and Texas have higher levels of Latino or Hispanic populations, while coastal counties in Alabama, Mississippi, and Louisiana have higher levels of Black populations (Frey 2021).

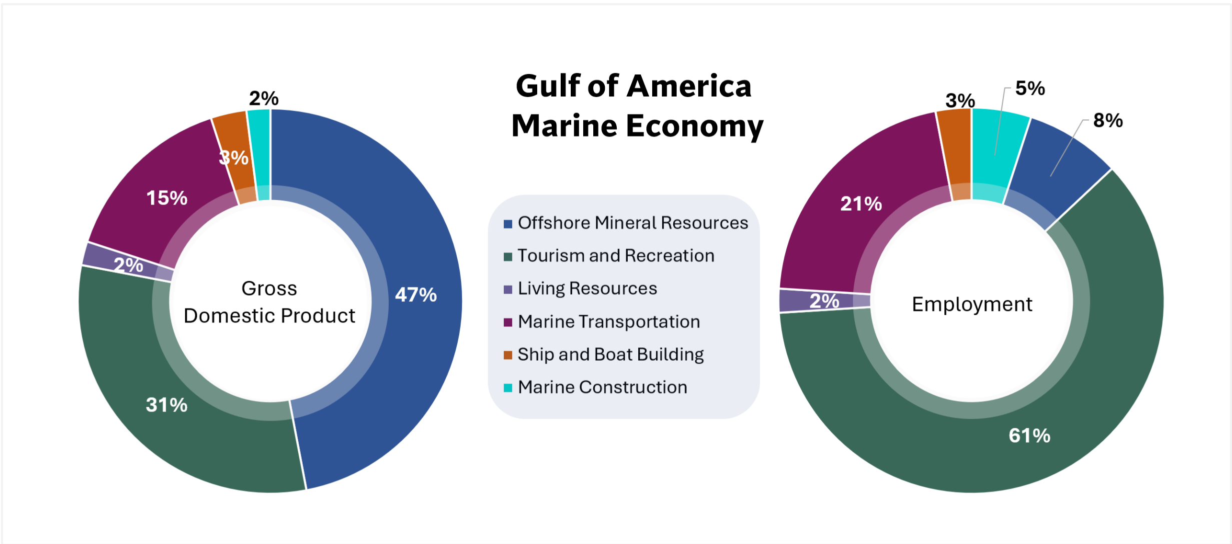
Since the Vietnam War in the 1970s, Vietnamese Americans have played a very large role in commercial fishing in the GOA Region, making up 45–80% of the shrimping industry in some areas (Campi 2005). Vietnamese Americans chose to settle in the GOA Region because of climate, fishing, and religious similarities to their homeland, and quickly became a dominant group in GOA Region's commercial fishing industry. However, Vietnamese commercial fishers are an aging fleet and younger generations are not retaining industry participation (Brasseaux and Davis 2022).

The GOA Region has a variety of settlement patterns ranging from high-density, urban hubs with many services and amenities (e.g., Tampa, Mobile, New Orleans, Houston) to low-density, small coastal communities dependent on commercial fishing, oil and gas activities, tourism, or retirement communities. Smaller cities in the GOA Region (e.g., Pensacola, Gulfport, Lake Charles, Corpus Christi) depend on port, shipbuilding, and petroleum industries, as well as employment in the military and sport hunting or fishing (National Academies of Sciences 2024).

Ocean Economy

Ocean uses play a major role in the local economy of this region. In the GOA Region, the tourism and recreation sector employs the most people in comparison to other marine economic sectors,[33] while the offshore mineral resources sector generates the most GDP and provides the highest wages (see Figure 9-6). The GOA Region ranks third out of eight coastal regions in the United States for employment, and is the top region for GDP. Harris County, Texas, includes the Houston metropolitan area and has the most marine-related jobs and produces the most GDP (65%) in the entire region (NOAA Office for Coastal Management 2024a). See Chapter 8 for additional information on other uses of the OCS.

Figure 9-6: GOA Region's Marine Economy Percentages by Sector



Source: NOAA (2021a), NOAA Office for Coastal Management (2024a)
Note: Florida data were split using county-level data to determine GDP and employment for Gulf (Florida west) and the Atlantic (Florida east).

Land use in coastal areas of the GOA Region is a mix of urban, industrial, and rural activities, including manufacturing, shipping, agriculture, and recreation. The GOA Region, particularly in the Western and Central GOA planning areas, is known for an established offshore oil and gas industry with a network of related onshore support industries. Onshore areas in the Western and Central GOA planning areas host an expansive network of oil and gas infrastructure industry, which includes an array of services such as construction facilities, service bases, product transportation, and processing facilities (Dismukes 2014, Dismukes 2010, The Louis Berger Group Inc. 2004). Other important industries include commercial shipping, fisheries, tourism, and hospitality (i.e., hotels and restaurants). More than half of the 20 largest U.S. ports are in this

[33] The six sectors that make up the marine economy are marine construction, offshore mineral resources, tourism and recreation, living resources, ship and boat building, and marine transportation (National Ocean Economics Program 2025b)

region, mostly along the Western and Central GOA planning areas (Industrial Economics Inc. 2014a).

Commercial and Recreational Fishing

Several coastal communities of the GOA Region rely on subsistence and commercial fishing (NMFS 2024d). Although shrimp is often the signifying hallmark species in the GOA, menhaden and blue crab also each exceeded 50 million pounds of harvest in 2021 (NMFS 2024d). Fishing and shrimping are part of the traditional livelihood for many coastal communities (Austin et al. 2014) and serve as a source of income and subsistence (Regis and Walton 2022). Harvesting, sharing, and using wild resources, including coastal fishing and shrimping activities, are an important part of many rural residents' and communities' cultural connection to the region (Regis and Walton 2022).

Recreation and Tourism

Areas of the GOA Region are especially valuable for coastal and marine recreation and tourism, particularly the beaches on the Alabama and Florida coasts, and other popular tourist destinations, such as Key West, Florida, and New Orleans, Louisiana. Recreation and tourism consist largely of recreational fishing, boating, hunting, wildlife viewing, sunbathing, scuba diving, swimming, surfing, and other water sports.

Cultural Resources

The GOA Region holds important archaeological and cultural resources. Shipwrecks are scattered throughout the GOA at all water depths. During oil and gas exploration, many shipwrecks have been discovered and listed on the National Register of Historic Places (BOEM 2025d).

The culture of the GOA Region varies greatly—from Houston (the fourth most populous city in the U.S) to Louisiana's largely undeveloped bayous, inhabited by Tribal and Cajun communities. Culture in the GOA Region strongly tied to fishing, the oil and gas industry, recreation and tourism, and the socioeconomic impacts of these industries. Notable examples are the beaches on the Alabama and Florida coasts as well as popular tourist destinations, such as Key West. Culture in the GOA Region is also strongly influenced by the type of resident groups coastal areas attract. For example, some smaller coastal communities have evolved into areas attracting retirees (National Academies of Sciences 2024) that in turn influence the amenities that develop in certain areas.

9.2.3.6 Comments Received

Numerous comments were received in response to the RFI related to potential environmental impacts in the GOA associated with the 11th Program. A summary of substantive comments is provided in Appendix A. In addition to comments addressing the potential impacts, BOEM received several nominations for exclusion of areas based on their environmental or human use significance, including the following:

- Areas in the GOA lying south of 26°North latitude, including Florida's Marco Island and the Ten Thousand Islands
- Exclusion areas designated HAPC under the Magnusson Stevens Fishery Conservation and Management Act
- Exclusion of areas designated as critical habitat under the ESA
- All NMSs; in the GOA Region, these include the FGBNMS and Florida Keys NMS.

9.2.4 Atlantic Region

9.2.4.1 Physical Environment

The Atlantic Region stretches from the U.S.-Canada border to southern Florida and includes the North Atlantic, Mid-Atlantic, South Atlantic, and Straits of Florida planning areas (see Figure 1-2).

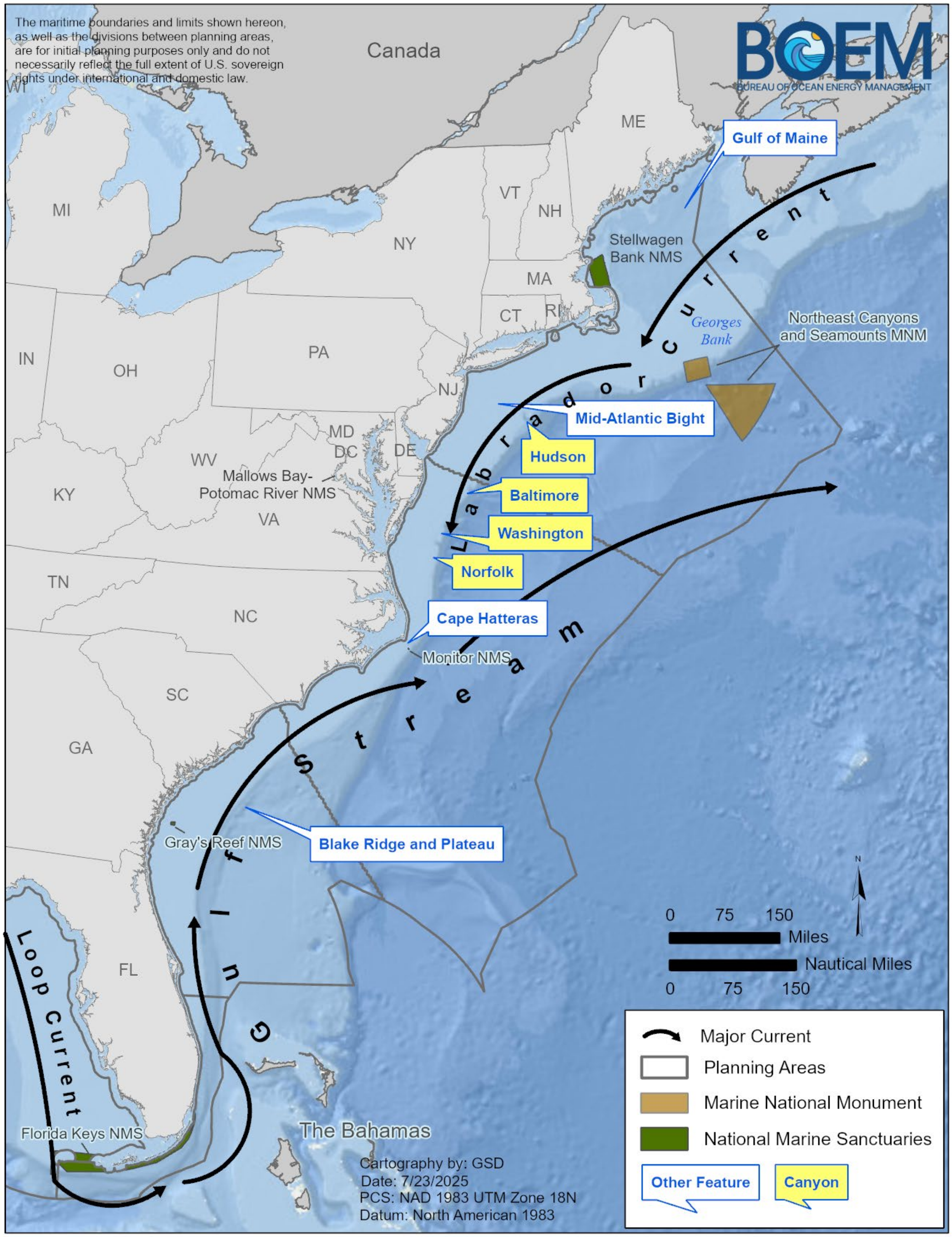
The continental shelf of the U.S. Atlantic seaboard ranges significantly in width, from 237 to 403 miles (U.S. Department of State 2023). The Atlantic OCS includes portions of the continental shelf, and is considered a passive continental margin; its width varies between 62 and 124 miles and continues to a broad slope that flattens with depth.

The outer limits of the U.S. continental shelf include the Blake Ridge in the Mid-Atlantic Planning Area and parts of the Blake Plateau in the South Atlantic and Mid-Atlantic planning areas (U.S. Department of State 2023). These unique physical features provide variability in substrate type and distribution of marine mammals, sea turtles, birds, fish, invertebrates, and habitats from north to south along the U.S. Atlantic coast. There are no active oil and gas leases in the Atlantic Region.

Physical Oceanography

Circulation along the U.S. Atlantic Coast is primarily driven by the Gulf Stream, the dominant feature of the southeastern Atlantic Region from the GOA to offshore North Carolina (see Figure 9-7). The Gulf Stream is a dynamic area of higher productivity, and it has a strong influence on the distribution of species off the Mid-Atlantic Coast. This warm-water current originates from the Caribbean Sea and GOA; these waters join and flow northward along the eastern coast of Florida.

Figure 9-7: Major Features of the Atlantic OCS



The Gulf Stream continues parallel to the southeastern coast of the United States and comes nearest to the U.S. Atlantic Coast just offshore Cape Hatteras, North Carolina. The Hatteras middle slope lies at the junction where the Gulf Stream interacts with one of the steepest slope environments along the East Coast. These interactions lead to ocean fronts, water column stratification, rings and eddies, and upwelling events (Andres 2021, Churchill and Berger 1998, Silver et al. 2021), which help drive patterns of productivity and faunal diversity. From there, the Gulf Stream turns northeast and flows into the central North Atlantic.

In the northwestern Atlantic, the colder Labrador Current flows southward from the Labrador Sea along the Canadian coast and influences the physical oceanography of the North Atlantic and northern Mid-Atlantic planning areas (Wilkinson et al. 2009).

Both the Gulf Stream and the Labrador Current are part of the larger Atlantic Meridional Overturning Circulation, a system of ocean currents that circulates water within the Atlantic Ocean and transports warmer, lower-salinity water north and colder, higher-salinity water south. There is some concern that a warming Arctic and increased melting of the Greenland Ice Sheet and Arctic Ocean pack ice is weakening the system of ocean currents, with possible impacts on the Gulf Stream in the coming decades (Ditlevsen and Ditlevsen 2023, Rahmstorf et al. 2015).

Air Quality

Historically, air pollution in the Atlantic Region has been associated with the large, concentrated population centers of the region. Most of the U.S. Atlantic Coast meets the NAAQS, except for the Delaware, New Jersey, New York, and Connecticut coasts, where nonattainment areas exist for all but one coastal county (USEPA 2025c). Further inland, nonattainment areas include Maryland, the District of Columbia, and Virginia. Most of this area is in nonattainment for ozone. Additionally, there are two sulfur dioxide nonattainment areas: the Baltimore metropolitan area and northern New Jersey. Lastly, New York County, better known as Manhattan, is in nonattainment for particulate matter.

There is one Class I Area inside a nonattainment area: Brigantine NWR in New Jersey. Other Class I Areas along the Atlantic Coast include Moosehorn Wilderness Area and Acadia National Park, both in Maine; Shenandoah National Park in Virginia; Swanquater Wilderness Area in North Carolina; Cape Romain Wilderness Area in South Carolina; and Wolf Island and Okefenokee wilderness areas in Georgia (USEPA 2025).

Water Quality

The overall water quality of the Atlantic Region is complex, heavily influenced by the densely populated coastal zone and extensive river networks draining into the ocean. Water quality in this region has been rated as fair, primarily due to terrestrial runoff, numerous point source discharges, and atmospheric deposition (USEPA 2024). Contributing human activities include urbanization, intensive agriculture, municipal and industrial wastewater discharges, marine vessel operations, port activities, military and NASA-related activities, and the construction and maintenance of coastal infrastructure.

Major estuaries, particularly the Chesapeake and Delaware bays, channel nutrients like nitrogen and phosphorus from vast watersheds into the ocean, fueling eutrophication and seasonal hypoxia, which remain the region's most widespread water quality issue (Partnership for Delaware Estuary 2022, University of Maryland Center for Environmental Science 2024). In addition, ocean acidification is accelerating, making waters more corrosive to shell-forming organisms and threatening vital commercial shellfisheries (e.g., scallops and squid) in the Mid-Atlantic Bight (NOAA 2025f, Wright-Fairbanks and Saba 2022).

Contaminant monitoring reveals the persistent presence of legacy pollutants. Although comprehensive regional surveys like the NOAA Mussel Watch Program indicate that concentrations of many legacy metals, PCBs, and PAHs are often below seafood consumption advisory thresholds, there is widespread distribution of these contaminants in coastal sediments and bivalve tissues (National Centers for Coastal Ocean Science 2020, 2021, 2025).

Emerging chemicals like PFAS are also a growing concern. Furthermore, microplastic pollution is now recognized as a ubiquitous problem, with studies confirming that estuaries act as major pathways to transport synthetic microfibers into the marine environment, where they are ingested by wildlife (Ashley et al. 2024, Yonkos et al. 2014).

Episodic but severe threats from HABs also affect the region. In the Gulf of Maine, annual forecasts for toxic *Alexandrium catenella* blooms are critical to protect public health by prompting shellfish harvesting closures (NOAA 2025e, Woods Hole Oceanographic Institution 2025). Southeastern areas of the Atlantic, including Florida, have a long-standing history of HABs, with recurring blooms posing risks to people, the environment, and the economy (Heil and Muni-Morgan 2021). The Atlantic is also facing new types of ecosystem-disrupting blooms, leading states like New Jersey to expand their monitoring programs to screen for other emerging HAB species and associated toxins (New Jersey Department of Environmental Protection 2025).

9.2.4.2 Pelagic Environment

As a result of the physical oceanography in the Atlantic Region, pelagic communities vary among different water masses and are shaped by seasons, weather, and shelf circulation processes (Lohrenz et al. 2003, Pershing and Kemberling 2024). Primary production is higher north of Cape Hatteras and the Mid-Atlantic Bight, especially during spring and fall, due to the nutrient-rich Labrador Current and slope water flowing into the Gulf of Maine, strong tidal mixing on Georges Bank, and other shelf topography and interactions between the Gulf Stream and the shelf break south toward North Carolina (Pershing and Kemberling 2024, Zang et al. 2021).

A series of shallow plateaus and banks stretch from Newfoundland to southern New England, including Georges and Stellwagen banks. These banks support high primary and secondary production due to strong tidal currents and interactions with the Labrador Current and Gulf Stream rings, which once supported some of the most valuable fisheries in the United States (Fogarty and Murawski 1998). South of Cape Hatteras, nutrient-rich Gulf Stream eddies, including the Charleston Gyre, drive primary productivity and zooplankton abundance (Govoni et al. 2010).

Fish

Fish and invertebrate species are distributed throughout the Atlantic OCS, such as lobster, flounders, Atlantic cod, haddock, Atlantic halibut, mackerel, scup, surf clams, herring, and scallop (NMFS 2024c). Fish biomass is higher in the north, but species diversity increases from north to south (Curtice et al. 2019, Northeast Ocean Data 2017, Ribera et al. 2021).

The North Atlantic and Mid-Atlantic planning areas are highly productive and temperate and support several fisheries (NMFS 2024d). In the North Atlantic Planning Area, copepods and krill are found in high abundance off Cape Cod and in the Gulf of Maine and are consumed by large baleen whales, including the North Atlantic right whale (Gavrilchuk et al. 2014). The Straits of Florida and South Atlantic planning areas support a variety of near shore fisheries, including groupers, blue crab, and shrimp (NMFS 2024b). The Straits of Florida experience localized problems such as the collapse of Apalachicola Bay's iconic oyster fisheries and overfishing of Florida's coral reef-associated fish (e.g., snappers) (Pine et al. 2015).

The Atlantic Region pelagic zone is home to invertebrates (e.g., longfin, arrow, and shortfin squid) and highly migratory fish species (e.g., tuna, sharks, and billfish) (Herke and Foltz 2002, NOAA Fisheries 2025b). It also supports several forage fish species, such as menhaden, Atlantic herring, and Atlantic mackerel, form large schools where high concentrations of zooplankton are found (Bachiller et al. 2016) and are important to the ecosystem function. Pelagic species, forage fish and tunas, are managed by NMFS and regional fishery management councils to prevent overfishing and rebuild threatened fishing stocks, such as the Atlantic bigeye tuna (NOAA Fisheries 2023c).

EFH for pelagic species such as Atlantic bluefin tuna, blue shark, and white marlin can be found in all four Atlantic planning areas (NMFS 2017). ESA-listed oceanic whitetip shark occurs in all four Atlantic planning areas, and the ESA-listed Central and Southwest Atlantic DPS of scalloped hammerhead shark can be found off the coast of Florida (NOAA Fisheries 2025s, z). ESA-threatened giant manta ray occurs in tropical to temperate waters in the Atlantic Region, (NOAA Fisheries 2024d). The threatened Nassau grouper is found off southern Florida (NOAA Fisheries 2025q).

Birds

Communities of Atlantic marine birds feed along the shelf break near Gulf Stream eddies and shallow banks in areas where prey are concentrated (Lee 2015, Nisbet et al. 2013, Palka et al.

2017). Notable offshore areas with persistent concentrations of seabirds include the Bay of Fundy (where phalaropes feed upon copepods and krill), Georges Bank (where tidal fronts concentrate fish and zooplankton prey, attracting shearwaters and storm-petrels in summer and Atlantic puffins in winter), and Nantucket Shoals (where hundreds of thousands of sea ducks and loons feed in winter and spring on clams, crustaceans, and fish) (Nisbet et al. 2013, Veit et al. 2016, White and Veit 2020). The black-capped petrel forages in hot spots seaward of Cape Hatteras, North Carolina, and around the Charleston Gyre; near the Atlantic shelf break and submarine canyons; and in Gulf Stream waters in the South Atlantic Bight (Halpin et al. 2019, Jodice et al. 2015, White and Veit 2020, Winship et al. 2018).

Sea Turtles

Five species of sea turtles can occur within the Atlantic Region: loggerhead, green, hawksbill, Kemp's ridley, and leatherback turtles (NOAA Fisheries 2025ac). All five turtle species are ESA-listed.

The loggerhead turtle is the most common sea turtle species within the Atlantic Region. Loggerhead turtles occur year-round in ocean waters off North Carolina, South Carolina, Georgia, and Florida. Currents along the Atlantic Coast transport more than 1 million tons of *Sargassum* seaweed to the Mid-Atlantic and South Atlantic planning areas during the fall and winter (Gower and King 2011). Because the seaweed is an important place for juvenile sea turtles to rest and forage, the *Sargassum* is designated as critical habitat for hatchling loggerhead turtles offshore coincident with the Gulf Stream from Florida to offshore Delaware Bay (NOAA Fisheries 2025e).

In addition to *Sargassum*, critical habitat for loggerhead turtles has been designated on nesting beaches and in nearshore waters from North Carolina to Florida (NOAA Fisheries 2025o). As coastal water temperatures warm in the spring, loggerhead turtles move up the U.S. Atlantic Coast as far north as the Gulf of Maine (Braun-McNeill and Epperly 2004, Epperly et al. 1995a, Epperly et al. 1995b, Shoop and Kenney R.D. 1992). The trend is reversed in the fall as water temperatures cool.

Green turtles can be found feeding or swimming in nearshore or offshore waters from Florida to Massachusetts. They make seasonal movements like the loggerhead turtles, moving north with warmer waters in the summer and back south as waters cool into the winter. For the ESA-listed green turtle, NMFS proposed to designate marine critical habitat in nearshore waters (from the mean high water line to a depth of 20 meters) off the coasts of Florida and North Carolina. Proposed marine critical habitat also includes *Sargassum* habitat (from 10 meters depth to the U.S. EEZ) in the GOA and Atlantic Ocean.

Hawksbill turtles are primarily found offshore Florida, although in rare instances they can be found as far north as Massachusetts (NOAA Fisheries 2025k). Kemp's ridley turtles are occasionally sighted along the Atlantic Coast from Florida to New England (NOAA Fisheries

2025m). The Mid-Atlantic Bight is an important foraging area for juvenile Kemp's ridley turtles during spring through fall. Leatherback turtles are found primarily in deep waters over the shelf break where they dive to depths of 4,000 ft (NOAA Fisheries 2025n), but they can also occur on the shelf and in coastal areas. Leatherback turtles are found throughout the Atlantic OCS waters, depending on the season. Lastly, hawksbill turtles are primarily found in tropical and subtropical waters; nesting is rare in the continental U.S. outside the Florida Keys and southeastern coast of Florida (NOAA Fisheries 2025k).

In the pelagic environment, sea turtle populations are at risk for entanglement and interaction with marine debris, fisheries bycatch, and ship traffic.

Marine Mammals

Marine mammals are common throughout the Atlantic OCS waters in all planning areas, including several species of baleen whale, toothed whales and dolphins, seals, and the Florida subspecies of the West Indian manatee (Florida manatee). Some species in the Atlantic Region are afforded additional protection under the ESA, such as the North Atlantic right, blue, fin, sei, and sperm whales, and the Florida manatee. There is designated critical habitat for the Florida manatee in areas of coastal and inland Florida.

Many species, such as the North Atlantic right whale and humpback whale, undergo well-defined seasonal migrations from northern to southern latitudes along the U.S. Atlantic Coast, inhabiting the Northeast U.S. Continental Shelf during seasonal zooplankton blooms and then migrating south in the winter to breed (Roberts et al. 2016); however, not all individuals undertake this migration. In recent years, warming waters have driven the North Atlantic right whales to shift their preferred feeding grounds from the Gulf of Maine to the Gulf of St Lawrence farther north (Meyer-Gutbrod et al. 2021).

Deep-diving species such as beaked and sperm whales prefer deeper waters off the shelf break, especially near the Atlantic Canyons, where they feed on pelagic fish and squid (Moors-Murphy 2014, Roberts et al. 2016, Stanistreet et al. 2017). Some species, including fin and minke whales, are more dispersed and could be encountered on both the shelf and along the shelf break. Small dolphins prefer nearshore waters, especially near Cape Hatteras where the Labrador and Gulf Stream surface currents meet (Roberts et al. 2016).

The North Atlantic right whale is an endangered species of very high concern due to its low population numbers and population decline. There are approximately 370 individuals remaining, of which only about 70 are reproductively active females (Hayes et al. 2023, Kraus et al. 2016, NOAA Fisheries 2025r, Pace III et al. 2017). The Atlantic Region contains two critical habitat areas for the North Atlantic right whale: feeding grounds in the Gulf of Maine and a calving habitat about 62 miles wide from Cape Fear, North Carolina to Cape Canaveral, Florida (White and Veit 2020).

In 2017, an Unusual Mortality Event was declared due to a rise in dead or seriously injured North Atlantic right whale (NOAA Fisheries 2025a). In general, mortality is primarily caused by entanglements and vessel strikes (NOAA Fisheries 2025r, Rolland et al. 2016, Sharp et al. 2019).

In addition to cetaceans like whales and dolphins, marine mammals in the Atlantic OCS include harbor seals, gray seals, and rare occurrences of wide-ranging ice seal species (e.g., harp, hooded, and ringed seals). Harbor seals and gray seals are regular inhabitants of the U.S. Atlantic Coast and make seasonal movements along the U.S. North and Mid-Atlantic coasts. Although the majority of the marine mammal species that could occur in the Atlantic Region can be found in most or all planning areas, some species occur mainly in the northern portions of the region (e.g., white-sided dolphins and seals) or mainly in the southern portions (e.g., Florida manatee and Fraser's dolphin).

9.2.4.3 Benthic Environment

The benthic environment of the U.S. Atlantic OCS is a diverse and dynamic seascape defined by a broad continental shelf, numerous submarine canyons, and a variety of habitat types supporting rich biological communities.

North of Cape Hatteras, in the North and Mid-Atlantic planning areas, the seafloor is predominantly composed of soft sediments, mainly sands on the continental shelf that grade to finer silts and clays in deeper waters. These expansive soft-bottom habitats support highly diverse invertebrate communities, including numerous species of polychaete worms, bivalves, crustaceans, and echinoderms (Boesch 1979, Brooks et al. 2006, Tenore 1985). These faunae form the base of the food web for many commercially and recreationally important demersal fish species. Hard-bottom habitats, consisting of exposed rock outcrops, boulders, gravel fields, and biogenic reefs created from shell hash, are sparsely distributed across the northeastern and Mid-Atlantic shelf. "Live bottom" habitats are a key feature, especially further south in the South Atlantic Bight. These are extensive, low-relief rocky outcrops and remnant reefs colonized by worms, algae, and a dense array of sessile invertebrates such as sponges, soft corals (e.g., sea whips and sea fans), and tunicates (Continental Shelf Associates Inc 1979, Wenner et al. 1983); this creates structurally complex oases that attract high densities of reef fish, such as black sea bass, snapper, and grouper (Steimle and Zetlin 2000). Sand shoal and flat-bottom habitats likewise create habitat for invertebrates and benthic finfish, including many commercially important species (Slacum Jr. et al. 2010).

The Atlantic Region hosts a remarkable diversity of coral ecosystems, from shallow, warm-water reefs to extensive, deep, cold-water coral communities. The shallow reefs in the Straits of Florida Planning Area, the northernmost extent of tropical coral ecosystems in the continental U.S., provide important habitat for hundreds of fish and invertebrate species. This area includes designated critical habitat for several coral species listed as threatened under the ESA, including elkhorn, staghorn, pillar, and multiple species of star corals, as well as habitat for the queen conch (South Atlantic Fishery Management Council 2025).

In the deeper, colder waters along the shelf edge and slope, from Florida to New England, deep sea corals create extensive and long-lived habitats (Cordes et al. 2024). A particularly massive and previously unknown deep sea coral province, dominated by the stony coral *Desmophyllum pertusum* (formerly *Lophelia pertusa*), was discovered off the coast of the Carolinas; this feature, now known as the "Million Mounds" province, is one of the largest deep sea coral reef habitats discovered to date (Quattrini et al. 2023). These deep reefs, along with sponge gardens, provide essential habitat for a wide array of associated fauna such as sponges, corals, worms, and crabs (Barans and Henry Jr. 1984, Parker et al. 1983, Sedberry et al. 2004).

The Atlantic continental margin is incised by many significant submarine canyons, including Norfolk, Baltimore, and Hudson canyons in the Mid-Atlantic Planning Area (CSA Ocean Sciences Inc et al. 2019, Ross and Brooke 2012). These canyons are geologically and biologically complex, funneling organic matter from the shelf to the deep sea and creating a wide range of habitat niches. The steep, rocky walls, ledges, and sedimented floors of these canyons support high-biomass communities, including dense aggregations of deep sea corals (such as octocorals), sponges, and anemones (Baird et al. 2017, Brooke et al. 2017, Packer et al. 2007). The Atlantic Canyons are also important habitats for commercially and recreationally fished species such as tilefish, lobsters, red crab, tunas, and swordfish (BOEM 2023a).

Deep sea exploration, such as the multi-agency DEEP SEARCH program, has revealed that these canyons, along with newly discovered cold seeps along the continental slope, serve as biodiversity hotspots (Cordes et al. 2024, NOAA Ocean Exploration 2025). The cold seeps, where methane and other hydrocarbons escape from the seafloor, support chemosynthetic communities dependent on chemical energy rather than sunlight. These unique ecosystems feature chemosynthetic communities that include bacterial mats and dense beds of mussels and tubeworms, which in turn provide habitat for crabs, fish, and other deep sea life (Cordes et al. 2024, Morrison 2018).

Extensive areas of benthic habitat in the Atlantic Region have been designated for protection due to their ecological importance and vulnerability. Economically important benthic species from the Mid-Atlantic through the Straits of Florida planning areas include golden crab, shrimp, spiny lobster, and the snapper-grouper complex. The regional fishery management councils have identified EFH for all federally managed species and designated sensitive subsets as HAPC.

In the Mid-Atlantic Planning Area, the Frank R. Lautenberg Deep Sea Coral Protection Area was established in 2016, protecting more than 38,000 mi^2 of canyon and slope habitat from bottom-tending fishing gear (Mid-Atlantic Fishery Management Council 2016). Similarly, the New England Council's Omnibus Deep Sea Coral Amendment protects canyons and seamounts in its jurisdiction. Canyons, seamounts, banks, and ledges are important fish habitat vital for commercially and recreationally important species (such as tilefish, lobsters, and red crab) and have been identified as HAPCs for several species (New England Fishery Management Council 2017).

The benthic environment is also critical for several ESA-listed species other than corals. The nearshore and estuarine waters of the region serve as critical habitat for DPSs of the Atlantic sturgeon and the shortnose sturgeon, which use these areas for spawning, migration, and feeding (NOAA Fisheries 2025c, 2025ad). The coastal waters of Florida are also designated as critical habitat for the endangered smalltooth sawfish (NOAA Fisheries 2025ae).

9.2.4.4 Coastal Environment

The coastal environments of the Atlantic Region comprise a vast and highly dynamic network of interconnected habitats that include rocky shores, sandy beaches, tidal areas (e.g., marshes, flats and rivers), barrier islands, wetlands, SAV, and submarine canyons. These areas support high levels of biodiversity and critical economic activities, and face compounding pressures from sea level rise, increasing storm intensity, and coastal development.

Barrier islands are a defining and ephemeral feature of the Mid- and South Atlantic coastlines. They protect the mainland from waves and currents, especially during major storms and hurricanes (Oertel 1985, Rosati 2009, Zinnert et al. 2019). These low-lying sand systems are in a constant state of flux, migrating landward, which is being accelerated by rising sea levels and intensified storms (Stallins et al. 2020, Zinnert et al. 2017). This landward migration, in turn, contributes to the creation of "ghost forests"—stands of dead trees along the inland edge of coastal marshes—which serve as stark visual indicators of saltwater intrusion and ecosystem transition (Kirwan and Gedan 2019, Ury et al. 2021).

The shoreward lagoons and sounds buffered by the barrier islands support expansive tidal salt marshes, which are among the most productive ecosystems globally. These marshes are crucial carbon sinks, provide an estimated $23.2 billion in storm protection services annually, and function as essential nurseries for a majority of the commercially and recreationally important fisheries (An and Verhoeven 2019, Sutton-Grier and Sandifer 2019).

Sandy beaches along the Atlantic provide habitat for burrowing shellfish, vital nesting habitat for sea turtles, foraging areas for millions of migratory shorebirds, and haulout areas for seals (Whitney 2014). The estuaries, tidal rivers, marshes, and stream habitats include important nursey areas for juvenile fish, shellfish, birds, and other wildlife. Rocky intertidal zones of New England host a diverse assemblage of algae and invertebrates adapted to harsh conditions.

Important SAV habitats include seagrasses like eelgrass in the north and widgeongrass in Mid-Atlantic estuaries like the Chesapeake Bay; these SAV habitats form highly productive ecosystems that filter water, protect shorelines from erosion, and provide nursey habitat for many fish and shellfish species (Chesapeake Bay Program 2024). The health and extent of these meadows, which are vital for water clarity and as habitat for species like juvenile blue crabs, are tracked as a key barometer of ecosystem health (Dennison et al. 1993, Mykoniatis and Ready 2020).

ESA-listed Atlantic salmon EFH occurs in 30 freshwater, coastal, and brackish areas in the northern Atlantic, from Maine to Connecticut (New England Fishery Management Council 2017). The North Atlantic and Mid-Atlantic planning areas have bay systems that are important habitat for sand tiger sharks (NMFS 2017); estuaries like Delaware Bay and Pamlico Sound are critical nursery and seasonal residency sites for sand tiger sharks, highlighting the importance of these inshore habitats for the species' life cycle (Ahr et al. 2025). In subtropical southern Florida, the coastal zone contains federally designated critical habitat for the ESA-listed American crocodile and the Florida bonneted bat; both species rely on specific coastal features for their survival (Florida Fish and Wildlife Conservation Commission 2025a, b).

Numerous marine and coastal bird species, including resident and migratory species, are present throughout the Atlantic Region (Robinson Willmott et al. 2013). These include nearshore species, pelagic species, and gulls/gannets (Kinlan et al. 2016). There are nine ESA-listed marine and coastal bird species in this region: Bermuda petrel, black-capped petrel, Cape Sable seaside sparrow, least tern, Light-footed Ridgeway's rail, red knot, roseate tern, wood stork, and piping plover.

Many of the pelagic species occur within and along the edges of the Gulf Stream. The ESA-listed black-capped petrel forages in hot spots seaward of Cape Hatteras, North Carolina; near the Atlantic shelf break and submarine canyons system; and in Gulf Stream waters in the South Atlantic Bight (Halpin et al. 2019, Jodice et al. 2015, Winship et al. 2023). Notable offshore areas with persistent concentrations of seabirds include the Bay of Fundy, Georges Bank, and Nantucket Shoals (Nisbet et al. 2013, Veit et al. 2016, White and Veit 2020).

Nearshore species include waterfowl or shorebirds. Some of these species, such as the long-tailed duck, typically form large flocks and rest in large groups on the sea surface. Other nearshore species—including sandpipers, plovers, and stilts—use coastal environments to nest, feed, and rest. Many bird species (e.g., the northern gannet, red knot, and scoters) make long-range seasonal movements. Birds that tend to use predominantly terrestrial habitats (e.g., passerines, falcons) might also occur occasionally offshore.

Bird species likely to be impacted by OCS activities include seabirds (gulls and terns, cormorants, frigatebirds, northern gannets, boobies, tropicbirds, petrels, shearwaters), waterfowl (loons, grebes, sea ducks), shorebirds (sandpipers, plovers, oystercatchers, stilts), and wetland birds (egrets, herons, wood storks, ibises, roseate spoonbills, cranes, rails).

The sandy beaches of the U.S. Atlantic Coast—particularly in Florida, Georgia, and the Carolinas—are globally significant nesting areas for several species of sea turtles, including loggerhead, green, Kemp's ridley, hawksbill, and leatherback turtles. Notably, key nesting sites for these species are primarily along the sandy beaches of Florida, particularly on the eastern coast, where significant populations of loggerhead and green turtles nest. Other important nesting locations include the beaches of Georgia and the Carolinas.

Green turtle nesting has shown a dramatic increase in the past two decades, and even the endangered Kemp's ridley turtle, which nests almost exclusively in the Eastern GOA, has established a small but growing nesting population in Florida and the Carolinas (Sparks and DiMatteo 2023). Lastly, hawksbill turtles nest in the Caribbean and can occasionally be found in U.S. territories like Puerto Rico and the U.S. Virgin Islands (NOAA Fisheries 2025k).

The Atlantic Coast's critical foraging habitats, such as seagrass beds and coral reefs, support the feeding needs of these turtles. After leaving the nest, turtles disperse into the Atlantic Ocean. The Mid-Atlantic Bight is a major foraging hotspot for leatherback and loggerhead turtles, which aggregate there to feed on jellyfish and crabs, respectively (Barco et al. 2018, Patel et al. 2018, Rider et al. 2024).

9.2.4.5 Human Environment

Population

The Atlantic Region is home to 44.5 million coastal residents in 255 counties (NOAA 2025c). The Atlantic Coast has a mixture of highly developed urban areas, suburban sprawl, small towns, recreational areas, and undeveloped rural lands. The Atlantic states have pockets of densely populated areas and higher levels of employment and income in metropolitan areas along the coast (NOAA Office for Coastal Management 2022).

Many of the Atlantic Region residents depend on coastal and marine resources to support well-being and quality of life, such as for food, health, employment, and income. The coastal counties along the Atlantic Region contain many ports (Kiln 2016) and shipyards (Dismukes 2014). Six of the Nation's top 25 ports by tonnage are along the Atlantic Coast (BTS 2024). There are 22 Tribes residing within the Atlantic Region, and 33 Tribes with historical ties to the area that were involuntarily relocated inland (89 FR 944).

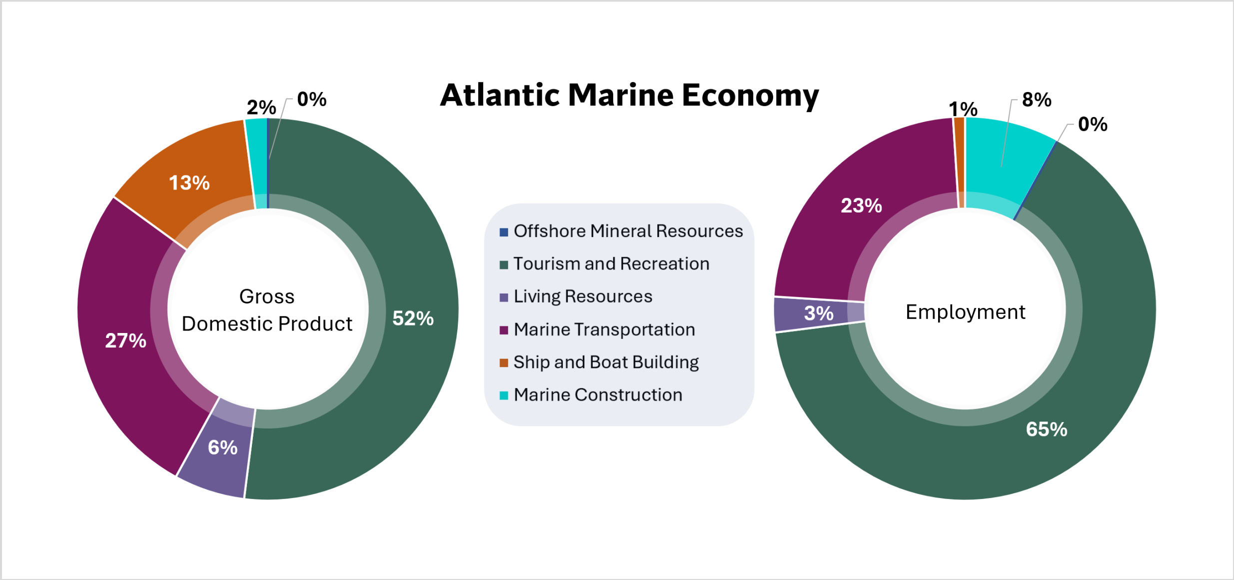
Ocean Economy

In the Atlantic Region, the largest employer is the tourism and recreation sector, which employs between 65–71% of the region's marine economy[34] (Figure 9-8), with the southern part of the Atlantic Region at the higher end of that range. The tourism and recreation sector also produces the largest portion of GDP—between 49–60% of the marine economy—with the northern Atlantic

[34] The six sectors that make up the marine economy are: marine construction, offshore mineral resources, tourism and recreation, living resources, ship and boat building, and marine transportation (NOAA Office for Coastal Management 2024b).

Region at the lower end of the range, and the southern at the higher end. Marine construction has the highest average wage per employee in the Atlantic Region.

Figure 9-8: Atlantic Region's Marine Economy Percentages by Sector



Sources: NOAA (2021a), NOAA Office for Coastal Management (2024a)
Note: Florida data were split using county-level data to determine GDP and employment for Gulf (i.e., Florida west) and the Atlantic (i.e., Florida east).

Top counties in the region for employment and GDP related to the marine economy include Miami-Dade County in Florida, New London County in Connecticut, and New York County in New York (NOAA Office for Coastal Management 2024a). See Chapter 8 for additional information on other uses of the OCS.

9.2.4.6 Commercial and Recreational Fishing

Commercial and recreational fishing are economically and culturally important to several coastal communities of the Atlantic Region and serve as a source of income and subsistence. American lobster, sea scallop, and blue crab are important commercial fisheries, whereas snappers, drums, bluefish, flatfish, scup, sea bass, and wrasses are important marine sport fishing species (NMFS 2024d). Fishing, namely for lobster in the North Atlantic and menhaden in the Mid-Atlantic, is part of the traditional livelihood for many coastal communities and is an important part of many rural residents' and coastal communities' cultural connection to the region (NMFS 2024d).

Recreation and Tourism

Areas of the Atlantic Region are especially valuable for coastal and marine recreation and tourism, including sport and recreational fishing. Recreation and tourism consist largely of camping, hiking, water-based recreation such as kayaking and scuba diving, viewing fall foliage, sailing, beach-going, boating, and wildlife viewing (Mid-Atlantic Regional Council on the Ocean 2014, NOAA 2019a).

Cultural Resources

The Atlantic Region contains many archaeological and cultural resources, both onshore and offshore, including more than 11,000 shipwrecks (TRC Environmental Corporation 2012). The Outer Banks of North Carolina is often referred to as the “Graveyard of the Atlantic” due to the many shipwrecks that have occurred in the shoals, currents, and barrier islands (NOAA 2017). Native American Tribes in the Atlantic Region and Tribes that were involuntarily relocated west during the 19th century have historical ties to the area and interests in cultural resources within their traditional lands, including those offshore.

There are numerous cultures within the Atlantic Region that are sometimes related to differences in settlement patterns and community types. Communities vary from large metropolitan areas (such as New York City, Boston, and Miami) to barrier island communities (such as North Carolina’s Outer Banks and New Jersey’s Long Beach Island), and to small New England coastal towns and mediums-sized southern cities.

Many historical sites and areas with strong ties to maritime heritage are along the Atlantic Coast, including historic colonial communities (such as Yorktown, Virginia) and historical shipping and whaling communities (such as Mystic, Connecticut).

Cultures in the Atlantic Region can be strongly tied to fishing, tourism, agriculture, and the socioeconomic impacts of these industries. In addition to Native American Tribal communities, there are other groups with historical ties to the coast and marine environment. One notable example is the unique culture of the Gullah/Geechee people, who have traditionally lived in the coastal areas and on islands of North Carolina, South Carolina, Georgia, and Florida; this area, called the Gullah/Geechee Heritage Corridor, is a National Heritage area established by the U.S. Congress. The Gullah/Geechee living along the coast have a cultural tradition of subsistence fishing and are highly dependent on fish as a main staple (Gullah Geechee Cultural Heritage Corridor Commission 2012).

9.2.4.7 Comments Received

Numerous comments were received in response to the RFI related to potential environmental impacts in the Atlantic associated with the National OCS Program. A summary of substantive comments is provided in Appendix A. In addition to comments addressing the potential impacts, BOEM received several comments addressing the significance of the marine canyons in the Atlantic Ocean. This includes a comment from the New England Fishery Management Council supporting withdrawal of the canyons from leasing consideration. BOEM also received nominations to exclude all NMSs and Marine National Monuments; in the Atlantic Region, these include the Stellwagen Bank, Monitor, and Gray’s Reef NMSs and the Northeast Canyons and Seamounts Marine National Monument.

9.3 Potential Impacts on Environmental Resources

This section discusses the general IPFs and possible impacts that could result from OCS oil and gas activities. IPFs are defined as aspects of the 11th Program potential activities or processes that could cause impacts on resources.

BOEM determined which potential impacts to analyze in detail by evaluating whether the IPFs associated with oil and gas activities under the 11th Program could impact any of resources. IPFs could occur at any stage of the oil and gas life cycle and affect multiple resources.

In this discussion, considering an area for potential oil and gas activity under the 11th Program does not necessarily mean that activities would occur in that area or that impacts would result. Potential impacts discussed here, should they occur, would only occur after the 11th Program is adopted, lease sales are completed, site-specific analyses are conducted, and activities have started.

In addition to oil and gas activities, environmental impacts could occur from other activities on the OCS (Chapter 8). The decision to lease under the 11th Program also does not alter existing oil and gas activities on the OCS or the possible environmental impacts from those activities.

Table 9-1 provides a synopsis of the overlap between IPFs and environmental resources in space and time. The potential for an IPF to impact the environmental resources is the same for each of the four OCS Regions. However, the scale and significance of these potential impacts would likely vary from region to region. The level of impacts depends upon numerous factors described below. The *2024–2029 National OCS Oil and Gas Leasing Program Programmatic EIS* provides detailed information on these relationships and the significance of potential impacts (BOEM 2022a).

Potential impacts on resources varies depending on the region, planning area, or locations within planning areas. For example, Alaska has a large indigenous population compared to other regions, and these communities are often more reliant on the ocean for subsistence uses and cultural practices. Therefore, impacts on ocean resources in the Alaska Region could have more profound effects, as they can directly affect food, security, cultural traditions, and community well-being, making similar impacts more notable here than in other regions.

Potential impacts also depend on the types of IPFs and the sensitivity of surrounding resources. Certain IPFs, like noise, potentially only impact environmental resources sensitive to specific frequency ranges, and drilling activities primarily affect benthic habitats on the seafloor. Some IPFs could influence only one type of environmental resource, while others can have broader effects. Additionally, the immediate impacts on one environmental resource can lead to cascading effects on the ecosystem; for example, a decline in schooling fish populations can subsequently impact industries and species that rely on them.

Table 9-1: Potential for 11th Program IPFs to Impact Environmental Resources

Environmental Resources	Noise	Traffic	Routine Discharges	Bottom/ Land Disturbance	Emissions	Lighting	Visible Infrastructure	Space-Use Conflict
Air Quality	N/A	N/A	N/A	N/A	▮	N/A	N/A	N/A
Water Quality	N/A	▮	▮	▮	N/A	N/A	N/A	N/A
Archaeological and Cultural Resources	N/A	N/A	▮	▮	N/A	N/A	▮	N/A
Commercial and Recreational Fisheries	▮	▮	▮	▮	N/A	▮	N/A	▮
Land Use	▮	▮	▮	▮	▮	▮	▮	▮
Recreation & Tourism	▮	▮	N/A	▮	▮	▮	▮	▮
Quality of Living Conditions (e.g., health, sociocultural practices)	▮	▮	▮	▮	▮	▮	▮	▮
Socioeconomic Conditions (e.g., demographics, marine economy)	▮	▮	N/A	N/A	▮	▮	▮	▮
Fish & Essential Fish Habitat	▮	▮	▮	▮	N/A	▮	N/A	N/A
Coastal and Estuarine Habitats	▮	▮	N/A	▮	N/A	N/A	N/A	N/A
Marine Benthic Communities	▮	▮	▮	▮	N/A	▮	N/A	N/A
Pelagic Communities	▮	▮	▮	▮	N/A	▮	N/A	N/A
Marine Mammals	▮	▮	▮	▮	▮	▮	N/A	N/A
Birds	▮	▮	▮	▮	▮	▮	N/A	N/A
Sea Turtles	▮	▮	▮	▮	▮	▮	N/A	N/A

Key: ▮ = there is potential for an IPF to impact a resource; IPF = impact-producing factor; N/A = there is no potential for impacts for that combination.

Impacts can manifest in various ways, including direct physical effects, such as drilling into the seafloor or vessel strikes to sea turtles. There could also be indirect physical results, such as long-term changes in habitat composition on the seafloor due to pipeline installation, changes in animal behavior or shifts in the availability of food sources.

Changes in ecological or physical resources can also impact humans and their cultural, social, health, and economic conditions. For example, impacts on water quality could affect commercial and recreational fisheries dependent on clean water, or tourism and recreational economies (e.g., boating and fishing) in coastal areas. OCS oil and gas activity can also alter the character and quality of living in nearby coastal communities through potential impacts related to noise, air emissions, visual intrusions, or changes in employment and local economies. OCS development can also indirectly affect land use and infrastructure by requiring roads, ports, or other support infrastructure onshore. These changes could in turn impact traffic patterns, increase industrial activity, or affect nearby neighborhoods.

Many potential impacts are not readily observable, including alterations in animal behavior (e.g., avoidance of specific areas due to noise or other disturbances) and impaired reproductive success within affected populations. Impacts of OCS development are also experienced on different time scales; some could occur immediately (e.g., injury, temporary restrictions to fishing near drilling sites), while others could be realized long after the IPF has ceased (e.g., decrease in reproductive capacity of a marine species, technical training resulting in improved local job and income prospects (Price et al. 2025).

Impacts also could vary depending on the existing environment. For example, the GOA has high levels of existing oil and gas activity and is considered a mature region (BOEM 2023a). Living organisms and habitats in this area have been exposed to multiple IPFs for many years. Likewise, coastal human communities could be accustomed to industry-related changes. The ability of these communities to cope with continued impacts could be reduced or increased by the presence of existing or additional activities in the future.

Impacts could be more evident where there is a higher coastal population density. Air emissions are more likely to be of concern where greater numbers of people could be affected by reduced air quality or where there is already diminished air quality due to the presence of emission sources not related to oil and gas activities. The level of impacts depends also on the extent of activities proposed for any given planning area under the National OCS Program. In areas such as the GOA Region, the large magnitude of ongoing OCS oil and gas activities means that the impacts from the 11th Program could contribute less to the overall level of impacts from oil and gas activities than in areas such as the Atlantic Region, where oil and gas drilling has not occurred since 1982.

Additionally, the Pacific and Atlantic regions have relatively low levels of oil and gas activities; there are no active leases in the Atlantic, and the Pacific has had no new leases since 1984. However, the Atlantic and Pacific regions have high levels of human use, including maritime traffic, commercial fishing, and recreation, which could result in impacts on various resources (Industrial Economics Inc. 2012). In the Arctic offshore Alaska, little OCS oil and gas activity is ongoing, and very little recreational fishing or beach visitation occurs. Local communities partake in subsistence fishing and hunting in the area, so oil and gas activities could impact these communities.

Comments were received in response to the RFI related to potential environmental impacts associated with the 11th Program, including the risk of oil spills, impacts on biological resources, and impacts on human uses of the coast and OCS waters. Summaries of substantive comments received are provided in **Appendix A**.

Additional environmental analyses will be prepared in association with the development of the 11th Program, which will include a description of resources and a thorough analysis of potential impacts related to oil and gas activities on the physical, biological, and human environments. Subsequent NEPA analyses will be prepared for the lease sales and will identify and assess impacts on a more site-specific basis when information about specific levels of activities is known.

9.4 Accidental Oil Spills

Oil spills are accidental and unauthorized events, and there has been a consistent downward trend in their occurrence in U.S. waters (Reich et al. 2014). Industry practices and government regulations minimize the frequency of these spills, and industry and government entities are prepared to respond or prevent spills from reaching the coast should a spill occur. Despite these efforts, there is no way to guarantee that oil spills will not occur.

Impact analyses of accidental oil spills consider events that are statistically expected to occur (expected accidental small [≥ 1 to < 1,000 bbl] and large [≥ 1,000 bbl] spills), as well as those that are statistically unexpected to occur but would still be possible (catastrophic discharge events [CDEs]). Expected accidental events (i.e., occurring with regular frequency) include spills estimated to occur during routine operations (e.g., refined, crude, or condensate spills of varying size from a platform, pipeline, service vessel, barge, or tanker). Accidental oil spills, when they occur and regardless of their size, have the potential to impact all environmental resources.

9.4.1 Accidental, Small, and Large Spills

Accidental, small, and large spills could result from OCS exploration, development, and production operations involving drilling rigs, production facilities, barges, tankers, pipelines, and support vessels. BOEM estimates the source and number of accidental spills (small and large) based on the estimated volume of oil production for each planning area, along with the assumed mode of transportation (ABS 2016, Anderson et al. 2012, Stalfort et al. 2021). Spills from platforms are assumed to occur within or adjacent to the planning areas. Spills from pipelines are assumed to occur along their respective routes from production platform to destination.

Historical OCS spill data provide the most relevant basis for use in analyzing the likelihood of future oil spills on a programmatic level. BOEM's analyses, which currently rely on an aggregated characterization of historical data (where available), provide a conservative outcome when compared to other methods such as quantitative risk assessment.

9.4.2 Catastrophic Discharge Events

Although statistically unexpected, a CDE is an event that results in a very large discharge of oil into the environment, with long-term and widespread effects on marine and coastal environments (BOEM 2017a, 2021d). The National Oil and Hazardous Substances Pollution Contingency Plan defines such a CDE as a:

> spill of national significance," or one that "due to its severity, size, location, actual or potential impact on the public health and welfare or the environment, or the necessary response effort, is so complex that it requires extraordinary coordination of Federal, state, local, and responsible party resources to contain and clean up the discharge" (40 CFR 300).

A catastrophic spill is not expected and would be considered well outside the normal range of probability, despite the inherent risks of oil exploration, development, and production-related activities expected from the 11th Program.

Incidents with the greatest potential for catastrophic consequences are likely to be tanker and barge spills or loss of well control on offshore platforms. Spills from tankers and barges make up most large oil spills in U.S. waters in the past 50 years while out-of-control wells comprise the two largest spills (NOAA Office of Response and Restoration 2025). However, transport of oil by tankers or barges is not a direct outcome of BOEM decisions and therefore is not included in these analyses. Loss of well control occurs when primary and secondary barriers fail; wells do not bridge; and discharge is of long duration, occurs in an environmentally sensitive area, or occurs at a sensitive time. However, very few loss of well control events lead to a CDE. Most of these events do not involve oil release; if any oil is released, it is usually < 10 bbl. In addition, recently implemented safeguards—including increased requirements for the design, manufacture, repair, testing, and maintenance of blowout preventers, required downhole mechanical barriers, increased well design and testing requirements, advanced monitoring and detection systems, and additional regulatory oversight—make such an event even less likely than in the past.

Although a CDE is not expected to result from activities associated with the 11th Program, the consequences of a low-probability incident, if it were to occur, could be catastrophic. Past CDE oil spills include the *Exxon Valdez* oil spill (262,000 bbl) in the Prince William Sound in south-central Alaska; the *Ixtoc* oil spill (3,500,000 bbl) in the GOA offshore Bahia de Campeche, Mexico; and the *Deepwater Horizon* event (4,900,000 bbl) that occurred in 2010 in the northern GOA

(McNutt et al. 2011). The *Exxon Valdez* and *Ixtoc* oil spills were not expressly related to OCS activities.

The meteorological and environmental conditions can have a substantial effect on weathering processes such as evaporation, emulsification, dispersion, dissolution, microbial degradation and oxidation, and transport of the spilled products. The uncontrolled oil and/or gas release of a certain size at a particular location and at a particular time of year could have greater economic or environmental effects than a release of considerably more barrels under different circumstances of location and season (BOEM 2014).

The magnitude and severity of impacts from a CDE on any resource would depend on the spill type (oil and gas composition), location, size, depth, and duration; spill source (e.g., loss of well control, pipeline, or vessel); meteorological conditions such as wind speed and direction; seasonal and environmental conditions; physiography of the spill area; biota in the area; previous exposure of the area to oil; effectiveness of response activities; and availability of social services to support affected individuals, households, businesses, and communities.

For more information on the possible impacts of catastrophic spills in each OCS planning area, see the supporting Economic Inventory Report (BOEM 2014). For an analysis of impacts specific to the GOA, see BOEM (2021d).

The potential for accidents resulting in an oil spill and/or gas release will continue to exist, but industry, USCG, BSEE, and BOEM require numerous safeguards for OCS drilling, development, and production operations, which have increased in the post-*Deepwater Horizon* era. These industry practices and government rules, resulting from several recommendations from multiple investigations, have improved protocols to increase safety measures.

Furthermore, requirements place a greater emphasis on operational training and preparation. The Safety and Environmental Management System is a performance-based program designed to help drive the safety and environmental performance of OCS oil and gas operators and contractors beyond attaining full compliance with BSEE regulations. Risk management is the foundation upon which BOEM and BSEE regulate and enforce standards. The risk management strategies employed by BOEM, BSEE, USCG, U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, and industry serve as an integral component of a safety culture designed to integrate technological and human elements. This integration is necessary to ensure safe and environmentally sound OCS operations. Both risk management and BOEM and BSEE regulatory oversight greatly reduce the potential for accidental spills.

Chapter 10
Relative Environmental Sensitivity & Marine Productivity

Chapter 10 Relative Environmental Sensitivity and Marine Productivity

Section 18(a)(2)(G) of the OCS Lands Act mandates consideration of "the relative environmental sensitivity and marine productivity of different areas of the OCS" when making decisions regarding offshore energy development. This analysis is essential to guide the placement of energy infrastructure and implement mitigation measures to minimize impacts on the marine environment.

In direct response to E.O. 14303, *Restoring Gold Standard Science* (May 29, 2025), BOEM has modernized its approach by developing and implementing the Marine Sensitivity Toolkit. This innovative, cloud-native toolkit fundamentally revamps BOEM's previous RESA (BOEM 2018), delivering a transparent, reproducible, and scalable system that fully aligns with the E.O.'s requirements for scientific integrity, transparency, and the use of best available science.

The MST marks a significant advancement over prior RESA methodologies. Earlier approaches often relied on aggregated data from a limited set of broad species groups and surrogate species, lacking spatially explicit information for individual organisms. As a result, previous assessments were typically coarse and areawide, frequently missing critical ecological variation and fine-scale patterns across the OCS. In contrast, the MST uses a high-resolution 0.05° grid (averaging 5 kilometers in the lower 48 states and 3.6 kilometers in Alaska), enabling detailed, fine-scale resolution that captures nuanced ecological patterns.

A cornerstone of the MST is its integration of more than 17,000 spatially explicit species distribution models, comprehensive extinction risk data (using the International Union for Conservation of Nature's [IUCN's] Red List categories), and satellite-based primary productivity. This robust data integration delivers a more accurate, comprehensive, and scientifically defensible assessment of marine sensitivity across U.S. waters.

Sensitivity scoring within the MST is fully transparent and quantitative, combining species presence, extinction risk, and productivity, all re-scaled within ecologically meaningful ecoregions. The MST is an open source, designed for transparency, reproducibility, and rapid updates. All 27 OCS planning areas, including the new High Arctic Planning Area, are included in the sensitivity analysis. Planning area scores are aggregated from 0.05° cells based on percent overlap and are re-scaled within each BOEM Ecoregion (BOEM 2018) to ensure comparability across diverse ecological contexts. The High Arctic Planning Area is treated as its own dedicated ecoregion.

As the 11th Program advances, BOEM will continue to refine and enhance this sensitivity analysis, upholding the principles and directives of E.O. 14303 and ensuring that decisions are grounded in the best available science.

10.1 Relative Environmental Sensitivity

10.1.1 Methods

The MST is BOEM's comprehensive, next-generation system to assess the vulnerability of marine ecosystems to offshore energy development across U.S. waters. The MST builds on BOEM's established framework by integrating advanced species distribution models, extinction risk assessments, and primary productivity data to deliver a unified, spatially explicit vulnerability score.

The MST's conceptual framework is grounded in ecological risk assessment, where vulnerability (V) is a function of exposure (E), sensitivity (S), and adaptive capacity (A):

$$V = f(E, S, A)$$

The more exposed and sensitive an area is—and the less able it is to recover—the more vulnerable it is to impacts from offshore activities.

For spatial implementation, the vulnerability of a cell (v_c) is calculated as the sum across all species in the given taxonomic group (S_g) of the products for the species presence in the cell (p_{sc}) and a species weight (w_s), which is the risk of that species going extinct, as follows:

$$v_c = \sum_{1}^{S_g} p_{sc} \cdot w_s(\,)$$

In other words, for each cell in the ocean, BOEM adds up the sensitivity of all the species found there, where:

- p_{sc} is how likely species s is to be present in that cell (from 0 to 1).
- w_s is how at-risk that species is of going extinct (also from 0 to 1; ranging from Least Concern 0.2 to Critically Endangered as 1).

If a cell has many species that are both likely to be present and at high risk of extinction, it gets a higher sensitivity score. This helps us find places where rare or threatened species are concentrated.

Ecoregional re-scaling makes it easy to compare areas within the same region and planning area aggregation gives an overall sensitivity score for each planning area, considering both the sensitivity of each part and how big each part is.

10.1.2 Data Sources and Processing

The MST draws on the best available data and methods, as follows and described in Figure 10-1:

- **Species Distribution Models:** 17,550 models, primarily from AquaMaps, downscaled from 0.5° to 0.05° resolution.
- **Extinction Risk:** IUCN Red List categories, with risk scores assigned as follows: Critically Endangered (1.0), Endangered (0.8), Vulnerable (0.6), Near-Threatened (0.4), and Least Concern (0.2) (see Table 10-1).
- **Primary Productivity:** Net primary productivity (NPP) calculated using the Vertically Generalized Production Model (VGPM) with Visible Infrared Imaging Radiometer Suite satellite data for the most recently completed decade of model results (2014 to 2023).

Scores from individual grid cells are aggregated to planning areas using area-weighted averages, providing sensitivity scores for each planning area.

Figure 10-1: Environmental Sensitivity Score Methodology

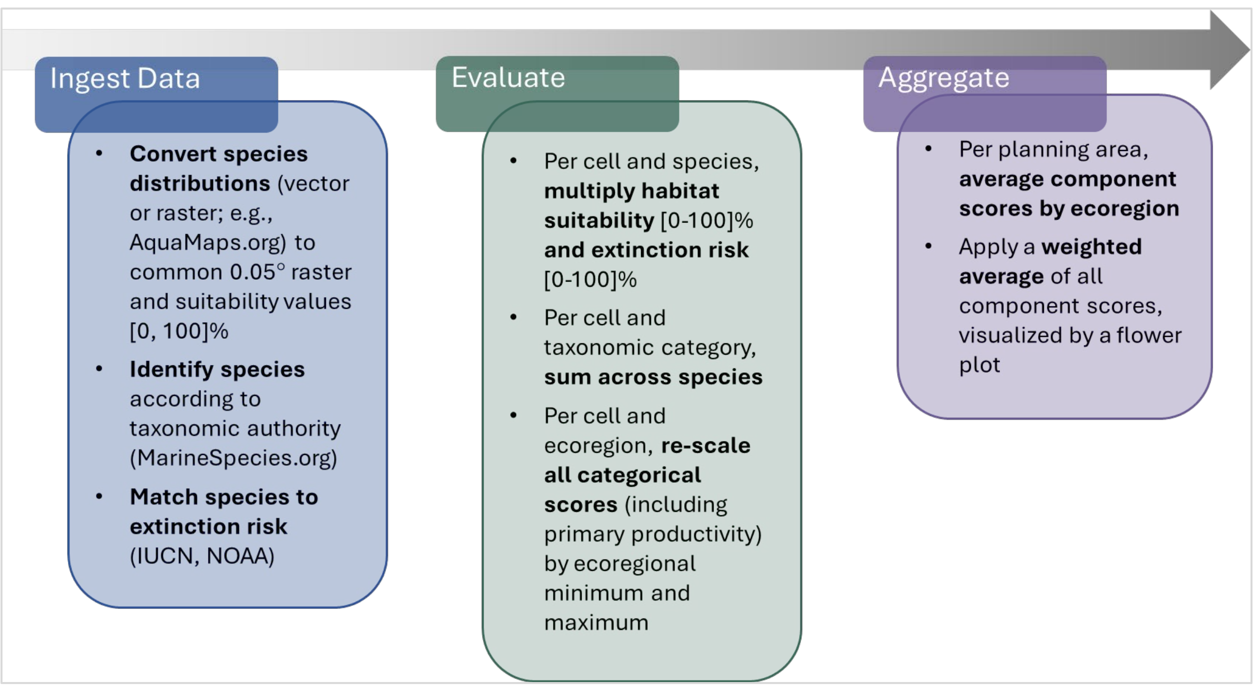


Table 10-1: Categories, Risk Scores, and Weights for the Marine Sensitivity Toolkit

Code	Category	Risk Score	Weight
CR	Critically Endangered	1.0	Highest
EN	Endangered	0.8	High
VU	Vulnerable	0.6	Moderate
NT	Near-Threatened	0.4	Low
LC	Least Concern	0.2	Lowest

10.1.3 Geographic Scope

The MST uses BOEM ecoregions as its primary geographic units. These ecoregions are defined by Large Marine Ecosystem (LME) boundaries (see BOEM (2018)), bathymetry, hydrography, productivity, and species composition. The analysis is conducted at a 0.05°-grid resolution, providing detailed coverage across U.S. waters.

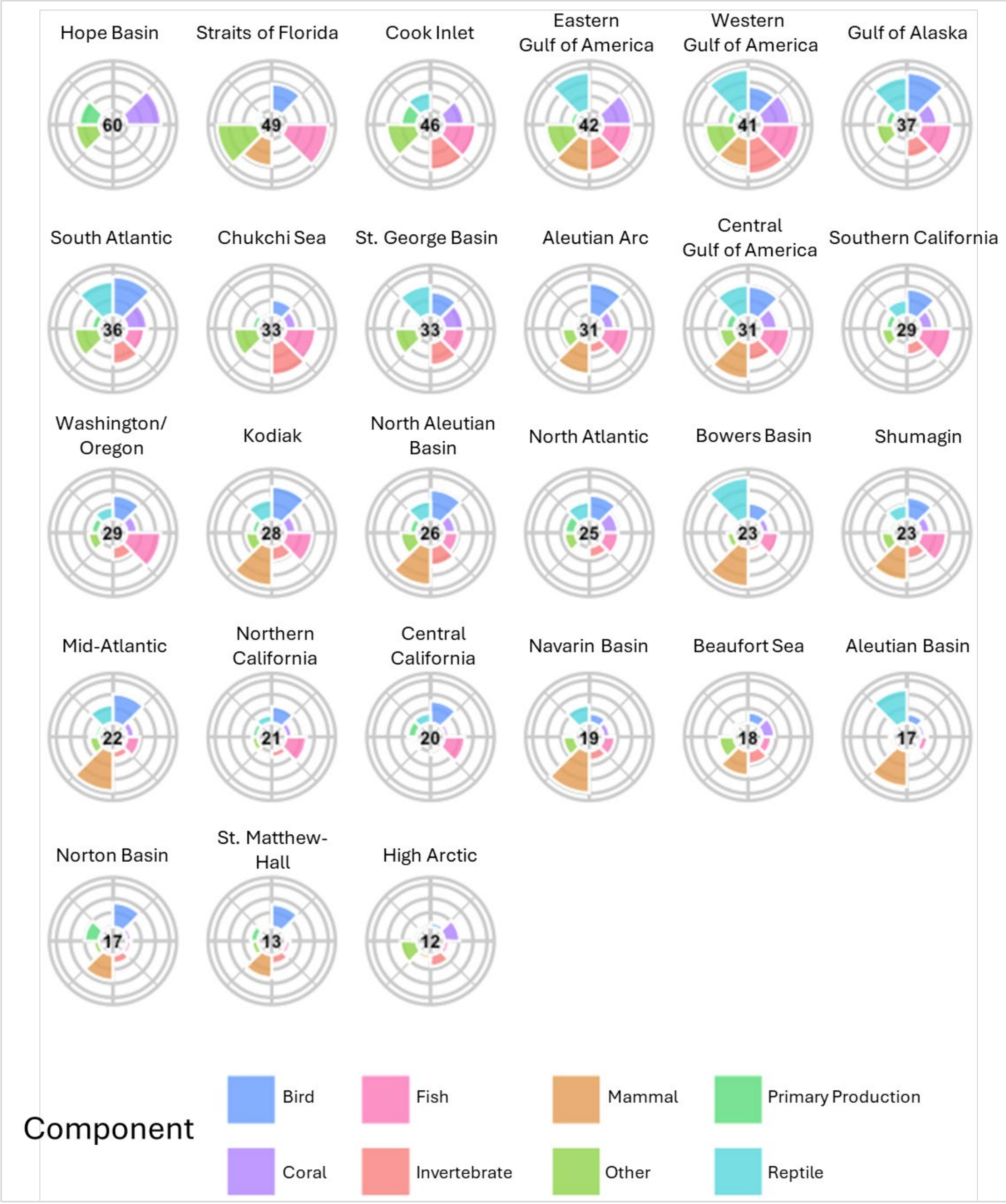
10.1.4 Visualization and Decision Support

The MST uses interactive visualizations, such as the flower plot (see Figure 10-2), to convey complex vulnerability assessment results. This tool allows stakeholders, scientists, and decisionmakers to understand the underlying components contributing to an area's vulnerability to offshore energy development. The length of each petal reflects the sensitivity score for a particular component or taxonomic group, while future iterations could use petal width to represent component weighting. By visualizing these component scores, the flower plot helps decisionmakers quickly identify which ecological elements are driving vulnerability in a given location, supporting more informed spatial planning and impact assessment.

10.1.5 Results and Discussion

This assessment identifies marine sensitivity patterns across 27 distinct biogeographic regions within U.S. waters, ranging from the U.S. Northeast Atlantic to the Arctic Ocean (see Figure 10-2 through Figure 10-6 and Table 10-2). High-sensitivity areas are characterized by elevated biological productivity, critical habitat for endangered and threatened species, and complex oceanographic features that support exceptional biodiversity.

Figure 10-2: Environmental Sensitivity Scores by Taxonomic Group across Planning Areas



Notes: Each flower plot represents a planning area, with petals showing relative sensitivity scores for bird, fish, mammal, primary productivity, coral, invertebrate, other, and reptile. The number in the center is the overall sensitivity score for that planning area. Higher scores (larger petals) indicate greater environmental sensitivity. .

Table 10-2: Environmental Sensitivity Scores by Taxonomic Group per Planning Area

Rank	Planning Area	Score	Component							
			Primary Production	Birds	Coral	Fish	Invertebrates	Mammals	Reptiles	Other
1.	Hope Basin	60	27	74	48	78	68	92	N/A	33
2.	Straits of Florida	49	5	37	69	60	65	38	63	57
3.	Cook Inlet	46	21	91	28	44	44	71	26	41
4.	Eastern GOA	42	7	65	39	40	45	47	54	41
5.	Western GOA	40	10	34	39	52	50	40	58	40
6.	Gulf of Alaska	37	10	53	22	43	27	71	47	23
7.	South Atlantic	36	10	54	28	24	30	62	47	35
8.	St. George Basin	33	4	32	27	28	32	71	41	31
9.	Chukchi Sea	33	7	21	15	42	46	66	N/A	34
10.	Aleutian Arc	31	2	44	15	36	14	44	76	18
11.	Central GOA	31	11	40	21	38	25	51	42	20
12.	Washington/Oregon	29	10	33	14	47	18	80	16	14
13.	Southern California	29	10	36	17	42	17	71	20	15
14.	Kodiak	28	8	45	14	37	19	55	27	17
15.	North Aleutian Basin	26	9	40	15	19	27	54	25	22
16.	North Atlantic	25	14	33	20	21	15	60	23	16
17.	Bowers Basin	23	2	22	10	22	6	56	58	10
18.	Shumagin	23	5	30	12	36	17	47	19	16
19.	Mid-Atlantic	22	5	41	10	18	10	56	26	13
20.	Northern California	21	7	23	9	29	9	70	11	8
21.	Central California	20	12	31	6	29	5	62	14	5
22.	Navarin Basin	19	3	13	9	16	13	59	25	17
23.	Beaufort Sea	18	5	15	17	13	18	35	N/A	21
24.	Norton Basin	17	20	34	6	6	12	36	N/A	7
25.	Aleutian Basin	16	2	12	6	9	1	50	47	5
26.	St. Matthew-Hall	13	10	32	5	6	12	32	2	8
27.	High Arctic	12	5	6	21	6	16	6	N/A	23

Figure 10-3: Environmental Sensitivity Scores aggregated to Alaska Planning Areas

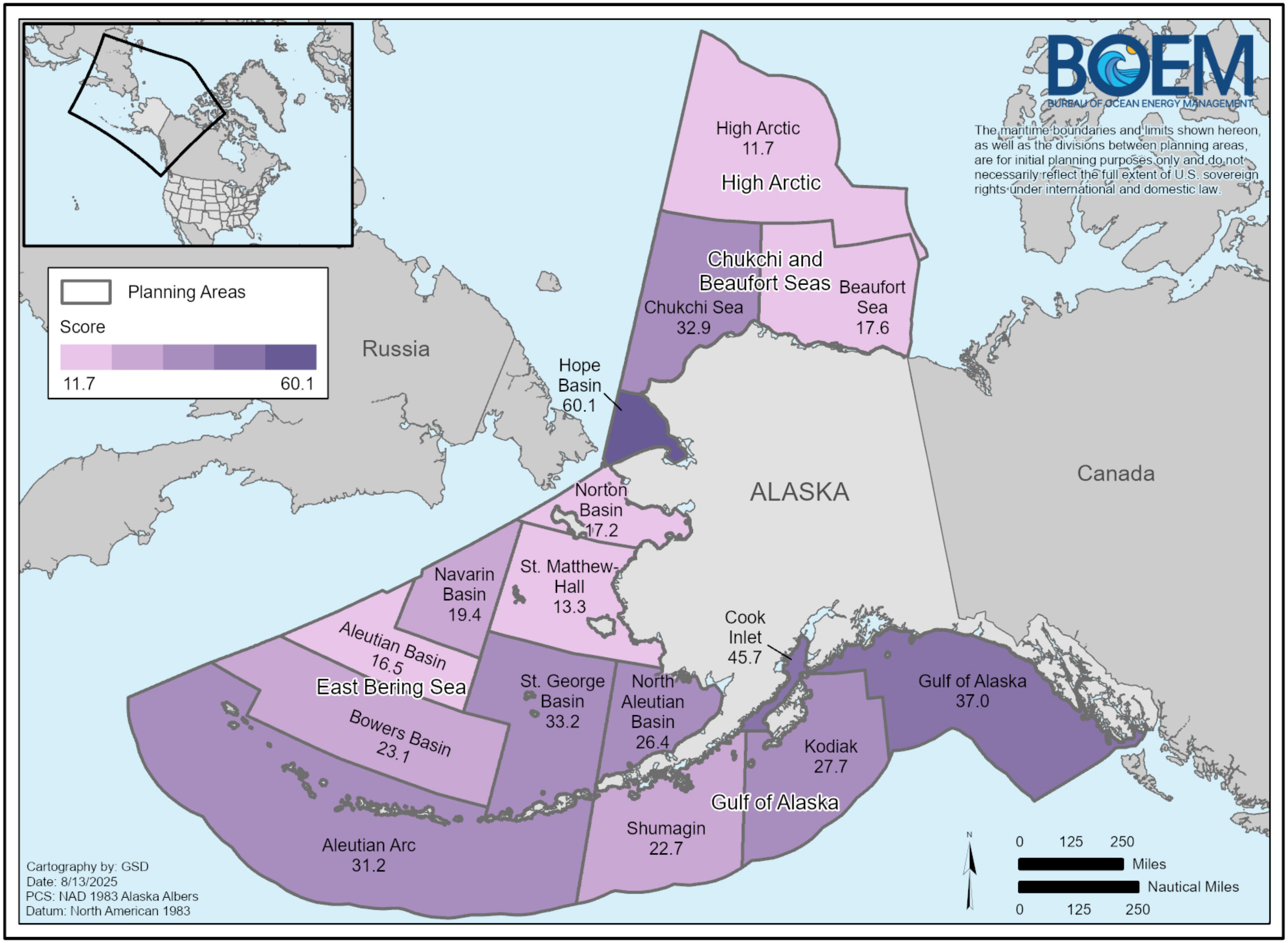
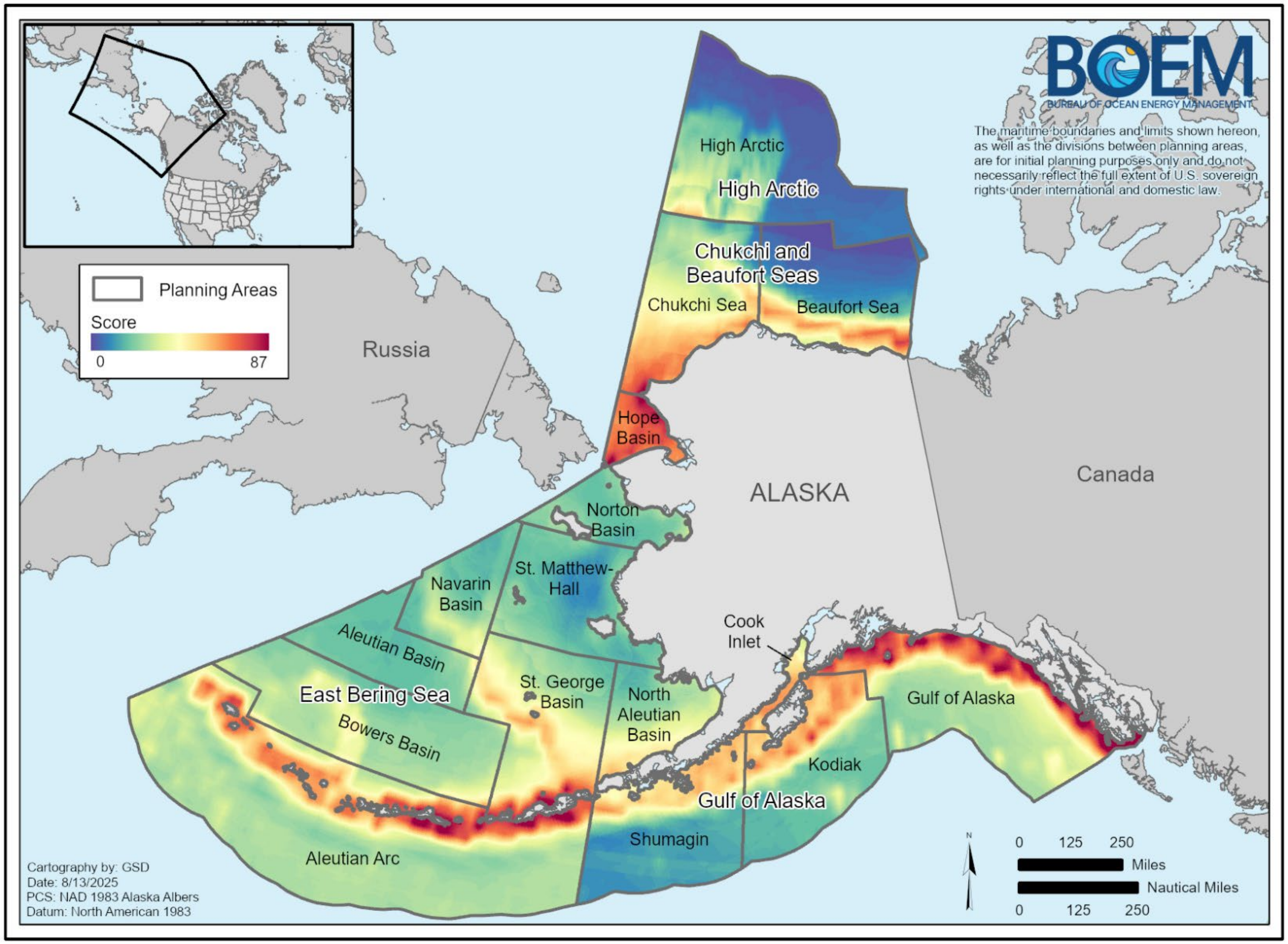


Figure 10-4: Environmental Sensitivity Scores across Alaska Planning Areas



Notes: The color gradient represents relative environmental sensitivity values ranging from 0 (lowest sensitivity, blue) to 87 (highest sensitivity, red), derived from integrated assessments of primary productivity, marine mammal populations, fish diversity, crustacean abundance, mollusk communities, sea turtle presence, and other ecological components. The High Arctic Planning Area was designated as its own ecoregion to ensure that sensitivity assessments accurately reflect its unique ecological characteristics without being skewed by comparisons to vastly different environments, enabling more precise and scientifically defensible offshore energy development decisions in this region.

Figure 10-5: Environmental Sensitivity Scores Aggregated to the Lower 48 Planning Areas

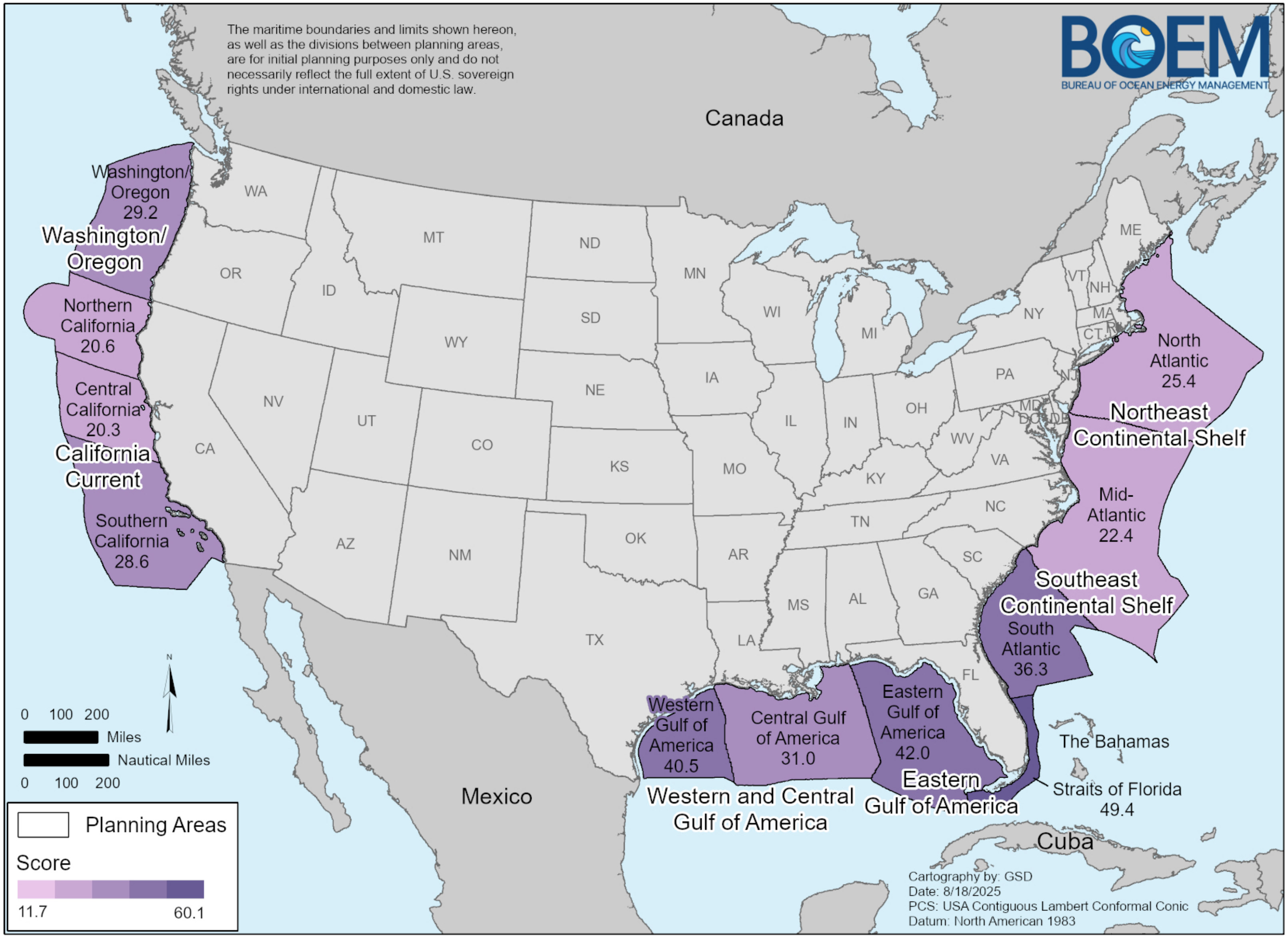
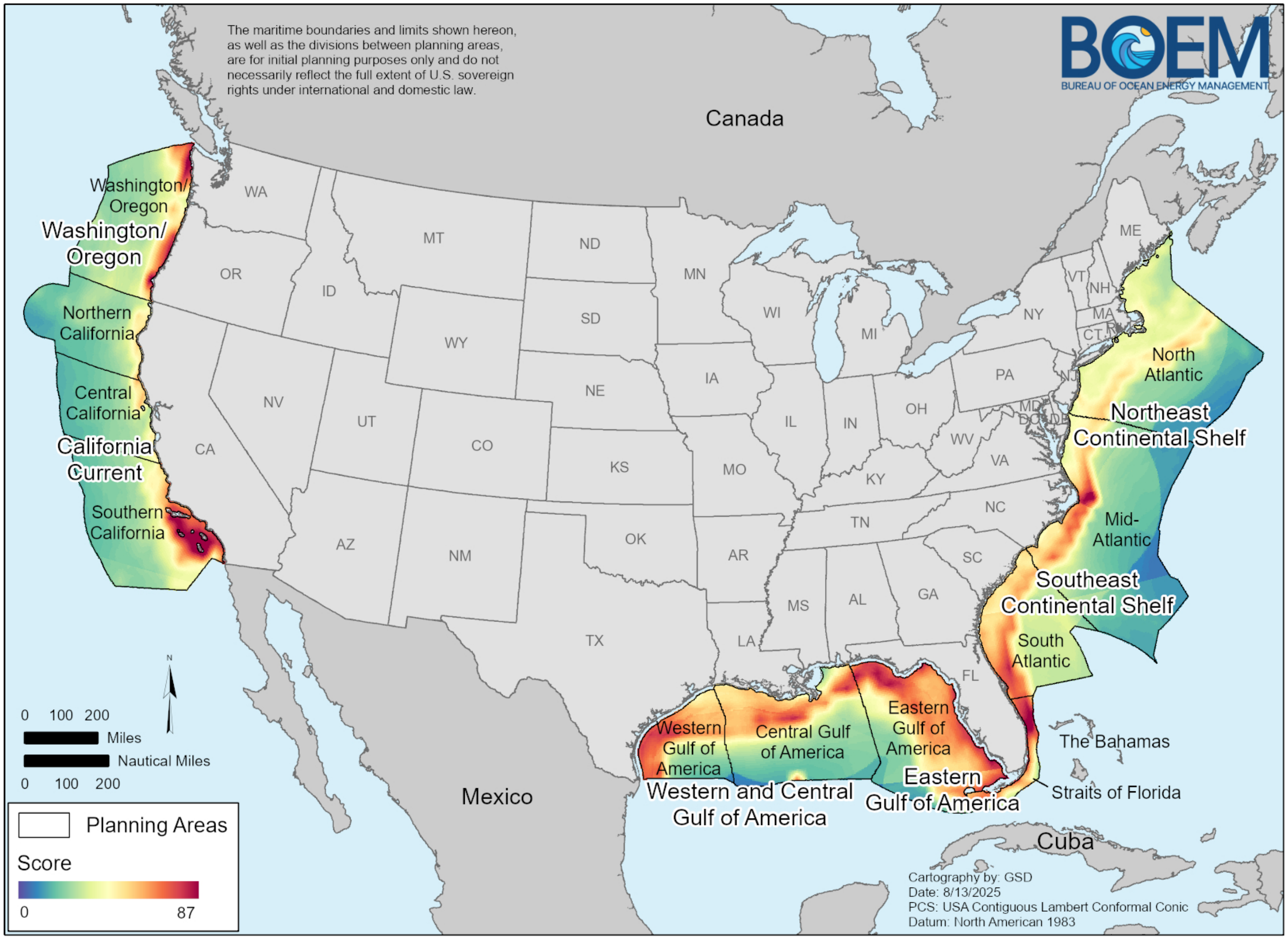


Figure 10-6: Environmental Sensitivity Scores across Planning Areas for the Contiguous United States



Notes: The color gradient represents relative environmental sensitivity values ranging from 0 (lowest sensitivity, blue) to 87 (highest sensitivity, red), derived from integrated assessments of primary productivity, marine mammal populations, fish diversity, crustacean abundance, mollusk communities, birds, sea turtle presence, and other ecological components.

The narratives are organized into four major regions: 1) Alaska, 2) Pacific, 3) GOA, and 4) Atlantic. Each region's overall sensitivity score, ranked from highest to lowest, is presented alongside its inter-planning area ranking.

10.1.5.1 Alaska Region

Figure 10-3 displays environmental sensitivity scores aggregated by planning area and Figure 10-4 shows the fine-scale spatial distribution of these scores.

Hope Basin: Score: 60.1 Rank 1/27

Hope Basin represents the most ecologically sensitive planning area among all 27 planning areas, with an exceptional sensitivity score of 60.1 covering 51,573 km². This Arctic marine ecosystem demonstrates extraordinary ecological importance across multiple taxa: marine mammals (91.7), fish (78.0), seabirds (74.5), invertebrates (68.0), coral communities (47.8), and primary production (27.3). The region supports critical habitat for ESA-listed species including bowhead whales, which use Hope Basin waters during seasonal migrations and feeding activities (Quakenbush et al. 2018). Pacific walruses concentrate in shallow shelf waters for intensive benthic foraging on bivalves, polychaetes, and amphipods, with satellite tracking revealing strong site fidelity to productive foraging areas (Quakenbush et al. 2016). Seabird communities include spectacled eiders, thick-billed murres, and black-legged kittiwakes, which aggregate in response to zooplankton and fish prey concentrations (Kuletz et al. 2015). Fish assemblages are dominated by Arctic cod, providing energy-rich prey for marine mammals and seabirds, along with sculpins, flatfishes, and eelpouts that structure the demersal community (Thorsteinson and Love 2016a).

Physical and biological mechanisms driving species aggregations include the convergence of nutrient-rich Anadyr and Bering Shelf waters, which support elevated primary production and subsequent export to benthic communities (Grebmeier et al. 2015). Oceanographic fronts and upwelling processes concentrate zooplankton biomass, particularly copepods and euphausiids, creating predictable foraging hotspots for planktivorous species. Benthic invertebrate communities dominated by echinoderms, crustaceans, and mollusks create high-biomass prey fields supporting benthivorous marine mammals and diving seabirds. The region's shallow bathymetry (typically <50m) facilitates efficient energy transfer from primary producers to higher trophic levels through shortened food webs.

Cook Inlet: Score: 45.7 Rank 3/27

This 21,573 km² planning area exhibits substantial fish populations (fish score: 43.8) including all five Pacific salmon species, Pacific herring, and diverse groundfish that support commercial, recreational, and subsistence fisheries. Key forage fish species including Pacific sand lance, capelin, herring, and juvenile walleye pollock sustain large resident and migratory seabird populations, making Cook Inlet one of Alaska's most important marine bird areas (Piatt et al. 2007). High marine mammal scores (mammal score: 70.7) reflect the presence of the endangered Cook Inlet beluga whale distinct population segment, with only 331 remaining individuals as of 2022, alongside harbor seals, harbor porpoises, and seasonal presence of humpback whales (Goetz et al. 2023).

The region's primary productivity (primary productivity score: 21.2) is enhanced by glacial runoff, tidal mixing, and seasonal upwelling, supporting complex coastal food webs. Cook Inlet experiences extreme tidal ranges up to 11 meters in upper reaches, creating dynamic oceanographic conditions that influence nearshore substrates and biological communities (Coletti et al. 2017). The area serves as critical habitat for diverse seabird communities (bird score: 91.3), with seasonal variations in species composition including white-winged scoters, common murres, black-legged kittiwakes, red-necked phalaropes, and sooty shearwaters. Seabird densities are consistently high throughout most seasons, reaching 18–20 birds per km² in winter, spring, and summer(Kuletz and Labunski 2017).

ESA-listed species include the threatened Steller's eider occurring seasonally, while marbled and Kittlitz's murrelets are species of high conservation concern in Alaska. The region's nearshore rocky habitats support diverse invertebrate and algal communities (invertebrate score: 44.0), including commercially important razor and butter clams, while serving as nursery grounds for marine animals and feeding areas for higher trophic levels (Coletti et al. 2017). Cook Inlet's marine ecosystem demonstrated vulnerability during the 2014–2016 marine heatwave, which caused severe disruptions to forage fish communities and seabird reproductive success, highlighting the system's sensitivity to environmental stressors (Arimitsu et al. 2021b). Sea turtles are extremely rare in these subarctic waters, with only occasional vagrant warm-water species observed during exceptional oceanographic events.

Gulf of Alaska: Score: 37.0 Rank 6/27

The Gulf of Alaska Planning Area encompasses 383,210 km² of highly productive subarctic waters supporting exceptional marine biodiversity and representing one of North America's most ecologically significant marine ecosystems. This region demonstrates elevated environmental sensitivity with substantial fish populations (fish score: 43.1) including all five Pacific salmon species, Pacific herring, walleye pollock, Pacific cod, and diverse groundfish assemblages that support both commercial fisheries and complex food webs. Critical forage fish species including sand lance, capelin, herring, and juvenile pollock sustain large resident and migratory seabird populations, making the Gulf one of the most important marine bird areas globally (Baird et al. 1983, Hunt et al. 2005). The region's exceptional marine mammal diversity (mammal score: 71.2) includes endangered western DPS Steller sea lions, threatened Mexico and endangered Western North Pacific DPS of humpback whales, endangered fin whales, harbor seals, northern fur seals, and diverse cetaceans that use the region's productive waters for feeding, breeding, and migration (NOAA 2024a).

The Gulf hosts globally significant seabird populations (bird score: 53.4) with more than 14 million colonial seabirds representing 31 species, including six species with populations exceeding one million individuals: fork-tailed storm-petrels, tufted puffins, Leach's storm-petrels, common murres, black-legged kittiwakes, and horned puffins (Baird et al. 1983, Hunt et al. 2005). ESA-listed species include threatened marbled murrelets dependent on old-growth forests for nesting and nearshore waters for foraging, threatened Steller's eiders wintering in protected bays, and endangered short-tailed albatrosses occasionally foraging in offshore waters. Important seaducks include harlequin ducks and surf scoters, while shorebirds such as black oystercatchers use rocky intertidal habitats.

Physical and biological mechanisms driving species aggregations center on complex oceanographic processes that create predictable biodiversity hotspots throughout the region. The Alaska Coastal Current and interactions with bathymetric features including submarine canyons, seamounts, and the continental shelf break generate upwelling processes and frontal zones that concentrate nutrients and prey species (Hunt et al. 2005). The region around Kodiak Island represents an exceptionally rich foraging ground with submarine canyons and strong currents creating much higher seabird densities (125 birds/km^2 in summer, 128 birds/km^2 in winter) compared to other Gulf areas, supporting the highest seabird densities documented in any North Pacific region (Hunt et al. 2005). Primary productivity (primary productivity score: 9.9) enhanced by glacial runoff, tidal mixing, and seasonal upwelling supports energy transfer through shortened food webs. The region's sensitivity to external stressors was demonstrated during the 2014–2016 marine heatwave, which caused unprecedented Common Murre die-offs exceeding one million individuals and widespread seabird breeding failures due to forage fish community collapse (Arimitsu et al. 2021b, Piatt et al. 2004).

St. George Basin: Score: 33.2 Rank 8/27

Covering 282,988 km^2 of southeastern Bering Sea waters, the St. George Basin Planning Area is driven by exceptional marine mammal populations (mammal score: 70.8) and globally significant seabird colonies (bird score: 32.1). The region's productive shelf break, known as the Bering Sea "Green Belt," features upwelling processes that fuel rich pelagic food webs (Kuletz and Labunski 2017). Key fish communities (fish score: 28.5) are dominated by walleye pollock and Pacific cod, vital for both commercial fisheries and ecosystem function. The basin supports large breeding aggregations of depleted northern fur seals and endangered western DPS Steller sea lions, alongside diverse cetaceans including endangered Western North Pacific DPS and threatened America DPS humpback whales, endangered fin whales, and endangered sperm whales (NOAA 2024a). The Pribilof Islands host some of the world's largest seabird colonies, with millions of breeding individuals including thick-billed murres, common murres, black-legged kittiwakes, and least auklets. ESA-listed short-tailed albatross occasionally forage in the area, while threatened Steller's eider occurs seasonally. Sea turtles are extremely rare in these subarctic waters, with no documented occurrences due to the region's cold temperatures.

Chukchi Sea: Score: 32.9 Rank 9/27

Covering 251,551 km^2, the Chukchi Sea Planning Area functions as a highly productive Arctic gateway where nutrient-rich Anadyr and Bering Shelf waters converge with warm, fresh Alaska coastal water (Moore and Stabeno 2015). Hanna Shoal, a shallow feature at about 40 m depth, represents a persistent biological hotspot, driving intense summer productivity through upwelling and water mass mixing (Grebmeier et al. 2015). While annual average primary productivity (primary productivity score: 7.2) appears lower than expected due to long, dark winters, the Chukchi experiences one of the Arctic's most intense summer phytoplankton blooms, fueling exceptionally rich food webs that support diverse marine communities. The area exhibits elevated sensitivity with exceptional marine mammal populations (mammal score: 65.9), including Pacific walrus, endangered bowhead whales, and ice-dependent seals such as threatened bearded and ringed seals (Young et al., 2024). Gray whales congregate in large numbers to feed on the rich benthic communities (invertebrate score: 45.8), particularly around Hanna Shoal. Substantial fish scores (fish score: 41.8) reflect diverse Arctic fish communities dominated by Arctic cod, saffron cod, and Arctic char, which form the foundation of polar food webs. The Chukchi Sea hosts globally significant seabird populations (bird score: 20.8), with millions of individuals congregating during the productive summer months (Kuletz et al. 2015, Kuletz et al. 2024).

Planktivorous seabirds including crested and least auklets form massive feeding flocks over areas of concentrated zooplankton, while piscivorous thick-billed murres and black-legged kittiwakes target areas with abundant forage fish. During post-breeding and fall migration, the Chukchi Sea supports enormous concentrations of short-tailed shearwaters that travel from Southern Hemisphere breeding grounds to exploit the seasonal productivity. ESA-listed spectacled eiders and Steller's eiders occur seasonally in significant numbers, with the former using offshore leads during spring migration and molting areas in late summer. Other important seaducks include king eiders, common eiders, and long-tailed ducks that migrate through and stage in coastal areas. The nearshore Chukchi Sea provides critical feeding and staging habitat for numerous shorebird species breeding on the adjacent Arctic Coastal Plain, including red phalaropes, dunlin, and semipalmated sandpipers (Larned et al. 2011). Sea turtles are extremely rare in these Arctic waters, with no documented occurrences due to the region's cold temperatures.

Aleutian Arc: Score: 31.2 Rank 10/27

This expansive 870,009 km² planning area exhibits exceptional fish diversity (fish score: 36.4), dominated by Atka mackerel, walleye pollock, and Pacific cod that support complex marine food webs and major commercial fisheries. Marine mammal scores (mammal score: 43.9) reflect the presence of endangered western DPS Steller sea lions, northern fur seals, harbor seals, and diverse cetaceans including endangered fin and sperm whales and threatened humpback whales that utilize the region's productive waters (NOAA 2024a). The area serves as critical habitat for the endangered North Pacific right whale, one of the world's most imperiled whale species, with a population estimated at fewer than 50 individuals in the eastern North Pacific stock. Despite low primary productivity (primary productivity score: 1.5), the region maintains exceptional ecological richness through complex oceanographic processes, with productivity hotspots associated with strong currents, upwelling, and passes between islands that concentrate nutrients and prey (Moore and Stabeno 2015).

The Aleutian Arc is globally significant for seabirds (bird score: 44.3), supporting some of the world's largest colonies with an estimated 10 million breeding individuals across the archipelago (Renner et al. 2008, Stephensen and Irons 2003). Massive colonies of least and crested auklets exploit zooplankton concentrations in productive passes, while thick-billed murres, black-legged kittiwakes, and tufted puffins form dense breeding aggregations on suitable cliff habitats throughout the island chain. The endangered short-tailed albatross, once thought extinct and now recovering with a global population of approximately 7,000 individuals, regularly forages in Aleutian waters during non-breeding periods. Threatened Steller's eider winters in protected bays and passes, particularly in the eastern Aleutians. Other important seaducks include king eider, common eider, and harlequin duck, which use nearshore habitats for feeding and molting.

The region supports distinct subspecies of rock sandpiper that are endemic to specific islands, while black oystercatchers maintain year-round territories along rocky shorelines. Populations include commercially important communities adapted to the region's dynamic environment, with unique hydrothermal vent communities occurring along the arc's active volcanic features (invertebrate score: 14.5). Sea turtles are extremely rare in these subarctic waters, with only occasional vagrant leatherbacks observed during exceptional warm-water events.

Kodiak: Score: 27.7 Rank 14/27

This 274,053 km² area surrounding Kodiak Island exhibits exceptional fish diversity (fish score: 37.3) including all five Pacific salmon species, Pacific halibut, and numerous rockfish species that support robust commercial and subsistence fisheries. Marine mammal scores (mammal score: 54.8) reflect the presence of endangered western DPS Steller sea lions, harbor seals, and diverse cetaceans including threatened America DPS and endangered Western North Pacific DPS humpback whales, endangered fin whales, and killer whales utilizing the region's productive waters (NOAA 2024a). Primary productivity (primary productivity score: 7.7), enhanced by glacial runoff and strong tidal mixing, supports complex coastal food webs characteristic of the Gulf of Alaska ecosystem. Kodiak's habitats support exceptional seabird diversity (bird score: 45.3), including large colonies of common murres, tufted and horned puffins, black-legged kittiwakes, and glaucous-winged gulls. ESA-listed Steller's eider winters in the region, while marbled murrelets occur as a species of conservation concern. Important shorebirds include western sandpipers and black oystercatchers that use the area's diverse coastal habitats. Sea turtles are extremely rare in these subarctic waters, with only occasional vagrant leatherbacks observed during exceptional oceanographic events.

North Aleutian Basin: Score: 26.4 Rank 15/27

Encompassing 130,733 km² of shallow Bering Sea waters, this planning area shows a surprisingly low sensitivity score that may not fully capture its ecological significance. Primary productivity (primary productivity score: 9.4) supports diverse biological communities, particularly in Bristol Bay, one of the world's most productive marine ecosystems (Stabeno et al. 2012). While our analysis shows minimal fish diversity (fish score: 18.6), this area supports the world's largest sockeye salmon run and serves as critical nursery habitat for commercially important groundfish including walleye pollock and Pacific cod. Marine mammal scores (mammal score: 54.1) reflect the presence of northern fur seals, harbor seals, and seasonal migrations of endangered North Pacific right whales, endangered fin whales, and threatened America DPS humpback whales (NOAA 2024a). The area serves as critical habitat for globally significant seabird populations (bird score: 40.5), including thick-billed murres, common murres, black-legged kittiwakes, and tufted puffins (Kuletz et al. 2015).

ESA-listed short-tailed albatross and Steller's eider utilize the area seasonally, while important seaducks include king eiders and long-tailed ducks. The basin provides critical stopover habitat for migratory shorebirds including bar-tailed godwits and dunlin (Stephensen and Irons 2003). Sea turtles are extremely rare in these subarctic waters, with no documented occurrences due to the region's cold temperatures. This low sensitivity score will be reassessed in future iterations as we incorporate additional datasets to better reflect the region's true ecological importance, particularly its role in supporting globally significant salmon runs and diverse marine communities.

Bowers Basin: Score: 23.1 Rank 17/27

This 353,087 km² central Bering Sea Planning Area, despite very low local primary productivity (primary productivity score: 1.8), relies on nutrients advected from the productive Bering Sea shelf. Substantial fish populations (fish score: 22.5) are dominated by juvenile walleye pollock and Pacific herring, which support trans-Pacific food webs and marine predators (Norcross et al.

2017). Marine mammal scores (mammal score: 56.0) reflect the basin's importance as a migratory corridor and foraging ground for northern fur seals, endangered North Pacific right whales, and endangered western DPS Steller sea lions (NOAA 2024a). The basin serves as globally significant foraging habitat for millions of seabirds (bird score: 21.8), including short-tailed and sooty shearwaters, thick-billed murres, black-legged kittiwakes, and northern fulmars (Stephensen and Irons 2003). ESA-listed Steller's eider may occur during migration, while pelagic shorebirds like red phalaropes use the area seasonally. Sea turtles are extremely rare in these subarctic waters, with no documented occurrences due to the region's cold temperatures.

Shumagin: Score: 22.7 Rank 18/27

This 278,322 km² western Gulf of Alaska planning area with substantial fish populations (fish score: 35.6), is dominated by walleye pollock, Pacific cod, and Atka mackerel, which support both commercial fisheries and ecosystem function. Marine mammal scores (mammal score: 47.0) reflect the presence of endangered western DPS Steller sea lions, northern fur seals, and diverse cetaceans including ESA-listed humpback whale DPSs, endangered sperm whales, and killer whales that use the region's productive waters (NOAA 2024a). Despite low primary productivity (primary productivity score: 5.0) typical of offshore waters, the area supports efficient energy transfer through marine food webs (Kuletz and Labunski 2017). The Shumagin area supports diverse and abundant seabird populations (bird score: 30.1), including fork-tailed and Leach's storm-petrels, alcids such as common and thick-billed murres, tufted and horned puffins, and surface-feeding species like black-legged kittiwakes and northern fulmars associated with productive shelf and slope habitats. E SA-listed short-tailed albatross occasionally forage in the area, while Steller's eiders may occur during migration(Kuletz and Labunski 2017). Limited communities adapted to the region's dynamic environment (invertebrate score: 16.7). Sea turtles are extremely rare in these subarctic waters, with only occasional vagrant leatherbacks observed during exceptional oceanographic conditions.

Navarin Basin: Score: 19.4 Rank 22/27

This 137,035 km² deep Bering Sea Planning area exhibits low sensitivity with minimal primary productivity (primary productivity score: 3.0), although it includes portions of the productive Bering Sea slope where upwelling creates localized hotspots of biological activity (Stabeno et al. 2012). Limited fish diversity (fish score: 16.3) consists primarily of mesopelagic species with some commercially important groundfish including walleye pollock and Pacific cod along the continental slope. Marine mammal scores (mammal score: 58.8) reflect the basin's role as important foraging habitat for northern fur seals and endangered western DPS Steller sea lions during oceanic migrations, alongside seasonal presence of endangered fin whales, endangered sperm whales, and threatened humpback whales (NOAA 2024a). The basin supports significant populations of pelagic seabirds (bird score: 13.3), particularly during summer months when millions of short-tailed shearwaters, northern fulmars, and fork-tailed storm-petrels forage along productivity fronts. ESA-listed short-tailed albatross occasionally use the area during foraging trips from breeding colonies in Japan (Kuletz et al. 2015). Sea turtles are extremely rare in these subarctic waters, with no documented occurrences due to the region's cold temperatures.

Beaufort Sea: Score: 17.6 Rank 23/27

This 261,511 km² Arctic planning area exhibits low sensitivity with minimal primary productivity (primary productivity score: 4.8) constrained by extensive seasonal ice cover and limited nutrient availability (Moore and Stabeno 2015). Limited fish diversity (fish score: 12.8) consists primarily of Arctic cod, Arctic char, and various sculpins adapted to extreme polar conditions (Logerwell et al. 2015). Marine mammal scores (mammal score: 34.6) reflect the presence of endangered bowhead whales that have recovered significantly, threatened ringed and bearded seals, and polar bears that depend on sea ice habitats (NOAA 2024a). The Beaufort Sea supports significant seabird populations (bird score: 14.8) during the brief open-water season, including black guillemots, thick-billed murres, and northern fulmars. ESA-listed spectacled eiders use offshore leads during spring migration, while king eiders and long-tailed ducks occur in coastal areas (Kuletz et al. 2015). Sea turtles are extremely rare in these Arctic waters, with no documented occurrences due to the region's cold temperatures.

Norton Basin: Score: 17.2 Rank 24/27

This 97,568 km² nearshore planning area demonstrates a surprisingly low sensitivity score that may not fully capture its ecological significance. The area exhibits primary productivity (primary productivity score: 20.1) driven by nutrient-rich freshwater inputs from the Yukon River and shallow water mixing. While our analysis shows minimal fish diversity (fish score: 5.6), this likely underrepresents the actual fish community that includes important populations of saffron cod, Arctic cod, various sculpins, and seasonal salmon runs in addition to Arctic cisco, supporting both commercial and vital subsistence fisheries. The seafloor hosts abundant Pacific walrus, bearded seals, and diving sea ducks (Grebmeier et al. 2015). Marine mammal scores (mammal score: 35.6) reflect seasonal use by ice-associated seals, beluga whales, and Pacific walrus (Young et al., 2024). The basin is an internationally recognized Important Bird Area (bird score: 33.9), serving as critical habitat for ESA-threatened spectacled eiders and Steller's eiders, alongside significant populations of king eiders, common eiders, and long-tailed ducks. It provides essential stopover habitat for migratory shorebirds breeding on the adjacent Yukon-Kuskokwim Delta, including western sandpipers, dunlin, and bar-tailed godwits (Kuletz and Labunski 2017). Sea turtles are extremely rare in these subarctic waters, with no documented occurrences due to the region's cold temperatures. This low sensitivity score will be reassessed in future iterations as we incorporate additional datasets to better reflect the region's true ecological importance, particularly its role in supporting subsistence harvesting and protected species.

Aleutian Basin: Score: 16.5 Rank 25/27

This vast 166,521 km^2 deep water planning area exhibits minimal primary productivity (primary productivity score: 2.1) typical of open ocean environments (Stabeno et al. 2012). Limited fish diversity (fish score: 9.1) consists primarily of mesopelagic species with some commercially important groundfish including walleye pollock and Pacific cod along the basin margins. Marine mammal scores (mammal score: 50.2) reflect the basin's role as important foraging habitat for northern fur seals and endangered western DPS Steller sea lions during oceanic migrations, alongside seasonal presence of endangered fin whales, endangered sperm whales, and threatened humpback whales (NOAA 2024a). While lacking significant breeding colonies, the Aleutian Basin serves as an important migratory corridor and foraging area for wide-ranging pelagic seabirds (bird score: 12.3), including endangered short-tailed albatross, vulnerable black-footed albatross, Laysan albatross, northern fulmar, and sooty shearwater (Kuletz et al. 2015). These species typically concentrate along oceanographic fronts and eddies where productivity is locally enhanced, although overall seabird densities remain low compared to shelf and coastal regions. Seaducks and shorebirds are generally absent from the deep basin, as their distributions are closely tied to coastal and shelf habitats. Sea turtles are extremely rare in these subarctic waters, with only occasional vagrant leatherbacks observed during exceptional warm-water events.

St. Matthew-Hall: Score: 13.3 Rank 26/27

The St. Matthew-Hall Planning Area in the central Bering Sea exhibits a surprisingly low sensitivity score that contrasts with its known ecological importance as part of one of the most productive marine ecosystems on the planet. This discrepancy likely reflects data gaps in the current analysis, as certain regional datasets may not have been fully incorporated in this first assessment iteration. The region is a critical component of the Bering Sea "Green Belt," a zone of exceptionally high primary productivity that supports diverse and abundant biological communities (Stabeno et al. 2012). Substantial fish populations (fish score: 5.9) include globally significant commercial stocks of walleye pollock, Pacific cod, yellowfin sole, and various flatfishes that form the foundation of one of the world's largest fisheries.

St. Matthew and Hall Islands host some of North America's largest seabird colonies (bird score: 31.6). The area serves as a critical migratory corridor for several whale species and a major haulout site for Pacific walrus (mammal score: 31.9). Sea turtles are extremely rare in these subarctic waters, with no documented occurrences due to the region's cold temperatures. As this analysis framework continues to evolve, future iterations will incorporate additional datasets to better reflect the known ecological significance of this region, potentially resulting in revised sensitivity scores that more accurately capture its true biological importance.

High Arctic: Score: 11.7 Rank 27/27

This vast 437,823 km² planning area represents one of the most remote and data-deficient marine environments globally, with an environmental sensitivity score that reflects significant knowledge gaps rather than low ecological importance. The region's year-round ice coverage and extreme logistical constraints severely limit scientific access, resulting in "sparsely documented" fish communities (fish score: 6.0) despite the likely presence of circumpolar Arctic species including Arctic cod, sculpins, and eelpouts (Logerwell et al. 2015, Norcross et al. 2017). A low score for fish communities indicates research limitations rather than species absence—under-ice sampling efforts reveal extreme difficulties accessing populations through ice often 1.5–2 meters thick, requiring specialized equipment and extensive logistical support that make comprehensive assessment prohibitively challenging.

The High Arctic supports critical ice-obligate marine mammals including polar bears and ringed seals that depend on stable sea ice for breeding and foraging (NOAA 2024a). Unlike shallower shelf seas, this deep basin environment is not suitable habitat for bottom-feeding species like walrus, which require access to benthic communities (invertebrate score: 15.9) in waters typically less than 100 meters deep. Seabird communities (bird score: 5.8) use ice-edge environments and polynyas during brief accessible periods (Kuletz et al. 2015). The High Arctic's marine productivity is driven by ice-edge dynamics, with primary production concentrated in areas where sea ice interacts with underlying water masses (Moore and Stabeno 2015). The region's extreme seasonal light variation and persistent ice cover create unique ecological conditions that support specialized communities adapted to these harsh environments. Enhanced research capabilities and innovative sampling methods are critically needed to assess this unique marine ecosystem where ice-edge dynamics drive productivity patterns fundamentally different from other Arctic regions (Grebmeier et al. 2015, Kuletz and Labunski 2017).

10.1.5.2 Pacific Region

Washington/Oregon: Score: 29.2 Rank 12/27

The Washington/Oregon Planning Area supports exceptional marine biodiversity across its 235,928 km² expanse. The planning area supports diverse assemblages of marine birds and shorebirds using nearshore and offshore habitats for foraging, breeding, and migration (bird score: 33.2). Critical seabird species include the federally threatened Marbled Murrelet, state endangered Tufted Puffin, and Common Murre, alongside highly mobile species such as Sooty

Shearwater and Black-footed Albatross that aggregate in productive feeding areas and exhibit distinct year-round and diel habitat use patterns (Orben et al. 2025).

Marine mammals are exceptionally diverse (mammal score: 80.2), represented by humpback whale populations federally listed as threatened and endangered, state sensitive gray whales, and abundant harbor porpoise and Dall's porpoise populations (Menza et al. 2015). The region's benthic communities feature diverse macrofaunal assemblages structured by depth, sediment characteristics, and organic carbon content, with deep sea corals (coral score: 14.2) and sponges creating three-dimensional habitat complexity that supports hotspots of biological diversity. These structure-forming organisms, including gorgonian octocorals and black corals, provide critical refuge and substrate for numerous invertebrates (invertebrate score: 17.7) and commercially important groundfish species (fish score: 47.4), making them essential components of the marine ecosystem's trophic web.

Species aggregations in the planning area are driven by dynamic oceanographic processes within the California Current System that create predictable productivity hotspots (primary productivity score: 10.5). The Columbia River plume represents the most significant habitat feature, supplying 77% of regional freshwater discharge and serving as a major source of dissolved organic material, nutrients, and trace metals that fuel elevated net primary production (Schulien et al., 2020).

Within this dynamic system, zooplankton biomass concentrates along strong density gradients, creating prey aggregations that attract diverse mesopredators including seabirds, marine mammals, and commercially important fish species. Heceta Bank, approximately 55 km offshore of Oregon, functions as another critical productivity hotspot where unique biochemical conditions promote high phytoplankton production (Schulien et al., 2020). Intermittent upwelling events occurring at 2–10 day intervals coincide with phytoplankton bloom cycles, while frontal boundaries associated with submarine canyons enhance coastal upwelling and create persistent feeding areas. The region also supports reptile populations (reptile score: 16.2) including occasional leatherback sea turtles.

Southern California: Score: 28.6 Rank 13/27

The Southern California Planning Area represents one of the most ecologically significant marine regions along the U.S. Pacific Coast, spanning 275,863 km² and supporting federally threatened or endangered species through complex oceanographic processes and diverse habitat types (BSEE and USCG 2024). High-resolution spatial modeling of 33 individual seabird species demonstrates that distributions result from intricate interactions between foraging behavior and environmental factors, with chlorophyll-*a* concentration serving as a primary predictor reflecting fundamental productivity patterns (bird score: 36.0) (Leirness et al. 2021).

Critical species assemblages include eight marine mammal species (mammal score: 71.2) such as endangered blue whales and North Pacific right whales, four sea turtle species including critically endangered leatherback turtles (reptile score: 20.5), and recovering seabird populations like the California least tern. The region's productivity (primary productivity score: 9.6) is driven by seasonal upwelling, mesoscale eddies, and frontal systems created by converging water masses including the California Current and Southern California Countercurrent, which concentrate nutrients and support complex food webs extending from zooplankton and krill to apex predators around the Channel Islands where critical habitat designations protect essential foraging areas.

Benthic communities constitute globally significant biodiversity hotspots, with comprehensive habitat suitability modeling identifying 32 species and genera of deep sea corals and 13 species and genera of deep sea sponges at 200-by-200-meter resolution (coral score: 16.6). Structure-forming species including colonial cup coral, Christmas tree coral, and stony coral create three-dimensional habitat complexity around Channel Islands and offshore banks, supporting diverse fish (fish score: 42.0) and invertebrate assemblages (invertebrate score: 17.0).

Kelp forest ecosystems dominated by giant kelp provide critical nursery habitat, while threatened invertebrates such as white abalone and sunflower sea star represent key rocky reef components. The convergence of multiple water masses with complex bathymetry including submarine canyons, seamounts, and island shelves generates spatial heterogeneity necessary to support multispecies aggregations, with areas of high habitat suitability for multiple coral taxa occurring on continental shelf and upper slope environments, maintaining the region's status as a marine biodiversity hotspot.

Northern California: Score: 20.6 Rank 20/27

The Northern California Planning Area encompasses a dynamic 170,941 km^2 region characterized by the California Current System, which drives one of the most productive upwelling ecosystems in the world. Strong seasonal upwelling during spring and summer months creates nutrient-rich conditions supporting extraordinarily diverse marine communities, with the Cape Mendocino upwelling center generating persistent cold-water plumes with high chlorophyll-*a* concentrations (primary productivity score: 7.3) (Adams et al. 2014, Ainley et al. 2005, Checkley and Barth 2009).

Hydrographic fronts form where upwelled waters meet warmer offshore waters, creating productive convergence zones that concentrate zooplankton and krill, which serve as critical prey resources for higher trophic levels. Mesoscale eddies develop along these frontal boundaries, enhancing biological productivity and creating multispecies biodiversity hotspots where marine mammals (mammal score: 69.5), seabirds (bird score: 22.9), and fish (fish score: 28.7) aggregate to exploit concentrated prey resources. The region's distinctive bathymetry, including Bodega Canyon, Pioneer Seamount, and the continental shelf break, intensifies upwelling processes and creates localized productivity hotspots that support kelp forests in nearshore areas and deep sea coral communities (coral score: 8.6) along the continental slope.

The Northern California Planning Area supports critical populations of ESA-listed species, including endangered blue whales, fin whales, and leatherback sea turtles (reptile score: 11.0). This is alongside threatened America DPS and endangered Central America DPS humpback whales, with Western North Pacific gray whales representing the most vulnerable population exhibiting high vulnerability scores in nearshore waters during upwelling season (Southall et al. 2023).

Seabird communities are dominated by ecologically important species including common murres, sooty shearwaters, and black-footed albatrosses, with the endangered Marbled Murrelet using critical nearshore foraging habitat, while continental shelf-edge species such as Cassin's auklets and rhinoceros auklets show highest densities along productive upwelling fronts during spring and summer breeding seasons (Adams et al. 2014, Leirness et al. 2021).

The region's productivity supports abundant populations of commercially important groundfish species that depend on benthic macrofaunal communities (invertebrate score: 8.7) and krill swarms, while deep sea coral and sponge communities, including glass sponge taxa Staurocalyptus and Aphrocallistes vastus, create three-dimensional habitat structure that enhances local biodiversity by providing refuge and feeding areas for numerous associated species. Physical mechanisms driving these biodiversity hotspots include topographically enhanced upwelling at seamounts and canyon heads, tidal mixing over shallow banks, and the formation of retention zones in eddies and frontal convergences that concentrate prey and create predictable foraging opportunities for marine predators.

Central California: Score: 20.3 Rank 21/27

The Central California Planning Area encompasses one of the most productive marine ecosystems along the U.S. West Coast, with an area of 143,978 km^2. The assessment shows primary productivity (primary productivity score: 12.0), marine mammals (mammal score: 62.1), bird communities (bird score: 30.6), sea turtles (reptile score: 13.5), fish (fish score: 28.6), coral (coral score: 5.8), and invertebrates (invertebrate score: 5.0). This region is driven by the California Current upwelling system, which experiences intense seasonal upwelling from March through September, when persistent northwesterly winds drive surface waters offshore, allowing cold, nutrient-rich waters to rise from depth.

The upwelling process supports exceptional primary productivity, with chlorophyll-*a* concentrations reaching peak levels during spring and summer months. Complex bathymetric features, including the Monterey Submarine Canyon system and Santa Lucia Bank, create localized upwelling centers and retention areas that concentrate nutrients and prey species.

These oceanographic processes establish the Central California region as a critical foraging area within the broader California Current LME, supporting diverse marine food webs from phytoplankton to apex predators.

The planning area serves as essential habitat for numerous federally protected species, reflecting its role as a biodiversity hotspot. Blue whales and the Central American DPS of humpback whales use the region as primary feeding grounds, taking advantage of seasonal krill concentrations. Gray whales, including the endangered Western North Pacific DPS, are regular seasonal migrants through the area. Leatherback sea turtles forage extensively on jellyfish throughout the region, while the recovering Guadalupe fur seal population is increasingly present.

The area represents globally significant seabird habitat, supporting massive aggregations of sooty shearwaters (Shaffer et al. 2006), common murres, and ashy storm-petrels during peak abundance periods. The threatened Marbled Murrelet is a key species of concern in Central California waters, where these elusive seabirds forage extensively despite facing population declines due to old-growth forest habitat loss. Black-footed albatross and Cassin's auklets are also important species that regularly occur in the area, contributing to the region's significance as seabird habitat.

The complex marine environment created by upwelling and canyon systems provides critical foraging opportunities for both surface-feeding and diving seabirds throughout the year. While NOAA has designated portions of the region as critical habitat for Southern Resident killer whales, extending south to Point Sur, this represents the extreme southern periphery of their range where they are infrequent visitors; the killer whales more commonly observed in Central California waters are the mammal-eating Bigg's ecotype.

10.1.5.3 Gulf of America Region

Eastern Gulf of America: Score: 42.0 Rank 4/27

The Eastern GOA Planning Area represents a marine biodiversity hotspot. The West Florida Shelf, Florida Middle Grounds, and associated banks create a complex bathymetric foundation that interacts with the Loop Current to generate highly productive waters (primary productivity score: 6.7) supporting diverse ecosystems. These waters serve as core habitat for the critically endangered Rice's whale, with fewer than 100 individuals remaining worldwide, contributing to exceptional marine mammal diversity (mammal score: 46.6).

The region is critical for five ESA-listed sea turtle species (reptile score: 53.6), including the threatened loggerhead and green turtle, and the endangered Kemp's ridley, hawksbill, and leatherback turtle, with adult female loggerhead turtles establishing foraging areas primarily along the West Florida Shelf. The region supports substantial seabird populations (bird score:

64.8), including sooty terns, Audubon's shearwaters, and endangered black-capped petrels that concentrate along dynamic frontal zones (Haney et al. 2025, Michael et al. 2023). The Florida Middle Grounds support unique coral and algal communities on high-relief ridges (coral score: 39.2), while deep sea coral communities provide critical three-dimensional habitat structure for numerous fish (fish score: 39.9) and invertebrate species (invertebrate score: 44.7) throughout the planning area (Lecours et al. 2024).

The exceptional biodiversity of the Eastern GOA is driven by unique oceanographic mechanisms that enhance productivity and create ecological hotspots. The Loop Current, a dominant oceanographic feature, creates frontal boundaries and eddies that concentrate nutrients and prey, particularly along the West Florida Shelf where subsurface upwelling occurs when bottom water slides shoreward from Eckman transport (Michael et al. 2025). This upwelling mechanism is most pronounced from fall to spring when favorable winds enhance seasonal productivity.

The complex bathymetry of the region, including shelf break canyons and banks, creates localized areas of high productivity that serve as biological hotspots for flying fish and their predators, forming the foundation of complex food webs. These productive areas support facilitated foraging events where seabirds, particularly sooty terns, associate with subsurface predators like tunas to exploit concentrated prey resources. The region's position at the interface of temperate and tropical waters creates a biogeographic transition zone that enhances species diversity, while the semi-enclosed nature of the Gulf basin acts as a "vagrant trap" for wide-ranging species, further contributing to the area's remarkable biodiversity.

Western Gulf of America: Score: 40.5 Rank 5/27

This compact 115,835 km² region demonstrates exceptional sensitivity driven by critical habitat for globally endangered species and dynamic oceanographic processes that create biodiversity hotspots along the Texas-Louisiana continental shelf and slope. The region serves as the primary nesting habitat for the world's most endangered sea turtle, Kemp's ridley, with significant global nesting occurring along these shores, particularly reflecting nesting females from Texas and Rancho Nuevo, America (reptile score: 58.0).

Continental shelf waters support diverse marine mammal assemblages (mammal score: 39.8) including sperm whales, bottlenose dolphins, and pantropical spotted dolphins, and additional ESA-listed species, including loggerhead sea turtles, green sea turtles, and leatherback sea turtles, all using these productive waters for feeding, breeding, and migration. Seabird communities (bird score: 33.9) feature sooty terns, black-capped petrels, and Audubon's shearwaters exploiting the region's productive offshore waters (Haney et al. 2025, Jodice et al. 2021, Michael et al. 2023). The 2021 expansion of Flower Garden Banks NMS now protects critical coral reef ecosystems (coral score: 39.3) including Horseshoe Bank and MacNeil Bank, supporting threatened mountainous star coral and pillar coral populations.

Physical and biological mechanisms driving species aggregations center on the interaction between local Texas river systems and complex shelf-edge oceanographic processes unique to the Western Gulf. The Texas-Louisiana shelf receives substantial freshwater inputs from major river systems including the Brazos, Colorado, Trinity, and Sabine rivers, creating nutrient-rich coastal waters that fuel extensive phytoplankton blooms (primary productivity score: 10.2) supporting multi-trophic food webs from zooplankton to apex predators.

The region's distinctive coastal inner shelf current runs strongly westward during summer months, facilitating upcoast-favorable Eckman transport that leads to coastal upwelling and enhanced productivity along the 200-500 m isobath. Anticyclonic Loop Current eddies that propagate westward from the Central Gulf intermittently collide with the western shelf edge, creating mesoscale frontal zones that concentrate prey species and attract seabird aggregations, particularly along the narrow east-west band paralleling the Texas-Louisiana continental slope.

The region's moderately wide continental shelf, which lacks deeply incised submarine canyons but features complex bathymetric relief, combined with seasonal upwelling processes creates persistent biological hotspots that support exceptional biodiversity despite oil and gas development, major shipping ports including Houston and Galveston, and coastal urbanization. Fish communities (fish score: 52.5) and invertebrate populations (invertebrate score: 50.2) further contribute to the region's ecological significance.

Central Gulf of America: Score: 31.0 Rank 11/27

Spanning 269,344 km², the Central GOA exhibits primary productivity (primary productivity score: 11.3), marine mammals (mammal score: 51.2), bird communities (bird score: 39.9), sea turtles (reptile score: 41.5), fish (fish score: 38.4), coral (coral score: 20.6), and invertebrates (invertebrate score: 24.8). The Mississippi River Delta and Louisiana-Texas shelf receive massive freshwater nutrient inputs fueling extensive plankton blooms that support commercial fisheries and diverse marine communities. The region's most significant coral ecosystems are found far offshore in locations like the Flower Garden Banks NMS, which harbors critical habitats for threatened mountainous star coral and pillar coral.

This region supports populations of oceanic species such as sperm whales and pantropical spotted dolphins (Rappucci et al. 2023), and is known to have critically endangered Rice's whales, although their primary habitat is concentrated in the northeastern Gulf (Rappucci et al. 2023). Notable seabird species, including black-capped petrels, sooty terns, and Audubon's shearwaters, use the region's productive waters and offshore features (Haney et al. 2025, Jodice et al. 2021, Michael et al. 2023)).

The Central GOA Planning Area supports exceptional marine biodiversity, serving as critical habitat for numerous protected and commercially important species. The region is home to the critically endangered Rice's whale, with fewer than 100 individuals remaining globally and restricted primarily to the northeastern Gulf near De Soto Canyon, alongside year-round populations of endangered sperm whales and diverse dolphin assemblages including pantropical spotted dolphins, Atlantic spotted dolphins, and bottlenose dolphins (Rappucci et al. 2023).

All five Gulf sea turtle species use these waters, with loggerhead and green turtles listed as threatened and Kemp's ridley, hawksbill, and leatherback turtles listed as endangered under the ESA. The area supports globally significant seabird populations, with terns comprising more than 43% of all seabird individuals observed, followed by gulls at 18% and shearwaters at 4.5%. Notable species include the endangered black-capped petrel (Jodice et al. 2021), sooty terns, Audubon's shearwaters, brown pelicans, and northern gannets, which demonstrate distinct seasonal assemblage patterns influenced by migration timing and breeding locations (Michael et al. 2023).

The region's ichthyoplankton communities exhibit exceptional diversity, with 58 larval fish species documented through systematic SEAMAP surveys, including commercially important species such as red snapper, king mackerel, bluefin tuna, and cobia, which demonstrate significant seasonal spawning patterns that influence their vulnerability to environmental perturbations.

Species aggregations and biodiversity hotspots in the Central GOA are driven by complex physical and biological mechanisms that create productive feeding and breeding areas with quantifiably high environmental sensitivity. The Loop Current and its associated mesoscale eddies generate strong upwelling zones and hydrographic fronts where warm Gulf Stream waters interact with continental shelf waters, concentrating zooplankton and small pelagic fishes that support higher trophic levels.

10.1.5.4 Atlantic Region

Straits of Florida: Score: 49.4 Rank: 2/27

This 39,099 square kilometer (km^2) planning area serves as a critical refuge for numerous ESA-listed and protected species. All five Atlantic sea turtle species use these waters (reptile score: 63.3), with the Dry Tortugas serving as critical nesting habitat for loggerhead turtles and the Florida Keys providing essential foraging grounds for juvenile green and hawksbill turtles. Marine mammal diversity (mammal score: 38.4) includes bottlenose dolphins, Atlantic spotted dolphins, and sperm whales, with the region serving as an important migratory corridor for humpback whales (Roberts et al. 2016).

The Florida Reef Tract maintains the only shallow warm-water coral reefs in the continental United States (coral score: 69.0), harboring endangered elkhorn, staghorn, and pillar corals that face unprecedented mortality from stony coral tissue loss disease and intensifying thermal stress events. Seabird communities (bird score: 37.4) include magnificent frigatebirds, sooty terns, and brown noddies that depend on productive waters and intact mangrove ecosystems increasingly threatened by sea level rise and coastal development (Nisbet et al. 2013). Fish assemblages (fish score: 59.5) exhibit exceptional diversity across southeastern Florida, Florida Keys, and Dry Tortugas regions.

The powerful Florida Current flows through the Straits, representing the beginning of the Gulf Stream and generating localized upwelling along its western edge where it interacts with topographic features like the Pourtalès Terrace and Miami Terrace (Craig et al. 2021). These upwelling zones bring nutrient-rich deep water to the surface, fueling phytoplankton blooms (primary productivity score: 4.8) that support abundant zooplankton and forage fish populations—the critical prey base that attracts and sustains the region's diverse assemblages of top predators. Mesoscale eddies and persistent frontal systems further concentrate planktonic organisms, creating predictable feeding opportunities for marine mammals, seabirds, and pelagic fish species.

South Atlantic: Score: 36.3 Rank 7/27

This 201,675 km² region demonstrates elevated sensitivity with marine mammals (mammal score: 62.5) leading sensitivity categories. The Charleston Bump and Blake Plateau seamounts create a biodiversity hotspot through Gulf Stream interactions with continental shelf waters, serving as critical habitat for North Atlantic right whales during southern migration. This region provides important habitat for loggerhead, green, and leatherback turtles (reptile score: 46.8), plus foraging areas for threatened black-capped petrels and Audubon's shearwaters (bird score: 53.5).

Fish assemblages (fish score: 24.3) are dominated by ecologically important species such as Atlantic menhaden, king mackerel, Atlantic bluefin tuna, and various reef fishes, while benthic communities feature deep sea corals (coral score: 28.2) and macroalgae beds that provide critical nursery habitat. The South Atlantic Bight supports approximately 60 marine bird species, representing about 75% of all aquatic bird species known from the region's marine waters, with community dominance patterns showing that as few as 14 species contribute ≥95% of all individual seabirds recorded. Primary productivity (primary productivity score: 9.9) and invertebrate communities (invertebrate score: 30.2) further contribute to the region's ecological significance.

North Atlantic: Score: 25.4 Rank 16/27

The North Atlantic Planning Area encompasses a biologically rich 392,611 km^2 region characterized by diverse assemblages of protected and ecologically significant species. The area supports critical populations of ESA-listed species, including the endangered North Atlantic right whale, fin whales, and leatherback sea turtles (reptile score: 23.4). The continental shelf break and submarine canyons, including major features such as Oceanographer and Lydonia Canyons, serve as essential habitat for deep-diving cetaceans, particularly beaked whales and sperm whales, which concentrate in areas of high bathymetric relief where prey density is elevated (Roberts et al. 2016).

Marine bird diversity is exceptionally high throughout the region (bird score: 33.2), with species such as Greater Shearwaters and Wilson's Storm-petrels forming significant summer aggregations along the continental shelf break and productive areas like the Gulf of Maine (Winship et al. 2018). The region's deep water coral communities (coral score: 20.2) and structured habitats within submarine canyons provide critical habitat for numerous demersal fish species (fish score: 21.2), contributing significantly to the area's high biodiversity and supporting complex food webs.

The region's biological productivity (primary productivity score: 14.4) and species aggregations are driven by complex oceanographic and bathymetric features that create distinct ecological hotspots. The shelf break front, where cold, nutrient-rich slope water interfaces with warmer shelf water, creates a highly productive zone that concentrates forage fish including Atlantic herring, mackerel, and sand lance, supporting multispecies feeding aggregations. Submarine canyons throughout the planning area function as critical habitat corridors, channeling nutrients from deep waters onto the continental shelf and creating upwelling processes that enhance local productivity.

These canyon systems support dense aggregations of zooplankton, including the lipid-rich copepod Calanus finmarchicus, which forms a crucial component of the marine food web. The interaction between the Gulf Stream and shelf waters creates productive frontal zones, particularly along Georges Bank, that concentrate prey species and support diverse assemblages of marine mammals (mammal score: 60.1), seabirds, and commercially important fish species. This bathymetric and oceanographic complexity creates a mosaic of habitats ranging from shallow banks to deep canyon environments, supporting distinct communities of demersal and pelagic species while providing critical foraging grounds for protected species. Invertebrate communities (invertebrate score: 14.8) complete the region's ecological significance.

Mid-Atlantic: Score: 22.4 Rank 19/27

Despite spanning the largest area at 473,660 km², the Mid-Atlantic maintains one of the lowest sensitivity score among lower 48 planning areas. The latest assessment shows primary productivity (primary productivity score: 5.3), marine mammals (mammal score: 56.1), bird communities (bird score: 40.7), sea turtles (reptile score: 25.5), fish (fish score: 17.8), coral (coral score: 10.2), and invertebrates (invertebrate score: 10.3). The extensive submarine canyon complex centers on Baltimore and Washington submarine canyons, creating upwelling zones that support diverse marine mammal populations including bottlenose dolphins, pilot whales, and loggerhead sea turtles.

Seabird communities are robust, with abundant Southern Hemisphere migrants such as Great Shearwater, Sooty Shearwater, and Wilson's Storm-Petrel, plus Northern Gannet and Northern Fulmar. Where the Gulf Stream approaches closest to shore, unique tropical and subtropical seabird assemblages include Black-capped Petrel, Band-rumped Storm-Petrel, Bridled Tern, Cory's Shearwater, and Audubon's Shearwater occurring almost exclusively over Gulf Stream waters. Deep sea coral communities flourish on canyon walls and seamount slopes, creating three-dimensional habitat complexity.

However, the sensitivity score for this vast planning area is averaged across its entire expanse and does not fully capture highly sensitive subregions within the Mid-Atlantic. The waters off Cape Hatteras represent a particularly striking example, where the warm Gulf Stream converges with the cold Labrador Current, creating one of the most dynamic oceanographic boundaries in the North Atlantic. This confluence of contrasting water masses supports remarkable aggregations of marine life, as the mixing of warm tropical waters with cold nutrient-rich Arctic waters creates highly productive feeding areas. This region serves as a critical migratory corridor and feeding ground for numerous species, including large predatory fish such as tuna and billfish, as well as the endangered black-capped petrel.

Recent research has also highlighted the importance of the Cape Hatteras region for beaked whales, with studies documenting significant populations that make this area of particular conservation concern, especially regarding potential impacts from seismic geophysical surveys. Thus, while the overall Mid-Atlantic score appears to mask the existence of localized areas—especially near Cape Hatteras—that rank among the most ecologically significant and sensitive waters in the entire Atlantic.

10.1.6 Discussion

The MST represents a dynamic, evolving framework that synthesizes diverse multimodal datasets across multiple spatial scales to capture the complex interplay of oceanographic processes, biodiversity hotspots, and ecosystem productivity. Single sensitivity scores for large planning areas—while valuable for broad comparisons—can mask critically important ecological hotspots, as evidenced by the Mid-Atlantic's score (22.4) obscuring the exceptional biodiversity at Cape Hatteras, where Gulf Stream and Labrador Current convergence creates one of North America's most dynamic oceanographic boundaries.

Similarly, the North Atlantic's score (25.4) underrepresents the ecological significance of Georges Bank, Stellwagen Bank, and the Bay of Fundy, which support endangered North Atlantic right whales and massive seasonal aggregations of marine life. The MST addresses this fundamental limitation through hierarchical analyses that allow users to examine sensitivity through multiple analytical lenses—from ecoregion-scale patterns to fine-resolution hotspots—revealing how Hope Basin's exceptional Arctic sensitivity (60.1) and the Straits of Florida's tropical biodiversity (49.4) emerge from unique combinations of physical and biological drivers operating at different scales.

The MST will continue to improve by incorporating high-priority datasets—including animal tracking data, regional oceanographic models, and locally identified biodiversity hotspots—while refining those currently in the analytical pipeline. This multimodal approach enables the MST to transcend the limitations of single-score assessments by revealing how sensitivity manifests across scales, from broad regional patterns to fine-scale ecological processes that might otherwise be overlooked. By continuously expanding its data foundations and refining its methodologies, the MST provides increasingly nuanced assessments of relative environmental sensitivity and marine productivity across different areas of the OCS, supporting gold-standard scientific approaches to marine spatial planning while enabling informed decisionmaking that balances conservation priorities with energy development needs.

10.2 Marine Productivity

At the core of marine ecosystems lies primary productivity—the process through which sunlight, carbon dioxide, and water are transformed into organic matter that sustains ocean life. This vital process is driven by autotrophic organisms, which produce their own food via photosynthesis. In the expansive waters of the OCS, phytoplankton—microscopic, free-floating organisms—reign as the primary producers. These tiny powerhouses form the foundation of the marine food web, supporting a vast array of life, from zooplankton to fish, marine mammals, and seabirds.

The rate of primary production hinges on two main factors: light and nutrient availability. Phytoplankton flourish in sunlit surface waters where nutrients are abundant, but productivity often wanes in deeper, offshore regions with scarce nutrients. Yet, the ocean's productivity is far from uniform. Dynamic oceanographic processes—such as upwelling, fronts, convergence zones, shallow banks, shelf breaks, and submarine canyons—can boost phytoplankton growth by delivering or concentrating nutrients. These features create productive hotspots, transforming otherwise low-productivity marine deserts into thriving oases of life. For example, shelf breaks and submarine canyons drive nutrient upwelling, while fronts and convergence zones gather marine life, fostering rich ecosystems. Conversely, processes like wave action and downwelling can suppress productivity by dispersing phytoplankton into deeper, light-poor waters. Together, these factors shape the intricate, ever-changing patterns of ocean productivity.

Primary production is quantified in two ways. Gross primary production measures the total carbon fixed by photosynthesis, but some of this energy is used by producers for respiration. The remainder, known as NPP, is the energy available to fuel higher trophic levels—making it a critical gauge of ecosystem vitality.

Understanding NPP is particularly crucial in the context of the OCS, where oil and gas activities could disrupt marine ecosystems. Events like oil spills, which reduce light penetration or alter nutrient cycles, can ripple through the food web, affecting the abundance and distribution of species. These impacts are magnified in biologically sensitive areas, underscoring the importance of primary productivity in environmental assessments for OCS leasing decisions.

To assess NPP accurately, scientists rely on advanced tools like satellite remote sensing, which uses chlorophyll-*a* as a proxy for phytoplankton biomass. Results are expressed as carbon fixed per square meter of ocean surface per unit time, offering a standardized metric for evaluating productivity across OCS planning areas. This technology enables broad-scale monitoring essential for informed resource management.

In contrast, measuring productivity at higher trophic levels—such as secondary (e.g., zooplankton) or tertiary (e.g., fish) production—is far more complex. Variability in species' growth rates, intricate food web dynamics, and sparse data across regions make these estimates less reliable. Thus, this analysis prioritizes NPP as the most robust and practical metric for assessing marine productivity in OCS planning.

By focusing on net primary production, this section lays a solid groundwork for evaluating the environmental sensitivity and productivity of OCS areas. It highlights regions of high productivity or vulnerability, guiding sustainable decisions that balance oil and gas exploration with the protection of vital marine ecosystems.

10.2.1 Methods

Marine productivity for each OCS planning area was assessed using satellite-derived NPP estimates from the VGPM. This provides decadal-average NPP values and standard deviations for the period 2014–2023.

The VGPM integrates satellite observations of sea surface chlorophyll-*a* concentrations, sea surface temperature, and photosynthetically available radiation to estimate carbon fixation rates in the euphotic zone. This model has been widely validated and provides consistent, spatially comprehensive estimates of marine primary productivity across diverse oceanographic environments.

NPP estimates were spatially aggregated within the boundaries of each of the 27 OCS planning areas as defined by BOEM (see Figure 10-7). All satellite grid cells falling within each planning area polygon were included in the calculation of area-weighted mean productivity values. This approach ensures representative coverage of the full spatial extent of each planning area.

Annual NPP estimates for each planning area were averaged for the 10-year period (2014–2023) to produce decadal mean values. Standard deviations were calculated to characterize interannual variability in productivity within each area. This temporal averaging approach reduces the influence of short-term oceanographic variability while capturing longer-term productivity patterns.

The NPP for Alaska is shown in Figure 10-8, and Figure 10-9 shows the NPP for the contiguous U.S.

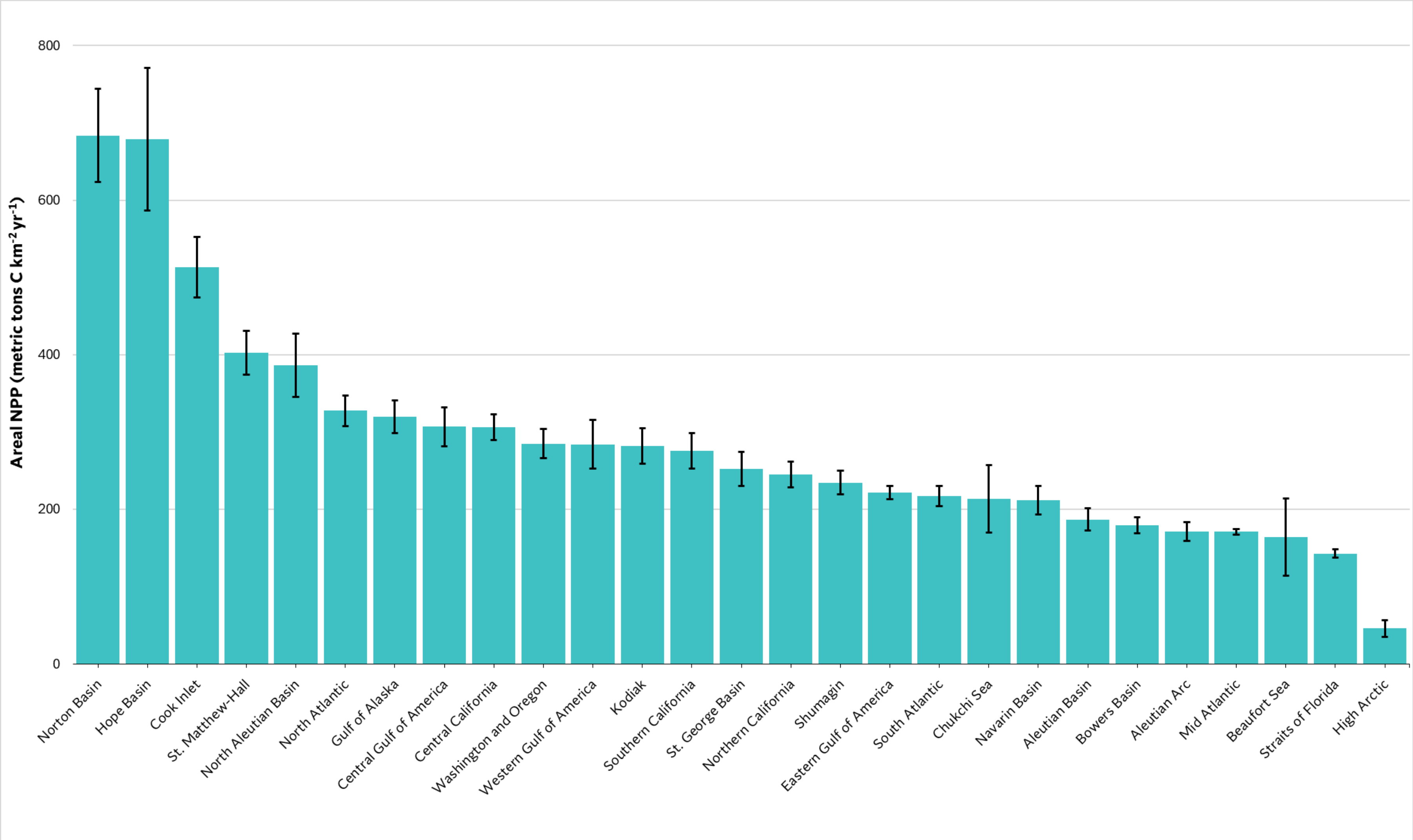
10.2.2 Results and Discussion

In this analysis, each of the 27 OCS planning areas is characterized in terms of mean annual NPP and interannual variability for a 10-year period (2014–2023). Productivity ranged from 46.1 (High Arctic) to 678.9 metric tons of carbon per square kilometer per year (t C km^{-2} yr^{-1}) (Hope Basin), representing a nearly 15-fold difference across the OCS. Regional trends are detailed below.

10.2.2.1 Alaska Region

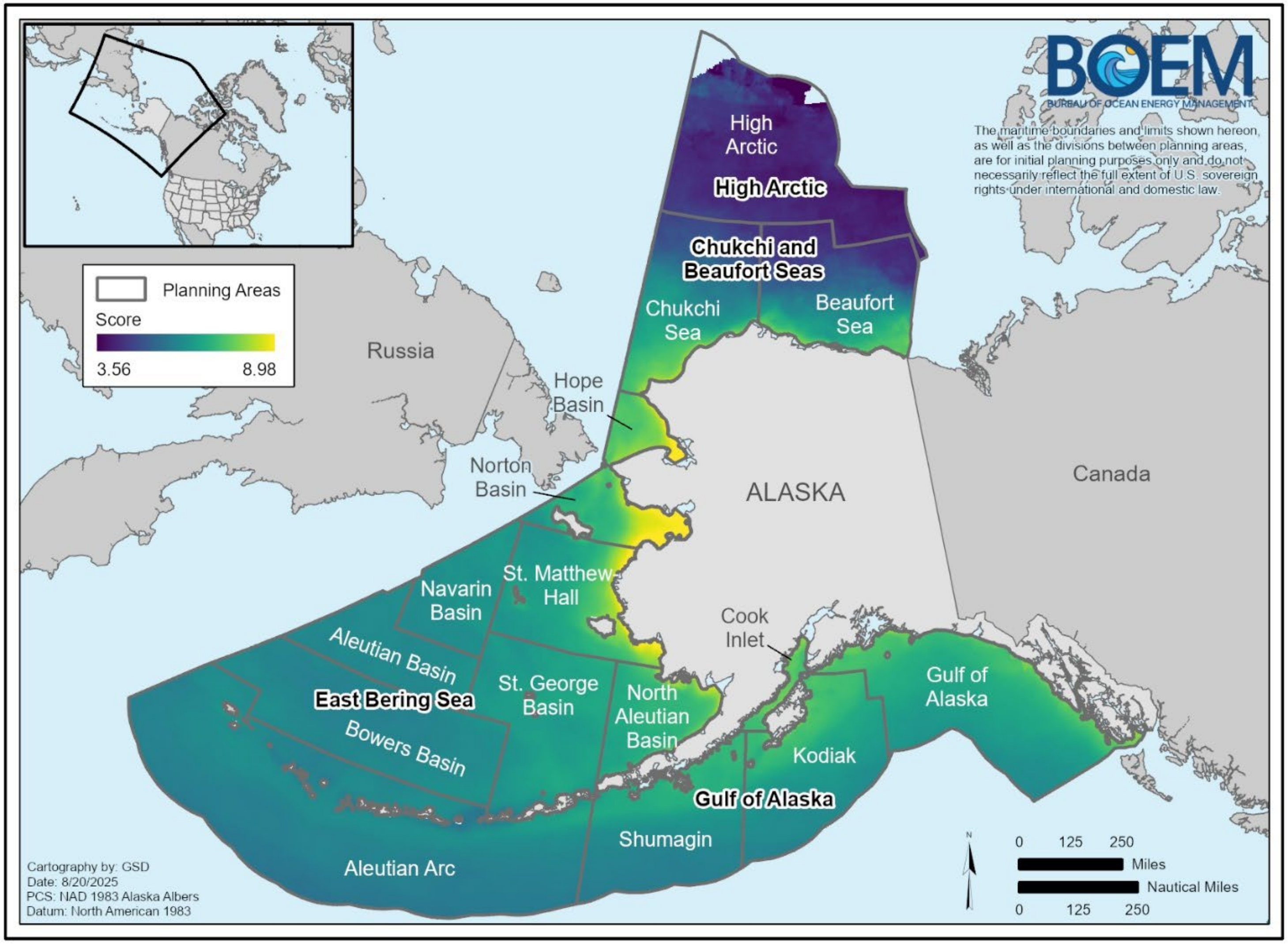
The Alaska Region exhibited the highest NPP variability and dominated the most productive planning areas on the OCS. Thirteen of the 16 Alaska planning areas ranked in the top half of all OCS areas for productivity, with Hope Basin (678.9 t C km^{-2} yr^{-1}), Cook Inlet (513.4 t C km^{-2} yr^{-1}), and St. Matthew-Hall (402.6 t C km^{-2} yr^{-1}) representing the three most productive areas system-wide. However, substantial variability exists within the region, as the newly designated High Arctic Planning Area (46.1 t C km^{-2} yr^{-1}) and Beaufort Sea (164.0 t C km^{-2} yr^{-1}) exhibited the lowest productivity rates across all OCS areas.

Figure 10-7: Net Primary Productivity by OCS Planning Area (2014–2023)



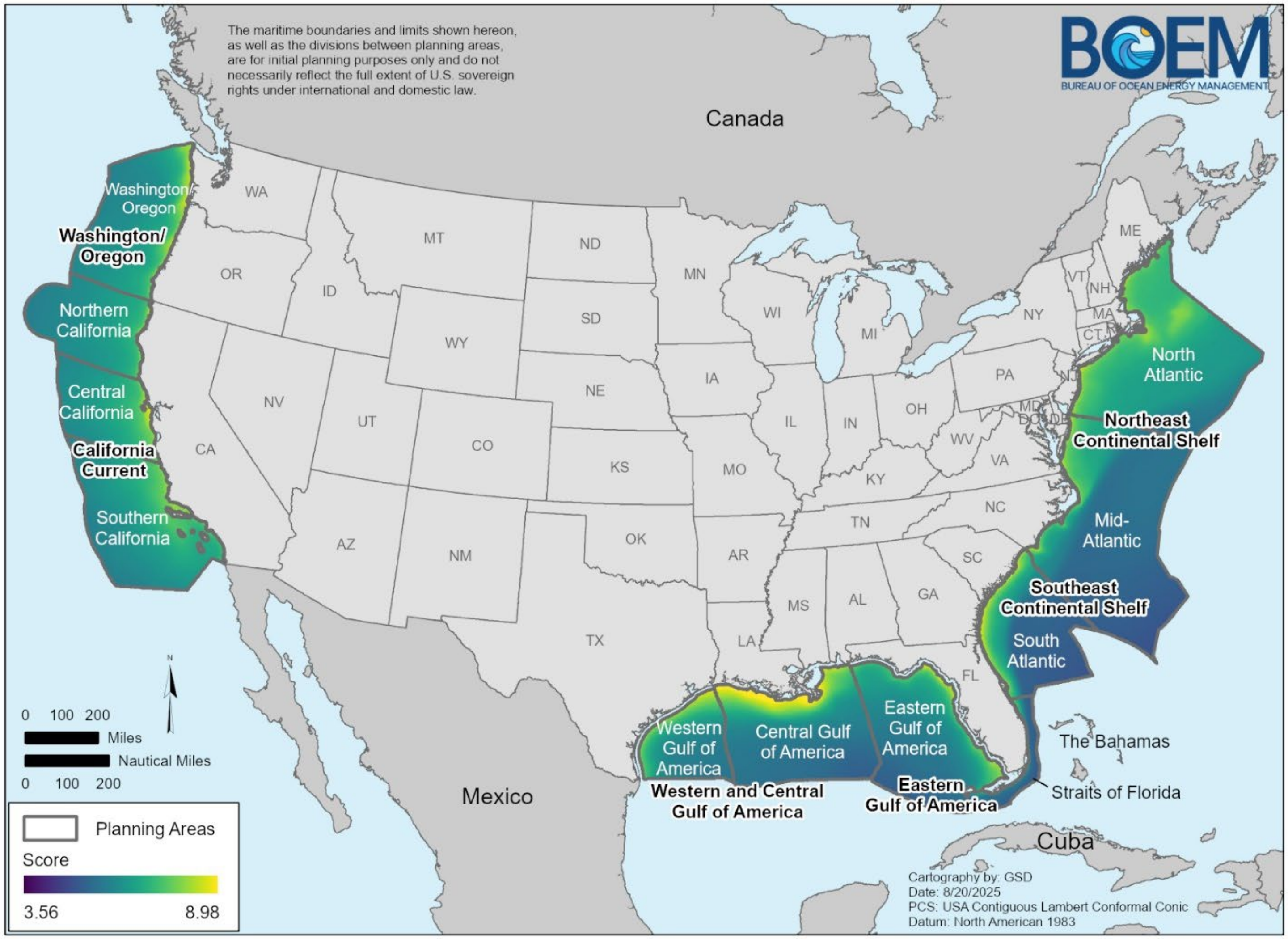
Notes: Mean annual NPP estimates derived from the VGPM using satellite observations of chlorophyll-*a* concentrations and sea surface temperature. Values represent decadal averages (2014—2023) for each of the 27 OCS planning areas, with error bars indicating one standard deviation to characterize interannual variability.

Figure 10-8: Spatial Distribution of Net Primary Productivity in Alaska OCS Planning Areas (2014–2023)



Notes: Map displays decadal mean NPP derived from the VGPM using satellite observations of chlorophyll-*a* concentrations and sea surface temperature. Color scale represents log-transformed NPP values (log(mg C/m²/day)) spatially aggregated within each of the Alaska OCS planning area boundaries. Highest productivity (yellow-green) is observed in nearshore areas including Hope Basin (HOP), Norton Basin (NOR), and Cook Inlet regions, while lower productivity (blue) characterizes the High Arctic (HAR) and deeper offshore waters.

Figure 10-9: Spatial Distribution of Net Primary Productivity in Lower 48 OCS Planning Areas (2014–2023)



Notes: Map displays decadal mean net NPP derived from the VGPM using satellite observations of chlorophyll-*a* concentrations and sea surface temperature. Color scale represents log-transformed NPP values (log(mg C/m²/day)) spatially aggregated within each of the Lower 48 OCS planning area boundaries. Highest productivity (yellow-green) is observed in upwelling regions along the California Current System and nearshore GOA areas, while lower productivity (purple-blue) characterizes oligotrophic (lacking the essential nutrients to support abundant phytoplankton growth) offshore waters in the Atlantic and deeper Gulf regions.

The High Arctic Planning Area presents unique challenges for productivity assessment due to extreme seasonal light limitation, with polar night conditions lasting several months and extensive sea ice cover that can persist year-round in some areas. These conditions severely limit the growing season for phytoplankton and create substantial data gaps in satellite-based measurements during ice-covered periods. The accuracy of primary productivity estimates for this northernmost planning area could be significantly compromised by atmospheric correction difficulties, ice interference with satellite sensors, and the brief productive season that may not be adequately captured by annual averaging methods.

10.2.2.2 Pacific Region

The Pacific Region demonstrated consistently high annual primary productivity, with all four planning areas exceeding 280 t C km^{-2} yr^{-1}. Central California exhibited the highest regional productivity (306.3 t C km^{-2} yr^{-1}), followed closely by Northern California (305.8 t C km^{-2} yr^{-1}), reflecting the influence of the California Current upwelling system. Washington/Oregon (295.4 t C km^{-2} yr^{-1}) and Southern California (282.2 t C km^{-2} yr^{-1}) planning areas showed slightly lower but still substantial productivity levels.

10.2.2.3 Gulf of America Region

The GOA Region exhibited moderate to high annual primary productivity, averaging 224 t C km^{-2} yr^{-1} across the three planning areas. The Central GOA Planning Area showed the highest regional productivity (307.0 t C km^{-2} yr^{-1}), comparable to the most productive Pacific areas, while Eastern GOA (222.1 t C km^{-2} yr^{-1}) and Western GOA (171.4 t C km^{-2} yr^{-1}) showed progressively lower values.

10.2.2.4 Atlantic Region

The Atlantic Region displayed the most variable productivity patterns, with an average NPP of 165 t C km^{-2} yr^{-1}. North Atlantic exhibited the highest regional productivity (186.0 t C km^{-2} yr^{-1}), while the Mid-Atlantic (158.7 t C km^{-2} yr^{-1}), South Atlantic (154.8 t C km^{-2} yr^{-1}), and Straits of Florida (143.0 t C km^{-2} yr^{-1}) showed progressively lower productivity levels, reflecting the oligotrophic nature (i.e., lacking the essential nutrients to support abundant phytoplankton growth) of subtropical Atlantic waters.

10.2.3 Ecosystem Productivity: Patterns and Uncertainties

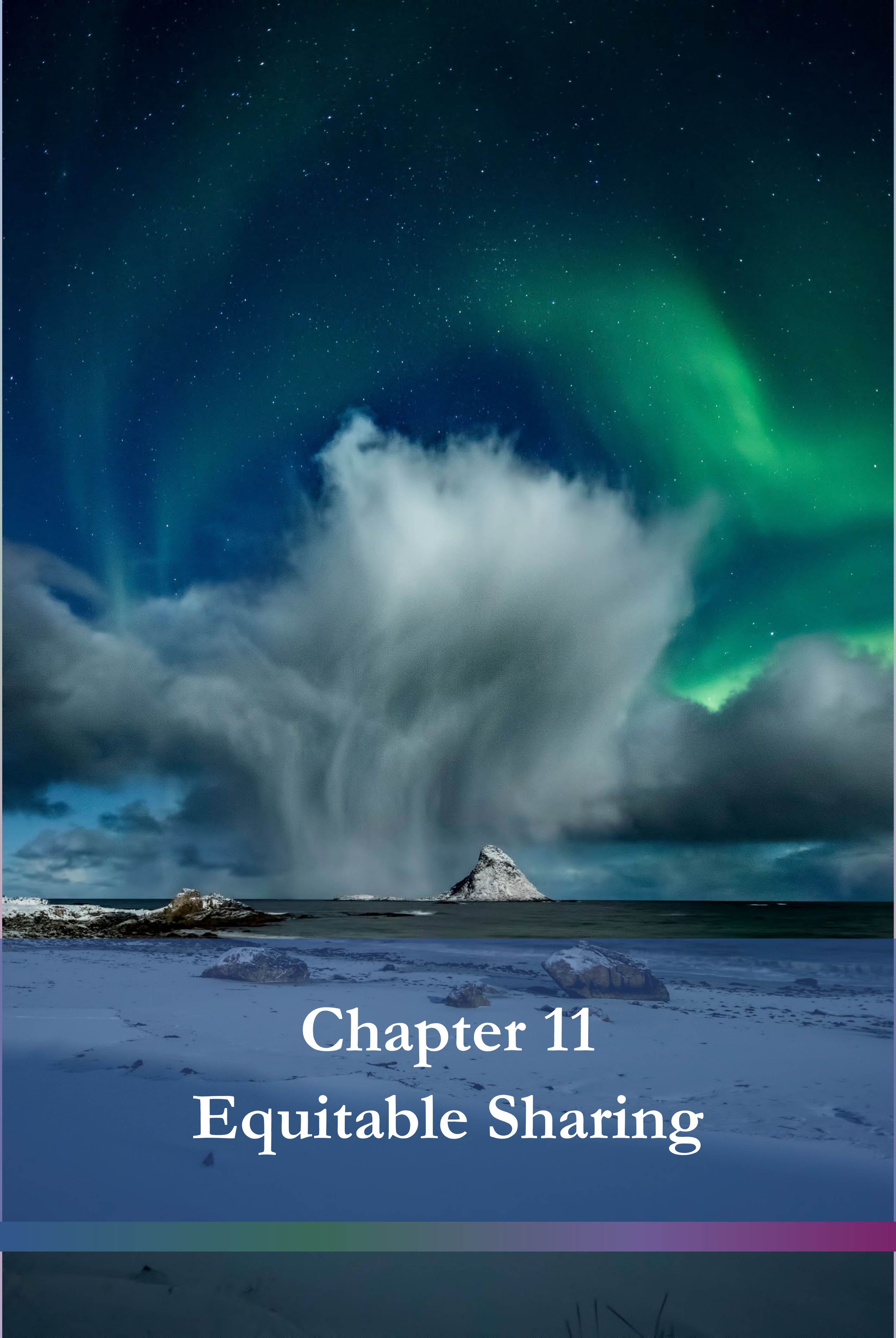
Although calculations are based on the VGPM model, which has demonstrated validity in assessing primary productivity across diverse marine environments, some degree of uncertainty is expected when applied to all 27 OCS planning areas. This uncertainty is particularly pronounced for the High Arctic Planning Area, where extreme seasonal light variation, persistent ice cover, and limited satellite data availability in winter months could result in underestimation of the brief but potentially intense summer productivity pulse that characterizes polar marine ecosystems.

Substantial interannual variability in primary productivity was observed across planning areas, with the highest coefficients of variation (CV)[35] evident in the Alaska Region. Arctic and subarctic planning areas, including the High Arctic (23.6% CV), Hope Basin (13.6% CV), Chukchi Sea (20.5% CV), and Beaufort Sea (30.3% CV), exhibited the greatest interannual variability, primarily due to light limitation, sea ice dynamics, and variations in ice-free periods at high latitudes. In contrast, most lower-latitude planning areas showed relatively low interannual variability (<10% CV), with subtropical and tropical areas being less sensitive to seasonal and interannual variations.

The spatial distribution of productivity reflects well-established oceanographic patterns, with the highest values in upwelling regions (California Current System), nutrient-rich coastal areas (Alaska shelf regions), and areas influenced by riverine inputs (GOA). The lowest productivity values were consistently found in oligotrophic offshore waters and ice-influenced Arctic regions, with the High Arctic representing the extreme end of this gradient due to its unique polar marine environment.

These productivity patterns have significant implications for marine ecosystem structure and function. High-productivity areas support more complex food webs and greater biomass of higher trophic levels, making them particularly important for commercial fisheries, marine mammals, and seabirds. The High Arctic, despite its low annual productivity, could support specialized Arctic marine food webs adapted to the extreme seasonal productivity pulse and represents a unique ecosystem.

[35] The CV is the ratio of the standard deviation to the mean. The greater the percent of CV, the greater the deviation from the mean.



Chapter 11
Equitable Sharing

Chapter 11 Equitable Sharing Considerations

11.1 Introduction

The OCS Lands Act requires the Secretary to base the timing and locations of proposed lease sales, in part, on a consideration of "an equitable sharing of developmental benefits and environmental risks among the various regions" (OCS Lands Act, Section 18(a)(2)(B)). The OCS Lands Act gives the Secretary wide latitude to assess how benefits and risks should be distributed in a new National OCS Program.

BOEM uses planning areas to structure its analyses of OCS Regions. However, most developmental benefits and environmental risks to society occur onshore or along the coast. Therefore, much of the information in this chapter pertains to the developmental benefits and environmental risks experienced by states and coastal areas adjacent to the planning areas. The National OCS Program has an inherent equitable sharing in that the geographic areas bearing the greatest risks also receive higher shares of the benefits.

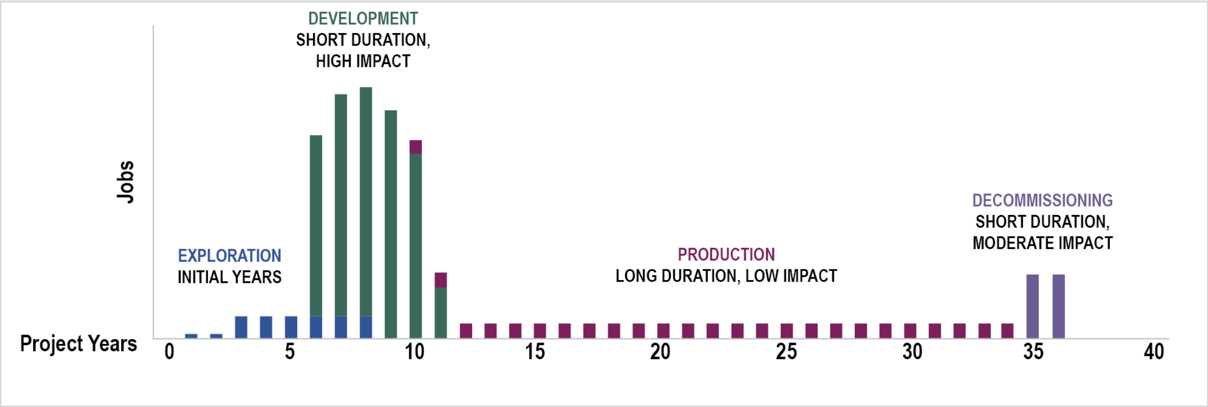
This chapter describes the types and distributions of benefits and risks that could occur should development and production result from the lease sales proposed within each OCS Region. The degrees of benefits and risks vary by area, and some benefits and risks occur outside areas adjacent to the planning areas. The benefits analysis follows a regional economic impact approach, which is different than the benefit-cost approach used to estimate Inventory Net Benefits in Chapter 6. The effects measured in a benefit-cost analysis represent real resource market outcomes, such as increased oil and gas production and the accompanying increase in development costs that could result from a National OCS Program. However, an economic impact analysis estimates the employment, income, and government revenues arising from those costs. This chapter analyzes these benefits in addition to the benefits derived from increased oil and gas production.

11.2 Developmental Benefits of Leasing

11.2.1 Jobs, Labor Income, and Business Income

OCS oil and gas development supports numerous workers and businesses. Figure 11-1 illustrates the typical pattern of direct jobs supported throughout the life cycle of an OCS oil and gas project. The highest number of jobs arise during the development phase when well drilling and platform fabrication occur. The oil and gas production phase supports fewer jobs, but those jobs tend to provide employment for longer durations. It could take longer (all else being equal) to develop a project in a frontier planning area because certain support infrastructure would need to be constructed, and more equipment and labor would need to be transported from other areas.

Figure 11-1: Typical Pattern of Direct OCS Oil and Gas Employment



Source: Price et al. (2025)

Workers in the oil and gas industry earn over 30% more than the average hourly wage of workers in the United States (BLS 2025).[36] Therefore, oil and gas workers can consume more goods and services, benefiting them and contributing more to the economy.

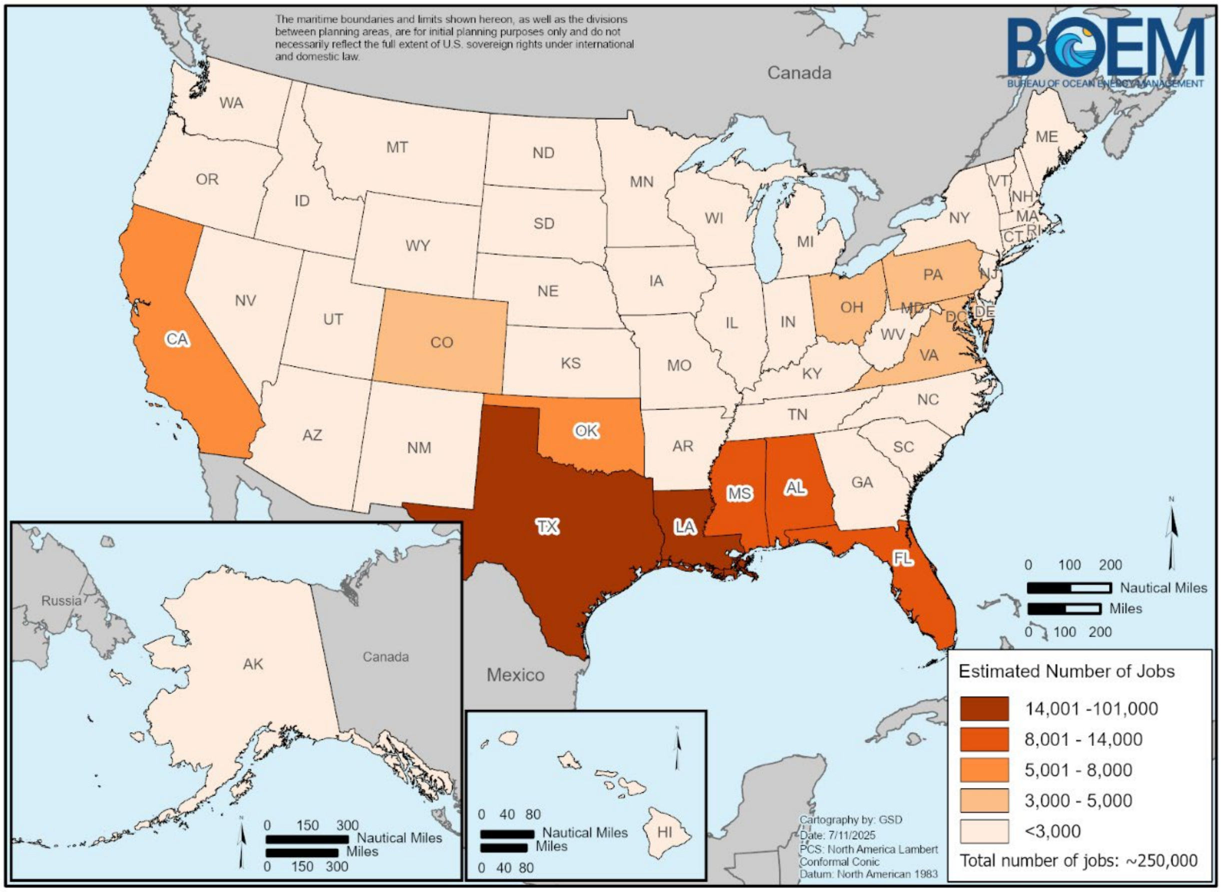
Oil and gas activities also contribute to profits of various business entities. The ownership of business entities can be geographically widespread, although owners of smaller, non-corporate businesses are more likely to be located near activity locations.

A variety of companies provide goods and services that support direct oil and gas activities, leading to additional "indirect" employment. Spending by employee households also generates "induced" employment. BOEM (2025b) estimates that OCS oil and gas activities supported approximately 250,000 total (direct, indirect, and induced) jobs in FY 2024. This estimate includes direct, indirect, and induced jobs that are driven by industry spending, government revenues, and corporate profits.

Figure 11-2 shows the geographic distributions of OCS-related jobs in FY 2024. Approximately 69% of these jobs were in states adjacent to the GOA.

[36] There are not publicly available, regularly collected statistics specific to OCS-related employment and income. The best verifiable statistics available were used to illustrate the overall premium in OCS-related labor income. They do not reflect two influences that could have opposing effects on actual income levels: 1) the overall extraction industry statistics dilute the wage premium by averaging higher OCS-worker incomes with those of onshore workers, which are often lower; and 2) the incomes of some OCS-related workers who are in jobs that are classified under other sectors (e.g., water transportation, shipbuilding) that could be lower than incomes in the oil and gas extraction sector.

Figure 11-2: Estimated FY 2024 OCS-Related Oil & Gas Employment by State



Source: BOEM (2025b)

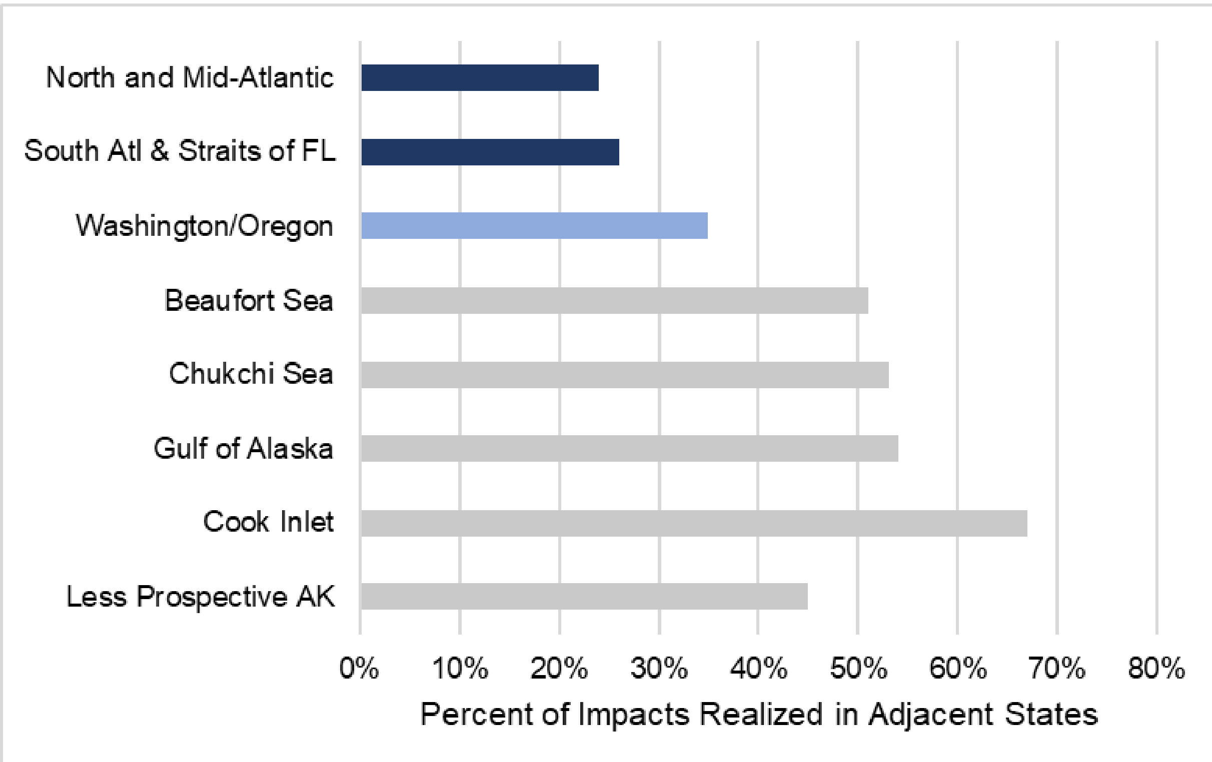
The geographic distributions of jobs and income resulting from the 11th Program will depend on which OCS areas are included. Regions with significant levels of existing OCS-related employment and those areas near the new activity would likely benefit. Leasing in the GOA would allow for the continued benefits that occur in nearby areas. The existing industry in the GOA would also likely provide support to other regions if those regions were included in the 11th Program. The smaller existing industry near the Southern California Planning Area could also support activities in nearby areas. The Alaska oil and gas sector, which is primarily focused on onshore development, could also benefit from development in Alaska OCS planning areas.

Price et al. (2025) analyzed the developmental benefits that could result from leasing in frontier planning areas, defined as all areas except the Western GOA, the Central GOA, and Southern California.[37] The study defined a representative project that could arise from leasing in each area and assessed the resulting developmental benefits from that project; this study did not assess the probability that development would occur. Figure 11-3 illustrates the estimated percentages of

[37] Price et al. (2025) combined some planning areas for analysis purposes. The High Artic Planning Area was established in April 2025 and thus was not analyzed in the study.

developmental benefits that would likely occur in the states adjacent to each area.[38] These percentages range from 24% for the North and Mid-Atlantic planning areas to 67% for the Cook Inlet Planning Area. The percentages of local benefits for frontier areas could increase over time if sustained leasing and development activity incentivizes businesses and workers to relocate to these regions.

Figure 11-3: Percentage of Developmental Benefits in Adjacent States



Source: Price et al. (2025)

Figure 11-3 does not show the Eastern GOA Planning Area, the Northern California Planning Area, or the Central California Planning Area because non-frontier planning areas are nearby. Most developmental benefits from leasing in the Eastern GOA Planning Area would occur in states adjacent to the GOA. Most developmental benefits arising from leasing in the Northern California or Central California planning areas would likely occur in California.

[38] For Alaska planning areas, Price et al. (2025) estimated the percentages of impacts that would occur in nearby communities and in the rest of Alaska. Figure 11-3 sums these percentages to be comparable to the percentages provided for other planning areas.

11.2.2 Government Revenues

The offshore oil and gas industry generates substantial government revenue through direct payments (bonus bids, rents, and royalties) and through various Federal, state, and local taxes.

11.2.2.1 Direct Revenues

OCS oil and gas leases provided $7 billion in direct revenue during FY 2024 (ONRR 2025). Most leasing revenues are distributed to the U.S. Treasury and used for various Federal functions. Some OCS revenues are disbursed to states, counties, and grant programs through the following:

Section 8(g): Section 8(g) of the OCS Lands Act applies to all potential areas of OCS development and requires the Federal government to provide each adjacent state with 27% of the bonus, rent, and royalty revenues earned from OCS leases in the first 3 nm seaward of the state's submerged lands boundary. The 8(g) revenues are intended to compensate the states for any drainage of resources from state submerged lands by Federal lessees.

GOMESA: GOMESA provides substantial revenues for Alabama, Louisiana, Mississippi, Texas, and their coastal political subdivisions (i.e., counties or parishes). GOMESA funds are reserved for uses specified in the Act, including coastal conservation, restoration, and hurricane protection. Most lease areas in the Central GOA and Western GOA, along with a small portion of leases in the Eastern GOA, are subject to GOMESA (BOEM 2025c). A total of 37.5% of OCS revenues in those areas are shared with states and counties/parishes (subject to a $375 million annual cap), and 12.5% of OCS revenues are shared with the LWCF (subject to a $125 million annual cap). The OBBBA increases the amount of GOMESA revenue sharing from $500 million to $650 million ($487.5 million for states and counties/parishes, and $162.5 million for the LWCF) through 2034. The $500 million annual GOMESA revenue sharing cap will then resume from 2035 through 2055, after which there will be no cap on GOMESA revenue sharing.

LWCF: Revenues from OCS oil and gas leases provide most of the support for the LWCF, which provides geographically widespread matching grants to states and local efforts to acquire land for recreation facilities. In addition, the LWCF is the primary revenue source for recreational land purchases by the NPS, the Bureau of Land Management (BLM), the USFWS, and the U.S. Forest Service. Most LWCF funding is guaranteed through the Great American Outdoors Act of 2020, while a smaller portion arises through GOMESA.

HPF: OCS revenues fund the HPF, which provides grants to states, local governments, Tribes, and non-profit organizations to preserve historic places.

Refer to Figure 4-4 for a depiction of revenues disbursements of to these programs in FY 2024. Table 11-1 shows the FY 2024 8(g) and GOMESA disbursements by state.

Table 11-1: FY 2024 8(g) and GOMESA State Disbursement Summary

State	8(g)	GOMESA
Alabama	$1,397,679	$49,830,178
Alaska	$1,059,498	N/A
California	$6,151	N/A
Louisiana	$2,473,180	$156,329,443
Mississippi	$23,896	$51,915,113
Texas	$1,271.338	$95,550,266
Total	**$6,231,742**	**$353,625,000**

Note: The GOMESA disbursements include distributions to states and the counties/parishes in those states.
Key: N/A=Not applicable.
Source: ONRR (2021)

The distribution of OCS revenues depends on the timing, location, and revenue sharing provisions applicable to new leases. Most OCS revenues will likely accrue to the Federal government, particularly since most OCS activity is expected to occur outside of the 8(g) zone. The OBBBA directs that 70% of the revenues from OBBBA-mandated sales will go to Alaska starting in 2034; the remaining 30% will accrue to the Federal government.

There will likely be sufficient revenue from existing leases to fund the LWCF and HPF in the near-term, although continued leasing would ensure there would be sufficient funds for these programs in future decades. GOMESA's revenue sharing caps are likely to be reached in the near-term, although continuing leasing in the GOA would ensure those caps are reached through 2055. In addition, some GOA oil and gas production arising from the 11th Program would likely occur after 2055, when there will be no caps on GOMESA revenue sharing.

11.2.2.2 Tax Revenues

OCS oil and gas activities generate tax revenues for Federal, state, and local governments through the following:

> **Property taxes**: Local and/or state taxes on commercial and residential land, buildings, and permanent improvements. These would increase if OCS activities required the construction of new or expanded facilities, or if OCS activities increased the value of certain properties.
>
> **Sales taxes**: State and/or local taxes on sales of goods and services. These revenues would increase as sales occur as part of the oil and gas development process, and when oil and gas products are sold.

Personal income taxes: Federal, state, and/or local taxes on labor income. These would increase as more workers enter the oil and gas workforce, and if new OCS development were to increase wages.

Business income taxes: Federal, state, and/or local taxes on profits of corporations and other business entities. These revenues would increase to the extent that the profits of companies in the oil and gas supply chain increase.

Alaska does not have a sales tax or a personal income tax. Rather, a substantial portion of Alaska's revenue comes from royalties, taxes, and other fees on oil and gas production on state lands and waters (McDowell Group 2020).

The scale of tax revenue arising from the 11th Program will depend on the tax policies of relevant jurisdictions and the nature and scale of OCS oil and gas activities in those areas. The importance of OCS-related tax revenue to a particular area will depend on an area's fiscal needs and the proportion of its revenue that depends on the oil and gas industry.

11.2.3 Energy Market Considerations

Chapter 4 and Chapter 7 provide information regarding supply and demand in energy markets. This section summarizes the energy market considerations relevant to equitable sharing of developmental benefits and environmental risks.

Transporting energy products can be expensive, especially if new transportation infrastructure is needed. Producing energy close to where it is consumed reduces costs, improves economic efficiency, and decreases potential impacts due to disruptions from events such as natural disasters. There are numerous oil refineries and natural gas processing facilities in the GOA that have structured their operations to efficiently use offshore oil and gas production in their overall supply mix; continued leasing in the GOA would allow these efficiencies to continue.

New natural gas production in Cook Inlet would help to alleviate supply constraints in south-central Alaska. In addition, a new pipeline has been proposed that would transport natural gas from the North Slope of Alaska to south-central Alaska for domestic consumption and LNG export markets (Humpert 2025). If this pipeline is built, natural gas produced in the Beaufort Sea and Chukchi Sea planning areas could reach various markets using this pipeline. Crude oil produced in these planning areas could use the existing TAPS to reach markets.

Economic activity and energy demand are high in many areas along the East and West Coasts of the U.S. However, the markets for OCS production would depend on the oil refining and natural gas processing capabilities in particular areas in future years. For example, while California had more than 1.6 million barrels per day of refining capacity in 2024 (California Energy Commission 2025), two refineries with approximately 284,000 barrels per day of refining capacity could cease operations by 2026 (NACS 2025). The only petroleum refineries along the East Coast are in New Jersey, Pennsylvania, and Delaware (EIA 2025t).

Producing more oil and natural gas domestically can increase exports and decrease imports of these products, which would improve the balance of trade. Greater OCS production would also increase energy security by reducing the risks of supply disruptions from foreign countries. The extent to which OCS oil and gas production would be exported depends on the energy market dynamics in a particular area including demand and infrastructure capacity.

11.3 Environmental Risks of Leasing

OCS oil and gas activities could have adverse impacts on physical, biological, and sociocultural resources. These impacts could arise from routine activities or through accidental events such as oil spills. The aspects of the natural and human environments that could be impacted by OCS oil and gas activities are discussed in Chapter 8, Chapter 9, and Chapter 10 and will be analyzed more fully in the 2nd and 3rd Analyses. This section summarizes relevant points from those chapters regarding equitable sharing of environmental risks.

Oil and gas activities on the OCS including exploration, development, production, and decommissioning can generate environmental effects (e.g., habitat disturbance, air emissions, noise, conflicts with existing terrestrial and marine users). Oil and gas activities could affect the human environment (e.g., commercial fisheries) and marine and coastal resources such as fish, marine mammals, birds, and sea turtles. The burdens of environmental risks resulting from OCS oil and gas activities are primarily concentrated in areas close to oil and gas activities.

New oil and gas development often requires constructing or modifying onshore infrastructure. While these projects can bring employment and other benefits, they can also pose risks to the human and natural environments. Socioeconomic impacts could include additional infrastructure development, such as higher-capacity roads or more housing. The construction or development of onshore infrastructure could cause changes in air or water quality, reductions in coastal marshland, or a reduction in the value of certain ecosystem services (e.g., flood protection). These changes can lead to alteration of existing habitat for turtles and birds resulting in permanent or temporary displacement of species that rely on those habitats and potential population impacts. The specific impacts would depend on the proposed construction and development activities.

In the GOA, an extensive onshore infrastructure support network is already in place and will not require significant new development or modification, potentially lowering the environmental risks associated with coastal development. In the Atlantic and Pacific regions, new infrastructure could be required and could affect coastal habitats on which species such as birds and sea turtles rely. These impacts will be discussed in the subsequent National OCS Program analyses as well as at the lease sale stage before any decision is made that could result in impacts. Additionally, applying mitigation measures serves to reduce potential impacts should oil and gas activity occur.

In Alaska, areas around Cook Inlet and certain parts of the coast adjacent to the Beaufort Sea have existing infrastructure in place (including those supporting state oil and gas production). Other coastal areas in Alaska have very little infrastructure and would require substantial onshore infrastructure development. Construction in coastal areas of Alaska could disrupt subsistence activities, resources, and harvest, such as access to hunting areas or disturbance of animals such as caribou.

Oil spills are another possible risk in OCS Regions and the adjacent coastal areas. Different areas have various risk factors affecting the probability of oil spills, volume spilled, and the ability to contain and remove oil. Distance from shore, discharge duration, weather-related conditions, ocean currents, and time of year could affect the distributions of risks and impacts. For example, there are unique challenges in responding to oil spills in the Arctic given its remoteness and the presence of ice (Bi et al. 2025).

Industrial Economics Inc. (2018) discusses the risks of catastrophic oil spills, which, while very unlikely, would have more substantial impacts than the typical, more reasonably foreseeable oil spills. A catastrophic oil spill could also affect a wider geographic region than small oil spills due to the ability for oil damage to occur over greater distances. This could result in broader effects on the marine and coastal environments, habitats, species, and human communities and activities such as tourism and fishing. Austin et al. (2022), Carroll et al. (2016), Eastern Research Group (2014) provide more information regarding the economic and social impacts of the Deepwater Horizon oil spill in 2010.

11.4 Benefits and Risks of Not Leasing

If lease sales are not held in certain OCS Regions, the energy needs of those areas must be met through alternative energy sources. These sources could include domestic onshore oil and gas, imported oil and gas, or other energy types. Each energy option entails benefits and risks that could occur domestically or internationally. For example, greater reliance on imported oil and gas shifts the economic benefits of oil and gas development to occurring overseas. While this would reduce the domestic risks of oil spills due to well failures, the U.S. would face risks of oil spills from tankers. In addition, some alternatives to oil and gas have downsides such as higher costs and intermittent generation (Lazard 2025).

In regions without notable existing OCS oil and gas activities, choosing not to lease would involve the risks of different energy sources but would not entail other notable disruptions. However, choosing not to lease in the GOA would lead to substantial societal disruptions because the Gulf Coast has come to rely upon oil and gas leasing, development, and production.

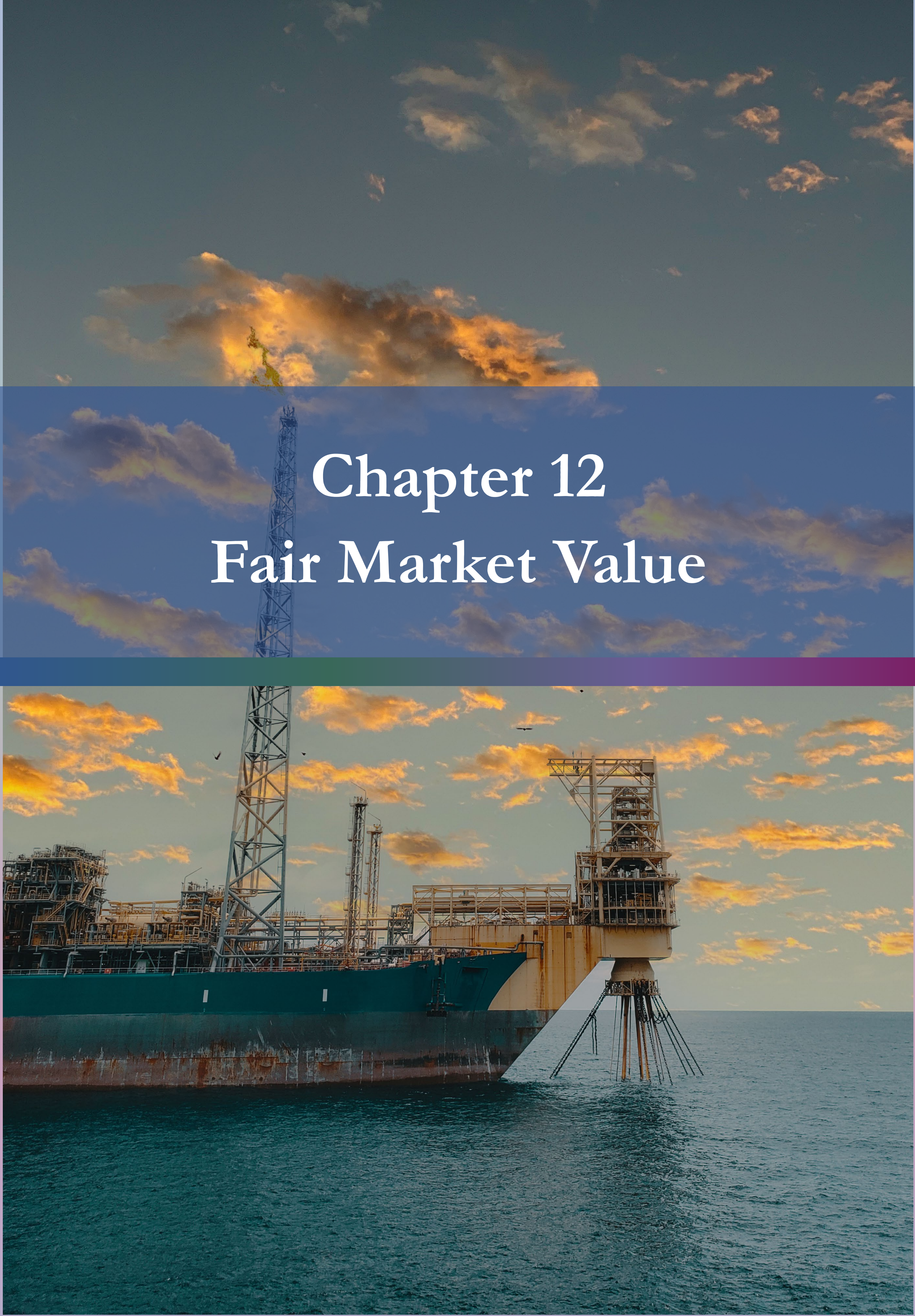
Not leasing in the GOA could entail job losses, government revenue losses, and disrupting energy markets. Not leasing in the GOA could accelerate the decommissioning of oil and gas infrastructure, which would have social and environmental consequences. For example, oil and gas platforms often attract various fish species, which in turn attract recreational activities such as fishing and diving (CSA Ocean Sciences and SWCA 2025). Therefore, accelerated decommissioning of oil and gas platforms could reduce the benefits currently being provided by these facilities.

11.5 Conclusion

This chapter has provided an overview of equitable sharing factors to inform the Secretary's 1st Proposal. Developmental benefits and environmental risks arise at the various stages of the OCS oil and gas development process: leasing, exploration, drilling, construction, production/operations, and decommissioning. While the Secretary has control over decisions regarding when and where to lease, the resulting developmental benefits and environmental risks will depend on the levels and types of oil and gas activities that arise from the lease sales. The patterns of developmental benefits and environmental risks would likely differ between frontier and non-frontier areas since frontier areas will need to develop infrastructure and obtain supplies and labor from other areas to support oil and gas activities. It is also more difficult to estimate the scale of oil and gas activities that will arise in frontier areas.

The National OCS Program has an inherent equitable sharing in that the geographic areas bearing the greatest environmental risks also receive higher shares of the developmental benefits. Including more regions in the 11th Program could also more equitably distribute the developmental benefits and environmental risks among regions. Not leasing in certain regions, particularly the GOA, could disrupt existing patterns of equitable sharing and could lead to different developmental benefits and environmental risks arising from energy substitutes. The subsequent 2nd and 3rd Analyses will assess the specific equitable sharing considerations associated with the Secretary's proposals.

Chapter 12
Fair Market Value



Chapter 12 The Value of OCS Leases and Assurance of Fair Market Value

Section 18(a)(4) of the OCS Lands Act requires receipt of FMV from OCS oil and gas leases, stating "[l]easing activities shall be conducted to assure receipt of fair market value for the lands leased and the rights conveyed by the Federal Government." Furthermore, the OCS Lands Act states that the OCS is a "vital national reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs" (43 U.S.C. § 1332 (3)).

FMV was operationally defined by the report titled *Procedures for OCS Bid Adequacy Including the Final Report of the OCS Fair Market Value Task Force* (USDOI 1983), as related to the adequacy of the level of the high bid offered for a lease with given fiscal terms, not to the design or setting of the fiscal terms themselves. The OCS Lands Act Amendments of 1978 Congressional Declaration of Purpose highlights that the OCS Lands Act is to "insure the public a fair and equitable return" to produce OCS resources. The concept of "fair and equitable return" considers a broader evaluation of all components of a lease sale, including fiscal terms, so that they provide an appropriate share of revenue in exchange for the right to produce oil and gas resources.

To secure and maintain public trust in making OCS resources available for development, BOEM employs an established set of criteria, described herein, that assure an adequate return to the public for the OCS lease rights issued. The assurance of FMV and associated valuation of OCS acreage is a multi-phase process including National OCS Program-level analysis, lease sale-level analysis, and, finally, the ultimate determination that a bid on a specific OCS block meets FMV in the analysis conducted prior to the issuance of an individual lease following a lease sale.

12.1 Timing of OCS Lease Sales and Related Activities

When determining whether an area should be included at this National OCS Program stage, BOEM acknowledges the timing of OCS lease sales can impact their value. For one component of uncertainty, timing, BOEM evaluates broad area-specific considerations, including a comparison of market prices to the calculated hurdle prices for oil and natural gas. This analysis, described in detail in this chapter, identifies whether each planning area would provide greater value in including it in the 11th Program or delaying leasing until a future National OCS Program. While this analysis provides useful insights, other factors can impact the value of OCS leases. Each potential lease sale scheduled in this National OCS Program is subject to separate established pre-lease sale decision processes, including hurdle price screening and lease term analysis (described in Section 12.2)

The value of the OCS resources and associated leases is affected by the timing of leasing. Because OCS leases have fixed primary terms after which a lease may expire (described in Section 12.3.2) as required by the OCS Lands Act, lessees planning to explore and initiate development on an economic prospect must do so within the primary term. In certain cases, it could theoretically be more profitable for the lessee to wait longer to explore and develop, but this cannot be accomplished if it requires waiting beyond the primary term.

This situation could arise, for example, if the price of oil or gas were trending downward but showing signs of recovery after the primary term. In this situation, the lessee cannot wait for prices to rise before exploration and development because the primary term would be nearing expiration. However, waiting until a later time could be in society's, as well as the lessee's, interest because the resources would be worth more if produced later. In this case, it is conceivable that greater value could instead be realized by waiting longer to lease in the first place.

To account for the possibility of situations where the variation in future resource prices implies that exploration and development within the primary term of some leases could be privately profitable but not socially optimal, a hurdle price screen is employed. A lease could be privately profitable at a certain price, but by waiting to lease, bring a greater value to society. Here the social value is similar to that calculated as Inventory Net Benefits. The Inventory Net Benefits is the gross revenue of the resources less the private and social costs of extracting resources. This is explained more fully in Section 12.1.2.

The hurdle price screen is conducted at the National OCS Program stage to determine whether it is likely that there are any geologic fields within a planning area for which a lease sale in this National OCS Program would provide a greater social value compared to delaying and offering those fields for sale in a future National OCS Program. In this context, a planning area's hurdle price is defined as the weighted BOE price above which the immediate exploration of at least one undiscovered prospect as identified by BOEM's resource assessment provides a greater social value than delaying exploration of the same prospect.

Further, the hurdle price for a planning area is compared to prevailing market prices prior to each lease sale held under the National OCS Program. The hurdle price is one consideration, subject to uncertainty about future price projections, used to evaluate an area before a lease sale and should be considered in conjunction with other factors.

12.1.1 Information and Uncertainty

At the time of lease issuance, uncertainty exists regarding not only future prices, but also risk adjusted resource estimates, capital and operational costs, available technologies, environmental and social costs, and the prevailing post-sale regulatory and legal environments. An objective of both the government and industry is to manage the risks associated with these uncertainties.

Through its fiscal terms, the government, as the lessor, engages in a form of risk sharing with the lessee. In exchange for the right to develop and sell oil and gas produced from Federal waters on the private market, the government receives an upfront bonus bid, rentals on non-producing acreage, and royalties if the lease enters production. The lessee assumes virtually all the cost risk on a given lease, but no royalty payments are owed unless that development reaches the production stage. Other risks to society from OCS oil and gas development are managed through the application of industry best practices, enforcing legal liability, and enforcement of safety and environmental laws and regulations governing OCS operations.

All these considerations could be reflected in the FMV of the lease. The analysis described in this chapter avoids an overly narrow interpretation of fair "market" value and considers aspects of the value of leasing that could be viewed as "social value," extending beyond the value that would be observed in private markets if the latter do not fully reflect externalities. Bearing that in mind, this section explains how decisions regarding the timing of leasing, made at the appropriate points during the preparation and execution of the National OCS Program, are reflective of how uncertainty and information could evolve, as illustrated in Figure 12-1.

Figure 12-1: Possible Uncertainties in OCS Oil and Gas Development

12.1.1.1 Option Value

Option value is defined as the value of waiting to make an irreversible investment until critical new information arrives. Option value provides the ability to account for the value of leasing. In general, option value can be an element of FMV, and its magnitude and significance are directly affected by components of uncertainty and information, or lack thereof. In designing the National OCS Program, BOEM provides the Secretary with information relevant to decisions on the size, timing, and location of lease sales. Public comments received on prior National OCS Programs have suggested that USDOI consider option value while performing its size, timing, and location analysis to meet its FMV statutory requirement. This section discusses non-market factors that are generally reflected in option value.

When uncertainties exist, having the option to delay activities creates value to a lessee as additional and new information can be revealed and incorporated into future decisions. However, once an action is taken, the presence of uncertainty is known to reduce the net benefits of a project because the action eliminates the value of the option to wait to take that action (Arrow and Fisher 1974). In connection with socially optimal OCS oil and gas development, the essence of option value is that a decision regarding whether to use an oil and gas asset can be modeled as a perpetual call option that lasts until the asset is leased (Davis and Schantz 2000).

From the government's perspective, OCS oil and gas resources are a perpetual call option in that the government has the right, but not the obligation, to offer OCS areas for lease at any time in the future (i.e., the option does not expire). The decision to exercise the option at a given time can reflect assumptions about the future path of prices, as well as new information about resources, costs, and risks when the social value of the option is being evaluated.

The broad form of option value here includes what can be termed "quasi-option value." The concept of "quasi-option value" was identified by Arrow and Fisher (1974) and is defined as the "benefit associated with delaying a decision when there is uncertainty about the payoffs of alternative choices and when at least one of the choices involves the irreversible commitment of resources" (Freeman 1984). While traditional option value focuses on the value of an action now versus in the future, the quasi-option value of an action is based on uncertainty and the value of information that can be gained now versus in the future.

An important distinction in quasi-option value lies in what is uncertain and how these uncertainties are resolved. Some uncertainties can be addressed by obtaining additional information, which can be acquired without the development of the oil and gas resource (e.g., waiting for the results of a study on the baseline condition of an environmental resource in a program area). These uncertainties are defined as "independent learning" (Fisher and Hanemann 1987). However, other uncertainties can only be resolved through oil and gas exploration and development, demonstrating "dependent learning."

In their work on option value, Fisher and Hanemann (1987) specifically discuss the example of offshore oil leasing, acknowledging the "dependent" nature of uncertainties given that the largest uncertainty lies in estimating the quantity of oil and gas resources, which can only be resolved, and then only partially, by exploratory well drilling. If, on the other hand, the desired information regarding environmental and social costs is, or can be, obtained without drilling, which by nature embodies some degree of risk, then it is "independent" information, and the case for significant option value and exclusion from the next National OCS Program is strengthened. BOEM must consider what information is being sought about the many uncertainties surrounding OCS oil and gas development and how these uncertainties can be resolved.

12.1.1.2 Considering Uncertainties for the National OCS Program

To determine whether the possibility exists for significant option value associated with delayed leasing, BOEM considers the uncertainties surrounding OCS activities and how these uncertainties could impact the value of OCS acreage. Resolving uncertainties can reduce risk and greatly change the value of a lease and its corresponding societal value. The following sections discuss the uncertainties that can affect the potential value and possible risks of OCS oil and gas development and how these uncertainties could be resolved. Major uncertainties surrounding oil and gas development are discussed in the context of independent and dependent learning. Many include components of both, and these uncertainties are tied to components of the Inventory Net Benefits analysis discussed in Section 6.4.

The discussion of uncertainties and option value must always consider the structure and development of the National OCS Program and lease sales. The National OCS Program process begins by considering all leasing areas, and then the potential areas are usually winnowed down into what is ultimately the final lease sale schedule.

Generally, program areas can be removed during the National OCS Program development process, but once they are removed and no longer being considered for leasing, they cannot be added back in to a specific National OCS Program without starting the National OCS Program development process over or by an act of Congress. The Secretary has the flexibility to cancel lease sales after the National OCS Program is approved. To maximize option value, the USDOI could want to retain areas during the development of the National OCS Program for possible lease sales, in the event new information becomes available. Omitting an area from the National OCS Program could cause a potential loss of option value to the government.

USDOI retains the greatest flexibility, and therefore option value, by including areas in the National OCS Program, but it is also true that there can be instances where the Secretary may be justified in excluding an entire area from the National OCS Program. For example, it could make sense to exclude an area if no new additional information is anticipated during the development of a National OCS Program that would render it promising for exploration. Excluding very marginal areas also reduces administrative and study costs.

While lease sales can be re-evaluated and canceled during the lease sale planning process, it is important to recognize that industry prefers a reliable and predictable leasing process. An intended benefit of the National OCS Program lease sale schedule is that a schedule of possible lease sales within the 5-year period facilitates efficient industry planning, operations, and scheduling, thereby increasing the value of OCS acreage. In contrast, a process wherein there is ambiguity regarding the timing and certainty of future lease sales, imposes costs on industry and decreases the value of OCS acreage.

At the National OCS Program stage, no irreversible commitment of resources occurs because no activities are authorized, and as discussed, the Secretary could always choose to cancel a lease sale at the individual lease sale stage. For this reason, the lease sale stage is a more appropriate time to consider quasi-option value because that is when the irreversible leasing decision is made. However, the National OCS Program stage is where BOEM holistically considers all planning areas and therefore it is helpful to discuss the nature of OCS oil and gas leasing and the resolution of uncertainty.

In addition to obtaining FMV for OCS resources, the OCS Lands Act mandates that OCS resources must be made available for expeditious and orderly development. The Congressional declaration of purposes in the OCS Lands Act Amendments of 1978 states that one of the purposes of the OCS Lands Act is to "make such resource[s] available to meet the Nation's energy needs as rapidly as possible" (43 U.S.C. § 1802(2)(A)). An additional purpose is to "encourage development of new and improved technology for energy resource production which will eliminate or minimize risk of damage to the human, marine, and coastal environments" (43 U.S.C. § 1802(3)). Any decision to delay leasing based on the possibility of greater future value must be balanced with the requirement to expeditiously make prospective OCS oil and gas resources available. Through the National OCS Program development process and lease sale design process, the Secretary can evaluate decisions in light of the OCS Lands Act purposes.

The next subsections consider the many different uncertainties that exist in OCS oil and gas development. Most of these uncertainties are discussed qualitatively with reference to the nature of the uncertainty and how the uncertainties could be resolved with additional information. This discussion is included because BOEM acknowledges the possibility of obtaining additional information that could affect the value of OCS resources over time. This value was also recognized by the court in *CSE v. Jewell* (779 F.3d 588 [D.C. Cir. 2015]).[39] While discussed, BOEM does not quantify the quasi-option value of each of these uncertainties given difficulties in quantifying the informational value of delay and the continuing lack of well-established methods

[39] The court found that "[t]here is therefore a tangible present economic benefit to delaying the decision to drill for fossil fuels to preserve the opportunity to see what new technologies develop and what new information comes to light." *CSE v. Jewell*, 779 F.3d 588, 610 (D.C. Cir. 2015).

to quantify such considerations. The next subsections present the many different uncertainties that exist in OCS oil and gas development, as shown in Figure 12-1.[40]

While many of the uncertainties are considered qualitatively, BOEM includes a quantitative treatment of price and resource uncertainty. These uncertainties are quantitatively discussed in Section 12.1.2, which describes the hurdle price analysis.

12.1.1.3 Resource Uncertainty

The fundamental uncertainty in OCS oil and gas leasing is the unknown size of the resources, which BOEM addresses by using distributions for model inputs and assigning geologic risk at both the prospect and play levels (described in Chapter 5). The uncertainty associated with the presence and estimated quantity of oil and gas resources can only be fully resolved through lease acquisition and subsequent drilling of OCS acreage. In this sense, "dependent learning" is required to resolve uncertainty. Private companies must spend significant amounts of money to acquire leases and analyze geologic information to discover and ultimately produce new oil and natural gas reserves. BOEM's estimates of both technically recoverable and economically recoverable resources available in each of the OCS planning areas are presented in the 2021 National Assessment (BOEM 2021a).

When compared to the 2016 National Assessment, the 2021 mean UTRR estimate for oil in the Alaska OCS decreased by 9% to 24.69 Bbo, while the estimate for gas decreased by 6% to 124.03 Tcfg. Overall, this represents a net reduction of 8% in resources, bringing the estimate to 46.76 BBOE. This change was primarily due to updated risk profiles in the Beaufort Sea Planning Area, while the mean UTRR for the Chukchi Sea Planning Area saw a slight increase. The mean UTRR estimates in the Cook Inlet had minor adjustments, with oil increasing from 1.01 Bbo in 2016 to 1.04 Bbo in 2021 and gas decreasing from 1.20 to 1.18 Tcfg.

The Pacific OCS mean UTRR estimates for oil and gas remained relatively stable at 10.20 Bbo and 16.07 Tcfg, respectively, with a total BOE change of less than 0.1% from the previous assessment.

The mean UTRR estimate for oil in the GOA Region decreased by 39% to 29.59 Bbo, while the estimate for gas decreased by 61% to 54.84 Tcfg compared to BOEM's 2016 assessment. Overall, this represents a 47% decrease in resources, bringing the combined UTRR to 39.35 BBOE. While the overall aggregated resource volumes decreased for the GOA Region, it is worth noting that, based on current information, several geologic plays were assessed to contain more resources than in the previous assessment. The GOA Region provides an example of where recent activity and exploration results provide information that supports an update of undiscovered resource potential. While the expansion of offshore infrastructure and new technology has allowed

[40] The D.C. Circuit court upheld BOEM's qualitative approach to considering option value in *CSE v. Jewell*, 779 F.3d 588, 612 (D.C. Cir. 2015). The court found that "Interior acted reasonably in employing qualitative, rather than quantitative, measures of the informational value of delay."

industry to produce smaller and more geologically complex reservoirs, discovery trends in the GOA have caused BOEM to refine the field size distributions and the estimated number of prospects for some mature geologic plays, particularly on the shallow water shelf.

The Atlantic OCS mean UTRR estimate for oil decreased by 6% to 4.31 Bbo and by 11% for gas to 34.09 Tcfg. Together, these estimates result in an overall 9% decline to 10.38 BBOE, which was primarily due to new information from global analog plays and adjustments to play and prospect risk profiles.

Moving forward, activity is increasingly concentrated on infrastructure-led exploration that takes advantage of existing production hubs and pipeline networks. This strategy not only speeds up the development of smaller discoveries and lowers development costs, but it also helps to reduce uncertainty in resource estimates (Rystad Energy 2025).

While drilling is the most effective method to reduce resource uncertainty, seismic surveys are critical to enhance knowledge and reduce ambiguity about resource potential. The estimated geologic and hydrocarbon potential of an OCS block, or group of blocks, is likely to change over time as new seismic data are acquired, imaging techniques are improved, new drilling results are available from nearby wells, new geologic plays are developed, or existing plays are marginalized, and a variety of market factors including costs and changes in commodity prices occur.

As a result, an OCS block's relative position in a company's portfolio in terms of exploration or development potential is always changing. A company's development plans are frequently revisited, and a company could determine that a newly acquired block is more valuable for immediate exploration than one nearing the end of its primary term. Blocks that are unleased and appear to have limited hydrocarbon prospectivity today could one day become a more valuable asset with the addition of new information. Without the ability to acquire additional acreage, companies may not proceed with additional seismic activities or exploration of leases in their portfolio. The ability to acquire new acreage allows for continued re-evaluation of uncertainties, high grading of leasehold portfolios and facilitates more efficient development.

12.1.1.4 Capital and Operating Cost and Extractive Technology Uncertainty

Companies operating on the OCS face uncertainty regarding future capital and operating costs. Cost uncertainty can be driven by market factors that affect demand for oil and gas exploration and development equipment, such as drilling rigs and skilled workers. An increase in oil prices encourages additional exploration and development activities, which increases the price of exploration, development, and production by increasing demand for drilling rigs. Similarly, the identification of an oil and gas-rich basin can spur increased industry interest and investment, raising the demand for drilling rigs and skilled workers.

Capital and operating cost and technology uncertainty is greater in frontier planning areas given lack of adequate information about the costs of operating in those areas. In the GOA, lessees have had decades of experience and there is relatively less cost uncertainty. Costs cannot be known with certainty in frontier areas until exploration and development begin.

Uncertainties related to capital and operating costs significantly impact the Inventory Net Benefits estimates for each planning area. Since these costs are essential when calculating the NEV (a major component of a planning area's Inventory Net Benefits calculations), any changes in costs could affect the NEV estimates for each area and ultimately alter the overall assessment of Inventory Net Benefits.

Over time, technological innovations will become available to more efficiently or safely develop oil and gas resources and/or reduce risks associated with extraction. Well control and containment technologies are improving operators' ability to mitigate damages of a well control incident through closing the well, capturing the flow, or assisting in cleanup operations. This further illustrates the concept of dependent learning, which is an element in the option value calculus but is oftentimes not considered by some when highlighting the importance of evaluating option value.

12.1.1.5 Environmental and Social Cost Uncertainty

As part of the National OCS Program decision on size, timing, and location, the Secretary considers the available environmental and social cost information. Additional and new environmental and social information is continually becoming available. All the environmental or social cost estimates in BOEM's analysis, particularly the impacts estimated in the OECM, are subject to uncertainty and future revision. Viewed from an analytical perspective, this is similar to that of resource estimates; there is some probability that environmental and social costs might be smaller or larger than an estimate provides, and that directly affects the magnitude of the expected option value.

In contrast to resource estimates, most environmental impacts can be mitigated, remediated, or otherwise compensated. However, even with mitigation measures in place, certain impacts could be deemed significant and irreversible. For many years, environmental scientists and economists have examined the risks of irreversible impacts.

One example of the consideration of irreversible impacts is the application of real options theory to species extinction. Research and studies have considered the uncertainty of the chances of resource development causing wildlife species extinction in connection with the uncertainty of the value of a given species. For example, Abdallah and Laserre (2008) assert that logging in a certain forest might cross an ecological threshold leading to caribou extinction. Option value models formalize the intuition that logging is not beneficial unless the implied risk is "low enough." The value lost if a species becomes extinct is also uncertain. As described by Kassar and Lasserre (2002), biodiversity relates to a "portfolio" of future uses for species.

Another study specifically considered the amenity value—that is, the characteristics that influence and enhance appreciation of a particular area—that would be lost with oil and gas development in the Arctic NWR. Conrad and Kotani (2005) estimate a "trigger price" for oil that would justify the loss in amenity value if development were allowed in the region. In theory, a similar approach could be applied to OCS leasing. BOEM is continuing to evaluate methods in which an amenity value could be incorporated into future hurdle price analyses. The relatively few studies that apply real options concepts to possibly irreversible environmental impacts from oil and gas activities demonstrate the serious difficulty of assessing these risks. It is not hard to envision the broad outlines of a real options model of environmental impact, but it is surprisingly difficult to specify and estimate a useful empirical model of that type.

BOEM's Environmental Studies Program (ESP) recognizes the need for and importance of new environmental information throughout its 50-year history, covering physical oceanography, atmospheric sciences, biology, protected species, social sciences, economics, submerged cultural resources, and environmental fates and effects. Information developed by BOEM's ESP and other sources is incorporated in environmental analyses conducted by BOEM and builds the foundation for science-based decisionmaking throughout the National OCS Program development and leasing stages.

BOEM receives information from and collaborates with other Federal agencies, and works with Tribal entities, the scientific community, industry, and state and local governments. Further, BOEM includes new information at all stages of development of the National OCS Program and lease sale planning processes through its research and that of other Federal agencies and non-Federal entities. BOEM also considers comments received from the public during each of the public comment periods. In developing a National OCS Program, BOEM acknowledges the ever-expanding availability of scientific information.

While most of the research discussed above is driven by the possibility of oil and gas operations and is conducted to inform decisionmakers, the knowledge gained is largely "independent" learning. This follows the Fisher and Hanemann (1987) suggestion that needed information about environmental impacts can sometimes be obtained by research separate from drilling.

BOEM continues to investigate social and environmental issues and consider relevant information as it becomes available. In the meantime, BOEM provides qualitative information to the Secretary to consider existing uncertainties and how new information could become available for consideration in the decisions on size, timing, and location. Detailed Information on the environmental impacts of each program area carried forward in the 1st Proposal will be provided in the environmental analysis prepared in the 2nd Analysis.

Although the hurdle price analysis in Section 12.1.2 does not incorporate a quantitative estimate of the uncertainty of environmental and social costs or the possibility of irreversible damage, it does incorporate monetized estimates of anticipated environmental and social costs (consistent with those costs monetized and explained in Chapter 6). As was done in the 10th PFP analyses, the hurdle price calculation considers both the private and social costs of exploration and development.

12.1.1.6 Regulatory and Legal Environment Uncertainty

An objective shared by both government and industry is to manage the risks associated with OCS oil and gas operations. Operators manage these risks by using industry best practices and prudent risk management methodologies. The government addresses risk through the promulgation and enforcement of safety and environmental laws and regulations and ultimately holds companies legally liable for accident response and for ensuring compliance with lease and regulatory obligations.

The government's ability to maintain a stable and transparent regulatory and legal environment for oil and gas industry operations is an important factor for lessees and operators on the OCS when considering whether, when, and how much to invest in OCS tracts and related exploration and development activities. Regulations could impact project economics at the margin, making some prospects unviable or incentivizing companies to allocate capital to more economically attractive oil and gas basins.

The legal and regulatory environment for OCS exploration and development can greatly impact project profitability. In April 2025, BSEE announced a policy to boost offshore oil production in the GOA. This policy implemented new parameters for downhole commingling in the Paleogene reservoirs, increasing the pressure differential from 200 pounds per square inch to 1,500 pounds per square inch. According to BSEE, this significant policy shift "is expected to boost production in the GOA by approximately 10%, likely resulting in more than 100,000 additional barrels of oil per day over the next decade."

As the National OCS Program evolves and throughout the time when a lessee proceeds to develop the leases it acquires, new regulations could be promulgated, and existing regulations revised. Occasionally, implementation of new statutory requirements and legal precedents occur in the interest of ensuring safe and environmentally sound OCS operations. The practice of BOEM and BSEE is to communicate and coordinate with the oil and gas industry and other stakeholders on the content and rationale of regulatory approaches and requirements. The bureaus encourage feedback, input, and suggestions for alternatives to regulatory proposals before they are finalized.

Future legal and regulatory changes separate from the National OCS Program have the potential to affect OCS leasing and development. Policy changes can also affect markets in ways that influence companies' decisions about leasing, exploration, and production on the OCS. The iterative process and winnowing structure of the National OCS Program creates future decision points throughout the National OCS Program development and lease sale processes, allowing for adjustments in response to evolving energy policies.

12.1.1.7 Price Uncertainty

While the value of a lease sale is in part dependent on the resource endowment and the likelihood of finding economic hydrocarbon resources, it also is heavily influenced by future oil and natural gas price forecasts. Mean reversion is one of several possible models that could be used to simulate oil and gas prices. The simplest model, used by Black and Scholes for valuing financial options, assumes geometric Brownian motion, which has the volatility of a mean-reversion model without the tendency to revert to a single long-run mean. In addition to the economic logic that implies that oil and gas prices tend to revert to a long-run level, statistical tests can be applied to determine whether the oil or gas price series has a mean-reverting tendency.

In one paper, Pindyck (2001) concluded that "over the long run, price behavior seems consistent with a model of slow mean reversion." Under a mean-reversion framework, uncertainty stabilizes over time as prices revert to a long-run mean. Weijermars and Sun (2018) emphasized that mean-reversion pricing is only followed during times of "business as usual" supply and demand equilibrium; unusual price events like the short-term price shocks in 2008–2009, 2014–2016, and 2020 will deviate prices significantly from the expected price range. Under the mean-reversion assumption, there is little benefit to waiting to lease because the uncertainty band narrows around the long-run average. However, should prices progress below the long-term trend, there could be a benefit in waiting for prices to rebound.

To consider the option value of the resources related to resource price uncertainty and optimal timing decisions, BOEM has adopted a hurdle price analysis. It is intended to evaluate every area included in the National OCS Program and determine if there is at least one geologic field where prompt exploration during this National OCS Program is consistent with an optimal allocation of resources. The hurdle prices are calculated assuming a mean-reverting price model.

12.1.2 Hurdle Prices

BOEM considers one aspect of uncertainty, oil and gas price uncertainty, at the National OCS Program stage. BOEM compares undiscovered fields in each planning area with an economic estimate of each area's "hurdle" weighted average (i.e., BOE) price. While many other uncertainties exist (described in Section 12.1.1), given data limitations and the lack of a widespread documented methodology to quantitatively evaluate other types of uncertainty, only price uncertainty is quantitatively evaluated at this time.

BOEM acknowledges that this assessment only considers the changes in resource prices and how they might impact whether leasing in the future could provide a higher social value. Importantly, as described in Section 12.1.1.5, changes outside of the National OCS Program, including regulations and U.S. energy consumption patterns, could change leasing decisions. Although current prices could fall below the hurdle price, the Secretary could still determine that additional lease sales are warranted given many reasons including the current Administration's E.O. that declares national energy emergency. The hurdle price analysis also does not consider changing uncertainties in social or environmental costs, and as discussed above, the Secretary may consider these uncertainties when making decisions on whether to lease.

The hurdle price is defined as the market price at which the social value of immediate exploration of a large field is greater than the value of delaying exploration and development to a future National OCS Program.[41] At any market price at or above the hurdle price, the value of allowing exploration for these large prospects exceeds the value of delay, based purely on price uncertainty. Therefore, when the hurdle price is exceeded, greater social value could be realized by leasing that prospect now rather than delaying for future leasing.

For each lease sale included in the National OCS Program, BOEM revisits the decision of whether to hold the lease sale at the lease sale stage, and at that point evaluates which OCS blocks to offer and with what terms. Designing specific lease fiscal terms at the lease sale stage rather than the earlier National OCS Program formulation stage provides more flexibility (i.e., option value) and allows decisions to be made closer to the time when economic and other conditions that influence lease sale decisions are better known and somewhat easier to forecast. Given the iterative process of National OCS Program development and lease sale design, there are typically benefits from including areas in the National OCS Program if their hurdle prices are below current market prices as further analysis can then be conducted at a later stage (i.e., individual lease sale stage). Section 12.3.2 provides more discussion on BOEM's lease sale fiscal terms procedures.

The hurdle price analysis is conducted considering the Inventory Net Benefits of each planning area and determines whether the value from leasing in this National OCS Program is expected to be greater than the value of waiting to lease an area until a future National OCS Program. For this calculation, BOEM considers both the private and social costs of exploration and development. For the 1st Analysis, BOEM calculated the hurdle price for 12 planning areas. As discussed in Chapter 5, the other 15 areas were estimated to have negligible resources or have negligible development value.

Within each planning area, BOEM identified a hurdle price for a large undiscovered field identified by a statistical resource estimation model. BOEM used the 95th percentile field size from the 2021 National Assessment to define the large field size available in each planning area. This field size was then used to conduct the hurdle price analysis in each planning area in conjunction with private and social cost estimates appropriate for the applicable water depths and field sizes.

[41] All else being equal, the largest fields tend to have the highest net value per unit of resources, so they are least likely to benefit from delaying leasing in anticipation of increasing resource prices.

These factors were input into an in-house dynamic programming model, "When Exploration Begins version 3" (WEB3), to generate the hurdle prices.

The rationale for basing the hurdle price analysis on large fields is that larger fields are typically more valuable and more likely to be developed first when compared to smaller fields, even after accounting for social costs.

Table 12-1 shows the Inventory Net Benefits hurdle prices for each of the analyzed planning areas. Column B in Table 11-1 shows the input field sizes for each planning area. Columns C and D show the assumptions made about natural gas-oil ratios for each planning area along with the relative proportion of oil and natural gas associated with each area as implied by that ratio. For example, in the Cook Inlet Planning Area, the analysis assumes there is 1.13 mcf of natural gas for every barrel of oil. This, on a BOE basis,[42] means that on average, approximately 83% of a field is oil and 17% is natural gas.

BOEM uses WEB3 to estimate the BOE hurdle prices shown in Column E of Table 12-1. Price forecasts from EIA are used to create a per-BOE price appropriate for each planning area based on their natural gas-oil ratios, shown in Column F. If these prices are below the hurdle price, from the monetized option value perspective discussed here, delaying the exploration of an undiscovered field of the size shown in Column B would result in greater value to the government than immediate exploration. However, as described in this chapter, there could be other reasons to keep these areas in at the National OCS Program stage and to wait for further consideration at the lease sale stage. The hurdle prices are per BOE and shown in 2025 dollars. More details on the calculation of hurdle prices that are derived from applicable oil and natural gas price estimates are included in **Appendix B**.

The weighted BOE forecast prices from the EIA for 2027 exceed the hurdle price in 11 of the 12 planning areas analyzed. The analysis indicates that there is not a need to delay leasing in these areas for option value reasons. However, as shown in Table 12-1, the hurdle price for the Mid-Atlantic Planning Area suggests that waiting could offer greater societal value than leasing during this National OCS Program. The modeled large undiscovered field for the Mid-Atlantic Planning Area has a higher natural gas-to-oil ratio than any other field analyzed and is projected to be in deeper water depths than those in the North Atlantic Planning Area. The higher natural gas-to-oil ratio leads to a lower BOE-weighted price estimate from EIA for 2027 and the higher development costs result in a higher hurdle price that is higher than this BOE-weighted estimate. Because the hurdle price analysis only considers uncertainties related to resource prices, the findings should be viewed as a guide only for price-based option value. More details about price assumptions are available in **Appendix B**.

[42] On a thermal basis, 5.62 mcf of natural gas provides the same heat content as a barrel of oil.

Table 12-1: Inventory Net Benefits Hurdle Prices

A	B	C	D		E	F
Planning Area	Large Undiscovered Field (Million BOE)	Natural Gas-Oil Ratio	Portion of Field BOE		Inventory Net Benefits Hurdle Price	2025 EIA AEO 2027 Prices
			Oil	Natural Gas	Price Per BOE	Price Per BOE
Beaufort Sea	250	NA	100%	0%	$41	$78.23
Chukchi Sea	371	NA	100%	0%	$39	$78.23
North Aleutian Basin	133	NA	100%	0%	$30	$78.23
Cook Inlet	342	1.13	83%	17%	$31	$65.09
Northern California	45	1.71	77%	23%	$49	$59.94
Central California	44	1.03	84%	16%	$28	$66.08
Southern California	87	1.46	79%	21%	$45	$62.10
Central GOA	179	1.67	77%	23%	$23	$60.29
Western GOA	180	1.54	78%	22%	$23	$61.39
Eastern GOA	173	2.52	69%	31%	$27	$54.04
Mid-Atlantic	358	9.52	37%	63%	$32	$29.04
North Atlantic	356	6.15	48%	52%	$33	$37.35

Notes: The large undiscovered field size is defined as the 95th percentile field from the 2021 National Assessment field size distribution. The 95th percentile represents very large field sizes while avoiding outlier values. The estimate of large field sizes in the GOA planning areas assumes that the largest field will be in deepwater and is modeled accordingly. The large undiscovered fields for the Beaufort Sea, Chukchi Sea, and North Aleutian Basin are modeled to produce 100% oil due to anticipated market conditions, with the field size reflecting only the oil portion as gas prospects are not considered economic.
Key: AEO = Annual Energy Outlook; BOE = barrel of oil equivalent
Source: EIA (2025w)

Among the main considerations in the hurdle price calculation are the cost estimates associated with developing the largest field size in each region. For example, while the modeled GOA fields are in deeper waters than the Cook Inlet modeled field, differences in the market conditions for the different planning areas can have major impacts on costs. A single deepwater well in any of the GOA planning areas would likely produce more than a single well in the Cook Inlet Planning Area. As a result, compared to any GOA planning area, the Cook Inlet Planning Area has higher development costs per BOE.

BOEM notes that the calculation of hurdle prices is highly dependent on several assumptions, especially future price trends of oil and natural gas, and on the rate at which prices revert to that trend. Given recent energy market changes, prices remain incredibly uncertain. Accordingly, the hurdle price findings should be taken as a guide for price-based option value. BOEM continues to review and revise its hurdle price framework as appropriate throughout the National OCS Program development and leasing processes.

The lease sale stage provides another opportunity to revisit the hurdle price analysis and consider whether to hold a lease sale. As discussed, the hurdle price analysis quantifies only one component of option value, price uncertainty, but other uncertainties remain, and other components factor into BOEM's analyses for the National OCS Program and subsequent lease sales. This is especially important to note as new information becomes available that could affect resource estimates or private or social costs for the planning areas. To capture the option value of new information becoming available that could make an area profitable to lease, the Secretary may choose to include or exclude areas in the National OCS Program regardless of the relationship between the hurdle prices and current prices.

The creation of a National OCS Program lease sale schedule allows companies the opportunity to plan for expenditures and prospects as part of their leasing and business strategy. Choosing to cancel lease sales based purely on the hurdle price is not costless and could have an adverse impact on company interest in the region and the value received by the public. As such, the Secretary also considers many other factors in the decision of whether to include an area in the National OCS Program and ultimately hold a lease sale.

12.2 Leasing Framework

The size and the frequency of lease sales within a program area are key considerations within the National OCS Program framework.

12.2.1 Size of a Lease Sale

Regarding the size of a lease sale, BOEM considers whether all acreage within a program area should be included in the lease sale, or whether to make a more focused area available for leasing. Starting in 1983, BOEM and its predecessors have typically conducted GOA lease sales under the areawide leasing format, meaning that the government offers all available (unleased and not restricted) acreage in the program area in the lease sale.[43]

Prior to 1983, BOEM used an industry nomination or agency tract selection process in which companies nominated acreage or BOEM selected specific acreage for lease, and only that acreage was offered; the tract selection lease sales tended to result in fewer leases being issued. The OBBBA, enacted in July 2025, requires that the lease sales mandated by the OBBBA in the GOA include at least 80 million acres. If fewer than 80 million acres are unleased and available, all unleased and available acres must be offered. Similarly, all Alaska lease sales must offer at least 1 million acres, or all unleased and available acres must be included if there are less than 1 million acres available.

In the early 2000s, the State of Louisiana requested on several occasions the use of methods other than areawide leasing, similar to industry nomination or agency tract selection. In 2010, BOEM contracted a study analyzing areawide leasing. The study, *Policies to Affect the Pace of Leasing and Revenues in the Gulf of Mexico* (hereinafter referred to as the “Areawide Leasing

[43] Areawide leasing does not mean every available block. BOEM may still employ an areawide leasing format and exclude select blocks for marine sanctuaries, EEZ setbacks or to protect certain features (e.g., topographic features).

Study"), evaluated the efficacy of alternative leasing schemes to the areawide leasing model (Balcom et al. 2011).

The Areawide Leasing Study suggested that government revenues in the form of increased cash-bonus bids per block leased under the nomination/tract selection format would be offset by fewer blocks leased, less drilling, a reduced pace of discovery, lower rentals and royalties, and less annual future production of OCS oil and natural gas from newly issued leases. From this FMV perspective, the report found little benefit from adopting any of these alternative leasing methods.

When considering alternative leasing approaches and fiscal systems that could enhance government revenue and assure receipt of FMV, BOEM must be cognizant of the effects any policy changes might have on the achievement of other statutory goals of the National OCS Program. Among these are expeditious and orderly development and maintaining a diverse and competitive industry. By allowing a range of blocks to be included in a sale, areawide leasing allows smaller companies to expeditiously acquire, explore, and produce relatively low-resource, low-risk fields, while providing larger companies with an opportunity to pursue technologically complex development in deep water. Areawide leasing also encourages innovative exploration strategies and is consistent with maintaining financially sound geophysical contracting and processing industries. In addition, the bidding system, minimum bid, and fiscal terms for a given lease sale influence the number and value of leases sold.

When developing or implementing the National OCS Program, the size and scope of a planning area or lease sale area, respectively, can be narrowed and a more focused approach adopted in particular areas. Given the structure of the National OCS Program process, these decisions can be made throughout the National OCS Program development process or during the lease sale stage. More focused leasing is geographically narrowed in scope and could be used to balance resource availability and limit conflicts with states' CZM plans, DOD activities, environmentally sensitive subareas, and subsistence use by making certain determinations about which blocks within the planning areas are most suitable for leasing. BOEM will consider both FMV and other concerns, such as environmental and subsistence issues, when determining whether to hold areawide or more focused lease sales in a particular area.

12.2.2 Frequency of Lease Sales

Another consideration at the National OCS Program stage is the frequency of lease sales within the years covered by a particular National OCS Program. When deciding the frequency of lease sales to be held in a particular area, an important consideration is the potential for new information (e.g., geologic information, revised price forecasts, technological innovations, environmental considerations) to become available between lease sales.

In the GOA Region, seismic exploration activity, exploration well drilling, and lease relinquishments are occurring almost continuously. Thus, in the GOA planning areas, the emerging information and tract availability could impact a company's bidding strategy as well as the government's evaluation of blocks. Accordingly, and partly in response to demand and new information, an efficient GOA lease sale schedule tends to involve more frequent lease sales. In other areas where little to no current activity occurs and there would be minimal to no new information between sales, it would be more appropriate to have a lease sale schedule with less frequent sales. Of course, other factors (such as changing prices or new geologic information) could warrant more or fewer sales in a particular area throughout the National OCS Program.

Additional information on the frequency of lease sales will be considered throughout the development of the National OCS Program.

12.3 FMV: Lease Terms and Bid Adequacy

After an area is included in an approved National OCS Program and following the determination of the lease sale size and timing, the next decision is the selection of the bidding system and lease terms for the lease sale offering. USDOI evaluates these terms prior to each lease sale to assure the terms provide the public with FMV for the rights conveyed. The lease sale components for assuring receipt of FMV consist of the bidding system, lease terms, and bid adequacy review. After the lease sale and before acceptance of any bids, BOEM performs a bid adequacy evaluation.

12.3.1 Bidding Systems

In designing a lease sale, USDOI determines the appropriate bidding system. The specific competitive bidding systems available under the OCS Lands Act are set forth in 30 CFR 560.202. The OCS Lands Act requires the use of a sealed bid auction format for oil and gas lease sales, with a single bid variable on tracts no larger than 5,760 acres, "unless the Secretary finds that a larger area is necessary to comprise a reasonable economic production unit" (43 U.S.C. § 1337(b)(1)). The OCS Lands Act allows for different competitive bidding variables including royalty rates, bonus bids, work commitments, or profit-sharing rates.

When Congress amended the OCS Lands Act in 1978, it instructed USDOI to experiment with alternative bidding systems for OCS leasing, primarily to encourage the participation of small companies by reducing upfront costs associated with the traditional cash-bonus bid system. USDOI used four alternative bidding systems from 1978 through 1982. While one lease sale used the royalty rate as the bid variable, almost all the lease term structures during this period maintained the cash-bonus bid but varied the contingency variable with the use of a sliding scale royalty, which varied depending on the rate of production, a fixed net profit share, and 12.5% and 33% royalty rates.

At the time, these systems were not found to enhance National OCS Program performance compared to the then-prevalent 16.67% fixed royalty rate system in shallow water. Among other things, a review found that they did not increase participation by small companies; were significantly more complex to administer; distorted bids, which made it more difficult to identify the high bid; and often were not beneficial to the taxpayer. As a result, since 1983, USDOI has chosen to use the cash-bonus bidding system along with a fixed royalty rate.

The OCS Lands Act requires that USDOI offer OCS acreage competitively. Competitive auctions are the most likely to maximize OCS leasing and production and efficiently allocate capital in a manner that is beneficial to the public. In evaluating which bidding terms to use, USDOI considers the goals of the OCS Lands Act, the costs and complications of implementing the selected approach, the ability of the bidding variables to accurately identify the bidder offering the highest value, and the economic efficiency of the selected approach. When preparing for specific lease sales, BOEM analyzes alternative fiscal terms to offer in conjunction with the current bidding systems. USDOI also considers alternative bidding systems, as appropriate; these are described in the next section.

12.3.2 Fiscal and Lease Terms

After deciding to hold a lease sale and determining the bidding system to use, the next set of decisions deals with the lease sale terms to be offered, largely the fiscal terms and duration of the primary lease term. The fiscal terms include an upfront cash bonus, rental payments, and royalties, with the rental and royalty terms set by USDOI and the upfront cash bonus offered by bidders subject to USDOI's minimum bid level. All the financial obligations (cash bonus, rental payments, and royalties) reflect the value of the lessor's (i.e., Federal government's) property interest in the leased minerals and contribute to the assurance that FMV is received in exchange for the right to develop the public's resources. In determining the appropriate lease terms for a lease sale, USDOI must balance the need to assure FMV with the policy goals in the OCS Lands Act, such as expeditious and orderly development of OCS resources.

USDOI evaluates fiscal and lease terms on a sale-by-sale basis and has adjusted these in recent lease sales in response to emerging market and resource conditions, competition, and the prospective nature of available OCS acreage. In general, changes in fiscal terms are typically done incrementally, allowing BOEM the opportunity to evaluate the results of a lease sale held with new lease sale terms and for USDOI to further refine terms, if necessary, in future lease sales.

BOEM follows formalized procedures for evaluating fiscal terms before lease sales. These annual procedures consider the effectiveness of the status quo fiscal terms in comparison to international fiscal systems and recent National OCS Program performance. During these procedures, BOEM updates the in-house analytical models, conducts additional statistical analysis, reviews international fiscal system trends, and recommends either adopting fiscal terms used in previous lease sales or other alternative fiscal terms. BOEM's procedures include use of both discounted cash flow and real option methods for deciding the set of fiscal terms that maximize the potential value of future leasing and production while ensuring receipt of FMV. After a lease sale, BOEM evaluates the bids received to determine whether the lease terms offered have enhanced bidding and competition for leases and to evaluate the necessity for additional changes or adjustments.

BOEM periodically conducts studies and incorporates their results into the procedures and analyses on fiscal terms. As discussed previously, BOEM conducted the 2010 Areawide Leasing Study to consider a range of alternative fiscal terms. The study was not able to identify alternative leasing and fiscal policies that would lead to significant increases in Federal revenues. Further, BOEM, jointly with the BLM and BSEE, completed a study with IHS Markit titled *2018 Comparative Analysis of the Federal Oil and Gas Fiscal Systems: Gulf of Mexico International Comparison* (IHS Markit 2018). The study compared peer group countries' petroleum extraction fiscal systems and terms to the U.S. Federal system and found that, from a government perspective and an investor perspective, recently used GOA lease fiscal terms have been competitive with the fiscal terms employed by other countries that compete with the U.S. for upstream oil and gas investment.

Congress has passed laws requiring USDOI to offer specific fiscal terms. In 1995, Congress passed the Deepwater Royalty Relief Act (43 U.S.C. §§ 1337 *et seq*.), requiring the use of royalty suspension volumes for certain leases in water depths of 200 meters and deeper. Additionally, Congress passed the Energy Policy Act of 2005, with requirements for offering specific provisions of deep water and deep gas royalty relief. The IRA required BOEM to issue leases with a minimum royalty rate of 16.67%, but not more than an 18.75%, during the 10-year period following IRA enactment. However, the recently passed OBBBA changed the royalty rates and requires leases to have a minimum of 12.5% but no more than 16.67%. The OBBBA also requires that the OBBBA-mandated lease sales in Cook Inlet and the GOA adhere to the same lease terms, lease stipulations, and economic conditions as Lease Sale 244 and Lease Sale 254, respectively. However, there are limited exceptions to these requirements for the OBBBA-mandated GOA lease sales, which are discussed in the following sections.

12.3.2.1 Minimum Bid and Bonus Bid Amounts

For many years, the bid variable of the auction has been the bonus bid. This signature bonus is a cash payment required at the time of lease execution. A bonus bid is formulated by the bidder based on its perception of expected profit, net of other payments. USDOI sets a minimum bid as a floor value for acquiring the rights to OCS acreage; historically, its primary utility has been to ensure receipt of FMV on blocks for which there are insufficient data to make a tract evaluation, or existing geologic or economic potential of the blocks is inadequate to support a positive tract value. USDOI's most recent increase of the minimum bid in the deepwater GOA was in 2011 and was intended to encourage bidders to focus on blocks more likely to be explored during the lease's primary term. The OBBBA stipulates that minimum bids for OBBBA-mandated sales in the GOA must be the same as offered in Lease Sale 254, while those for Cook Inlet must match Lease Sale 244.

All else being equal, a higher minimum bid would result in a greater proportion of offered blocks remaining as unleased after a lease sale. To the extent these passed-over blocks are marginally valued, their retention in the government's inventory and reoffering at the next lease sale could enhance the efficiency of the lease sale process and generate option value and higher bonus bids for the retained blocks in a future lease sale. A higher minimum bid level can also serve to narrow bidder interest to the more valuable blocks offered in the lease sale, thereby enhancing competition on the better blocks and encouraging bidders to focus their bidding on those blocks that they are most likely to explore and develop.

The lessee pays the bonus bid at the outset regardless of future activity or production, if any, so the lessee bears the risk of paying more than the lease is eventually worth, while the government bears the risk of accepting less than it is eventually worth. A fiscal advantage of the bonus is that it is received by the government immediately; there is no delay of, possibly, a decade or more, as with the royalty.

Although the minimum bid stipulates the lowest bid level, actual bids submitted are based on the expected profitability of the field and the evaluation of geology and economic viability (as described in Section 5.5). Bidders develop the actual amount of their bonus bids in consideration of the expected discounted present value of the lease. Accordingly, the fiscal terms in effect in a lease sale can affect the amount of the bonus bid for a lease, and changes in other fiscal terms can affect the revenues collected through bonuses. For example, a higher royalty or rental rate can be expected to induce bidders to formulate lower bonus bids and vice versa.

12.3.2.2 Bid Adequacy

Following a lease sale, BOEM evaluates all high bids on each OCS block to determine whether they satisfy the FMV requirements for acceptance. BOEM assesses all blocks using a combination of block-specific bidding factors and detailed block-specific resource and economic evaluation factors to assure that the government receives FMV for each lease issued. To be considered for acceptance, the high bid must exceed the government's reservation price. The reservation price is block-specific and calculated using geologic and engineering parameters to evaluate the economics of that block. The reservation price helps to assure receipt of FMV by only leasing viable blocks for prices commensurate with the modeled geologic potential. As explained below, this value is separate from the minimum bid that is set at the time of the lease sale notice (discussed in the previous section). Creating a reservation price for individual blocks assures that even when there is only a single bid on a block, the bid is still evaluated against the government's estimate of the block's value.

The bid adequacy procedures, initially instituted in 1983, use a two-phased evaluation process to assess the adequacy of bids received in lease sales. The first phase involves BOEM's assessment of the block's geologic and economic viability using the best available seismic and other information available. All bidders must provide BOEM with a list of proprietary geologic and seismic data used to formulate the bid, and then provide these data to BOEM within 30 days, if requested. This prevents a situation where asymmetric information gives an advantage to the bidder.

Since 1984, bid adequacy reviews and FMV determinations have resulted in an average bid rejection rate of approximately 4%. One outcome of bid rejection is to encourage bidders to submit bids in subsequent lease sales that exceed the government's reservation price and thereby promote receipt of FMV. Rejection of high bids under existing BOEM bid adequacy procedures has consistently resulted in higher returns in subsequent lease sales for the same tracts, even when those tracts not receiving subsequent bids were included in the calculation of the average returns.

In the GOA, from 1984 through 2024, BOEM rejected total high bids of $763 million, but when BOEM re-offered the blocks, they drew subsequent high bids of $1.99 billion, for a total net gain of $1.2 billion, or an increase of almost 162%. These results indicate that BOEM's bid adequacy assessments and procedures have performed well in identifying blocks with high bids below FMV. With the possibility of bid rejection from the government and competition from other bidders, lease sale participants are encouraged to submit bids that reflect or exceed the government's reservation price. When bids exceed the reservation price, the government is confident it is receiving FMV.

In cases where new information became available after the lease was awarded, the information tends to be either new or reprocessed geophysical data unavailable at the time of sale, or new subsurface well data acquired because of drilling on a nearby lease that could indicate the presence or absence of material hydrocarbon deposits on the subject lease. Since exploration and production companies often gather new or reprocessed geophysical data on leases after they are awarded but prior to exploratory drilling, BOEM finds that lessees sometimes drill wells to targets that differ from those evaluated prior to the lease.

BOEM actively seeks opportunities to improve its bid adequacy process. The original form of the bid adequacy procedures was instituted in 1983 in conjunction with the implementation of the areawide leasing policy, but these procedures have undergone several amendments to implement FMV improvements as conditions have changed. The Number of Bids Rule that had previously applied to Phase 1 of the bid adequacy procedures was eliminated by BOEM in March 2016. In January 2024, BOEM published new bid adequacy procedures in the FR. The new bid adequacy procedures update BOEM's methodology for measuring the adequacy of bids by discontinuing the use of a delayed value calculation and eliminate a tract classification component, which had little effect on the process of evaluating FMV. These changes were partially in response to recommendations made by the Government Accountability Office's (GAO) Report GAO-19-531, *Offshore Oil and Gas: Opportunities Exist to Better Ensure a Fair Return on Federal Resources* (GAO 2019). The procedures are available online at http://www.boem.gov/Fair-Market-Value/.

12.3.2.3 Primary Term

In cases where a high bid meets the FMV requirements, the lease rights are issued to the lessee for a limited term, called the primary term. The OCS Lands Act sets the primary term at 5 years, or up to 10 years, "where the Secretary finds that such longer period is necessary to encourage exploration and development in areas because of unusually deep water or other unusually adverse conditions" (43 U.S.C. § 1337(b)(2)). The primary term promotes expeditious exploration while still providing time to commence development. In evaluating the primary term of the lease, USDOI considers technology and time necessary for exploration and infrastructure development.

When designing specific lease sales, USDOI considers the length of the primary term and whether it remains appropriate given current exploration timeframes. For example, for Lease Sale 256 in late 2020, USDOI increased the primary term for leases in water depths of 800 to 1,600 meters to account for the technological difficulties associated with developing the remaining fields in this water depth.

The OBBBA requires that primary terms for OBBBA-mandated leases in the GOA align with Lease Sale 254, except for leases in water depths greater than 800 meters, which must have a 10-year primary term. Additionally, the Act also requires that OBBBA-mandated lease sales in the Cook Inlet offer primary terms that match those of Lease Sale 244, which included a 10-year primary term.

12.3.2.4 Rentals

Before the commencement of royalty-bearing production, the lessee pays annual rentals that are either fixed or escalating. Rentals compensate the public for the value of holding the lease during the primary term and encourage diligent development.

Rental payments provide an incentive for the lessee to either drill the lease in a timely manner or relinquish it before the end of the primary term, thereby allowing other market participants to acquire these blocks earlier than otherwise. BOEM also includes escalating rentals to provide additional incentives to relinquish blocks when exploration is unlikely to be undertaken.

The OBBBA directs BOEM to offer leases for OBBBA-mandated sales with rental rates in the GOA that are consistent with Lease Sale 254, which ranged from $7 to $11 per acre depending on the water depth and increase after the fifth year. Additionally, the Act requires that OBBBA-mandated leases in the Cook Inlet match the rental rates offered in Lease Sale 244, which start at $13 per hectare for the first 7 years before increasing to $20 per hectare.

12.3.2.5 Royalties

OCS oil and gas production is subject to a royalty interest held by the government. The royalty rate is applied to the value of oil and gas sold, net of certain transportation and processing costs. As the price of oil and gas fluctuates, the amount collected per barrel increases or decreases, but the rate itself remains constant.

Royalty rates can have a significant impact on bidder interest and are a key fiscal parameter in the calculation of the underlying economic value for an OCS block. It is primarily through royalties that the public shares in the project risk and receives compensation for the extraction of resources.

Prior to recent legislation, the OCS Lands Act included a minimum royalty rate for OCS leases of 12.5% but did not include a maximum rate. The IRA narrowed the available royalty rate range by setting a new minimum royalty rate of 16.67% while establishing a maximum royalty rate of 18.75% for the 10-year period following IRA enactment. The OBBBA establishes a royalty rate range of 12.5% to 16.67% for all planning areas, except for OBBBA-mandated Cook Inlet sales. For OBBBA-mandated Cook Inlet sales, the royalty rate must match that of Lease Sale 244, which was set at 12.5%.

12.4 Conclusion

USDOI evaluates market conditions, available resources, bidding patterns, and the status of production on OCS acreage when establishing terms and conditions for each lease sale. While some components of OCS lease offerings are initially set at the National OCS Program stage (i.e., optimal timing and leasing framework), other components (e.g., fiscal and lease terms, bidding systems, and bid adequacy) are considered on a sale-by-sale basis to incorporate new information and assure the receipt of FMV. At this 1st Analysis stage, the planning area hurdle price analysis, based on calculated BOE hurdle prices in comparison to current expectations of future prices for oil and gas, does not indicate that any of the planning areas, except for possibly one—the Mid-Atlantic Planning Area—should be excluded based solely on the price of oil and gas.

BOEM emphasizes that this is only one consideration in the National OCS Program development process, and the Secretary may remove areas based on other factors (e.g., environmental considerations, industry interest). When BOEM changes any lease sale terms, bidding system, or bid adequacy procedures between one lease sale and the next, the changes are announced to the public and industry through the proposed NOS or other notification in the FR, typically prior to publication of the Final NOS.

Chapter 13
Outreach & Coordination

Chapter 13 Outreach and Coordination

BOEM's outreach and coordination with other Federal agencies; Tribal, state, and local governments; industry, non-governmental organizations; and the public is a crucial part of the National OCS Program development process. Through these efforts, BOEM strives to encourage open and continued dialogue between and among diverse groups to share ideas and concerns, and to ensure the accurate and timely exchange of information.

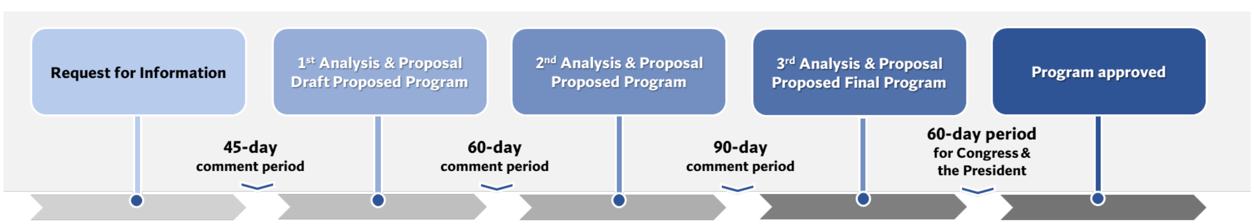
Section 18 of the OCS Lands Act specifies a multi-step process of public involvement and analysis that must be completed before the Secretary may approve a new National OCS Program. This process requires the Secretary to consider, among other factors, the comments, and concerns of governors, local governments, Tribes, industry, and other users of the OCS.

Particularly, the OCS Lands Act requires consideration of the following:

1. Laws, goals, and policies of affected states that have been specifically identified in comments received from governors or a state agency on behalf of the governor (see Section 13.4)
2. The interest of potential oil and gas producers in the development of oil and gas resources as indicated by exploration or nomination (i.e., industry interest, see Section 13.5).

The National OCS Program development process provides multiple opportunities for stakeholders and the general public to provide comments, with three formal comment opportunities (see Figure 13-1).

Figure 13-1: 11th Program Development Process & Status

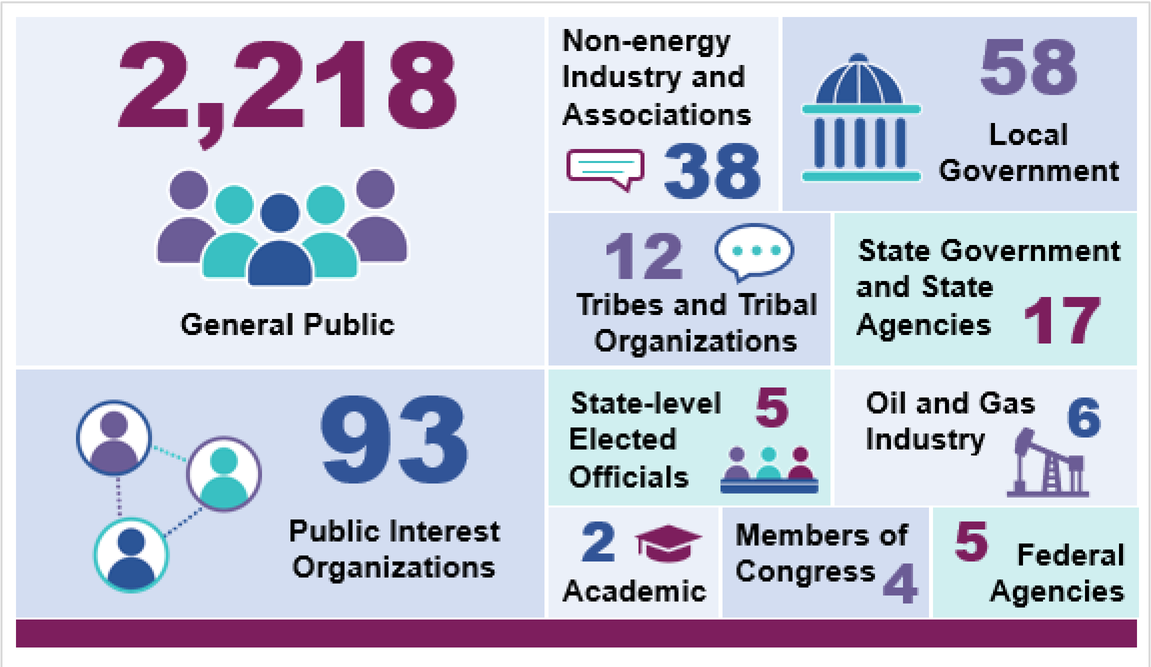


13.1 Request for Information and Comments

On April 30, 2025, BOEM published an RFI in the FR, which is the first step in the preparation of a new National OCS Program (90 FR 17972). BOEM also sent letters to all governors and several

Federal agencies requesting their input. BOEM received approximately 86,000 comments in response to the RFI (see **Appendix A** for a summary of comments received on the RFI). See Figure 13-2 for a breakdown of the number of unique comment letters received by commenter category.

Figure 13-2: Number of RFI Unique Comment Letters by Commenter Category



Note: These counts represent all unique submissions and exclude form letter copies. Letters contain multiple signatories for the following commenter types: Energy Exploration and Production Companies and Associations (10), Local Government (9), Members of Congress (49), Non-energy Industry and Associations (128), Public Interest Organizations (293), State Government and State Agencies (15), State-level Elected Official (12), and Tribes and Tribal Organizations (3).

13.2 How to Comment on this 1st Analysis and Proposal

The Notice of Availability and Request for Comments for this 1st Analysis and Proposal for the 11th Program was published in the FR and a 60-day comment period was also opened. Please visit https://boem.gov/national-program for links to the FR notice as well as for instructions on how to submit comments to www.regulations.gov or through the U.S. mail.

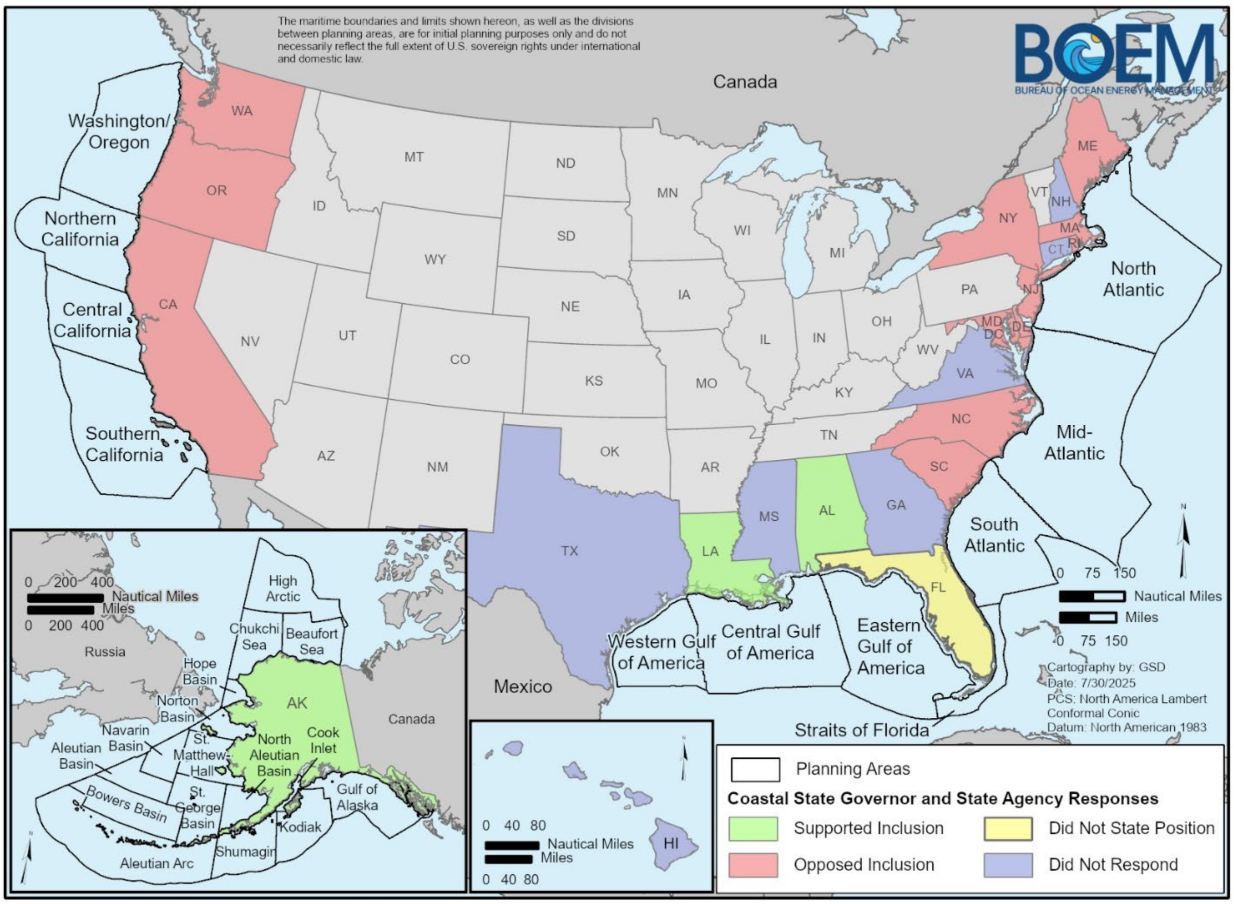
13.3 Laws, Goals, and Policies of Affected States

OCS Lands Act Section 18(a)(2)(F) (see Section 2.4) requires BOEM to consider laws, goals, and policies of affected states that are specifically identified by their governors. Transmittal letters, along with directions to access this 1st Analysis and Proposal, were sent to Federal agencies and all 50 governors and announcing publication and requesting comments during the 60-day public comment period. BOEM received comment letters in response to the RFI from 17 governors or a state agency on behalf of the governor. These letters identified laws, goals, and/or policies that the state deemed relevant for the Secretary's consideration. These comments were considered as part of the Secretary's 1st Proposal (see **1st Proposal**).

There will be additional opportunities for governors and state agencies to comment following the publication of this DPP and again following the publication of the Proposed Program. State laws, goals, and policies will be further considered by the Secretary in formulating their 2nd and 3rd Proposals.

Comments from governors and state agencies are shown in Figure 13-3 and detailed comment summaries are presented in **Appendix A**.

Figure 13-3: Governor or State Agency Response to the April 2025 Request for Information



13.4 Industry Interest

OCS Lands Act Section 18(a)(2)(E) (see Section 2.4) requires BOEM to consider the interest of potential oil and gas producers. In response to the RFI, BOEM received six comment letters from exploration and development companies and oil and gas industry associations representing such companies. Of those responses, 100% were in support of oil and gas leasing. All commenters stated their support for leasing in the GOA not currently subject to moratorium (i.e., most of the Central and Western GOA and a small portion of the Eastern GOA).

Half of the commenters also specifically mentioned the Eastern GOA as an area of interest that they would like to be considered for leasing. Most of the Eastern GOA was withdrawn from oil and gas leasing consideration by President Trump in September 2020 (see Section 3.2). Two commentors mentioned interest in the Atlantic Region and the Pacific Region, with one specifying the Southern California Planning Area. One commentor also mentioned the Beaufort Sea and Chukchi Sea planning areas as areas of interest. Summaries of comments from industry are included in **Appendix A**.

13.5 Tribal Coordination and Consultation

Planning areas under consideration for inclusion in the 11th Program include the traditional lands and waters of American Indian and Alaska Native communities. American Indians and Alaska Natives continue to steward and use these waters and their associated marine and terrestrial resources for subsistence, medicinal, and other purposes, as they have since time immemorial.

These traditional lands and waters also include tangible and intangible cultural resources of spiritual, cultural, and historic importance. BOEM implements Tribal consultation policies through both formal government-to-government consultation with Tribes and government-to-corporation consultation with Alaska Native Claims Settlement Act corporations (ANCSA corporations) and informal dialogue, collaboration, and engagement.

BOEM is committed to maintaining open and transparent communications with Tribes, ANCSA corporations, and other entities supportive of their interests. BOEM's approach emphasizes continuing or establishing relationships that are built and maintained with trust, respect, and shared responsibility as part of a deliberative process for effective collaboration and informed decisionmaking.

On May 1, 2025, BOEM invited Tribes and ANCSA corporations to consult on the 11th Program through *Dear Tribal Leader Letters*. These letters emphasized that BOEM is available to consult in the manner preferred by each Tribe or ANCSA corporation, throughout the development of the 11th Program, emphasizing that comments received prior to June 16, 2025, would inform the development of the 1st Proposal.

The letters also provided instructions on how to register for two virtual information sessions, open to all Tribes and ANCSA corporations, which were held on May 20 and 21, 2025. During these sessions, BOEM leadership and staff provided information and answered questions about the National OCS Program. The sessions were designed to provide sufficient detail to allow Tribal leaders and their representatives to determine if and when they would accept the offer to consult on the 11th Program.

BOEM staff also shared a Draft Tribal Engagement Plan with registrants and participants, proposing opportunities to consult and engage during the development of the National OCS Program. The draft plan attempts to identify engagement opportunities that could be the most impactful in informing each of the prescribed decision points for the National OCS Program. While Tribes and ANCSA corporations can request consultation at any time, BOEM invited discussion on consultation and engagement opportunities and a framework to ensure that Tribal input is meaningfully considered in the decisionmaking process.

While no comments have been received on the Draft Tribal Engagement Plan, BOEM continues to conduct outreach with Tribes and ANCSA corporations to revise and build out the engagement plan. Approximately 15 individuals representing 8 Tribes attended each session. BOEM received two requests for additional information during and following the information sessions, but no requests for consultation resulted from the information sessions.

Topics and questions raised during the sessions include the following:

- Request to clarify leasing timelines and expiration periods, including the difference between active leases and producing leases.
- Request for insight into the rationale behind the withdrawal of the Atlantic Region during the Obama Administration—specifically, whether the decision was driven by policy considerations or logistical factors.
- Request for more information about the regulatory process, including how Section 18 of the OCS Lands Act aligns with NEPA requirements, including an overview of the NEPA review timeline.
- Request to clarify the relationship between Tribal nations and BOEM during the OCS oil and gas review process.
- Request for more information about the scope of environmental analysis for the 11th Program compared to previous Programs and later stages.
- Emphasis that consultations are sovereign government-to-government interactions and should be completely separate from general public comment periods.
- Request for clarity on how Tribal input is incorporated into USDOI's decisionmaking process and a call for improved transparency in reporting how this feedback influences outcomes.
- A question about how BOEM will incorporate the recommendations from the 2025 GAO report on OCS wind development (GAO 2025).

Most of these questions were addressed during the information session.

In response to the consultation notification and the 11th Program RFI, BOEM received 13 individual and joint comment letters representing American Indian and Alaska Native rights and interests from 8 Tribes, 2 ANCSA Corporations, 2 Alaska Native regional non-profit organizations, and 1 Tribal non-profit organization; 3 municipal governments; and 1 public Tribal land-grant community college (see **Appendix A.9** for more detailed summaries of comment letters representing American Indian and Alaska Native rights and interests). The comment letters include multiple requests for consultation; most are contingent on the inclusion of specific planning areas.

BOEM is communicating with Tribes, ANCSA Corporations, and organizations to understand preferences for consultation timing and format, as well as to seek clarification on specific concerns raised in the comment letters to think how best to integrate input into the next stages of National OCS Program development.

Some commentors requested exclusion of the Alaska, Pacific, and Atlantic planning areas from the 11th Program, as indicated in Table 13-1. Table 13-2 lists the Tribal entities that provided comments letters in response to the RFI.

Table 13-1: Tribal-Requested OCS Planning Areas for Exclusion

OCS Region	OCS Planning Area Requested to be Excluded from the 11th Program
Alaska OCS	Beaufort Sea, Chukchi Sea, High Arctic, Norton Basin, Navarin Basin, St. Matthew-Hall, Aleutian Basin, Bowers Basin
Pacific OCS	Washington/Oregon, Northern California, Southern California
Atlantic OCS	North Atlantic, Mid-Atlantic, South Atlantic

Table 13-2: RFI Comment letters received from Tribes and Entities

No.	Type of Entity	Entity Name	Federally Recognized Tribes Represented or Interests Supported	Consultation/ Engagement Requested
	Alaska			
1.	Federally Recognized Tribe	Iñupiat Community of the Arctic Slope	Eight (8) Iñupiat federally recognized Tribes: Anaktuvuk Pass, Atqasuk, Kaktovik, Nuiqsut, Point Hope, Point Lay, Utqiaġvik (formerly Barrow), and Wainwright	Consultation
2.	Federally Recognized Tribe	Native Village of Barrow	N/A	Consultation
3.	Alaska Native Village Corporation	Ukpeagvik Iñupiat Corporation	N/A	Consultation
4.	Alaska Native Regional Corporation	Arctic Slope Regional Corporation (ASRC)	N/A	N/A
5.	Alaska Native regional non-profit organization	Association of Village Council Presidents (AVCP)	Fifty-six (56) federally recognized Tribes across 48 communities: Akiachak, Akiak, Alakanuk, Aniak, Atmautluak, Bethel, Bill Moore's Slough, Chefornak, Chevak, Chuloonawick, Crooked Creek, Chuathbaluk, Eek, Emmonak, Georgetown, Goodnews Bay, Hamilton, Hooper Bay, Lower Kalskag, Upper Kalskag, Kasigluk, Kipnuk, Kongiganak, Kotlik, Kwethluk. Kwigillingok, Lime Village, Marshall, Mekoryuk, Mountain Village, Napakiak, Napaimiut, Napaskiak, Newtok, Nightmute, Nunapitchuk, Nunam Iqua, Ohogamiut, Oscarville, Paimiut, Pilot Station, Pitka's Point, Platinum, Quinhagak, Red Devil, Russian Mission, Scammon Bay, Sleetmute, St. Mary's (Algaaciq and Andreafski Tribes), Stony River, Toksook Bay, Tuluksak, Tuntutuliak, Tununak, Umkumiut	Consultation

No.	Type of Entity	Entity Name	Federally Recognized Tribes Represented or Interests Supported	Consultation/ Engagement Requested
6.	Alaska Native regional non-profit organization	Kawerak, Inc.	Twenty (20) federally recognized Tribes across 16 communities: Native Village of Brevig Mission, Native Village of Council, Native Village of Diomede (Inalik), Native Village of Elim, Native Village of Gambell, Chinik Eskimo Community (Golovin), King Island Native Community, Native Village of Koyuk, Native Village of Mary's Igloo, Nome Eskimo Community, Native Village of Saint Michael, Native Village of Savoonga, Native Village of Shaktoolik, Native Village of Shishmaref, Village of Solomon, Stebbins Community Association, Native Village of Teller, Native Village of Unalakleet, Native Village of Wales, Native Village of White Mountain	Consultation
7.	Tribal non-profit organization	Bering Sea Elders Group	Thirty-eight (38) federally recognized Tribes:	Consultation
8.	Municipal Government	City of Utqiaġvik	Village of Barrow	Consultation
9.	Municipal Government	North Slope Borough	Eight (8) Iñupiat federally recognized Tribes: Anaktuvuk Pass, Atqasuk, Kaktovik, Nuiqsut, Point Hope, Point Lay, Utqiaġvik (formerly Barrow), and Wainwright	Engagement (public hearings in each coastal village)
10.	Municipal Government	City of Atqasuk	Village of Atqasuk	Consultation
11.	Public Tribal land-grant community college	Ilisagvik College	N/A	Consultation
	Pacific			
1.	Federally Recognized Tribe	Hoh Indian Tribe	N/A	
2.	Federally Recognized Tribe	Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians (CTCLUSI)	N/A	Consultation
3.	Federally Recognized Tribe	Yurok Tribe	N/A	
4.	Federally Recognized Tribe	Santa Ynez Band of Chumash Indians	N/A	Consultation
	Atlantic			

No.	Type of Entity	Entity Name	Federally Recognized Tribes Represented or Interests Supported	Consultation/ Engagement Requested
1.	Federally Recognized Tribe	Wampanoag Tribe of Gay Head (Aquinnah)	N/A	Consultation
2.	Federally Recognized Tribe	Passamaquoddy Tribe, on behalf of both the Pleasant Point and Indian Township communities	N/A	Consultation
	Gulf of America			
No comments received from GOA Tribes or Tribal entities				

13.6 Other Agency Coordination

BOEM continues to collaborate with Federal, state, and local agencies, Native American Tribes, and other stakeholders to identify potential issues pertinent to the 11th Program. The purpose of the collaboration is to determine areas that might need additional consideration and to avoid, minimize, or mitigate possible impacts to the greatest extent practicable while still meeting national energy needs.

BOEM is collaborating with NASA's Office of Strategic Infrastructure for their special expertise on launch paths and debris fields and with the NPS for their special expertise on their managed areas.

The DOD and USDOI continue to coordinate extensively (see Chapter 8) and DOD submitted a comment letter on the RFI. BOEM anticipates further discussions with DOD for subsequent stages of development of the 11th Program.

BOEM continues to work closely with NOAA as the 11th Program is developed to ensure NOAA's special expertise (i.e., fisheries, ESA-listed species and critical habitat, EFH, NMS, and geospatial data) is woven into USDOI's decisionmaking. NOAA's input is particularly important at the lease sale stage after the 11th Program is approved.

See **Appendix A** for more details on Federal agency RFI comment letters.

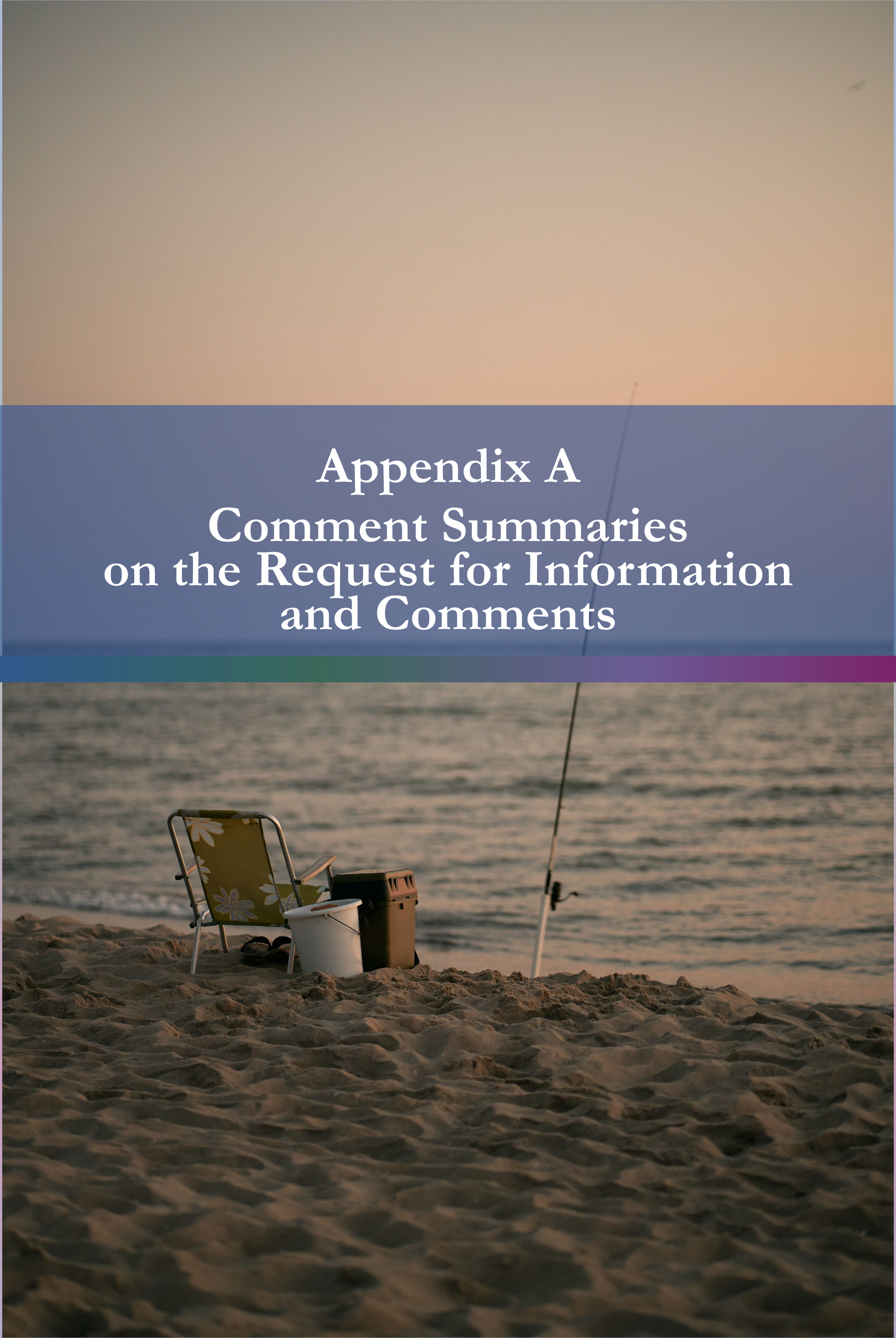
13.7 Next Steps

Figure 13-1 shows the process status of the development of the 11th Program. BOEM analyzed public input from the RFI to include pertinent information in this 1st Analysis and for the Secretary's consideration when determining the 1st Proposal.

A 60-day public comment period follows the publication of this 1st Analysis and Proposal. BOEM will then analyze the additional public input and commence development of the 2nd Analysis. In the 2nd Analysis, BOEM will analyze the 1st Proposal and any other Program Options that the Secretary deems ripe to include for leasing consideration at that stage (see Section 1.2.5 for further information).

Once the 2nd Analysis and Proposal (the Proposed Program) are published, a 90-day public comment period begins.

Appendix A
Comment Summaries on the Request for Information and Comments



Appendix A:
Summaries of Public Comments on the 11th National OCS Oil & Gas Leasing Program Request for Information

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Abbreviations and Acronyms

Acronym	Definition
AI	Artificial Intelligence
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
CCOMP	Cape Cod Ocean Management Plan
DEQ	Department of Environmental Quality
EIS	Environmental Impact Statement
ESA	Endangered Species Act
GDP	gross domestic product
GHG	greenhouse gas
GOA	Gulf of America
GOMESA	Gulf of America Energy Security Act
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
PEIS	Programmatic Environmental Impact Statement
RFI	Request for Information
VMT	Vehicle Miles Traveled

Appendix A: Summaries of Public Comments by Commenter Category

The Bureau of Ocean Energy Management (BOEM) requested information and comments on the 11th National Outer Continental Shelf (OCS) Oil and Gas Leasing Program Request for Information (RFI) in the *Federal Register* (FR) on April 30, 2025 (90 FR 17972). The RFI was distributed to interested and affected parties, including governors and Federal agency leaders, for a 45-day comment period. BOEM received approximately 86,031 comments on the RFI (see www.regulations.gov docket identification [ID] BOEM-2025-0015). A high-level summary of substantive comments received on the RFI is provided herein.

Comments were received from several different types of stakeholders (see Table A-1). BOEM received comment letters from 8 governors individually and/or as joint signatories (Oregon, California, Alabama, Louisiana, South Carolina, North Carolina, and Maine) and 7 comments from state agencies where the governor did not comment separately (Alaska, Washington, Florida, Maryland, Delaware, New York, and Massachusetts). In addition, BOEM received 58 comment letters from local governmental entities in 11 states (Alaska, Washington, Oregon, California, Florida, South Carolina, North Carolina, Virginia, Maryland, New Jersey, Massachusetts).

All form letter campaigns and petitions stated opposition to the development of a new National OCS Program. Each summary contains a Document ID. The Document ID refers to the comment submission's docket number in the Federal government's online comment website, www.regulations.gov, where the full comment submission can be accessed.

Table A-1 shows the number of comment letters received by commenter type. Table A-2 provides a list of organizations that submitted comment letters.

Table A-1: Stakeholders Providing Comments on the Request for Information

Commenter Type	Number of Comments Received
Academic	2
Energy Exploration and Production Companies and Associations	6
Federal Agencies	5
Local Government	58
Members of Congress	4
Non-energy Industry and Associations	38
Public Interest Organizations	93
State Government and State Agencies	17
State-level Elected Official	5
Tribes and Tribal Organizations	12
General Public	2,218
Total	**2,458**

Notes: These counts represent all unique submissions and exclude form letter copies. Letters contain multiple signatories for the following commenter types: Energy Exploration and Production Companies and Associations (10), Local Government (9), Members of Congress (49), Non-energy Industry and Associations (128), Public Interest Organizations (293), State Government and State Agencies (15), State-level Elected Official (12), and Tribes and Tribal Organizations (3).

Table A-2: List of Commenters

Commenter Type	Organization
State Government and State Agencies	Alabama Governor Kay Ivey
	Alaska Department of Natural Resources, Office of Project Management and Permitting
	Attorneys General of Maryland, California Delaware, Maine, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Washington
	California Governor's Office and the California Natural Resources Agency
	California Natural Resources Agency, Wade Crowfoot
	California Office of the Lieutenant Governor
	Delaware Department of Natural Resources and Environmental Control
	Florida Department of Environmental Protection
	Louisiana Governor Jeff Landry
	Maine Governor's Energy Office
	Maryland Department of Natural Resources
	Massachusetts Office of Coastal Zone Management, Massachusetts Division of Marine Fisheries

Commenter Type	Organization
	New York State Department of State, New York State Department of Environmental Conservation
	North Carolina Governor, South Carolina Governor
	Oregon Governor Tina Kotek
	South Carolina Governor Henry McMaster
	Washington State
Local Government	Alaska—City of Atqasuk
	Alaska—North Slope Borough
	California—City of Del Mar
	California—City of Half Moon Bay
	California—City of Solana Beach
	California—County of Marin
	California—County of Mendocino
	California—County of San Luis Obispo Washington Board of Supervisors
	California—County of Sonoma Board of Supervisors
	California—Mayor Derek Timm
	California—San Diego Association of Governments
	California—San Mateo County Board of Supervisors Members, Jackie Speier & Ray Mueller
	California—Santa Barbara County Board of Supervisors
	California—Santa Cruz County Board of Supervisors
	Florida—Broward County
	Florida—City of Boca Raton Council Member, Yvette Drucker
	Florida—City of Hollywood
	Florida—City of Jacksonville
	Florida—City of St Pete Beach
	Florida—City of St. Augustine
	Florida—Cooper City
	Florida—The City of Coral Springs
	Florida—Town of Surfside
	Maryland—Commissioners of St. Mary's County
	Massachusetts—City of Cambridge
	Massachusetts—Town of Nantucket
	New Jersey—Borough of Atlantic Highlands
	New Jersey—Borough of Avon-by-the-Sea
	New Jersey—Borough of Bradley Beach
	New Jersey—Borough of Seaside Park

Commenter Type	Organization
	New Jersey—Seaside Park Borough, Seaside Heights Borough, Lavallette Borough, Point Pleasant Beach Borough, Mantoloking Borough, Point Pleasant Borough, Bay Head Borough, Berkeley Township, Brick Township
	North Carolina—Carteret County Tourism Development Authority
	North Carolina—County of Chunttick
	North Carolina—County of Humboldt
	North Carolina—Dare County Board of Commissioners
	North Carolina—Town of Atlantic Beach
	North Carolina—Town of Duck
	North Carolina—Town of Emerald Isle
	North Carolina—Town of Holden Beach
	North Carolina—Town of Kill Devil Hills
	North Carolina—Town of Kitty Hawk
	North Carolina—Town of Kure Beach
	North Carolina—Town of Nags Head
	North Carolina—Town of Ocean Isle Beach
	North Carolina—Town of Southern Shores
	North Carolina—Town of Sunset Beach
	North Carolina—Village of Bald Head Island
	Oregon—City of Cannon Beach
	South Carolina—City of Beaufort, South Carolina
	South Carolina—City of Charleston, Mayor William S. Cogswell, Jr.
	South Carolina—The Town of Seabrook Island
	South Carolina—Town of James Island
	South Carolina—Town of Kiawah Island
	South Carolina—Town of Sullivan's Island
	Virginia—City of Virginia Beach
	Washington—City of Westport
	Washington—Clallam County Board of Commissioners
	Washington—San Juan County
Public Interest Organizations	350Brooklyn, Alaska Wilderness League, Albany UU, All Our Energy, Alliance for a Living Ocean , Animal Welfare Institute , Beaches Go Green, Buy Local, Grow Local , California Environmental , Voters CCAPP, CCRW–BYO, Center for Biological Diversity , Center for the Blue Economy , Changing Tides Family Services , Climate Action Alliance of the Valley , Climate Hawks Vote, Climate Reality Project, Cooler Communities, Living the Change Berkshires , CORE Hub Humboldt Area Foundation, Creation Justice Ministries , CupZero, DC Surfrider Foundation Chapter , Defenders

Commenter Type	Organization
	of Wildlife, Delaware Audubon , EarthEcho International , Earthjustice, Endangered Habitats League, Environmental Action Committee of West Marin , Environmental Protection Information Center , FOUR PAWS USA, FutureSwell, Green Sanctuary Team - Albany Unitarian Universalists , Healthy Gulf, Healthy Ocean Coalition , Hispanic Access Foundation , Humboldt Waterkeeper , Inland Ocean Coalition, International Marine Mammal Project of Earth Island Institute , Keep Massachusetts Beautiful, Lynnhaven River NOW (LRNow) , Marine Conservation Institute , Monterey Bay Aquarium, Mothers Out Front, Nassau Hiking & Outdoor Club , National Ocean Protection Coalition , NC Coastal Federation, Next 100 Coalition, North American Climate, Conservation and Environment (NACCE) , North Carolina Coastal Federation, NRDC (Natural Resources Defense Council) , Ocean Conservation Research, Ocean Defense Initiative , Ocean River Institute, Inc , Oceana, One Hundred Miles, Orange County Coastkeeper , Recycle Hawaii, Resource Renewal Institute , ReThink Energy Florida , Save Our Shores, Sea Turtle Conservancy, Sisters of St. Dominic of Blauvelt, New York , South Shore Audubon Society, Southern Environmental Law Center , Stop the Algonquin Pipeline Expansion , Surfrider Foundation, The Ocean Foundation , The Ocean Project, The People's Justice Council, The Town of Lee Greener Gateway Committee , Turtle Island Restoration Network, Virginia Conservation Network , Voices of Wildlife In NH , Waterside Inn, Western Mich University , Wetlands Watch, Wild Cumberland
	Alaska Longline Fishermen’s Association, Alaska Community Action on Toxics, Alaska Wilderness League Animal Welfare Institute, Cook Inletkeeper, Defenders of Wildlife, Earthjustice, Greenpeace USA, Northern Alaska Environmental Center, Oceana, Ocean Conservation Research, Sierra Club, Surfrider Foundation, Surfrider Foundation - Kenai Peninsula Chapter, The Alaska Center, Turtle Island Restoration Network
	Andean Tapir Fund
	Angler Action Foundation
	Animal Welfare Institute and Defenders of Wildlife
	Bradley Beach Business & Community Alliance
	Business Alliance for Protecting the Atlantic Coast; Business Alliance for Protecting the Pacific Coast
	Business Alliance for Protecting the Atlantic Coast, South Carolina Small Business Chamber of Commerce
	Business Alliance for Protecting the Pacific Coast
	Cape Cod Commission
	Center for Oceanic Justice and Social Sustainability
	Charleston Beach Foundation

Commenter Type	Organization
	Chesapeake Climate Action Network Action Fund
	Choose Clean Water Coalition
	Citizens Campaign for the Environment
	Clean Ocean Action
	Climate Jobs Rhode Island, Rhode Island AFL-CIO, Maine Labor Climate Council
	Coalition for San Francisco Neighborhoods
	COLAB
	Conservation Law Foundation
	Conservation Law Foundation, 350 Mass, Blue Ocean Society for Marine Conservation, Brookhaven Residents' Climate Change Committee, Climate Reality Massachusetts Southcoast, Connecticut River Conservancy, Cowasuck Band of the Pennacook-Abenaki People (COWASS North America), Granite State Whale Watch and Island Cruises, Gulf of Maine EcoArts, Gundalow Company, Ipswich River Watershed Association, Jewish Climate Action Network, Maine Conservation Voters, North Atlantic Whale Watch Naturalist's Association, Save The Bay, Seacoast Science Center, Sierra Club, Surfrider Foundation - Northeast Region, The Ocean Project, Whale and Dolphin Conservation
	Consumer Energy Alliance
	Earth Day Mobile Bay, Inc.
	Earthjustice
	Earthjustice, Turtle Island Restoration Network, Endangered Habitats League, North American Climate, Conservation and Environment (NACCE), The Freedom BLOC, Malach Consulting, Bucks Environmental Action, Three Mile Island Alert, Project Coyote, Carolina Biodiesel, Llc, Inspiration of Sedona, Lower Cape Indivisible, Resource Renewal Institute, Spottswoode Winery, Inc., Earth Ethics, Inc. , Animals Are Sentient Beings, Inc., Nassau Hiking & Outdoor Club , Citizens United for Renewable Energy (CURE), Clean Energy Action, Empower Our Future, Dream Tank, 350Kishwaukee, CERBST, Corporate Ethics International, Green State Solutions, International Marine Mammal Project of Earth Island Institute, The Enviro Show, Ocean Conservation Research, MIT Divest, 350Hawaii, Friends of the Earth , Bayou City Waterkeeper, Unite North Metro Denver, Heartwood, Holy Spirit Missionary Sisters, JPIC-USA, Santa Cruz climate action network , MoveOn.org , HobokenRESIST!, Wallingford Indivisible , Women's March Santa Barbara, Athens County' s Future Action Network, Society of Fearless Grandmothers Santa Barbara, Transition Sebastopol, EKOenergy ecolabel, Plastic Pollution Coalition , Community Health , SASD, Greater Highland Area Concerned Citizens , Susanne Moser Research & Consulting, South

Commenter Type	Organization
	Shore Audubon Society, Kickapoo Peace Circle, Sisters of St. Dominic of Blauvelt, New York, Church Women United in New York State, Climate Hawks Vote, Southern Environmental Law Center, Tinker Tree Play/Care, Occupy Bergen County, Mazaska Talks, Unitarian Universalists for a Just Economic Community, FreshWater Accountability Project , NY/NJ Baykeeper, San Luis Obispo Mothers for Peace, Save Our Illinois Land, Carrizo/Comecrudo Nation of Texas, Bayou City Waterkeeper , South Texas Environmental Justice Network , Food & Water Watch, Dryden Solutions, Oceana, Malach Consulting, Sierra Club, Marine Wildlife Program, Animal Welfare Institute, 350 Silicon Valley, Porteneuf Resource Council, NYC H2O, Sonoma County Climate Activist Network (SoCoCAN!), Alaska Community Action on Toxics, PACAN, Defenders of Wildlife, Center for Biological Diversity, Healthy Gulf
	Environmental Defense Center (Krop), Environmental Defense Center (Hall), California Coastal Protection Network, Carpinteria Valley Association, Citizens Planning Association, Climate First: Replacing Oil & Gas (CFROG), Climate Hawks Vote, CLUE-SB Environmental Work Group, Coastal Band of the Chumash Nation, Community Environmental Council, Get Oil Out!, Heal the Ocean, Santa Barbara Channelkeeper, Santa Barbara County Action Network, San Francisco Bay Physicians for Social Responsibility, Santa Cruz Climate Action Network, Sierra Club, Society of Fearless Grandmothers-Santa Barbara, Surfrider Foundation, Surfrider Foundation Santa Barbara Chapter, Ventura Coastkeeper, Wishtoyo Chumash Foundation, 350 Bay Area Action
	Heal the Ocean
	Healthy Gulf
	Humboldt Waterkeeper, Environmental Protection Information Center (EPIC)
	Lynnhaven River NOW
	National Caucus of Environmental Legislators
	National Ocean Policy Coalition
	National Ocean Protection Coalition
	New England for Offshore Wind
	North Carolina Coastal Federation
	NRDC
	Ocean Conservancy
	Ocean Conservation Research
	Oceana, Inc.
	One Hundred Miles

Commenter Type	Organization
	Outdoor Alliance
	Polar Bears International
	Responsible Offshore Development Alliance
	ReThink Energy Florida
	Santa Barbara Channelkeeper
	Save Our Shores
	Sea Turtle Conservancy
	Sierra Club Santa Barbara
	SODA
	Soroptomist International-Mendocino Sonoma Coast
	South Carolina Coastal Conservation League
	St. Johns Riverkeeper
	Surfrider Foundation
	Surfrider Foundation
	Surfrider Foundation - Florida Chapters
	Surfrider Foundation, Jo Williams
	Surfrider Foundation, Oregon Coast Visitor's Association, Bird Alliance of Oregon, Rogue Climate, Kalmiopsis Audubon Society, Oregon Shores, Seven Capes Bird Alliance
	Sustainable Plymouth
	The Center for Biological Diversity
	The Florida Keys Environmental Coalition (fkec.org)
	The Georgia Conservancy
	The Nature Conservancy
	The Pew Charitable Trusts
	The Southeast Chapters of the Surfrider Foundation: Surfrider Outer Banks, Surfrider Bogue Banks, Surfrider Cape Fear, Surfrider Charlotte, Surfrider Virginia, Surfrider Charleston, Surfrider Grand Strand, Surfrider Georgia, Kayla Huff, Southeast Regional Manager, Surfrider Foundation
	The Southern Environmental Law Center , Healthy Ocean Coalition, One Hundred Miles, North Carolina League of Conservation Voters, Ocean Defense Initiative, Ocean Natural Farm, Virginia Conservation Network, North Carolina Conservation Network, Glynn Environmental Coalition, Lynnhaven River NOW, Ocean Conservation Research, Birds Georgia, North Carolina Wildlife Federation, South Carolina Coastal Conservation League, Surfrider Foundation, Charleston Waterkeeper, Roanoke Group of the Sierra Club Virginia Chapter, Third Act Georgia, Altamaha Riverkeeper, Satilla Riverkeeper, Center for a Sustainable Coast, North Carolina Coastal Federation, Audubon North Carolina, Coalition to Protect America's

Commenter Type	Organization
	National Parks, Carolina Ocean Alliance, Save Sledge Forest, South Carolina Wildlife Federation, Wild Cumberland, Sierra Club, Brunswick County Conservation Partnership, Georgia Conservation Voters, Buxton Civic Association, Science for Georgia, Coalition to Protect America's National Parks, Savannah Riverkeeper, National Parks Conservation Association, Oceana, Conservation Voters of South Carolina, The Sustainability Institute, Georgia WAND Education Fund, Friends of Coastal South Carolina, Defenders of Wildlife, Great Old Broads for Wilderness, GRITS Broadband, Winyah Rivers Alliance, Next 100 Coalition, and Coastal Carolina Riverwatch
	Treasure Coast Regional Planning Council
	Turtle Island Restoration Network
	Visions Human Resource Services, Janet Brown, Sea Haven, Sarah Brown, Seaside Vacation, Cyndee K Colborn, Grand Strand Angel Network, Gary Hayes, Hollywood Pictures, Champion Autism Network, Becky Large, SEA Server, Michelle Mate, New York Life Insurance Company, Ashy Parker, Ivie Parker Consulting, Ivie Parker, Cathy Weis
	Visit Pensacola
	Waterkeeper Alliance
Federal Agencies	Department of Defense
	Mid-Atlantic Fishery Management Council
	National Oceanic and Atmospheric Administration
	National Park Service
	New England Fishery Management Council
Academic	Institute for Policy Integrity at NYU School of Law
	Pacific Marine Energy Center, Oregon State University
Energy Exploration and Production Companies and Associations	API, NOIA, OOC, IPAA, USOGA, AXPC, IADC, EnerGeo Alliance, Energy Workforce and Technology Council, LMOGA
	bp America
	Chevron U.S.A., Inc.
	Louisiana Mid-Continent Oil & Gas Association
	Shell Offshore, Inc.
	W&T Offshore, Inc.
Non-energy Industry and Associations	Alabama Propane Gas Association, American Association of Blacks in Energy, American Chemistry Council, American Energy Alliance, American Exploration & Production Council, American Petroleum Institute, American Supply Association, Arkansas Chamber of Commerce, Arkansas Independent Producers & Royalty Owners, Arkansas Oil Marketers Association, Arkansas Retailers Association, Associated Builders &

Commenter Type	Organization
	Contractors - Minnesota, Associated Builders & Contractors - Appalachia, Associated Industries of Florida, Associated Industries of Missouri, California Independent Petroleum Association, Chemical Industry Council of Illinois, Citizens for Responsible Energy Solutions, COLAB (South Louisiana Economic Center), Colorado Petroleum Association, Connecticut Energy Marketers Association, Consumer Energy Alliance, Domestic Energy Producers Alliance, Eastern Kansas Oil & Gas Association, EnerGeo Alliance, Energy Marketers of America, Energy Workforce & Technology Council, Florida Forestry Association, Florida Natural Gas Association, Florida Petroleum Marketers Association, Florida Ports Council, Florida Propane Gas Association, Florida State Hispanic Chamber of Commerce, Florida Tax Watch, Floridians for Better Transportation, Fuel Iowa, Fuel True Independent Energy & Convenience, Fueling Minnesota, Gas & Oil Association of West Virginia, Georgia Chemistry Council, GPAMidstream, Grow Louisiana Coalition, Gulf Energy Alliance, Houma Terrebonne Chamber of Commerce, Illinois Chamber of Commerce, Independent Petroleum Association of America, Institute for Energy Research, International Association of Drilling Contractors, James Madison Institute, John Locke Foundation, Kansas Manufacturing Council, Kentucky Association of Manufacturers, Lafourche Chamber of Commerce, LNG Allies, The US LNG Association, Louisiana Association of Business & Industry, Louisiana Midcontinent Oil & Gas Association, Louisiana Oil & Gas Association, Manufacture Alabama, Marcellus Shale Coalition, Metropolitan Milwaukee Chamber of Commerce, Michigan Chemistry Council, Michigan Manufacturers Association, Michigan Oil & Gas Association, Michigan Petroleum Association, Michigan Association of Convenience Stores, Minnesota Private Business Council, Minnesota Service Station & Convenience Store Association, Mississippi Manufactures Association, Mississippi Petroleum Marketers & Convenience Stores Association, Mississippi Propane Gas Association, Missouri Petroleum & Convenience Association, Missouri Propane Gas Association, Missouri Natural Gas Association, National Association of Manufacturers, National Ocean Industries Association, National Propane Gas Association, Nebraska Petroleum Marketers & Convenience Store Association, New Mexico Business Council, New Mexico Oil & Gas Association, New Yorkers for Affordable Energy, North Carolina Petroleum & Convenience Marketers, North Dakota Petroleum Council, Offshore Operators Committee, Ohio Chamber of Commerce, Ohio Chemistry Technology Council, Ohio Energy & Convenience Association, Ohio Gas Association, Ohio Manufacturers' Association, Ohio Oil & Gas Association, Pennsylvania Chamber of

Commenter Type	Organization
	Business & Industry, Pennsylvania Chemical Industry Council, Pennsylvania Grade Crude Oil Coalition, Pennsylvania Independent Oil & Gas Association, Pennsylvania Independent Petroleum Producers, Pennsylvania Manufacturers' Association, Pennsylvania Petroleum Association, Petroleum & Convenience Marketers of Alabama, Ports Association of Louisiana, Propane Marketers Association of Kansas, South Central Industrial Association, South Dakota Petroleum & Propane Marketers Association, Tennessee Fuel & Convenience Association, Tennessee Gas Association, Tennessee Oil & Gas Association, Texas Independent Producers & Royalty Owners Association, Texas Oil & Gas Association, US Oil & Gas Association, Utah Petroleum Association, Virginia Chamber of Commerce, Virginia Petroleum & Convenience Marketers Association, Virginia Trucking Association, West Virginia Manufacturers' Association, Western States Petroleum Association, Wisconsin Independent Businesses, Wisconsin Manufacturers & Commerce, Wisconsin Fuel & Retail Association, Wisconsin Propane Gas Association
	Bixby Residential, Inc.
	CalWave Inc.
	Cape Cod Commercial Fishermen's Alliance
	Carteret County Chamber of Commerce
	Central Coast Outdoors
	Destination North Myrtle Beach
	Fisheries Survival Fund
	Greater Fort Walton Beach Chamber of Commerce
	Greater Hollywood Chamber of Commerce
	Greater Key West Chamber of Commerce
	Greater Pensacola Chamber of Commerce, Todd Thomson
	Hydrokinetic Energy Corp.
	Jenkinson's Aquarium
	Lowcountry Hospitality Association
	Maine Coast Fishermen's Association
	Massachusetts Lobstermen's Association
	Myrtle Beach Area Chamber of Commerce, Myrtle Beach, MBREDC, Georgetown Chamber, Briarcliffe Acres, Destination NMB
	National Hydropower Association
	North Beach Realty LLC
	Old Georgetown Creamery LLC
	Oregon Coast Visitors Association

Commenter Type	Organization
	Outer Banks Association of REALTORS
	Outer Banks Chamber of Commerce
	Pacific Coast Federation of Fishermen's Associations (PCFFA)
	PacWave
	Seattle Aquarium
	Sheraton Myrtle Beach
	Surfside Foods, LLC
	T.Becker Power Systems
	The Town Dock
	U.S. Chamber of Commerce - Global Energy Institute, The Aluminum Association, Consumer Energy Alliance
	Virginia Beach Hotel Assoc, VB Restaurant Assoc & Atlantic Ave Assoc.
State-level Elected Official	California Legislative Central Coast Caucus
	California State Senate, Senator John Laird
	New Hampshire Seacoast Delegation: Rockingham District 30 (Seabrook), Rockingham District 30 (Seabrook), Rockingham District 40 (Seabrook/Hampton), Rockingham District 29 (Hampton), Rockingham District 29 (Hampton), Rockingham District 29 (Hampton), Rockingham District 29 (Hampton), Rockingham District 23 (North Hampton), Rockingham District 24 (Newcastle), Rockingham District 29 (Portsmouth), Rockingham District 24 (Rye), Rockingham District 38 (Rye)
	South Carolina House of Representatives, Representative Lee Hewitt
	South Carolina Senate, Senator Chip Campsen
Members of Congress	46 Members of Congress: Huffman (CA), Padilla (CA), Booker (NJ), Reed (RI), Pallone, Jr. (NJ), Castor (FL), Whitehouse (RI), Wyden (OR), Blumenthal (CT), Merkley (OR), Schiff (CA), Murray (WA), Kim (NJ), Sanders (VT), Markey (MA), Warren (MA), Diaz Barragan (CA), Mullin (CA), Ocasio-Cortez (NY), Tlaib (MI), McCollum (MN), Holmes Norton (DC), Carbajal (CA), Tokuda (HI), Pingree (ME), Randall (WA), Case (HI), Brownley (CA), Garamendi (CA), Ross (NC), Jayapal (WA), Keating (MA), Levin (CA), McClellan (VA), Min (CA), Panetta (CA), Wilson (FL), Thanedar (MI), Watson Coleman (NY), DeGette (CO), Cherfilus-McCormick (FL), Bonamici (OR), Elfreth (MD), Nadler (NY), Wasserman Schultz (FL), Velazquez (NY)
	Congressman Russell Fry, South Carolina
	Congresswoman Julia Brownley, California
	Congresswoman Nancy Mace, South Carolina
Tribes and Tribal Organizations	Arctic Slope Regional Corporation
	Association of Village Council Presidents, Kawerak, and Bering Sea Elders Group

Commenter Type	Organization
	Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians
	Hoh Indian Tribe
	Ilisagvik College - Alaska's Only Tribal College
	Inupiat Community of the Arctic Slope, Nicole Wojciechowski
	Passamaquoddy Tribe
	Santa Ynez Band of Chumash Indians
	Utqiagvik Trilateral Ukpeagvik Inupiat Corporation, Native Village of Barrow, City of Utqagvik
	Voice of the Arctic Inupiat (VOICE) Inupiat Community of the Arctic Slope
	Wampanoag Tribe of Gay Head (Aquinnah)
	Yurok Tribe
Form Letter Campaigns	Alaska Wilderness League
	Art Shervs
	Caitlin Archambault
	Climate Hawks Vote Civic Action
	David Quick
	Elizabeth M. Andersen
	Emily Thomas
	Environment America
	Environmental Action
	Fran Seldin
	Francine Zumpano
	Healthy Gulf
	Kim Dongheyon
	Lee Margulies
	Lisa Pisano
	Natural Resources Defense Council
	Ray Parker
	Ron Hock
	Sandra Fisher
	Shelley Frazier
	Stephen Zelman
	Surfrider Foundation
	Tanner Hines
	Taylor Mannes
	Zanagee Artis

State Government and State Agencies

General Comments and Multiple Regions

Florida Department of Environmental Protection
Document ID: BOEM-2025-0015-25352

The commenter states that Governor DeSantis believes American energy independence is key to national security, while noting that offshore oil and gas drilling is prohibited in Florida State waters, as documented in Article II, section 7 of Florida's constitution. The commenter writes that, since offshore activities are permitted in certain federal waters, the Florida Department of Environmental Protection regularly reviews and submits comments to appropriate federal agencies regarding federal water activities that may impact Florida's coastal resources. For example, the commenter mentions a consistency review for Gulf of America (GOA) Lease Sale 261 in 2023, in which the Florida Department of Environmental Protection did not object to BOEM's determination that the proposed sale was consistent with the Florida Coastal Management Program. The commenter reasons that Florida does not have the same oil and gas reserves as other states, with 142 wells actively permitted for oil and gas operations, and its geology does not support certain practices like fracking. The commenter references the Deepwater Horizon spill's negative impacts on Florida's environmental resources and economy, while acknowledging improved safety regulations since then. The commenter adds that, in future OCS oil and gas activities, it is critical that safety and environmental protection remain top priority. The commenter adds that President Trump previously recognized Florida's unique characteristics and in 2020 withdrew certain areas from leasing through 2032, including portions of the GOA and the South Atlantic and Straits of Florida planning areas.

Attorneys General of Maryland, California, Delaware, Maine, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Washington
Document ID: BOEM-2025-0015-25338

The commenters urge BOEM to exclude all portions of the Atlantic and Pacific OCS planning areas from the forthcoming Draft Proposed Program. The commenters state that oil and gas development in these areas would threaten unique marine and coastal environments, economies, and culture. The commenters provide detailed information about the economic importance of marine and coastal resources to each state, including fisheries, tourism, shipping, and ports. Examples include the $100 billion in economic value from Chesapeake Bay, the 1.3% of Massachusetts gross domestic product (GDP) from its maritime economy, 28.4 million visitors and $5.6 billion spent on tourism in Rhode Island in 2023, as well as the 11,000 coastal jobs supported by Oregon's fisheries and the $117 million in labor income for the State of Washington from non-Tribal commercial fisheries, among other things. The commenters reference past oil spills like Deepwater Horizon, the 1969 Santa Barbara spill, and the 2015 oil spill at Refugio Beach to illustrate the risks of offshore oil and gas activity, including the volume of oil spilled, fishery, tourism, and economic impacts, and effects on wildlife. The commenters state that oil and gas development is not necessary to meet national energy needs since America is a net exporter of fossil fuels, and because higher natural gas prices are not a justification for additional leasing.

The commenters also describe state laws and policies that promote clean energy, and reduce greenhouse gas (GHG) emissions, and specifically oppose offshore oil and gas development, arguing that these laws are essential to protecting communities from climate change impacts.

First, the commenters describe Maryland legislation including the Climate Solutions Now Act and the Clean Energy Jobs Act, saying that these laws require a 60% reduction in state greenhouse gas emissions from 2006 levels by 2031, and a drop to net-zero emissions by 2045. The commenters add that in 2018 Maryland's Offshore Drilling Liability Act was passed into law, describing offshore drilling as hazardous and creating liability standards for gas or oil spills.

The commenters also mention Oregon legislation, which requires investor-owned electric utilities to reduce greenhouse gas emissions to 80 percent by 2030 and achieve net-zero by 2040. The commenters add that Oregon's Clean Fuels Program requires a 37 percent reduction in carbon content of transportation fuels, from 2015 baseline levels, by 2035. Additionally, the commenters say that The Oregon Climate Protection Program places a cap on greenhouse gas emissions for transportation and home heating purposes. The commenters mention two pieces of legislation from Oregon which prohibit oil and gas leasing and exploration activities within Oregon's territorial sea and adjacent federal waters.

Further, the commenters mention Massachusetts' Global Warming Solutions Act and the Next-Generation Roadmap for Massachusetts Climate Policy, which require a net-zero emissions level by 2050. The Clean Energy and Climate Plan, comments say, sets interim goals for this achievement, requiring a 50-emission reduction from 1990 levels, by 2030 and a 75 percent reduction by 2040. The commenters add that Massachusetts' Ocean Sanctuaries Act probits oil and gas drilling in areas designated as Ocean Sanctuaries, which cover most of the state's waters.

Similarly, the commenters remark that Maine has statutory goals to reduce greenhouse gas emissions by 45 percent from 1990 levels by 2020 and 80 percent by 2050, likewise aiming to achieve carbon neutrality by 2045. The commenters add that Maine requires 80 percent of retail energy sales to come from renewable sources by 2030, increasing to 100 percent by 2050. The commenters add that Maine law prohibits oil and natural gas activities in Maine's territorial waters, including drilling, platform or pipeline construction, and operation of onshore support activities.

The commenters also describe New York's 2019 Climate Leadership and Community Protection Act, saying that it provides a framework for the state's transition to a clean energy economy. The commenters add that New York's Climate Act sets statutory targets for reductions in greenhouse gas emissions from 1990 levels: 40 percent by 2030 and 85 percent by 2050. The Climate Act, according to the commenters, also aims to implement an electric grid that is powered by 70 percent renewable energy by 2030 and 100 percent renewable energy by 2040. The commenters add that New York law prohibits leasing the state's marine and coastal land for oil production activities, including drilling, pipeline construction, and the operation of onshore support facilities.

Further, the commenters remark that New Jersey's Global Warming Response Act aims to reduce climate pollutants to 80 percent below 2006 levels by 2050. The commenters say that the state's Clean Energy Act requires that 35 percent of energy sold in the state come from renewable sources by 2025, increasing to 50 percent by 2030. The commenters add that New Jersey's Shore Tourism and Ocean Protection from offshore Oil and Gas Act prohibits leasing permits for offshore drilling activities in New Jersey waters.

The commenters write that Rhode Island's 2021 Act on Climate requires that the state reduce emission levels to 45 percent below 1990 levels by 2030 and to reach net-zero emissions by 2050. Rhode Island's Renewable Energy Standard, the commenters add, requires that the state reaches 100 percent renewable energy by 2033.

Similarly, the commenters say that California's Greenhouse Gas Emission Reduction Act requires the state to reduce its greenhouse gas emissions to 40 percent below 1990 levels by 2030. California's Senate Bill 100, according to the commenters, likewise requires the state to procure 100 percent of its electricity from renewable and zero-carbon sources by 2045. The commenters add that California's 1994 Coastal Sanctuary Act prohibits any new leases for oil or gas extraction within the California Coastal Sanctuary and that California has demonstrated opposition to federal oil and gas leasing in the 2012-2017, 2017-2022, and 2019-2024 programs.

Further, the commenters remark that Delaware's Climate Change Solutions Act mandates a 50 percent reduction in greenhouse gas emissions from 2005 levels by 2030, with a goal of achieving net-zero emissions by 2050. The commenters add that Delaware's Renewable Energy Portfolio Standard requires that 40 percent of electric retail sales come from renewable sources and 10 percent additionally come from solar photovoltaics by 2035. The commenters add that Delaware's 1971 Coastal Zone Act probits oil and gas drilling within Delaware's territorial waters along with the operation of any new transfer facilities.

Finally, the commenters mention that Washington's Ocean Resources Management Act and Shorelines Management Act prohibit oil and gas activities in the state's marine waters. The commenters add that Washington's Marine Spatial plan includes a framework for development of the state's marine waters, including the potential for developing marine renewable energy.

Alaska Region

State of Alaska Department of Natural Resources, Office of Project Management and Permitting
Document ID: BOEM-2025-0015-35225

The commenter expresses support for BOEM's effort to develop the 11th National OCS Oil and Gas Leasing Program and urges BOEM to include lease sales in the Alaska OCS Region, particularly in the Cook Inlet, Beaufort Sea, and Chukchi Sea planning areas. The commenter states that Alaska's offshore oil and gas resources are critical to the state's energy security and economic resilience and represent a strategic national asset, with more than 38 billion barrels of oil equivalent in the Chukchi and Beaufort seas alone. The commenter mentions that the 10th Program excluded Alaska lease sales and asserts that this created uncertainty and discouraged investment. The commenter supports BOEM's decision not to conduct National Environmental Policy Act (NEPA) analysis for the 11th Program, instead preparing an environmental analysis document that includes Section 18 analysis, on the grounds that this new policy would be comprehensive and include similar content to what would be in a Programmatic Environmental Impact Statement (PEIS), as well as emphasize planning, consultation, and scrutinization of environmental impacts. The commenter provides specific recommendations to strengthen the program, including immediately prioritizing Cook Inlet lease sales, offering net profit share leases for economically challenged areas, adopting an industry-initiated exploration model, conducting lease sale bidding online, and considering environmental safeguard resources, such as the Gulf of Alaska Final Best Interest Finding.

Pacific Region

Office of the Lieutenant Governor of California
Document ID: BOEM-2025-0015-25328

The commenter expresses strong opposition to including California's coastline in the 11th National OCS Oil and Gas Leasing Program. The commenter urges BOEM to exclude the Northern, Central, and Southern California planning areas from consideration in the Pacific OCS Region in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the State Lands Commission manages public trust lands and resources for the people of California, with jurisdiction extending from the mean high tide line to three miles offshore. The commenter mentions California's history of bipartisan opposition to offshore oil and gas expansion, with no new offshore leases in state waters since the 1969 Santa Barbara oil spill. The commenter references recent spills in 2015 and 2021 that caused environmental damage and economic impacts. The commenter states that California law prohibits new oil and gas infrastructure associated with post-2018 OCS leases from using state waters. The commenter describes California's coast as economically productive and ecologically significant, supporting more than half a million jobs and contributing more than $50 billion annually to the state's GDP. The commenter states that California is committed to protecting their coast, advancing clean energy, and supporting a sustainable ocean economy.

Washington State
Document ID: BOEM-2025-0015-25350

The commenter expresses opposition to the inclusion of oil and gas leases on the OCS adjacent to Washington State in the Pacific Region of the 11th National OCS Oil and Gas Leasing Program. The commenter states that oil and gas development would endanger environmental, cultural, and community resources, including the largest commercial shellfish industry in the nation, posing a significant threat to the economy and citizens' way of life. The commenter provides detailed economic data about Washington's ocean economy, including its $15 million contribution to GDP, support of 127,578 jobs, and the value, volume, and use conflict of commercial seafood, tourism, recreation, and military presence. The commenter adds that the Pacific Region has not been included in any 5-year oil and gas leasing programs since the 1987-1992 Program due to poor petroleum potential and environmental concerns. The commenter describes past oil spills that prompted greater protection of the area, specifically referencing the establishment of the Olympic Coast Marine Sanctuary in 1994. Furthermore, the commenter states that oil and gas leasing is inconsistent with Washington's laws, policies, and goals. For example, the commenter mentions the Washington State Energy Strategy, which, according to the commenter, includes numerous state policies and initiatives aimed at advancing clean energy, reducing carbon pollution, and improving climate resilience. The commenter adds that Washington State Law prohibits oil and gas exploration, production, and drilling in the state's marine waters. The commenter says that state policies guiding ocean management, included in Washington's Coastal Zone Management Program, mandate the conservation of fossil fuels and protection of existing ocean uses. The commenter also describes the unique physical and ecological characteristics of Washington's coast, such as a highly productive marine ecosystem, diverse habitats and marine life, and the risks posed by oil and gas activities.

California Governor's Office and the California Natural Resources Agency
Document ID: BOEM-2025-0015-35227 and BOEM-2025-0015-35227-02

The commenters affirm California's continued opposition to additional offshore oil and gas development and request that the three OCS planning areas along California's coast be removed from the 11th National OCS Oil and Gas Leasing Program. The commenters describe California's history of impacts from oil spills on the state's economy, coastal communities, and the environment, including the 1969 Santa Barbara spill, the 2015 Refugio Oil Spill, and the 2021 Huntington Beach oil spills. The commenters state that California has a permanent ban on new offshore oil and gas drilling along its coastline, specifically saying that the California Coastal Sanctuary Act, passed into law in 1994, prohibits new leases in state waters. Additionally, the commenters state that, given California's codified opposition to new offshore oil and gas development, their state agencies are positioned to oppose the use of pipelines in state waters to transport oil onshore from leases in federal waters. Specifically, the commenters write that State legislation passed in 2018 prohibits state agencies from allowing oil and gas infrastructure -- associated with leases issued after 2018 -- within state waters. . The commenters discuss the multiple uses of California's offshore waters, including tourism, recreation, fisheries, aquaculture, and military operations, stating that these sectors would be at risk from offshore oil and gas evelopment. The commenters add details about the economic importance of these uses, including $200 million in national seafood production from California's commercial fisheries in 2024, expanded marine aquaculture operations and jobs, and $51.3 million in GDP from tourism and recreation in 2021. The commenters discuss the productivity of California's valuable marine ecosystems, including the California Current Large Marine Ecosystem, and expresses concern about the risk of expanded oil and gas development on these areas. The commenters also describe California's unique seismic risks that increase potential environmental and economic impacts from offshore facilities. The commenters state that California's opposition to new offshore oil and gas development has been unwavering for decades, including through its Coastal Management Program. The commenters write that California's Coastal Commission, which helps implement the Coastal Management Program, will conduct a consistency review to determine the consistency of any proposed lease sales with the enforceable policies of the California Coastal Act.

Office of Oregon Governor Tina Kotek
Document ID: BOEM-2025-0015-6544

The commenter expresses opposition to including Oregon's OCS waters in the 11th National OCS Oil and Gas Leasing Program. The commenter states that Oregon has a long history of opposing efforts to lease oil and gas areas in Oregon OCS waters. The commenter references Oregon's Statewide Land Use Planning Goal 19, which prioritizes the long-term use and protection of renewable marine resources. The commenter mentions that all Oregon governors since the mid-1970s have opposed identifying lease areas on Oregon OCS lands. The commenter states that Oregon law prohibits oil and gas leasing within the Territorial Sea and activities furthering exploration, development, or production in adjacent Federal waters. The commenter includes detailed comments from state agencies highlighting Oregon's opposition. The Oregon Department of Geology and Mineral Industries' comments focus on high seismic risk and low resource potential in Oregon's OCS waters, noting the region is subject to subduction zone earthquakes, tsunamis, submarine landslides, and extreme storm waves. The Oregon Parks and Recreation Department (OPRD) comments discuss the importance of coastal recreation to Oregon's economy, with 34 million visits to Coastal Region State Park properties in 2024 and approximately $1.7 billion contributed to coastal communities from ocean beach visitors. OPRD also mentions that, under ORS 390.640 and ORS 390.715, anyone conducting an ocean shore alteration, or placing a pipeline or cable line around the state recreation area, must obtain an "Ocean Shore Alteration Permit" from the department, warning that permit award is not guaranteed. The Oregon Department of Fish & Wildlife (ODFW) states that oil and gas development offshore of Oregon is incompatible with state policy, natural resource management objectives, and existing uses in both state and Federal waters. ODFW references ORS 274.712(1) and Oregon's Statewide Planning Goal 19, which prioritize living marine resources over non-renewable resources and prohibit activities furthering oil and gas exploration in Federal waters adjacent to the territorial sea. The commenter states that Oregon's fisheries produce approximately $1.6 billion per year in annual economic output for coastal communities, which could be threatened by oil and gas activities. The commenter discusses potential impacts to protected species, including Endangered Species Act (ESA) listed species and marine mammals protected under the Marine Mammal Protection Act. The commenter mentions that the marine ecosystem off Oregon is already affected by climate change, and oil and gas extraction would further strain the resiliency of marine populations. The commenter states that Oregon is experiencing changing ocean conditions, including acidification, sea level rise, increasing storm intensity, and increasing harmful algal blooms. The commenter concludes that the risk of losing the economic value of Oregon's fisheries far surpasses the potential gain from oil and gas extraction. The Oregon Department of Environmental Quality (DEQ) indicates that Oregon lacks sufficient resources, staffing, and equipment to respond to potential oil spills from offshore drilling. DEQ states that Oregon's coastal spill protection plans were not designed for spills of the magnitude possible from offshore oil development, and the state has significantly fewer oil spill response staff compared to Washington and California. The commenter mentions that the Pacific Ocean's currents would likely disperse any spill along large sections of coast, making cleanup challenging. The commenter expresses concern about the region's seismic risks, specifically a 40% chance of a major Cascadia subduction zone earthquake in the next 50 years that could cause significant oil spills when response capacity would be unavailable. The commenter states that any environmental analysis should consider not just the potential impacts of oil spills but also threats presented by limitations in current response capabilities, alongside costs associated with improving response capabilities to levels necessary to support offshore drilling.

The Oregon Department of Energy (ODOE) states that the proposed Program is inconsistent with Oregon's energy policies, climate goals, and statutory requirements. For example, the commenter indicates that Oregon has a 2050 target of 75 percent reduction in GHG emissions below 1990 levels and policies promoting energy efficiency and renewable energy resources. The commenter adds that under state law, Oregon’s Energy Facility Citing Council (EFSC) is charged with ensuring that energy facilities are consistent with state energy policy and goals. ODOE writes that if an offshore drilling facility were to transport fossil energy resources through a pipeline with a footprint in Oregon, the pipeline could fall under EFSC jurisdiction via ORS 469.300(11)(a)(E). Similarly, according to the commenter, if an offshore facility were to require a source of electricity from Oregon for power, this could also fall under the jurisdiction of EFSC via ORS 469.300(11)(a)(C). ODOE requests that the EIS includes GHG emissions estimates associated with oil and gas recovery and transport, and details about proposed development activities and transportation methods.

Gulf of America Region

Governor of Alabama, Kay Ivey
Document ID: BOEM-2025-0015-25357

The commenter expresses support for BOEM's efforts to advance lease sales and approve a new five-year plan for the National OCS Oil and Gas Leasing Program. The commenter states that oil and gas production in the GOA has been a significant source of clean energy for decades, providing jobs, business investments, and supporting state and local economies. The commenter indicates that development of an environmentally safe National OCS Program that maximizes available lease acreage for oil and gas activities will significantly benefit the State of Alabama and its citizens. The commenter identifies supporting high-wage jobs, bolstering Alabama's economy, and advancing energy security through responsible stewardship of natural resources as top priorities, and fully supports efforts to develop a robust 11th National OCS Oil and Gas Leasing Program.

Governor of Louisiana, Jeff Landry
Document ID: BOEM-2025-0015-35452

The commenter expresses support for the initiative to expand offshore and federal oil and gas lease sales. The commenter states that more drilling leads to more jobs and will strengthen the economy. The commenter adds that oil and gas leasing supports energy independence and strengthens national security. The commenter specifically supports opening up more deepwater acreage in the GOA.

Atlantic Region

Maryland Department of Natural Resources
Document ID: BOEM-2025-0015-25342

The commenter recommends that the Mid-Atlantic OCS Region be excluded from the 11th National OCS Oil and Gas Leasing Program, consistent with its exclusion from the 10th Program. The commenter states that the risks and potential impacts of offshore oil and gas exploration and development outweigh the benefits to Maryland communities and natural resources, adding that the Maryland Department of Natural Resources previously detailed the socioeconomic costs and environmental impacts specific to Maryland in their response to BOEM's RFI for the Preparation of the 2019-2024 National OCS Oil and Gas Leasing Program MAA10400 and the Draft Proposed OCS Oil and Gas Leasing Program. The commenter provides economic data about Maryland's marine economy, including Ocean City's tourism with eight million annual visitors, contributing to a $10.2 billion ocean economy in Maryland, and Assateague Island's economic contributions of more than $112 billion per year, supported by 2.3 million visitors and 1,300 jobs. The commenter expresses concerns about negative impacts on the Chesapeake Bay from potential oil and gas activities, especially in regard to the $600 million seafood industry. The commenter requests that BOEM evaluate both direct and indirect potential impacts of oil and gas development, including impacts to adjacent areas of the OCS and Maryland's coastal zone. In addition to addressing indirect and direct impacts to coastal regions, the commenter requests that environmental risk analyses consider multiple time scales, including exploration, development, and decommissioning. The commenter also requests that BOEM address specific environmental and economic issues including oil spills, effects of development on ocean-dependent industries, and environmental protection of marine mammals, fisheries, and ocean habitats The commenter expresses concerns regarding the environmental impacts of G&G surveys, and requests that, if such surveys are undertaken, that resulting data be made publicly available as early as possible. The commenter encourages BOEM to ensure adequate public comment periods of 30-90 days throughout the program development process.

New York State Department of State and New York State Department of Environmental Conservation
Document ID: BOEM-2025-0015-35242

The commenters respond to BOEM's RFI on the development of the 2024-2029 National OCS Oil and Gas Leasing Program, stating that the North and Mid-Atlantic Planning Areas should be removed from consideration. The commenters state that incongruity between New York State laws and policies, in addition to potential economic and environmental impacts, justify the removal of these planning areas. The commenters indicate that there are few economically viable oil and gas resources in these areas compared to the wide-ranging and long-term risks that a leasing program would pose. The commenters provide economic data about New York's commercial fishing industry, which contributed almost $594.1 million GDP to the state in 2021, and the Port of New York and New Jersey, which generates more than $135.3 billion annually. The commenters state that intensive seismic blasting during oil and gas exploration would lead to widespread adverse impacts to marine life, and an oil spill would have devastating effects on New York's biodiverse coastline, economy, and protected species, including North Atlantic right whales. The commenter adds that previous environmental reviews, including the PEIS developed for the 10th National OCS Oil and Gas Leasing Program, are insufficient to evaluate the unique impacts to New York State and that an in-depth analysis is needed on the effect of an offshore oil and gas program on the complex ocean systems in the New York Bight.

Delaware Department of Natural Resources and Environmental Control
Document ID: BOEM-2025-0015-25309

The commenter acknowledges the importance of secure, reliable, and safe energy sources but maintains that the environmental and public health risks of oil and gas exploration in the Mid-Atlantic region do not warrant inclusion in the 11th National OCS Oil and Gas Leasing Program. The commenter states that BOEM's 2023-2028 Program concluded that leasing in the Atlantic Ocean was not needed to meet national energy needs. The commenter provides data on Delaware's ocean economy, including $286 million in fishing-related sales and $4.7 billion in tourism contribution to GDP in 2022. The commenter discusses potential impacts to marine habitats, including artificial reefs, coral beds, horseshoe crab habitat, and Essential Fish Habitat for up to 20 highly migratory shark and fishery species. The commenter mentions protected species in the area, including Atlantic sturgeon, sea turtles, and marine mammals. The commenter discusses concerns about seismic testing impacts on marine mammals, including the critically endangered North Atlantic right whale. The commenter references a study showing that oil spills could cause significant economic losses to Delaware's coastal and marine recreational activity and commercial fishing industry. The commenter also raises concerns about air quality impacts and effects on historic properties and cultural resources. The commenter describes Delaware’s Coastal Zone Act, enacted in 1971, which serves to limit industrialization in the state’s coastal areas. Further, the commenter says that, under the Federal Coastal Zone Management Act of 1972, the Delaware Department of Natural Resources and Environmental Control has delegated authority to review activities in the OCS to ensure compliance with Delaware’s coastal management policies.

Governors of North Carolina and South Carolina
Document ID: BOEM-2025-0015-35235

The commenters urge BOEM to maintain the existing moratorium on offshore oil and gas exploration, development, and production off their coasts. The commenters reference memoranda issued by President Trump in 2020 protecting waters off North Carolina and South Carolina until June 30, 2032. The commenters state these decisions were responsive to bipartisan concerns about risks to the economy and environment. The commenters say that their states have a combined 513 miles of ocean beaches and 6,251 miles of coastline, home to more than 2,740,500 people and numerous National Wildlife Refuges. The commenters state that in 2021, their coastal economy contributed $9.6 billion to GDP, supported more than 125,000 jobs, and provided $3.8 billion in wages through tourism, recreation, shipbuilding, fishing, and marine transportation industries. The commenters mention that their coasts are home to critical military installations vital to national security. The commenters state that every North Carolina and South Carolina coastal municipality has passed a resolution opposing offshore drilling and seismic testing.

Maine Governor's Energy Office
Document ID: BOEM-2025-0015-25330

The commenter strongly opposes leasing for oil and gas development in the North Atlantic Planning Area, opposition that is supported by bipartisan state and Federal officials and stakeholders throughout Maine. The commenter references a 2018 Joint Resolution from the Maine Legislature and a letter from Maine Senators opposing drilling off the coast of Maine. The commenter adds that Maine's Congressional delegation recently proposed the New England Coastal Protection Act of 2025 to ban offshore oil and gas exploration in New England. The commenter states that oil and gas activities would endanger commercial fishing, aquaculture, tourism, fish and wildlife habitat, and other coastal resources. The commenter provides economic data on Maine's commercial fishing industry, which brought in ex-vessel value of $3.3 million from 2000 to 2024, and aquaculture industry, which had a total harvest value of more than $48 million in 2020, both of which would be at risk from oil spills. The commenter discusses the importance of Maine's coastal islands for breeding birds, including threatened and endangered species like Atlantic Puffins and Roseate Terns, especially in the northern edge of the Georges Bank. The commenter states that the unique oceanographic conditions in the Gulf of Maine would make an oil spill particularly devastating to Maine's coast and adds concerns about the effect of a spill on Maine’s $9 million tourism industry, which supports more than 130,000 jobs. The commenter further expresses concern about the impacts of oil and gas development on protected species like the North Atlantic right whale and four different species of sea turtles and urges the withdrawal of the North Atlantic Planning Area from the 11th National OCS Oil and Gas Leasing Program.

Massachusetts Office of Coastal Zone Management and Massachusetts Division of Marine Fisheries
Document ID: BOEM-2025-0015-35231

The commenters request that all areas of the OCS offshore Massachusetts, or otherwise potentially affecting the coastal zone of Massachusetts, be excluded from oil and gas leasing in the 11th National OCS Oil and Gas Leasing Program. The commenters state there have been no oil and gas lease sales off Massachusetts since 1979 and no exploration since 1981-1982, when no viable petroleum resources were discovered. The commenters add that the Massachusetts Ocean Sanctuaries Act prohibits drilling for oil and gas or the installation of any related structure on or under the seabed in designated Ocean Sanctuaries. The commenters identify Georges Bank as an extremely valuable fishing ground and wildlife hotspot, including habitat for the North Atlantic Right Whale. The commenters state that the port of New Bedford ranks as the top commercial fishing port in the United States by value for the past 23 years, with Massachusetts landings averaging $663 million for 2019-2023. The commenters express concern that oil and gas activities would disrupt the fishing industry through displacement of vessels and impacts to fish stocks. The commenters also discuss potential impacts to tourism, which generates over $3.7 billion per year in direct visitor spending in Cape Cod, Martha's Vineyard, and Nantucket. The commenters mention that the waters off Massachusetts are home to critically endangered marine mammal species and other wildlife that would be harmed by oil and gas activities. The commenters also remark that oil and gas activities will be subject to Federal Consistency Review under the Coastal Zone Management Act. Discussing consistency with Masachusetts’ enforceable program policies, the commenters say that the Massachusetts Ocean Resources Policy #2 states that any extractions of oil, natural gas, or marine minerals within or affecting the coastal zone must protect marine resources, water quality, and other uses.

Governor Henry McMaster
Document ID: BOEM-2025-0015-25257

The commenter asks that South Carolina be excluded from the 11th National OCS Oil and Gas Leasing Program. The commenter references President Trump's 2020 Presidential Memorandum protecting the South Carolina coast from oil and gas exploration until 2032. The commenter describes South Carolina's coastline as pristine, with 187 miles of ocean coastline and 2,876 miles of tidal shoreline, home to world-renowned beaches, sea islands, and salt marshes. The commenter states that this natural beauty supports a $29 billion tourism industry with millions of annual visitors and tens of thousands of jobs. The commenter mentions that every coastal municipality in South Carolina has passed a resolution opposing offshore oil and gas activities. The commenter states that South Carolina's commercial fishing industry depends on a thriving offshore ecosystem that would be disrupted by oil and gas exploration. The commenter describes South Carolina's conservation tradition, including 47 state parks, two national forests, Congaree National Park, and four federally protected National Wildlife Refuges. The commenter also mentions South Carolina's vulnerability to Atlantic hurricanes, stating that offshore oil infrastructure would increase this vulnerability.

Local Governments

General Comments and Multiple Regions

City of Jacksonville, Florida
Document ID: BOEM-2025-0015-22614

The commenter expressed firm opposition to the inclusion of new offshore oil and gas leasing off Florida's coast in the 11th National OCS Oil and Gas Leasing Program and any form of oil and gas exploration including seismic airgun blasting. The commenter states that Jacksonville's coastal economy depends on clean beaches, healthy ecosystems, and tourism, which would be put at risk by offshore drilling. The letter indicates that even the perception of risk can negatively affect tourism and property values, and that potential short-term benefits do not outweigh long-term threats to coastal resources.

City of St. Augustine, Florida
Document ID: BOEM-2025-0015-22292

The commenter passed Resolution No. 2025-23 opposing the inclusion of new offshore oil and gas leasing off Florida's coast in the 11th National OCS Oil and Gas Leasing Program. The resolution states that the city's economy depends on a healthy coastal environment supporting tourism, recreation, and fishing. It specifically mentions concerns about seismic air gun blasting used in offshore exploration, which poses threats to marine life by disrupting communication, navigation, reproduction, and foraging behavior. The commenter urges BOEM to prioritize protection of coastal economies and ecosystems in the final leasing program.

Cooper City, Florida
Document ID: BOEM-2025-0015-0032

The commenter opposes the inclusion of new offshore oil and gas leasing off the coast of Florida in the 2024-2029 National OCS Oil and Gas Leasing Program. The commenter states that Cooper City's economy depends on a healthy coastal environment supporting tourism, recreation, fishing, and small businesses. The commenter expresses concern that offshore drilling carries risks including oil spills, habitat destruction, and pollution that could harm the coastal economy and natural resources. The commenter urges BOEM to prioritize protection of coastal economies by excluding new offshore oil and gas leases from the final Program and calls on Federal representatives to oppose offshore drilling expansion.

Broward County, Florida
Document ID: BOEM-2025-0015-0027

The commenter expresses opposition to including new offshore oil and gas leasing off Florida's coast in the 11th National OCS Oil and Gas Leasing Program. The letter states that Broward County's economy generates over $700 million annually from beaches that are internationally recognized for their quality. The commenter indicates that offshore drilling poses risks to this economy, as even the perception of risk from oil and gas activity could negatively affect tourism, property values, and investor confidence. The commenter states that potential short-term benefits to energy companies do not outweigh long-term threats to coastal livelihoods and natural resources and urges BOEM to prioritize coastal protection in the upcoming leasing program.

City of Hollywood, Florida
Document ID: BOEM-2025-0015-25305

The commenter expresses opposition to offshore drilling activities off Florida Coasts, including seismic airgun blasting. The commenter states that seismic airguns fire intense blasts of compressed air that can harm and injure dolphins, whales, endangered sea turtles, fish, and other marine life. The commenter indicates that exploratory and commercial drilling, extraction, and transportation of offshore oil and gas resources pose risks of oil spills and chronic leakage. The commenter states that offshore drilling activities threaten vacation destinations on Florida's coasts, which provide economic value for numerous industries and act as natural buffers from storm surge and hurricanes, adding that healthy ocean ecosystems provide over 1.5 million jobs and $ 108 billion in GDP. The commenter recommends pursuing non-polluting sources of renewable energy such as solar and wind. The commenter writes that over 250 East Coast municipalities formally oppose offshore oil and gas drilling

City of Boca Raton Council Member, Yvette Drucker
Document ID: BOEM-2025-0015-22662

The commenter opposes new oil and gas leasing along the Florida Coastline. The commenter writes that the City of Boca Raton has undergone several conservation efforts, such as investing in artificial reefs to support biodiversity and monitoring and rehabilitating sick and injured sea turtles. The commenter writes that offshore drilling poses risk to these efforts and the long-term health of coastal waters and protected species.

Alaska Region

North Slope Borough
Document ID: BOEM-2025-0015-25333

The commenter opposes new OCS leasing in the three Arctic Ocean Planning Areas (Beaufort Sea, Chukchi Sea, and High Arctic) while remaining cautiously supportive of nearshore development in Alaska State waters. The commenter describes itself as a regional government for eight Alaska Native villages across northern Alaska with a primarily Iñupiat population that relies on subsistence harvesting from Arctic waters. The commenter states that responsible resource development is essential to the North Slope's vitality, with oil and gas infrastructure taxation providing the bulk of the Borough's revenues. The commenter expresses concerns about the technological complexities and environmental risks of offshore oil and gas operations in the Arctic, citing examples of past failures including Shell's unsuccessful attempts in the 2010s and requests that oil and gas development be focused on land in the National Petroleum Reserve-Alaska and the Arctic National Wildlife Refuge. The submission recommends that if Congress reinstates previously withdrawn Arctic areas for leasing, it should establish stringent Arctic-specific protective measures based on expanded scientific research into the impacts.

City of Atqasuk
Document ID: BOEM-2025-0015-25348

The commenter urges BOEM to exclude the Beaufort Sea, Chukchi Sea, and High Arctic planning areas from the 11th National OCS Oil and Gas Leasing Program. The commenter describes Atqasuk as a North Slope Inupiat community where culture and subsistence needs are connected to the Meade River and surrounding waters. The commenter describes the importance of these waters as a food source for their community, writing that animals like fish, marine mammals, and waterfowl live in the area being considered for Arctic leasing. The commenter mentions the unpredictable and powerful ice movements in these waters, which can severely impact offshore infrastructure, citing examples of undersea fiber optic cables being severed by ice scouring the seafloor. The commenter states that Arctic offshore oil spills pose risks due to limited infrastructure, harsh conditions, and inadequate response capacity, noting that the closest US Coast Guard base is over 1,000 miles away. The commenter requests that future decisions on Arctic OCS leasing include direct consultation with affected communities and their elected officials.

Pacific Region

County of Sonoma Board of Supervisors
Document ID: BOEM-2025-0015-0015

The commenter expresses opposition oil and gas leasing in all Federal waters adjoining any U.S. coastline, including within National Marine Sanctuaries and other protected areas. The commenter mentions specific opposition to leasing around the Channel Islands National Marine Sanctuary and the Chumash Heritage National Marine Sanctuary off the Ventura County coastline. The commenter references past oil spills along the California coast that resulted in fishing closures and damages to ecosystems and local economies, and states that offshore drilling increases the risk of seismic activity. The commenter suggests that expanding offshore drilling threatens tourism, recreation, and fishing industries while increasing the risk of future oil spills.

San Juan County, Washington
Document ID: BOEM-2025-0015-0011

The commenter opposes the inclusion of new offshore oil and gas leases off the coast of Washington State in the 11th National OCS Oil and Gas Leasing Program. The commenter states that San Juan County's economy depends on a healthy coastal and marine environment that supports tourism, recreation, and fishing. The commenter mentions that endangered Chinook salmon and Southern Resident killer whales reside in Washington's coastal waters and are tied to the County's socio-economic well-being. The commenter indicates that offshore oil and gas activities carry inherent risks including oil spills, habitat destruction, and pollution that could harm the community's coastal economy and way of life.

County of San Luis Obispo Washington Board of Supervisors
Document ID: BOEM-2025-0015-25359

The commenter opposes any expansion of oil and gas exploration or extraction off the California Central Coast. The commenter references the County's history of opposition to leasing on the OCS for oil and gas development, citing concerns about adverse impacts to the environment, air quality, economic impacts on fishing, oil spill impacts, and tourism. The commenter mentions the County's experience with oil company negligence resulting in massive clean-ups of the Guadalupe Dunes Oil Field and the town of Avila Beach. The commenter writes that the County maintains a voter initiative, established in 1986, that requires any authorization for offshore oil and gas development to be approved by a majority of voters. The commenter states that a substantial portion of the County's economy relies on tourism, and the effects of offshore oil exploration and extraction will threaten tourism, commercial and recreational fishing, and overall quality of life.

City of Westport, Washington
Document ID: BOEM-2025-0015-25358

The commenter opposes the inclusion of any new offshore oil and gas leasing off the coast of Washington in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the City of Westport's economy depends on a healthy coastal and marine environment that supports tourism, recreation, and fishing. The commenter indicates that offshore oil and gas activities carry inherent risks including oil spills, habitat destruction, and pollution that could harm the community's coastal economy and way of life. The commenter urges BOEM to prioritize the protection of coastal economies, communities, and ecosystems by excluding new offshore oil and gas leases from the final leasing program.

City of Solana Beach
Document ID: BOEM-2025-0015-25334

The commenter opposes any expansion of offshore oil and gas drilling along California's coast. The commenter raises concerns about environmental, economic, and public health impacts of such activities. The commenter states that coastal tourism, fishing, and recreation contribute billions of dollars annually and support hundreds of thousands of jobs in California and that offshore drilling threatens these industries. The commenter describes the 1969 Santa Barbara oil spill and 2021 Huntington Beach pipeline leak as examples of the risks associated with offshore drilling. The commenter indicates that expanding fossil fuel extraction undermines California's climate goals and commitment to renewable energy development. The commenter urges BOEM to exclude all California waters from current and future offshore leasing plans.

Santa Cruz County Board of Supervisors
Document ID: BOEM-2025-0015-25320

The commenter expresses opposition to the inclusion of Pacific Coast planning areas in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the Monterey Bay National Marine Sanctuary, designated in 1992 to prevent offshore oil development, spans more than 6,000 square miles of ecologically diverse marine environments and supports a $4.4 billion tourism and fishing economy. The commenter writes that the Monterey Bay National Marine Sanctuary is a hub for scientific research and supports critical habitats for endangered species. The commenter states that the Energy Policy Act of 2005 and the Outer Continental Shelf Lands Act (OCSLA) explicitly prohibit new offshore oil and gas leasing in National Marine Sanctuaries. The commenter states that expanding offshore fossil fuel development contradicts national and global climate goals, describing an Oceana report, which estimates that protecting unleased Federal waters can prevent over 19 billion tons of GHG emissions. The commenter adds that offshore drilling carries inherent risks of spills and pollution. The commenter requests safeguards for the region between Monterey Bay and Chumash Heritage sanctuaries, writing that while this area is unprotected, it is also ecologically and culturally vital. The commenter states that over 65 cities and counties in California, representing over 21 million residents, formally oppose new offshore oil leases. The commenter requests that BOEM remove all Pacific planning areas from consideration and reaffirm that National Marine Sanctuaries are permanently off-limits to oil and gas development.

Mayor Derek Timm, City of Scotts Valley, California
Document ID: BOEM-2025-0015-25311

The commenter expresses opposition to BOEM's efforts to re-open areas of US Federal waters to offshore oil and gas development, specifically those in the Monterey Bay National Marine Sanctuary and surrounding area. The commenter states that the City of Scotts Valley has gone on record multiple times opposing offshore oil development and supporting the designation of Monterey Bay National Marine Sanctuary. The commenter indicates that offshore oil and gas development is prohibited by statute in National Marine Sanctuaries off California and therefore these areas should not be considered for development. The commenter adds that Monterey Bay National Marine Sanctuary not only protects natural resources but also boosts the region's economy, with the tourism industry in Monterey and Santa Cruz Counties generating $4.3 billion annually.

County of Humboldt
Document ID: BOEM-2025-0015-20512

The commenter opposes the inclusion of any Pacific Coast planning areas in the 11th National OCS Oil and Gas Leasing Program. The commenter references Resolution No. 18-13, adopted unanimously by the Humboldt County Board of Supervisors in 2018, which formally opposes new offshore oil drilling development. The commenter requests that BOEM exclude all Pacific Coast planning areas from the 11th National OCS Oil and Gas Leasing Program, respect existing Presidential withdrawals, focus the Program on existing production areas in the GOA, prioritize renewable energy development in Federal waters, and conduct meaningful consultation with Pacific Coast states, Tribes, and local governments. The commenter writes that California's North Coast includes several recognized National Marine Sanctuaries, adding that the County's economy relies on healthy coastal ecosystems to support recreation, tourism, and commercial fishing industries. The commenter remarks that existing oil and gas production adequately serves national energy needs and that California has shouldered enough environmental risk from existing offshore operations. The commenter writes that a recent poll reported 70 percent of Californians as opposed to offshore drilling. The commenter mentions that the California Coastal Sanctuary Act of 1994 prohibits new leasing of offshore tracts, and that many of the region's current governors and land commissioners oppose offshore drilling along the Pacific Coast.

City of Half Moon Bay
Document ID: BOEM-2025-0015-25271

The commenter opposes all offshore drilling activities and expansion in the Pacific Ocean. The commenter describes negative effects of oil and gas development on frontline communities, including air pollution that causes health problems such as asthma and cancer. The commenter references the 2010 Deepwater Horizon disaster and its environmental and economic impacts. The commenter references an Oceana analysis, which found that protecting unleased Federal waters could prevent over 19 billion tons of GHG emissions and more than $720 billion in damages. The commenter expresses concern about the Trump Administration's 2018 proposal to open the West Coast to drilling and current plans to expand offshore drilling in U.S. waters. The commenter expresses support for the West Coast Ocean Protection Act.

San Diego Association of Governments
Document ID: BOEM-2025-0015-25163

The commenter opposes offshore oil and gas development in the Pacific, stating that the San Diego region's economy, environment, and quality of life depend on a clean coastline. The commenter references a 2021 pipeline rupture off Huntington Beach that leaked over 25,000 gallons of oil with impacts reaching San Diego County. The commenter expresses concern about risks from seismic airgun blasting to marine life and states that offshore oil and gas development conflicts with the San Diego Association of Governments' Shoreline Preservation Strategy and beach replenishment efforts. The commenter writes that offshore drilling can contribute to sea-level rise and coastal erosion. The commenter requests that BOEM evaluate potential impacts against long-term goals to advance sustainability, preserve natural resources, and reduce GHG emissions.

Carteret County Tourism Development Authority
Document ID: BOEM-2025-0015-35445

The commenter expresses opposition to including new offshore oil and gas leases off the coast of North Carolina. The commenter states that the economic sustainability of their county is dependent on tourism and visitors that come to enjoy the coastal environment, and that their waters are important for commercial and recreational fisheries, as well as important for diverse groups of wildlife. The commenter expresses concern about the impacts of offshore oil and gas development, including oil spills, habitat destruction, and light pollution, and reasons that the short-term benefits of oil and gas drilling are outweighed by the long-term well-being of the community.

County of Marin, California
Document ID: BOEM-2025-0015-25091

The Marin County Board of Supervisors strongly opposes the inclusion of any new oil and gas lease sales in the Pacific Region, and especially off the coast of California, as part of the 11th National OCS Oil and Gas Leasing Program. The County references a January 6, 2025 permanent Executive OCS Withdrawal under Section 12(a) of the OCSLA that withdrew from disposition all unleased Federal waters along the U.S. Atlantic, Pacific, and Florida Gulf Coasts. The County states that Marin's coastline includes several overlapping layers of conservation status and ecological importance, including the Cordell Bank and Greater Farallones National Marine Sanctuaries, the Farallon Islands, the Point Reyes OCS Exclusion Zone, Marine Protected Areas, and inclusion within the Golden Gate UNESCO International Biosphere Network. The County indicates that its local coastal economy depends on clean water, sustainable fisheries, tourism, and outdoor recreation, and that California law prohibits new leasing in state waters.

City of Del Mar
Document ID: BOEM-2025-0015-25052

The City of Del Mar expresses firm opposition to the inclusion of new offshore oil and gas leasing off the coast of California in the 11th National OCS Oil and Gas Leasing Program. The city states that coastal economies are built on clean beaches, healthy ecosystems, and vibrant tourism and marine industries, noting that in 2021, the California marine economy generated $26.7 billion in wages and $51.3 billion in GDP. The submission indicates that offshore drilling puts coastal communities at risk, and that even the perception of risk from oil and gas activity can negatively impact tourism, property values, and investor confidence. The city states that a major spill would have long-lasting consequences for small businesses, fisheries, and thousands of jobs that rely on a healthy coastal environment. The city urges BOEM to prioritize protection of coasts in the upcoming leasing program.

Clallam County Board of Commissioners
Document ID: BOEM-2025-0015-22612

The commenter passed Resolution 48 2025, opposing the inclusion of new offshore oil and gas leasing off Washington's coast in the 2024-2029 National OCS Oil and Gas Leasing Program. The resolution identifies concerns about potential catastrophic damage from Cascadia earthquake events, the county's dependence on a healthy coastal environment for tourism and fishing, and the Olympic Coast National Marine Sanctuary's critical habitat for sensitive marine species. The commenter urges BOEM to prioritize protection of coastal economies and ecosystems by excluding new offshore oil and gas leases from the final program.

County of Mendocino
Document ID: BOEM-2025-0015-20378

The commenter expresses strong opposition to any new or expanded offshore oil and gas drilling along the California coastline. The commenter describes the County's coastline as part of a biologically rich marine ecosystem with Marine Protected Areas, kelp forests, and essential habitat for marine species. The commenter states that offshore oil development poses risks including oil spills, pollution, and habitat destruction that could harm ecosystems, coastal economies, and public health. The letter references oil spills at Huntington Beach (2021) and Refugio State Beach (2015) as examples of these risks. The commenter describes California's goal to achieve net-zero GHG emissions by 2045 and states that expanding offshore drilling undermines this commitment.

City of Cannon Beach
Document ID: BOEM-2025-0015-6555

The commenter opposes the inclusion of any new offshore oil and gas leasing off the coast of Oregon in the 11th National OCS Oil and Gas Leasing Program. The commenter states that it depends heavily on a healthy coastal environment that supports tourism, recreation, fishing, and small businesses. The commenter identifies risks from offshore drilling including oil spills, leaks, habitat destruction, and pollution that could harm the coastal economy and natural resources. The commenter urges BOEM to prioritize protection of coastal economies and ecosystems by excluding new offshore oil and gas leases from the final leasing program, and calls on Federal representatives to oppose offshore drilling expansion.

San Mateo County Board of Supervisors Members, Jackie Speier and Ray Mueller
Document ID: BOEM-2025-0015-23075

The commenter opposes new offshore oil leasing along the San Mateo County coastline. The commenter writes that the County’s economy depends on their protected coasts, which serve tourism and commercial and recreational fishing industries. The commenter remarks that in San Mateo County, there are several sensitive marine areas which warrant protection. For example, the commenter describes the Farallon Islands, writing that this area provides productive breeding grounds for sea birds and marine mammals and is a designated National Marine Sanctuary. The commenter adds that the Golden Gate Biosphere is a designated UNESCO site and that the State Marine Reserves Network protects the Montera State Marine Reserve and the Pillar Point State Marine Conservation Area. The commenter includes references for the California Marine Life Protection Act, along with Management Plans, Designation Documents, and all regulations in effect for several Marine Sanctuaries within San Mateo County.

Santa Barbara County Board of Supervisors
Document ID: BOEM-2025-0015-35437

The commenter opposes new offshore oil or gas leasing in federal waters off the California coast as part of the 11th National OCS Oil and Gas Leasing Program and requests that BOEM remove these areas from future lease sales. The commenter describes the 1969 oil blowout in the Santa Barbara Channel and the 2015 pipeline rupture at Refugio State Beach, remarking that the Santa Barbara community is still facing the consequences of these events. The commenter writes that Santa Barbra's coast is home to marine sanctuaries, endangered species such as the blue whale, and an ocean-based economy. The commenter remarks that recreation, commercial fishing, clean energy, and tourism generate millions in revenue and support thousands of jobs in Santa Barbara, adding that all these industries will be negatively impacted by expanded offshore oil and gas extraction.

Gulf of America Region

No local government commented on this region.

Atlantic Region

Borough of Atlantic Highlands
Document ID: BOEM-2025-0015-33765

The commenter opposes the inclusion of any exploration like seismic blasting and new offshore oil and gas leasing off the coast of New Jersey in the 11th National OCS Oil and Gas Leasing Program. The commenter states that Atlantic Highlands' economy depends on a healthy coastal and marine environment that supports tourism, recreation, and fishing. The commenter indicates that offshore oil and gas activities carry inherent risks including oil spills, habitat destruction, and pollution that could harm the area's coastal economy and way of life. The commenter urges BOEM to prioritize the protection of coastal economies, communities, and ecosystems by excluding exploration and new offshore oil and gas leases from the final leasing program.

Town of Surfside, Florida
Document ID: BOEM-2025-0015-25351

The commenter opposes the inclusion of any new offshore oil and gas leasing off the coast of Florida in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the Town of Surfside's economy depends on a healthy coastal and marine environment that supports tourism, recreation, and fishing. The commenter indicates that offshore oil and gas activities carry inherent risks including oil spills, habitat destruction, and pollution that could harm the community's coastal economy and way of life. The commenter urges BOEM to prioritize the protection of coastal economies, communities, and ecosystems by excluding new offshore oil and gas leases from the final leasing program.

Town of Sullivan's Island
Document ID: BOEM-2025-0015-25343

The commenter opposes seismic testing and offshore drilling activities off the South Carolina coast. The commenter states that South Carolina has over 344,000 acres of saltmarsh habitat that supports both recreational and commercial fisheries, fueling a $6 billion industry in the state, and contributing $20 billion to the region's tourism economy. The commenter raises environmental concerns such as noise disturbance and damage to the town's wetlands, which support migratory bird species and act as nurseries for fish and buffers from natural disasters. The commenter references a 2015 town council resolution expressing opposition to seismic testing and offshore drilling activities. The commenter describes the Deepwater Horizon disaster as evidence of the risks posed by exploratory and commercial offshore drilling. The commenter also raises concerns about the onshore infrastructure required for offshore drilling, stating there is no room on their residential and tourism-dependent coast for such facilities.

County of Chunttick, North Carolina
Document ID: BOEM-2025-0015-25335

The commenter opposes the inclusion of any exploration like seismic blasting and new offshore oil and gas leasing off the coast of North Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states that Currituck County's economy depends on a healthy coastal and marine environment that supports tourism, recreation, and fishing. The commenter indicates that offshore oil and gas activities carry inherent risks including oil spills, habitat destruction, and pollution that could harm the County's coastal economy and way of life. The commenter urges BOEM to prioritize the protection of coastal economies, communities, and ecosystems by excluding exploration and new offshore oil and gas leases from the final leasing program.

Town of Kure Beach
Document ID: BOEM-2025-0015-25332

The commenter submits a resolution opposing the inclusion of new offshore oil and gas leasing off the coast of North Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the town's economy depends heavily on a healthy coastal and marine environment that supports tourism, recreation, commercial and recreational fishing, and related small businesses. The commenter indicates that offshore oil and gas exploration, development, and drilling carry inherent risks including oil spills, leaks, habitat destruction, and pollution that could cause significant harm to the area's coastal economy and natural resources. The commenter urges BOEM to prioritize protection of coastal economies, communities, and ecosystems by excluding exploration and new offshore oil and gas leases from the final leasing program.

Town of Emerald Isle
Document ID: BOEM-2025-0015-25293

The commenter opposes offshore oil and gas drilling off the coast of North Carolina. The commenter states that the Town of Emerald Isle depends on clean beaches and a healthy marine environment for its tourism-based economy, real estate, and quality of life. The commenter indicates that offshore oil and gas exploration and drilling pose significant environmental and economic risks, including oil spills, ecosystem damage, and negative impacts on coastal property values and tourism. The Town previously opposed such drilling in a 2015 resolution. The commenter urges BOEM, the Secretary of the Interior, and Federal officials to exclude the Mid-Atlantic and South Atlantic planning areas from the 11th National OCS Oil and Gas Leasing Program.

City of Charleston, South Carolina
Document ID: BOEM-2025-0015-25283

The commenter expresses opposition to the inclusion of new offshore oil and gas leasing off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter includes a 2015 resolution expressing opposition to seismic testing and offshore drilling activities and a letter from current Mayor William Cogswell reaffirming the city's opposition. The commenter states that its economy depends heavily on a healthy coastal and marine environment, supporting industries such as tourism, recreation, commercial and recreational fishing, and related small businesses.

Town of Sunset Beach, North Carolina
Document ID: BOEM-2025-0015-25276

The commenter submits a 2025 resolution opposing the exploration and production of petroleum resources off the coast of North Carolina, continuing their formal opposition since 2017. The commenter states that the Town’s largest industry is tourism, writing that the 20 counties comprising North Carolina's coastal region generate more personal and commercial income, public revenues, and employment opportunities than the petroleum and natural gas industry is estimated to bring into the State. The commenter shares that many of North Carolina’s natural areas provide habitat for diverse groups of wildlife The commenter expresses concern that drilling in the Atlantic would expose marine wildlife and important industries to unprecedented risk, including potential harm from seismic blasting and oil leakage. The commenter references the Exxon Valdez (1989) and Deepwater Horizon (2010) oil spills as evidence of potential harm and expresses opposition to ventures that threaten the tourism-driven economy of coastal North Carolina.

Town of Holden Beach
Document ID: BOEM-2025-0015-26964

The commenter opposes exploration, including seismic testing, and production of petroleum resources off the coast of North Carolina. The commenter states that the Town's tourism-based economy and local fishing industry depend on the health of natural resources, adding that the anticipated revenue from offshore drilling falls below the anticipated revenues directly related to North Carolina's tourism industry. The commenter remarks that estimates of oil in the mid-Atlantic leasing area are inconsequential compared to global supplies and would not reduce dependency on foreign oil. The commenter expresses concern about the lack of revenue sharing arrangements to compensate North Carolina coastal communities for environmental risks and the $75 million cap for damages in the event of an accident.

Town of Nantucket
Document ID: BOEM-2025-0015-25258

The commenter opposes the inclusion of the North Atlantic region in the 11th National OCS Oil and Gas Leasing Program. The commenter states that opening the North Atlantic Region to oil and gas exploration would have an adverse impact on many of the region's industries, including fishing, tourism, shipping, and scientific research. The commenter remarks that fishing and tourism in the Mid-Atlantic contribute nearly $7 million and $16 billion to GDP, respectively. The commenter indicates that there is a documented lack of significant concentrations of oil or natural gas off the coast of New England and that other uses of the seabed outweigh the utility of offshore oil exploration. The commenter states that the North Atlantic region is also home to six endangered whale species and serves as a breeding ground for several endangered bird species. The commenter shares that Massachusetts has created several sanctuaries, wherein oil exploration is prohibited, to protect these critical habitats. The commenter expresses concern that, particularly due to environmental sensitivity, Nantucket would be disproportionately impacted by the risk of offshore oil spills. The commenter also shares that the island relies on two undersea cables for electricity, which could conflict with offshore infrastructure. The commenter remarks that offshore wind projects are already in place around Massachusetts, and that the current Governor opposes expansion of additional offshore oil or wind development across the state.

Town of Kiawah Island
Document ID: BOEM-2025-0015-25263

The commenter opposes the inclusion of any new offshore oil and gas leasing or seismic blasting off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter describes Kiawah Island as a barrier island with a 10-mile-long beach that attracts hundreds of thousands of tourists annually. The commenter states that the Town's coastal waters are critical habitat for federally protected, endangered, and threatened species, such as Red Knots, Piping Plovers, and the North Atlantic Right Whale. The commenter indicates that the Town is dependent on a tourism-based economy and healthy marine ecosystem, which would be put at risk by offshore oil and gas drilling and seismic activity.

The Town of Seabrook Island
Document ID: BOEM-2025-0015-25267

The commenter opposes the inclusion of new offshore oil and gas leasing off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states that its economy depends on a healthy coastal and marine environment, supporting industries such as tourism, recreation, commercial and recreational fishing, and related small businesses. The commenter expresses concern that offshore oil and gas exploration, development, and drilling carry inherent risks that could cause significant, long-term harm to the coastal economy, natural resources, and way of life. The commenter indicates that they previously opposed Federal efforts to permit oil and gas exploration and drilling in 2015 and 2018.

Village of Bald Head Island
Document ID: BOEM-2025-0015-25260

The commenter expresses opposition to seismic testing and offshore drilling off the coast of North Carolina. The commenter states that it is committed to being a sound steward of its unique coastal environment, including rare maritime forest, archeological sites, estuaries, marshes, and pristine beaches. The commenter indicates that the Village of Bald Head Island depends on the sustainability of the existing environment to maintain its tourism economy. The commenter expresses concern that exploratory and commercial drilling activities pose a significant risk of spills and require substantial onshore infrastructure that would further risk the environment, character, and natural beauty of North Carolina's coast.

Town of Kitty Hawk
Document ID: BOEM-2025-0015-25255

The commenter expresses opposition to any future proposals that would expand offshore drilling and gas leasing along the North Carolina coastline. The commenter indicates that offshore drilling threatens local fisheries, the tourism industry, and natural heritage. The commenter expresses concern that potential spills threaten wildlife, water quality, and local livelihoods. The commenter opposes any new Federal oil and gas leasing as well as offshore oil and gas drilling, seismic drilling, and other well stimulation in all waters off the coast of North Carolina.

City of Virginia Beach
Document ID: BOEM-2025-0015-24689

The commenter opposes oil and gas drilling off the Virginia coast. The commenter states that offshore drilling in the Mid-Atlantic poses threats to U.S. Navy operations by potentially interfering with military training areas and restricting critical air and sea space. The commenter writes that the world’s largest naval base, Naval Station Norfolk, is located in Virginia. The commenter writes that Virginia Beach’s economy relies heavily on tourism, fishing, and recreation, which could be undermined by the risk of oil spills. The submission references the BP oil spill in the Gulf Coast, remarking that the event resulted in an estimated $23 billion decline in tourism over three years. The commenter states that Virginia has adopted multiple resolutions against offshore drilling and that in 2020, the Virginia General Assembly passed House Bill 706 banning offshore drilling off the coast.

Town of Atlantic Beach
Document ID: BOEM-2025-0015-25247

The commenter opposes the inclusion of exploration activities such as seismic blasting and new offshore oil and gas leasing off the coast of North Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states that its economy depends heavily on a healthy coastal and marine environment that supports tourism, recreation, commercial and recreational fishing, and related small businesses. The submission indicates that offshore oil and gas activities carry inherent risks including oil spills, leaks, habitat destruction, and pollution that could cause long-term harm to the coastal economy, natural resources, and way of life. The commenter urges BOEM to prioritize protection of coastal economies, communities, and ecosystems by excluding exploration and new offshore oil and gas leases from the final leasing program.

City of Beaufort, South Carolina
Document ID: BOEM-2025-0015-35435

The commenter unanimously adopted a resolution on June 10, 2025, opposing the inclusion of new offshore oil and gas leasing off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The resolution states that the city's economy depends heavily on a healthy coastal and marine environment that supports tourism, recreation, commercial and recreational fishing, and related small businesses. The commenter indicates that offshore oil and gas activities carry inherent risks including oil spills, leaks, habitat destruction, and pollution that could cause significant, long-term harm to the coastal economy, natural resources, and way of life. The resolution urges BOEM to prioritize protection of coastal economies, communities, and ecosystems by excluding exploration and new offshore oil and gas leases from the final leasing program.

City of St Pete Beach, Florida
Document ID: BOEM-2025-0015-25245

The commenter passed Resolution 2025-16 on June 10, 2025, opposing offshore oil drilling and exploration activities. The resolution states that the U.S. government has expressed interest in opening the Atlantic Ocean and Eastern Gulf of Mexico to offshore oil and gas development and exploration. The city indicates that exploratory and commercial drilling, extraction, and transportation of offshore oil and gas resources pose a significant risk of oil spills and leakage, and would require significant onshore infrastructure that could harm the character of the coast. The resolution states that despite technological advances in oil rig drilling technology, there is no positive assurance that catastrophic damage to the coastline, beaches, plant and fish life could be avoided. The commenter opposes oil and gas development closer than 250 miles to Florida's coasts.

Town of Southern Shores
Document ID: BOEM-2025-0015-25243

The commenter opposes offshore drilling, seismic testing, and leasing. The commenter states that its economy and that of Dare County depends heavily on a healthy coastal and marine environment supporting tourism, recreation, commercial and recreational fishing, and related small businesses. The submission indicates that offshore oil and gas activities carry inherent risks including oil spills, leaks, habitat destruction, and pollution that could cause significant, long-term harm to the coastal economy, natural resources, and way of life. The town states that the driving economic force of Southern Shores and most towns along the east coast is tourism, with many families visiting the beaches for decades for their pristine quality. The town strongly opposes any new Federal oil and gas leasing in U.S. waters as well as offshore oil and gas drilling, seismic drilling, and other well stimulation in all waters off the coast of North Carolina and asks for a permanent ban against it.

Town of Ocean Isle Beach
Document ID: BOEM-2025-0015-24790

The Town of Ocean Isle Beach passed Resolution No. 2015-21 on October 13, 2015, expressing opposition to seismic testing and offshore drilling. The resolution states that the town is committed to being a sound steward of the unique coastal environment and recognizes that its economic survival solely depends on the sustainability of the existing environment. The town indicates that exploratory and commercial drilling, extraction, and transportation of offshore oil and gas resources pose a significant risk of spills, and that offshore drilling requires substantial onshore infrastructure such as pipelines and/or refineries, which will further risk the health and safety of the environment, character, and natural beauty of the North Carolina coast. The resolution references State Senate Bill S836 - Oil Spill Liability, Response and Preparedness Act, which the town states is necessary to protect the coast from oil/gas exploration and to preserve the coastline and adjoining continental shelf from petroleum exploration and production.

Town of Nags Head, NC
Document ID: BOEM-2025-0015-24579

The commenter submitted a resolution opposing offshore oil and gas exploration and development off North Carolina's coast. The resolution details how such activities would conflict with coastal zone management programs, pose environmental risks to sensitive ecosystems, create conflicts with existing ocean uses, inequitably distribute developmental benefits and environmental risks, and potentially harm the tourism economy that generated over $2.1 billion in Dare County in 2024. The commenter urges BOEM to exclude the Mid-Atlantic Planning Area from the 11th National OCS Oil and Gas Leasing Program and prioritize sustainable, non-extractive ocean uses.

Dare County Board of Commissioners
Document ID: BOEM-2025-0015-24536

The commenter unanimously adopted a resolution opposing the inclusion of new offshore oil and gas leasing off the coast of North Carolina in the 2024-2029 National OCS Oil and Gas Leasing Program. The resolution states that Dare County's economy depends heavily on a healthy coastal and marine environment, and that offshore oil and gas activities pose risks to the environment, tourism, and local businesses. The Board urges BOEM to exclude new offshore oil and gas leases from the final leasing Program and calls on Federal representatives to oppose efforts to expand offshore drilling.

Commissioners of St. Mary's County
Document ID: BOEM-2025-0015-22626

The commenter opposes offshore oil and gas drilling and exploration activities off Maryland's shore. The submission states that St. Mary's County's economy and quality of life rely on clean beaches, healthy ecosystems, tourism, and fishing industries. The commenter expresses concern that offshore activities would place coastal communities at risk from oil spills and pollution, threatening livelihoods and tourism. The commenter also states that offshore drilling could negatively impact Naval Air Station Patuxent River operations, one of the largest employers in the region.

Borough of Avon-by-the-Sea
Document ID: BOEM-2025-0015-22397

The commenter passed Resolution No. 126-2025 opposing the inclusion of new offshore oil and gas leasing off New Jersey's coast in the 11th National OCS Oil and Gas Leasing Program. The resolution states that the Borough's economy depends on a healthy coastal environment supporting tourism, recreation, and fishing. It expresses concern that offshore oil and gas activities carry risks of spills, habitat destruction, and pollution that could harm the coastal economy and natural resources. The Borough urges BOEM to prioritize protection of coastal economies and ecosystems in the final leasing program.

Town of Duck
Document ID: BOEM-2025-0015-22256

The commenter submitted a letter opposing the inclusion of North Carolina's coastal waters in the 11th National OCS Oil and Gas Leasing Program. The letter references the commenter's previous opposition expressed in Resolution 19-01 (2019) and their Vision 2032 strategic plan's Environmental Stewardship pillar. The commenter identifies concerns including incompatibility with coastal zone management, environmental harm from potential oil spills and seismic testing, conflicts with existing ocean uses, unequal burden of risk on local communities, and economic threats to tourism that generated over $2.1 billion in Dare County in 2024.

Town of Kill Devil Hills, North Carolina
Document ID: BOEM-2025-0015-32625

The commenter adopted a resolution reaffirming opposition to offshore drilling, seismic testing, and leasing. The submission includes a letter from Mayor John Windley stating that tourism is the driving economic force for the town and other coastal communities. The commenter expresses concern that offshore drilling mistakes could devastate the local economy and environment. The resolution highlights the economic impact of tourism ($35.5 billion for North Carolina in 2023) and commercial seafood industry ($297 million annually) and adds the town has opposed offshore oil exploration since 1989. The town requests a permanent ban on new Federal oil and gas leasing in U.S. waters and offshore drilling activities off North Carolina's coast.

The City of Coral Springs
Document ID: BOEM-2025-0015-20388

The commenter opposes the inclusion of new offshore oil and gas leasing in the 11th National OCS Oil and Gas Leasing Program. The submission includes a unanimously adopted by the City Commission stating that Florida's coastal economy depends on a healthy marine environment supporting tourism, recreation, fishing, and small businesses. The commenter identifies risks from offshore drilling including oil spills, habitat destruction, and pollution that could harm the coastal economy and environment and urges BOEM to prioritize protection of coastal economies and ecosystems by excluding new offshore oil and gas leases from the final program.

Town of James Island
Document ID: BOEM-2025-0015-6553

The commenter urges the Federal Government to abandon plans for offshore drilling off the South Carolina coast. The commenter states that its economic prosperity is tied to a healthy ocean supporting tourism, fishing communities, and quality of life. The submission includes a resolution that expresses opposition to seismic testing and offshore drilling activities. The resolution states that seismic air-gun blasts can harm marine life, and that drilling poses risks to coastal wetlands that serve as essential nursery habitats for fisheries and act as natural buffers from storms. The commenter indicates it has previously passed a formal resolution opposing offshore drilling and seismic testing.

City of Cambridge
Document ID: BOEM-2025-0015-6551

The commenter opposes the inclusion of any new offshore oil and gas exploration or leasing off the North Atlantic coast in the 11th National OCS Oil and Gas Leasing Program. The commenter states that climate change, primarily caused by fossil fuel combustion, is already impacting Cambridge with flooding, sea level rise, heat waves, and droughts as documented in the city's Climate Change Preparedness and Resiliency Plan. The commenter identifies risks from offshore drilling including oil spills, habitat destruction, and pollution that could harm New England communities and businesses. The commenter urges BOEM to prioritize protection of coastal economies and ecosystems by excluding new offshore oil and gas leases from the final program.

Mayors of New Jersey
Document ID: BOEM-2025-0015-35228

The commenters express opposition to offshore oil and gas exploration and drilling off the New Jersey coast. The commenters raise concerns about the potential inclusion of authorization for offshore drilling in an upcoming Budget Reconciliation bill. The commenters express concern that oil drilling often results in spills that would harm the coastal environment and the tourism economy on which their communities rely.

Borough of Seaside Park
Document ID: BOEM-2025-0015-6547

The commenter opposes the inclusion of new offshore oil and gas leasing off the New Jersey coast in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the borough's economy depends on a healthy coastal environment supporting tourism, recreation, fishing, and small businesses. The commenter identifies risks from offshore drilling including oil spills, habitat destruction, and pollution that could harm the coastal economy and natural resources. The commenter formally opposes any exploration like seismic blasting and new offshore oil and gas leasing off New Jersey's coast, and urges BOEM to prioritize protection of coastal economies and ecosystems. The commenter calls on Federal representatives to oppose offshore drilling expansion and support policies protecting oceans and coastal communities.

Borough of Bradley Beach
Document ID: BOEM-2025-0015-6546

The commenter opposes the inclusion of new offshore oil and gas leasing off the New Jersey coast in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the borough's economy depends on a healthy coastal environment supporting tourism, recreation, fishing, and small businesses. The commenter identifies risks from offshore drilling including oil spills, habitat destruction, and pollution that could harm the coastal economy and natural resources. The commenter formally opposes any exploration like seismic blasting and new offshore oil and gas leasing off New Jersey's coast, and urges BOEM to prioritize protection of coastal economies and ecosystems. The commenter calls on Federal representatives to oppose offshore drilling expansion and support policies protecting oceans and coastal communities.

Public Interest Groups

Andean Tapir Fund
Document ID: BOEM-2025-0015-0004

The commenter opposes offshore oil leases and drilling. The commenter states that dependence on fossil fuels drives global warming that threatens life on Earth. The commenter expresses concern that increasingly severe storms could damage drilling operations, causing oil spills that would harm coastal ecosystems. The commenter suggests focusing on renewable energy such as wind and solar power instead.

Angler Action Foundation
Document ID: BOEM-2025-0015-25281

The commenter expresses opposition to the proposed expansion of offshore oil and gas leasing. The commenter identifies several concerns, including environmental impacts on coastal waters and estuarine systems that serve as habitats for endangered and economically important species. The commenter states that offshore drilling poses significant risks to these nurseries and habitats. The commenter also mentions concerns about local community impacts, climate implications, and long-term national economics, suggesting that any minor economic benefits would be outweighed by long-term costs. The commenter acknowledges America's current energy and economy challenges but states that expansion into marine environments is not the direction that best serves the environment, economy, and American people.

Animal Welfare Institute and Defenders of Wildlife
Document ID: BOEM-2025-0015-19906

The commenter, representing 17 organizations, expresses strong opposition to oil and gas development in the West and East Coast Planning Areas. The commenter states that BOEM cannot authorize leases in ineligible portions of these planning areas, such as National Marine Sanctuaries and areas restricted under presidential withdrawal pursuant to Section 12(a) of OCSLA. The commenter presents a detailed analysis under Section 18 of OCSLA demonstrating why BOEM should not authorize leases in any portion of the East or West Coast Planning Areas. The commenter states that these areas have remained untouched by oil and gas leasing for more than 40 years due to local opposition. The commenter continues their submission, discussing how oil and gas leasing would be incompatible with the protection of sanctuary resources. The commenter describes state opposition to offshore drilling, noting that several Atlantic and Pacific states have passed legislation or constitutional amendments blocking or restricting offshore drilling in their coastal waters. The commenter discusses the geographical, geological, and ecological characteristics of the Atlantic OCS region, highlighting its ecosystem diversity including offshore canyons, hard bottom habitats, and deepwater coral systems. The commenter mentions that the Atlantic region is used as a migratory superhighway by birds, fishes, and whales, and says that there are 33 threatened and endangered marine species in the East Coast Planning Areas. The commenter continues their submission, discussing the endangered status of the North Atlantic right whale, with only about 372 individuals remaining. The commenter describes the geographical and ecological characteristics of the Pacific OCS region, noting its diversity of marine and coastal ecosystems and the presence of 33 threatened and endangered marine species. The commenter discusses the risks of catastrophic oil spills and chronic oil leaks, referencing the Deepwater Horizon spill in 2010 which resulted in the death of 11 people and the release of approximately 206 million gallons of oil. The commenter details the environmental impacts of this spill, including the death of an estimated 79,919 seabirds and between 100,000 and

200,000 sea turtles. The commenter continues their submission, describing ongoing impacts from the Deepwater Horizon spill, including effects on bottlenose dolphins, sperm whales, and Rice's whales. The commenter lists other major oil spills and their impacts, noting that catastrophic spills and pollution events are common across the OCS at all stages of development. The commenter discusses the current oil and gas market conditions, stating that oversaturation of the oil market, declining demand, and resultant low oil prices are expected to render new drilling economically infeasible. The commenter states that the United States is producing more crude oil than any country ever, while U.S. demand for oil is expected to peak this year then decline by nearly eight percent by 2030. The commenter continues their submission, discussing how oil and gas industry representatives have expressed concerns about the effects of tariffs on production. The commenter says that wildlife-related tourism and recreation are common uses of the OCS on both Atlantic and Pacific coasts, with whale watching in Stellwagen Bank National Marine Sanctuary supporting nearly 1,500 jobs and generating $76 million in labor income and $182 million in sales per year. The commenter expresses concern about the potential impacts of seismic airgun testing on marine wildlife, particularly due to the insubstantial oil and gas resources present in these regions. The commenter urges BOEM to conduct a NEPA review of the 11th National OCS Program to ensure environmental impacts and alternatives are fully analyzed. The commenter concludes their submission, reiterating that BOEM should prepare a PEIS as has been done in every other national OCS program development cycle. The commenter states that BOEM should not proceed with considering any of the East or West Coast Planning Areas for inclusion in the 11th National OCS Program, noting that these areas were removed from the 10th National OCS Program following widespread bipartisan opposition. The commenter mentions that opposition has only grown in the intervening years, and potential threats to marine and coastal wildlife, natural resources, economies, and local communities remain.

Bradley Beach Business & Community Alliance
Document ID: BOEM-2025-0015-0007

The commenter expresses opposition to the inclusion of new offshore oil and gas leasing off the coast of New Jersey in the 11th National OCS Oil and Gas Leasing Program. The commenter states that coastal economies like Bradley Beach are built on clean beaches, healthy ecosystems, and tourism and marine industries. The commenter indicates that offshore drilling puts these industries at risk. The commenter suggests that a major spill would have long-lasting consequences for small businesses, fisheries, and jobs that rely on a healthy coastal environment. The commenter writes that potential short-term benefits to energy companies do not outweigh the long-term threats to coastal livelihoods, local industries, and natural resources.

Business Alliance for Protecting the Atlantic Coast; Business Alliance for Protecting the Pacific Coast
Document ID: BOEM-2025-0015-0016

The commenters express strong opposition to new oil and gas lease sales in the next 5-Year OCS Oil and Gas Leasing Program. The commenters state that offshore drilling would damage the ocean recreation, tourism, and fisheries industries that generate over $520 billion annually and support 2.5 million jobs across the United States. The commenters indicate that offshore drilling poses risks of oil spills and would subject communities to environmental impacts. The commenters note that the oil industry currently holds more than 2,000 leases with over 75 percent of ocean acreage unused. The commenters also express concern that oil and gas development disproportionately impacts lower-income communities and communities of color.

Business Alliance for Protecting the Atlantic Coast, South Carolina Small Business Chamber of Commerce
Document ID: BOEM-2025-0015-35246

The commenter expresses opposition to including the Atlantic OCS in the 11th National OCS Oil and Gas Leasing Program. The commenter states that BAPAC has the support of over 42,000 businesses and over 500,000 commercial fishing families that depend on the Atlantic Ocean. The commenter indicates that businesses along the Atlantic in fishing, recreation, and tourism provide nearly 1.4 million jobs and over $95 billion in GDP. The commenter says that no offshore oil and gas lease sales have occurred in the Atlantic region since 1983 and that President Trump withdrew certain waters off North Carolina, South Carolina, Georgia, and Florida from leasing consideration until July 2032. The commenter states that Atlantic governors, state legislators, and citizens have expressed opposition to offshore drilling. The commenter describes the Atlantic OCS as a pristine environment with endangered species and interconnected ecosystems that would be threatened by drilling activities. The commenter indicates that the Atlantic OCS has lower oil and gas potential compared to other regions while facing higher environmental risks, including hurricanes, and adds that the country's status as a net exporter of oil show the national energy market has no clear need for offshore drilling. The commenter expresses concern about reduced environmental oversight capacity due to workforce reductions at agencies responsible for oil spill response. The commenter concludes that environmental risks outweigh potential benefits of Atlantic OCS drilling.

Business Alliance for Protecting the Pacific Coast
Document ID: BOEM-2025-0015-0020

The commenter opposes new oil and gas lease sales in the next 5-Year OCS Oil and Gas Leasing Program. The commenter states that offshore drilling would damage the ocean recreation, tourism, and fisheries industries that generate over $520 billion annually and support 2.5 million jobs. The commenter mentions that oil spills and the damages caused by them are inevitable, citing over 7,300 spills in Federal waters from 2010 to 2022. The commenter indicates that the oil industry currently holds more than 2,000 leases with over 75 percent of that ocean acreage in question unused. The commenter also expresses concern about disproportionate impacts on lower-income communities and communities of color and urges BOEM to account for these inequities in its analysis of potential new sales.

Cape Cod Commission
Document ID: BOEM-2025-0015-25289

The commenter opposes oil and gas development in Federal waters offshore of Cape Cod. The commenter remarks that Cape Cod's economy relies on fishing, tourism, and natural resources. The commenter mentions the Cape Cod Ocean Management Plan (CCOMP), which was developed to complement the Massachusetts Ocean Management Plan in adopting standards for review of offshore development. The commenter writes that CCOMP identified the Cape Cod National Seashore as a region where development activities are prohibited. The commenter expresses concern about potential adverse impacts on sensitive resources, including the critically endangered North Atlantic right whale and other marine species. The commenter also describes two protected areas of national significance within the planning area: the Northeast Canyons and Seamounts Marine National Monument and Stellwagen Bank National Marine Sanctuary.

Center for Oceanic Justice and Social Sustainability
Document ID: BOEM-2025-0015-0014

The commenter recommends that BOEM proceed with the development of a comprehensive National OCS Program incorporating all 27 planning areas while maintaining appropriate environmental safeguards and stakeholder consultation processes. The commenter provides an extensive analysis supporting expanded offshore energy development under the 11th National OCS Oil and Gas Leasing Program. The commenter describes the transition from the restrictive 10th Program to a comprehensive 11th Program covering all 27 OCS planning areas as a fundamental policy shift toward increased domestic energy production. The commenter presents data indicating substantial untapped hydrocarbon potential across all OCS regions, with BOEM's 2021 National Assessment identifying an estimated 68.79 billion barrels of undiscovered oil resources and 229.03 trillion cubic feet of undiscovered natural gas resources. The commenter discusses the economic and national security benefits of OCS development, including Federal revenue generation, employment opportunities, state revenue sharing, and increased American energy independence and strengthened relationship with allies through energy exports.

The commenter continues their discussion of offshore energy development potential, focusing on regional resources and development characteristics. The commenter describes the GOA as the foundation of American offshore energy with 2,186 active leases representing 97 percent of the national total. The commenter identifies Alaska OCS regions as significant frontier opportunities with approximately 38 billion barrels of oil equivalent in undiscovered resources. The commenter presents the Atlantic OCS region as potentially the greatest untapped opportunity with over 10 billion barrels of oil equivalent in undiscovered resources. The commenter also discusses the Pacific OCS region as having 13.06 billion barrels of oil equivalent in undiscovered resources despite significant political and environmental constraints. The commenter reviews the economic and strategic implications of expanded OCS development. The commenter suggests that comprehensive OCS development could generate cumulative economic benefits exceeding $2.3 trillion over five years and potentially eliminate petroleum import requirements. The commenter states that peak production from fully developed OCS resources could approach 8.5 million barrels per day of oil equivalent. The commenter discusses regional economic development opportunities, suggesting that Atlantic region development could require initial infrastructure investments exceeding $340 billion and create an estimated 185,000 direct construction jobs. The commenter also presents Federal revenue implications, indicating that comprehensive development could generate cumulative Federal revenues exceeding $1.4 trillion over thirty years.

The commenter concludes by discussing environmental considerations, strategic implications, and recommendations for the 11th National OCS Program. The commenter suggests that contemporary environmental management frameworks integrate real-time monitoring systems and ecosystem-based management approaches that provide enhanced environmental protection compared to historical practices. The commenter discusses national security implications, including reduced dependence on foreign energy suppliers and enhanced strategic flexibility and the potential workforce development benefits of OCS expansion.

Charleston Beach Foundation
Document ID: BOEM-2025-0015-22517

The commenter opposes the 11th National OCS Oil and Gas Leasing Program. The commenter states that reopening shores to OCS leasing and drilling poses serious threats to ocean habitats and beaches, which in turn threatens small businesses and beach communities in South Carolina and along the Atlantic Coast. The commenter indicates that tourism is the primary source of revenue for coastal communities and would be greatly diminished if beaches were harmed by offshore drilling.

Chesapeake Climate Action Network Action Fund
Document ID: BOEM-2025-0015-24442

The commenter urges BOEM not to move forward with any offshore oil lease sales. The commenter states that offshore drilling causes significant harms to coastal communities' livelihoods and economies, marine ecosystems, and human health. The commenter indicates the U.S. marine economy supported 3.2 million American jobs and produced $369 billion in goods and services in 2024, but these economic activities can be severely impacted by offshore drilling. The commenter states that between 2010 and 2022, more than 7,300 oil spills occurred in Federal waters, averaging one spill per day. The commenter also mentions health impacts on cleanup workers, citing a study showing workers who helped clean up the Deepwater Horizon oil spill were 60 percent more likely to be diagnosed with asthma or suffer from asthma-like symptoms.

Choose Clean Water Coalition
Document ID: BOEM-2025-0015-25308

The commenter urges BOEM to exempt the entire Mid-Atlantic OCS Planning Area from offshore oil and gas exploration and drilling. The commenter states that oil and gas activities would endanger the Chesapeake Bay, the nation's largest estuary, as well as other valuable estuaries, beaches, fisheries, and tourism economies along the Atlantic seaboard. The commenter describes specific concerns about potential impacts to blue crab populations, commercial shipping, military operations at Naval Base Norfolk, and the economic value of Chesapeake Bay, which was estimated to be worth over a trillion dollars. The commenter states that the marine economies from Delaware to North Carolina collectively provide 328,838 jobs and $22.7 billion in GDP, which could be disrupted by oil and gas activities.

Citizens Campaign for the Environment
Document ID: BOEM-2025-0015-25304

The commenter opposes opening the Atlantic Region OCS for oil and gas leasing, exploration, and development and states that the Atlantic does not have active leases. The commenter discusses the environmental dangers of offshore oil and gas activities, referencing the Deepwater Horizon and Exxon Valdez spills, and describes how oil exploration can harm marine wildlife even under normal conditions. The commenter also addresses public health impacts, economic costs to tourism and fishing industries, and climate change concerns and states that BOEM should consider the economic impacts when considering a new program The commenter states that New York is working toward achieving 70 percent renewable energy by 2030 and suggests offshore wind as a better alternative to offshore drilling.

Clean Ocean Action
Document ID: BOEM-2025-0015-25340

The commenter opposes offshore oil and gas development in the New Jersey/New York region, and more specifically within the New York/New Jersey Bight. The commenter describes the region's history of bipartisan opposition to offshore drilling since 1984 and states that New Jersey was the first state to prohibit drilling in state waters through the "STOP Offshore Oil and Gas Act." The commenter details the ecological importance of the NY/NJ Bight, including its diverse marine life and endangered species. The commenter emphasizes the economic value of the clean ocean economy to the region, including tourism, commercial fishing, and property values. The commenter requests that BOEM not consider any East Coast Planning Areas for inclusion in the 11th National OCS Program.

Climate Jobs Rhode Island
Document ID: BOEM-2025-0015-35237

The commenter urges BOEM to focus on offshore wind rather than oil and gas development as it considers how to meet the nation's long-term energy needs. The commenter states that offshore wind offers safer, more reliable, and economically sound opportunities. The commenter indicates that offshore wind supports the creation of high-quality, family-sustaining jobs with good wages and benefits, noting that nearly 150,000 Americans are currently employed in the wind industry. The commenter states that the offshore wind industry is projected to invest $65 billion in projects by 2030, supporting over 56,000 jobs and stimulating economic activity across coastal regions. The commenter suggests that offshore wind leases provide more return on investment per acre than oil and gas leasing and can help secure American energy independence while reducing reliance on imported fuels.

Coalition for San Francisco Neighborhoods
Document ID: BOEM-2025-0015-25277

The commenter expresses opposition to the 11th National OCS Oil and Gas Leasing Program, particularly off the California coast. The commenter questions whether there is a viable business model for California Planning Areas given the high cost of doing business, state and local regulatory requirements, potential legal challenges, and likely reputational damage. The commenter provides background on California's history of restrictions on offshore oil and gas drilling since 1969, including the moratorium placed by the California State Lands Commission. The commenter specifically addresses the Central California Planning Area, arguing that San Francisco is densely populated, near marine sanctuaries, and in a seismically active area. The commenter writes that any new offshore oil and gas drilling in the Central California Planning Area will have to compete with preexisting infrastructure in the San Francisco Bay Area, adding that the California State Lands Commission and the California Coastal Commission could deny new permits for new offshore oil and gas development under the State's Public Trust Doctrine.

COLAB
Document ID: BOEM-2025-0015-25285

The commenter urges BOEM to prioritize annual GOA lease sales in the 11th National OCS Oil and Gas Leasing Program. The commenter states that the offshore oil and gas industry in GOA provides approximately 15 percent of the nation's oil and natural gas supply and is the economic backbone of the Bayou Region. The commenter describes how OCS leasing and energy development in the Gulf supports thousands of jobs, drives small business growth, and sustains critical infrastructure through revenue-sharing programs like the Gulf of America Energy Security Act (GOMESA). The commenter cites an April 2025 economic impact study showing that Louisiana's energy sector supports 306,750 jobs (15 percent of state-wide employment), $25.5 billion in annual earnings (19 percent of state earnings), and $77.7 billion in annual economic value (25 percent of state-wide GDP). The commenter writes that in the Bayou region, the energy sector supports 62,485 jobs, $4.7 billion in annual earnings, and $9.7 billion in annual economic value. The commenter states that continued investment in the Gulf strengthens national energy security and ensures revenue-sharing funds remain available to coastal states for flood protection, hurricane resilience, and wetland restoration.

Conservation Law Foundation
Document ID: BOEM-2025-0015-25344

The commenter opposes any new oil and gas leasing in U.S. ocean waters, focusing specifically on the North Atlantic OCS Planning Area. The commenter states that the Planning Area and related areas afforded additional protection, including Stellwagen Bank, the Northeast Canyons, and Seamounts Marine National Monument, have been withdrawn from offshore oil and gas drilling by prior presidential and/or Congressional actions, and that collective regional advocacy has prevented oil and gas drilling in the area. The commenter asserts that new oil and gas development is unnecessary to achieve national energy objectives and will only exacerbate the climate crisis, and that the OCSLA Section 18(a)(2)(A)-(H) factors weigh against new leasing in the Planning Area. These factors include discussion of important ecological, geological, and geophysical characteristics, consideration of equitable cost and benefit sharing and regional and national energy markets, conflicting uses of the OCS like fishing and other ocean-related industries, and laws of affected states, among other things. The commenter describes the Planning Area as containing just 7 percent of the nation's total unleased undiscovered economically recoverable resources, with the North Atlantic containing only 3 percent of this total. The commenter discusses the importance of the Gulf of Maine and Georges Bank ecosystems, the risks of oil spills to the region's marine economy, including the more than 250,000 jobs and $23.7 billion in economic activity supported by ocean resources in the Northeast, including millions in fisheries across the Atlantic region. The commenter further urges BOEM to complete a PEIS and remove the Planning Area from consideration.

Consumer Energy Alliance
Document ID: BOEM-2025-0015-25303

The commenter supports the preparation of the 11th National OCS Oil and Gas Leasing Program and states that offshore energy production in the GOA and Alaska is important to American energy stability and security. The commenter indicates that the GOA has a carbon intensity 46 percent lower than the global average, supplies 14 percent of the nation's crude oil, and supports an average of 405,000 jobs and over $30 billion in U.S. GDP. The commenter adds that through GOMESA, oil and natural gas production in the Gulf facilitated the distribution of approximately $353 million to four Gulf Coast oil-and gas-producing states in 2023. The commenter urges BOEM to finalize a leasing Program that includes consistent and predictable lease sales and expanded access to additional offshore areas.

Earth Day Mobile Bay, Inc.
Document ID: BOEM-2025-0015-7523

The commenter opposes authorization of Atlantic coast oil and gas exploration and drilling. The commenter states that offshore drilling threatens the environment, public health, coastal economies, and climate goals. The commenter references the Deepwater Horizon spill as an example of the long-term consequences of offshore oil development. The commenter states that expanding fossil fuel infrastructure contradicts climate goals and emissions reduction targets. The commenter expresses concern that offshore drilling disproportionately harms coastal communities of color and economically vulnerable populations. The commenter urges BOEM to exclude all new offshore oil and gas leases and instead invest in clean energy.

Earthjustice, et al.
Document ID: BOEM-2025-0015-35254

The commenter submitted a letter on behalf of multiple organizations opposing the expansion of oil and gas activities in the Gulf of America. The letter states that BOEM has treated the Gulf region as a “sacrifice zone” where marginalized communities bear the health costs and environmental burdens of oil and gas development. The commenter states that BOEM should focus on reducing production in the Gulf and planning for a transition away from fossil fuels rather than expanding offshore drilling. The letter discusses the risks of expanded drilling, including oil spills, impacts on the Rice's whale, and health hazards to Gulf communities. The commenter discusses health impacts from oil spills and exposure to dispersants, the decommissioning crisis in the Gulf, and the increased risks from the current Administration's rollback of safety regulations. The commenter states that BOEM must exclude certain areas from consideration, including areas withdrawn under Section 12(a) of OCSLA, the entire Flower Garden Banks National Marine Sanctuary, the Western Gulf Planning Area, and proposed critical habitat for the Rice's whale. The commenter questions BOEM's authority to lease in modified planning areas, stating that the United States has not established extended areas through bilateral agreements or international legal processes under the United Nations Convention on the Law of the Sea. The commenter states that BOEM must conduct a NEPA review and complete an Environmental Impact Statement (EIS) prior to releasing the final program. The letter concludes that BOEM should abandon its plan to expand offshore oil and gas in the GOA and is signed by representatives from numerous environmental and community organizations. The commenter also provided several additional reference documents in support of their letter.

Earthjustice on Behalf of Alaska Longline Fishermen’s Association, et al.
Document ID: BOEM-2025-0015-35244

The commenter urges BOEM to abandon efforts to replace the current 2024-2029 OCS Program. The commenter states that leasing in much of the Alaska OCS Region, including the North Aleutian Basin, Chukchi and Beaufort Seas, and the North Bering Sea Climate Resiliency Area, would be illegal due to withdrawals under Section 12(a) of OCSLA by Presidents Obama and Biden. The commenter indicates that leasing in the High Arctic Planning Area is inappropriate due to international law concerns and negligible petroleum potential. The commenter describes the risks of oil and gas development in Alaska, including compounding stress of climate change, oil spill response challenges, and threats to coastal communities and wildlife. The commenter mentions that Alaska already bears a disproportionate burden of fossil fuel development despite its small population and there are readily available renewable energy resources that should be explored instead. The commenter describes how climate change is already affecting Alaska, with coastal communities facing “imminent existential threats” due to erosion, melting sea ice, and rising sea levels. The commenter states that if Interior insists on replacing the current program, it must complete an EIS pursuant to NEPA. The commenter also provided several additional reference documents in support of their letter.

Environmental Defense Center, et al.
Document ID: BOEM-2025-0015-35240

The commenter, representing Environmental Defense Center and undersigned organizations, opposes the preparation of the 11th OCS Leasing Program as premature and unnecessary since the 10th National OCS Oil and Gas Leasing Program already covers 2024-2029. The commenter states that if BOEM proceeds, it must comply with applicable laws including: 1) not leasing OCS areas previously withdrawn by President Biden under OCSLA Section 12(a), which includes the Pacific OCS Region; 2) not leasing areas within National Marine Sanctuary boundaries; 3) excluding the Pacific Region based on OCSLA Section 18(a)(2) factors; 4) excluding the Pacific Region based on the OCSLA Section 18(a)(3) balancing test; and 5) excluding specific environmentally sensitive areas. The commenter also states BOEM must prepare an EIS under NEPA, conduct consultation under Section 7 of the ESA, and ensure compliance with the Coastal Zone Management Act. The commenter continues their submission, focusing on the Pacific Region's unique ecological characteristics. The commenter describes the region as home to seven National Marine Sanctuaries designated before July 2008, including the Channel Islands National Marine Sanctuary (designated in 1980) and the Chumash Heritage National Marine Sanctuary. The commenter states that regulations for these sanctuaries explicitly prohibit “exploring for, developing, or producing hydrocarbons” and that BOEM may not issue new leases in these areas. The commenter also discusses the geographical, geological, and ecological characteristics of the Pacific Region that make it inappropriate for new oil and gas leasing, including its diverse ecosystems, Marine Protected Areas, and presence of numerous threatened and endangered species.

The commenter discusses environmental risks and lack of developmental benefits in the Pacific Region. The commenter references past oil spills including the 1969 Santa Barbara spill and 2015 Refugio Beach oil spill, which caused significant environmental damage. The commenter states that wildlife, including threatened and endangered species, face many threats from offshore oil and gas development. The commenter also addresses climate change impacts, stating that new fossil fuel development would exacerbate climate change and conflict with California's renewable energy goals. The commenter discusses the region's importance for other uses including Tribal uses, fisheries, navigation, offshore wind, and recreation, and emphasizes the region's marine productivity and environmental sensitivity. The commenter concludes their submission, stating that BOEM must conduct Section 7 consultation under the ESA for the 11th National OCS Leasing Program as it may affect listed species. The commenter identifies numerous threatened and endangered species that could be affected, including southern sea otter, various whale species, sea turtles, and fish. The commenter also states BOEM must ensure compliance with the Coastal Zone Management Act by providing a consistency determination to the California Coastal Commission. The commenter urges BOEM not to proceed with developing the 11th National OCS Leasing Program, but if it does, to exclude the Pacific Region from any new leasing. The letter is signed by representatives from 25 environmental organizations.

Georgia Conservancy
Document ID: BOEM-2025-0015-25297

The commenter opposes the inclusion of the South Atlantic Planning Area in the 11th National OCS Program. The commenter supports extending the existing moratorium on offshore oil and gas exploration and drilling along the southeast Atlantic coast. The commenter states that oil and gas leases would damage critical ecosystems, disrupt coastal residents' lives and economy, and pose catastrophic risks similar to the Deepwater Horizon event. The commenter describes the South Atlantic Planning Area's valuable marine ecological assets, including Grays Reef National Marine Sanctuary, Blake Plateau's deep-sea coral habitat, North American right whale calving grounds, and salt marsh habitats. The commenter mentions that coastal tourism is a major economic driver in Florida, Georgia, and South Carolina, with the marine economy in this region equaling a $33.3 billion GDP. The commenter adds that 22 cities and counties on the Georgia coast have passed resolutions against offshore drilling, and the Georgia House of Representatives passed a similar resolution in 2019.

Heal the Ocean
Document ID: BOEM-2025-0015-25310

The commenter opposes any new offshore oil and gas leasing in Federal waters off the California Coast as part of the 2025-2030 National OCS Leasing Program and urges BOEM to exclude all areas offshore California from future new lease sales. The commenter requests robust public participation opportunities in Santa Barbara County during all stages of the leasing program's development. The commenter states that California's coastal waters have high marine biodiversity, including habitats supporting threatened and endangered species, and provide ecological, economic, and cultural significance. The commenter references Santa Barbara County's experiences with oil spills in 1969 and 2015 to illustrate the risks of offshore oil leasing. The commenter mentions that Santa Barbara County adopted a Resolution in June 2025 opposing offshore oil and gas lease sales off the California coast, recognizing these waters as essential to the local economy through tourism, recreation, fishing, and clean development.

Healthy Gulf
Document ID: BOEM-2025-0015-25321

The commenter provides input on BOEM's preparation of the 11th National OCS Oil and Gas Leasing Program, emphasizing several key concerns. The commenter focuses on the need for proper decommissioning of underutilized oil and gas infrastructure in the Gulf, stating that leaks, releases, and upsets from old, corroding equipment and pipelines should be addressed before BOEM leases more OCS lands and it represents a significant economic burden to the State of Louisiana. The commenter describes how “idle iron” is hazardous to navigation and a source of pollution, noting that decommissioning could provide employment opportunities for coastal oilfield workers. The commenter states that idle iron is hindering the opportunities to expand wind power development in the Gulf. The commenter also discusses dangers to human health from expanding transport of CO2 to offshore injection wells, potential impacts of expanded oil and gas leasing on the endangered Rice's whale, and the need to protect the “Flower Gardens” reef offshore of Texas. The commenter addresses health impacts from oil and gas exploration and development, noting that increased production would affect communities near refineries and petrochemical industries. Finally, the commenter states that exclusions of leasable areas under OCSLA Section 12(a) by the Biden Administration should remain protected.

Humboldt Waterkeeper and the Environmental Protection Information Center (EPIC)
Document ID: BOEM-2025-0015-35232

The commenters oppose new oil and gas development in the Northern California/Pacific OCS Planning Area. They state that such development would harm Essential Fish Habitat, Tribal/recreational/commercial fisheries, shellfish, migratory birds, and marine mammals. The commenters add that the region has a long history of opposition to oil and gas exploration due to concerns about oil spills, degraded water quality, marine life mortality, impacts to coastal recreation and tourism, and increased noise levels, including from increased vessel traffic, which also threatens whale species in the area. The commenters also note that numerous Native American Tribes in the region have relied on salmon since time immemorial, and oil and gas development could impact already threatened salmon populations and Tribal fishing traditions. The commenters add that there are crucial gaps in scientific knowledge about the environmental sensitivity of the sea floor in the Northern California Planning Area, which makes responsible development more difficult, as environmental impacts are difficult to quantify and mitigate.

Lynnhaven River NOW
Document ID: BOEM-2025-0015-0024

The commenter, representing 15,000 members of Virginia Beach's environmental nonprofit organization, opposes including coastal areas off Virginia in BOEM's Proposed 11th National OCS Oil and Gas Leasing Program. The commenter states that Virginia's coastal waters support over 3,600 species, and routine discharges and oil releases would damage these ecosystems. The commenter indicates that Virginia's coastal economies generate billions of dollars annually and employ thousands of people. The commenter mentions that the Department of Defense has identified the mid-Atlantic Shelf off Virginia as critical for naval training and testing, and that oil rigs would interfere with these activities. The commenter states that expanding fossil fuel extraction contradicts national and international commitments to reduce GHG emissions. The commenter says that over 390 local governments and more than 55,000 businesses nationwide have formally opposed new lease sales. The commenter urges BOEM to exclude Virginia's OCS from any lease sales and instead advance proposals for offshore renewable energy.

Myrtle Beach Residents
Document ID: BOEM-2025-0015-35230

The commenters express opposition to the inclusion of new offshore oil and gas leasing off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenters state that tourism is a $30 billion industry in South Carolina, with Myrtle Beach welcoming over

18 million visitors who contributed more than $13 billion in direct spending in 2024. The commenters add that offshore drilling would be detrimental to the tourism industry and would have environmental consequences on the fishing and boating industry. The commenters reference President Trump's 2020 memorandum prohibiting drilling in the Atlantic Ocean until 2032 and urges BOEM to continue protecting the coast of South Carolina.

National Caucus of Environmental Legislators
Document ID: BOEM-2025-0015-25322

The commenter submits a letter on behalf of 107 state legislators across 19 coastal U.S. States and Territories opposing new oil and gas lease sales in the 11th National OCS Oil and Gas Leasing Program. The commenter references the Deepwater Horizon disaster and its economic impacts, including loss of jobs, industry output, and tax revenues. The commenter mentions the Taylor Energy oil spill that continues to discharge oil into the ocean since 2004, and the Exxon Valdez spill that killed thousands of wildlife. The commenter states that BOEM currently administers 2,227 active oil and gas leases across 12.1 million acres, with only a fifth of leases in the GOA Planning Area being active. The commenter indicates that the Chief Executive Officer of ExxonMobil stated that oil production in America is not currently constrained. The commenter said that current offshore oil and gas leases and infrastructure meet national energy needs. The commenter requests that no new lease sales be included in the 11th National OCS Oil and Gas Leasing Program and that protections for current restricted areas be maintained. The commenter states that new lease sales pose a significant threat to coastal economies on which the country relies.

National Ocean Policy Coalition
Document ID: BOEM-2025-0015-25307

The commenter supports the development of a new leasing program that recognizes the importance of offshore energy resources and makes them available for “expeditious and orderly development, subject to environmental safeguards.” The commenter states that domestic exploration and production of offshore oil and natural gas provides critical contributions to the economy and environment, noting that GOA production accounts for approximately 14 percent of the nation's crude oil production and generated nearly $7 billion in revenue in Fiscal Year 2024. The commenter welcomes BOEM's decision to analyze all offshore planning areas in the Draft Proposed Program and encourages maintaining a broad view throughout program development.

National Ocean Protection Coalition
Document ID: BOEM-2025-0015-26863

The commenter objects to the potential inclusion of protected marine areas, such as National Marine Sanctuaries and Marine National Monuments, in the 11th National OCS Oil and Gas Leasing Program. The commenter states that both Republican and Democratic Administrations have historically excluded these protected areas from lease sale planning. The commenter cites a 2022 survey indicating that 70 percent of Americans support prohibiting oil and gas drilling in

Marine Protected Areas, and 86 percent prioritize protecting ocean areas with environmental, educational, or cultural importance. The commenter urges the Administration to exclude these withdrawn areas from the leasing plan.

Natural Resources Defense Council, et al.
Document ID: BOEM-2025-0015-35253

The commenter, representing 77 organizations, opposes the development of a new offshore leasing program. The commenter states that the current leasing Program does not expire until 2029, and Interior is under no legal obligation to finalize a new Program until then. The commenter suggests Interior's resources would be better spent advancing renewable energy and improving safety measures for existing fossil fuel operations. The commenter indicates that transitioning from fossil fuels to renewables is critical for combating climate change, and that offshore drilling threatens marine environments, wildlife, and coastal communities. The commenter describes that BOEM cannot offer sales in areas permanently protected under Section 12(a) of OCSLA and should not offer leasing in marine sanctuaries or monuments. The commenter requests BOEM to consider climate change impacts, potential harm to wildlife, impacts on coastal communities, and environmental sensitivity in its analysis. The commenter discusses the economic impacts of the Deepwater Horizon oil spill, including $247 million in losses from fisheries closures and 25,000 jobs lost by 2020. The commenter describes health impacts on Gulf South communities from oil and gas industry pollution, noting that Black and impoverished communities experience higher cancer risks from toxic air pollution. The commenter discusses Arctic planning areas sensitive marine habitats and the negative impacts from exploration activities. The commenter states that there is no market demand for additional oil and gas development and that BOEM should consider renewable energy potential as it balances the need for a new program. The commenter also requests BOEM prepare a NEPA PEIS to analyze environmental impacts and consider alternatives. The commenter also provided several additional reference documents in support of their letter.

New England for Offshore Wind
Document ID: BOEM-2025-0015-35259

The commenter, representing a coalition of environmental organizations, academic institutions, and businesses, opposes oil and gas exploration in the Gulf of Maine and Atlantic OCS Region. The commenter states that oil and gas drilling will not provide the same environmental and economic benefits as offshore wind. The commenter describes that Georges Bank and the Gulf of Maine have been prime commercial fishing grounds for over 600 years and are home to endangered species and fragile marine ecosystems. The commenter mentions that previous exploratory drilling in the region during the late twentieth century did not find viable reserves. The commenter indicates that offshore wind is New England's best opportunity for new sources of clean, renewable energy, and could provide nearly 50 percent of the region's electricity by 2050, helping states achieve their emissions reduction goals.

North Carolina Coastal Federation
Document ID: BOEM-2025-0015-25282

The commenter expresses opposition to the inclusion of any lease sales off the coast of North Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states that offshore oil and gas development threatens North Carolina's coastal economy, which, in 2023, generated approximately $6.8 billion in GDP and supported more than 30,000 jobs. The commenter shares concerns that seismic blasting and risk of spills will threaten marine life and the fishing industry, adding that North Carolina's marine environment is among the most biodiverse on the Atlantic seaboard. The commenter also mentions that offshore drilling is incompatible with national security operations in the region. The commenter remarks that there is widespread bipartisan opposition to offshore drilling in North Carolina, with 42 municipalities and 7 counties having passed resolutions against it and 22 members of the North Carolina General Assembly having expressed opposition. The commenter recommends permanently excluding North Carolina's coastal waters from leasing, upholding protections established by the 2020 Presidential Memorandum, and prioritizing renewable energy development.

Ocean Conservancy
Document ID: BOEM-2025-0015-25296

The commenter recommends delaying preparation of the 11th National OCS Oil and Gas Leasing Program and continuing under the existing 2024-2029 Program, which is valid until June 30, 2029. The commenter states that if BOEM proceeds with developing a new program, it should include no new oil and gas lease sales. The commenter states that should BOEM decide to move forward with the 11th National OCS Oil and Gas Leasing Program, they should exclude all areas withdrawn by previous presidential Administrations, as well as all marine sanctuaries and marine national monuments. The commenter says that BOEM should not offer leases in any other areas of the OCS that have not been previously withdrawn. The commenter describes adverse impacts of offshore oil operations, including oil spills, subsea noise, vessel strikes on marine mammals, and climate impacts. The commenter states that additional offshore oil leasing is not needed for the nation's energy needs, as the U.S. is already the world's largest oil producer and companies already own hundreds of unused OCS leases. The commenter recommends BOEM focus on expediting responsible development of offshore wind and other marine renewable energy sources. The commenter states that BOEM should prepare a PEIS to analyze alternatives and impacts of potential OCS oil and gas lease sales. The commenter recommends BOEM consider direct, indirect, and cumulative impacts, including climate, ocean acidification, ecosystem, and community impacts from oil and gas activities. The commenter states that BOEM should analyze the production and use of petrochemicals derived from oil and gas, particularly oil-based plastics which have substantial climate change impacts and cause other air, water, and health effects.

Ocean Conservation Research
Document ID: BOEM-2025-0015-25268

The commenter expresses opposition to the 11th National OCS Oil and Gas Leasing Program, stating that it disregards the work done on the 10th Program approved in December 2023. The commenter adds that the 2024 plan reflected public sentiment against offshore drilling after the widespread rejection of the 2017 “drill on all coasts” plan. The commenter states that only 20 percent of the 12 million acres currently leased in the Gulf of America are under production, suggesting limited industry interest in expansion. The commenter describes the “Energy Emergency” declaration as a manufactured crisis benefiting wealthy players at the expense of others, and as such, the 11th National OCS Oil and Gas Leasing Program should not be encouraged.

Oceana, Inc.
Document ID: BOEM-2025-0015-25312

The commenter opposes the development of the 11th National OCS Oil and Gas Leasing Program. The commenter states that BOEM should not waste time, money, or effort on prematurely developing a new program and should instead focus on protecting vital coastal and marine resources. The commenter indicates that if BOEM moves forward, it should not schedule any new lease sales and must not offer leases in protected areas including permanently protected areas, National Marine Sanctuaries, or Marine National Monuments. The commenter discusses the reliance of coastal states’ economies on the fisheries, beaches, and tourism they support. The commenter requests BOEM to drop consideration of leasing in claimed Extended Continental Shelf areas, consider coastal opposition to oil and gas activities, and protect endangered species including the North Atlantic right whale. The commenter states that BOEM must comply with NEPA requirements by conducting an EIS and must consider other laws such as the ESA, Coastal Zone Management Act, and Marine Mammal Protection Act at further stages of program development. The commenter provides extensive information about the risks of offshore drilling including oil spills, pollution, impacts on marine life, threats to national security, and climate change. The commenter discusses why BOEM should exclude Atlantic, Pacific, Alaska, and Gulf planning areas from consideration, citing economic importance of coastal economies, marine biodiversity, cultural significance, and previous oil spill disasters.

One Hundred Miles
Document ID: BOEM-2025-0015-20128

The commenter urges the Administration to uphold the 10-year moratorium on oil and gas development in the South Atlantic planning area, which was signed by President Donald Trump in 2020 and prohibits leasing of Federal offshore lands in Florida, South Carolina, and Georgia from 2022 to 2032. The commenter states the moratorium was enacted due to strong opposition from coastal communities and elected officials, and there are substantial conflicts with military operations, historic communities, and commercial uses of the ocean. The commenter provides detailed information about Georgia's coastal economy, protected species (including North

Atlantic right whales, sea turtles, and numerous bird species), protected habitats, barrier islands, and military operations that could be affected by offshore drilling. The commenter indicates that the estimated oil reserves off the South Atlantic Coast would only meet one month of domestic energy demand. The commenter opposes including the South Atlantic, particularly Georgia, in BOEM's 11th National OCS Oil and Gas Leasing Program. The commenter describes Georgia's coast as economically dependent on tourism and commercial fishing, with these industries generating billions in revenue and supporting thousands of jobs. The commenter mentions that Georgia's coast contains important ecological areas including 368,000 acres of productive saltmarshes and critical habitat for the endangered North Atlantic right whale. The commenter states that oil and gas development would lead to industrialization of the coast, potential oil spills, and environmental damage. The commenter indicates that numerous Georgia communities have passed resolutions opposing offshore drilling, the Georgia House of Representatives adopted a resolution opposing oil exploration off Georgia's coast, and Congressman Buddy Carter requested Georgia be exempted from the 5-year leasing plan.

Outdoor Alliance
Document ID: BOEM-2025-0015-25244

The commenter expresses strong opposition to new oil and gas leasing in the next 5-Year OCS Oil and Gas Leasing Program. The commenter states that the Federal offshore drilling Program directly impacts ocean recreation, tourism, and fisheries industries that generate more than $520 billion annually and support 2.5 million jobs. The commenter indicates these industries depend on clean beaches and waters, abundant wildlife populations, and scenic viewsheds that would be compromised by offshore drilling expansion, in part due to the ever-present risk of oil spills. The commenter requests protection of all U.S. waters from new oil and gas leasing.

Polar Bears International
Document ID: BOEM-2025-0015-25316

The commenter provides research summaries regarding how oil and gas development in the Chukchi Sea, Beaufort Sea, and High Arctic may impact polar bear habitat and asserts that BOEM should consider the research during preparation of the 11th National OCS Oil and Gas Leasing Program. The commenter presents research on polar bear disturbance and detection, showing that industrial activities can disturb denning polar bears, with aircraft having the highest potential for causing den abandonment. The commenter also presents research on other threats and stressors to polar bears, including sea ice loss from climate change, and research on polar bear swimming behavior and population dynamics. The commenter states that polar bears are protected under the ESA and Marine Mammal Protection Act.

Responsible Offshore Development Alliance
Document ID: BOEM-2025-0015-25269

The commenter provides recommendations regarding the responsible development and preparation of the 11th National OCS Oil and Gas Leasing Program. The commenter requests that

BOEM: 1) develop PEIS by region if leasing moves forward; 2) engage in collaborative partnerships with the fishing industry to identify smaller, more acceptable lease areas; 3) consider conflicts with fisheries including environmental impacts, access constraints, safety concerns, disruptions to scientific surveys, increased competition for limited spaces, and coordination failures; and 4) complete a PEIS evaluating cumulative impacts of offshore energy survey efforts prior to additional activity. The commenter includes an appendix with detailed recommendations for improving BOEM's approach to offshore energy development, including improving environmental review, removing barriers to participation in the planning and permitting processes, ensuring navigational safety, monitoring environmental and fisheries impacts, and supporting business and community longevity.

ReThink Energy Florida
Document ID: BOEM-2025-0015-25302

The commenter expresses firm opposition to the inclusion of new offshore oil and gas leasing off the coast of Florida in the 11th National OCS Oil and Gas Leasing Program. The commenter states that coastal economies depend on clean beaches, healthy ecosystems, and vibrant tourism and marine industries. The commenter references the Deepwater Horizon disaster of 2010, stating that oil and gas activity can negatively affect tourism, property values, and investor confidence. The commenter said that offshore drilling and seismic blasting are not in the best interest of their community or economy, and that potential short-term benefits to energy companies do not outweigh long-term threats to coastal livelihoods, local industries, and natural resources.

Santa Barbara Channelkeeper
Document ID: BOEM-2025-0015-25319

The commenter opposes the inclusion of new offshore oil leasing off the coast of California. The commenter mentions the 2015 All Plains oil spill which damaged sensitive areas of the Gaviota Coast and asserts that the value of protecting California's coastal resources exceeds any benefit that might come from offshore oil and gas development. The commenter describes the Santa Barbara Channel as one of the most biologically productive ecosystems on Earth with unparalleled species density and diversity, including numerous endangered, threatened, and sensitive marine species, including blue, gray, and humpback whales, southern sea otter, and brown pelican. The commenter states that tourism and recreation contribute $17.6 billion to California's ocean economy GDP and account for 75 percent of California's ocean economy employment, while commercial fishing generates an average of $150 million annually, and asks that BOEM exclude the California OCS Planning Areas from consideration in the 11th National OCS Oil and Gas Leasing Program.

Save Our Shores
Document ID: BOEM-2025-0015-7489

The commenter opposes proposed oil and gas lease sales in the next 5-Year OCS Oil and Gas Leasing Program. The commenter states that nearly every East and West coast governor has expressed concerns about expanded drilling, and approximately 400 municipalities, 2,500 elected officials, 59,000 businesses, and 500,000 fishing families have formally opposed new offshore oil and gas development. The commenter describes how oil spills affect habitats, marine organisms, birds, and mammals. The commenter states that 40 percent of Americans live in coastal counties that rely on healthy oceans, noting that California's ocean economy contributes $44 billion to the state's GDP. The commenter requests protection of coastal and marine ecosystems, particularly National Marine Sanctuaries.

Sea Turtle Conservancy
Document ID: BOEM-2025-0015-25254

The commenter urges BOEM not to issue lease sales in protected areas when developing the 11th National OCS Oil and Gas Leasing Program. The commenter states that five species of federally listed threatened or endangered sea turtles utilize the GOA for reproduction, feeding, migration, and refuge. The commenter describes research showing that the Gulf is particularly important for the Northwest Atlantic leatherback sea turtle population, with high-use habitats overlapping with high-density areas of oil and gas platforms off the coasts of Alabama, Mississippi, and Louisiana. The commenter adds that the Gulf hosts extensive seagrass Sargassum habitat that is used for the survival of juvenile turtles. The commenter explains that oil spills can impact sea turtles at all life stages by contaminating nests, causing turtles to inhale oil vapors, and killing or contaminating prey. The commenter references the Deepwater Horizon oil spill, which killed thousands of sea turtles, and states that sea turtles are valuable to Florida's economy through its tourism industry.

Sierra Club Santa Barbara
Document ID: BOEM-2025-0015-20407

The commenter urges support for the Santa Barbara County Board of Supervisors and requests that BOEM not continue with developing a new OCS Leasing Program. The commenter states that families across Santa Barbara County oppose the leasing Program outlined in the Federal Register. The commenter indicates that the Santa Barbara County coast fuels the local economy and supports biodiversity.

SODA
Document ID: BOEM-2025-0015-20585

The commenter opposes including the Atlantic OCS in the 11th National OCS Oil and Gas Leasing Program. The commenter states the U.S. is already energy independent with sufficient excess production to export oil and gas, and oil companies already have access to additional OCS oil leases with over 77 percent of current leased acres unused and non-producing. The commenter describes South Carolina's coastal economy, writing that tourism outperforms oil by a ratio of 27:1. The commenter mentions that saltwater fishing in South Carolina has a total economic impact of over$1.3 billion and employs 20,000 South Carolinians while generating over $431 million in salaries and wages. The commenter expresses concern about seismic air gun surveying harming marine mammals and the risk of oil spills, citing 2,440 oil spills in the GOA between 1964 and 2015, adding that hurricanes in the region increase the risk of spills. The commenter mentions strong bi-partisan opposition to offshore drilling in the region, including from Governor Henry McMaster, State Representatives, Congressional Representatives, and County councils.

Soroptomist International-Mendocino Sonoma Coast
Document ID: BOEM-2025-0015-30183

The commenter expresses opposition to offshore oil drilling on the Mendocino Coast, stating there is too much risk of destroying the environment and economy. The commenter writes that fishing is an important part of the economy of Mendocino County, and offshore drilling could potentially disrupt the natural cycle associated with marine life, including the migration of whales that travel year-round up and down the coast.

South Carolina Coastal Conservation League
Document ID: BOEM-2025-0015-25294

The commenter requests that the South Atlantic zone be removed from consideration in the 11th National OCS Oil and Gas Leasing Program. The commenter states that offshore drilling would pose a serious threat to South Carolina's local environment, communities, $6.5 billion marine economy, and $29 billion tourism industry. The commenter describes the cultural heritage, historical significance, and unique biodiversity of coastal South Carolina. The commenter states that the South Atlantic zone has limited economically recoverable reserves, estimated at only about 140 million barrels of oil (approximately a seven-day supply for the U.S.). The commenter mentions potential harm to endangered species, including the critically endangered North Atlantic right whale, and damage to the Blake Plateau coral habitat. The commenter adds that South Carolinians, state leaders, businesses, and local governments are overwhelmingly opposed to offshore drilling.

Southern Environmental Law Center
Document ID: BOEM-2025-0015-35236

The commenter, representing 45 organizations, opposes including the Atlantic Planning Areas in the 11th National OCS Program. The commenter states that opening areas of the Atlantic OCS to offshore drilling and seismic activities poses a direct threat to the region's ecosystems, ocean economy, and the millions of people whose livelihoods depend on coastal resources. The commenter references the 2010 BP Deepwater Horizon disaster and the recent Garden Island Bay oil spill as evidence that offshore oil drilling is not safe. The commenter also states that BOEM cannot authorize oil and gas activities in areas withdrawn under Section 12(a) of the OCSLA and states that OCSLA Section 18 factors make clear that the Atlantic Planning Areas should be removed from consideration.

The commenter discusses how offshore drilling would conflict with numerous ocean uses on the Atlantic OCS. The commenter states that the ocean economy supported more than 290,000 jobs and $11.4 billion in wages throughout Virginia, North Carolina, South Carolina, and Georgia in

2021, contributing nearly $23.3 billion in GDP to the region. The commenter describes how commercial fishing, recreational fishing, tourism, and national security operations would be negatively impacted by offshore oil and gas activities and that several communities and states in the region have opposed drilling off the coast through policies, state laws, and local resolutions. The commenter discusses US Navy and NASA facilities in the region, stating that operations, training, and security could be jeopardized by expanded oil and gas development. The commenter also discusses the ecological significance and sensitivity of the Mid- and South Atlantic coastal and marine ecosystems, including unique geological features, benthic environments, submarine canyons, hard and live bottom habitats, and deepwater coral systems. The commenter discusses the risks of offshore drilling in the Southeast, particularly related to hurricanes and tropical storms. The commenter references past incidents where hurricanes damaged oil infrastructure, including the 16-year leak following Hurricane Ivan and the 11 million gallons of crude oil spilled after Hurricanes Katrina and Rita. The commenter states that the Mid- and South Atlantic Planning Areas do not have substantial oil and gas resources, containing just 6 percent of the nation's technically recoverable offshore oil and gas. The commenter concludes that the risks of offshore drilling in the Atlantic would outweigh any potential benefits, especially given that the United States is already a net energy exporter and producing more oil and gas than it needs.

St. Johns Riverkeeper
Document ID: BOEM-2025-0015-25314

The commenter expresses opposition to new oil and gas exploration and lease sales in Federal waters and requests that BOEM not pursue such activities through a new Five-Year Plan. The commenter states that oil spills and seismic blasting would pose significant risks to Florida's beaches, coastal communities, the St. Johns River estuary, fisheries, and marine life. The commenter says that over 75 percent of Floridians live in coastal counties, and coastal waters and estuaries are vital to local economies and tourism, supporting thousands of jobs and businesses. The commenter mentions that Florida voters overwhelmingly oppose offshore drilling off the coast of their state and urges BOEM to prioritize the protection of coasts and estuaries in the upcoming leasing program.

Surfrider Foundation
Document ID: BOEM-2025-0015-26718

The commenter opposes offshore oil drilling, stating that oceans, waves, and beaches are vital recreational, economic, and ecological treasures that would be polluted by expanded drilling. The commenter describes offshore drilling as a dirty and dangerous practice that damages the tourism, recreation, and fishing industries of coastal communities. The commenter states that even without accidents, drilling releases polluted water and toxic substances, and that spills are inevitable. The commenter adds concerns about climate change exacerbating damages from offshore drilling. The commenter suggests that the U.S. does not need oil from offshore drilling, as reserves would provide only 758 days of supply, and advocates for investment in renewable energy instead.

Surfrider Foundation
Document ID: BOEM-2025-0015-25265

The commenter strongly opposes any new oil and gas lease sales in the 11th OCS Oil and Gas Leasing Program. The commenter states that offshore oil and gas development would harm marine ecosystems, wildlife, coastal communities, and recreation, tourism, and fisheries industries. The commenter cites OCSLA requirements for balancing environmental damage against potential oil and gas discovery, including the many factors for consideration that weigh against leasing. The commenter discusses damages to the environment from routine development, including toxic drilling muds and increased noise levels, in addition to the damages from potential oil spills. The commenter expresses concern about damages to the tourism economy that generates over $240 billion annually, as well as recreational and commercial fisheries, which lost $247 million just from the BP oil spill. The commenter raises environmental justice concerns about concentrated impacts in the Gulf of America region, especially on communities of color and lower-income communities who bear the brunt of development impacts. The commenter adds a discussion of climate change impacts of new leasing, including increases in GHG emissions and conflicts with state emissions standards. The commenter describes public opposition to offshore drilling, including from nearly 400 municipalities, 2,500 elected officials, 59,000 businesses, and 500,000 fishing families.

Surfrider Foundation
Document ID: BOEM-2025-0015-25326

The commenter expresses strong opposition to new oil and gas lease sales in the next 5-Year OCS Oil and Gas Leasing Program, specifically requesting protection for the Central and Northern California OCS Planning Regions. The commenter states that offshore oil and gas development would cause significant negative impacts to marine ecosystems, wildlife, coastal communities, and tourism industries. The commenter says that an overwhelming majority of the public opposes new offshore oil and gas drilling, with nearly 400 municipalities, 2,500 elected officials, 59,000 businesses, and 500,000 fishing families formally opposing such development. The commenter mentions that ocean recreation, tourism, and fisheries industries generate over $520 billion annually and depend on clean coastal environments. The commenter references the 2007 Cosco Busan oil spill in San Francisco Bay, which had cleanup costs of $70 million and required $32.3 million for restoration.

Surfrider Foundation
Document ID: BOEM-2025-0015-25337

The commenter, along with multiple Southern California Surfrider Foundation chapters, expresses strong opposition to new oil and gas lease sales in the next 5-Year OCS Oil and Gas Leasing Program, and specifically requests the protection of the Southern California OCS planning area from new oil and gas development. The commenter describes how offshore oil and gas development would negatively impact marine ecosystems, wildlife, coastal communities, and tourism industries that collectively generate over $520 billion in revenue annually. The commenter references recent oil spills in Southern California, including the 2021 Amplify Energy pipeline rupture and the 2015 Plains All American pipeline rupture, as evidence of the risks. The commenter also mentions disproportionate impacts on lower-income communities and communities of color.

Surfrider Foundation - Florida Chapters
Document ID: BOEM-2025-0015-19992

The commenter expresses strong opposition to new lease sales in the Proposed 2024-2029 OCS Oil and Gas Leasing Program. The commenter states that Florida's economy depends on clean beaches and a healthy environment, with tourism employing 2.1 million Floridians and generating about $127.7 billion in direct GDP contributions annually. The commenter discusses the harmful impacts of oil and gas development, including seismic surveys, oil transport, and installation of infrastructure, on Florida's economy, communities, and environment, referencing the 2010 Deepwater Horizon event which caused significant economic, environmental, and community well-being impacts along Florida's Gulf Coast. The commenter states that nearly 100 municipalities in Florida have formally opposed oil and gas development, joining 300 municipalities, 2,500 elected officials, 59,000 businesses, and 500,000 fishing families across the United States. The commenter states that new oil and gas leasing is not needed to meet the nation's energy needs, as the U.S. has been a net oil exporter since 2020 and oil companies already have stockpiled unused leases.

Surfrider Foundation Oregon Chapters
Document ID: BOEM-2025-0015-35241

The commenter expresses strong opposition to including any areas off the Oregon coast in the 11th National OCS Oil and Gas Leasing Program. The commenter identifies four main areas of concern: 1) inconsistency with state law, land use, and historical OCS resource analyses, noting Oregon has consistently opposed oil and gas leasing since the 1960s and has enacted laws prohibiting such development; 2) low oil and gas potential of the Oregon and Washington OCS, citing geological limitations and questionable economic viability; 3) potential negative impacts on the human environment and economic resources, including tourism, recreation, and commercial and recreational fisheries that generate billions in economic output; and 4) clear public opposition demonstrated through municipal resolutions, public comments, and community-level responses. The commenter requests protection of the Pacific Coast from oil and gas exploration and development activities.

Surfrider Foundation Southeast Chapters
Document ID: BOEM-2025-0015-35245

The commenters express strong opposition to new oil and gas lease sales in the next 5-Year OCS Oil and Gas Leasing Program, specifically asking for protection of the coasts of Virginia, North Carolina, South Carolina, Georgia, and all other U.S. waters from new oil and gas development. The commenters states that offshore oil and gas development would cause significant negative impacts to marine ecosystems, wildlife, coastal communities, and tourism industries. The commenters mentions that nearly 400 municipalities, 2,500 elected officials, 59,000 businesses, and 500,000 fishing families across the United States have formally opposed new offshore oil and gas development. The commenters also express concern that oil and gas development disproportionately impacts lower-income communities and communities of color.

Sustainable Plymouth
Document ID: BOEM-2025-0015-25272

The commenter expresses opposition to offshore oil and gas drilling near the coast of Plymouth, Massachusetts. The commenter describes Plymouth as the largest town in Massachusetts with 37 miles of coastline that hosts over 1.5 million tourists annually. The commenter states that Plymouth's economy depends on tourism, restaurants, shops, hotels, fishing, and aquaculture. The commenter indicates that oil drilling and the potential risk of an oil spill threaten these sources of revenue, writing that the perception of risks from drilling could deter investments, decrease property values, harm tourism, and affect the town's fiscal health. The commenter states that the country became energy independent five years ago and is the largest exporter of natural gas in the world, suggesting that more oil and gas is not needed.

The Center for Biological Diversity
Document ID: BOEM-2025-0015-24917

The commenter expresses strong opposition to the expansion of oil and gas activities in each of the OCS regions: the Atlantic, the GOA, the Pacific, and all waters off of Alaska. The commenter states that expanded offshore drilling will exacerbate the climate crisis, threaten oil spills that would harm fisheries and coastal economies, cause dangerous air and water pollution, destroy habitats, and harm imperiled wildlife and frontline communities. The commenter indicates BOEM cannot offer areas currently protected by presidential action or Federal law and lists a few past presidential proclamations and memorandums to this end. The commenter adds that oil and gas lease sales cannot be considered in designated National Marine Sanctuaries and lists a handful of National Oceanic and Atmospheric Administration (NOAA)-designated marine sanctuaries as examples. The commenter reasons that BOEM must consider environmental impacts of decommissioning delays, including impacts on surrounding wildlife and methane leaks into the atmosphere, and expresses concern about the current “decommissioning crisis” in the Gulf due to inaction by the fossil fuel industry. The commenter provides extensive information about decommissioning issues, including that 75 percent of end-of-lease and idle infrastructure in the Gulf was overdue for decommissioning as of 2023. The commenter asserts that BOEM must identify lease areas “as precisely as possible” and cannot take an “area-wide approach,” as such an approach makes NEPA review difficult and does not account for differing ecological regions. The commenter adds that BOEM must analyze national energy needs when evaluating the reasoning for more offshore leasing, especially given the millions of acres already leased, many of which are currently inactive. The commenter also asks that BOEM consider the costs associated with offshore drilling and in particular discusses risks of offshore fracking and potential oil spills, methane and other GHG leaks, costs of onshore infrastructure and hurricane damage to these structures, and impacts to migratory species like sea turtles, seals, and certain species of birds. The commenter also urges BOEM to consider the cumulative impacts of past leases and factor in decommissioning costs when deciding whether to expand oil and gas development.

The Florida Keys Environmental Coalition (fkec.org)
Document ID: BOEM-2025-0015-22906

The commenter expresses opposition to any consideration for opening submerged lands for offshore leasing for oil prospecting, testing, drilling, or production. The commenter describes how their organization formed in response to the Deep Water Horizon oil spill in 2010, and states that the harms of the Deep Water Horizon disaster are still being researched 15 years later. The commenter suggests that instead of offshore drilling, the U.S. should transition to a Green Hydrogen economy, which they state can be produced directly from seawater using renewable energy technologies. The commenter indicates that Green Hydrogen would mean no GHG emissions and could utilize existing gas station distribution networks.

The Nature Conservancy
Document ID: BOEM-2025-0015-25323

The commenter provides input on BOEM's preparation of the 11th National OCS Oil and Gas Leasing Program. The commenter requests BOEM evaluate several factors when developing the new National OCS Program, including coastal economic health, related state and Federal policy considerations, and designated management areas. The commenter emphasizes the importance of coastal economies, which contribute over $10 trillion in goods and services annually and support 54.6 million jobs, and says that while mineral extraction accounts for 29 percent of coastal GDP, it only provides 3 percent of employment. The commenter also discusses the need to consider regional planning efforts, state policy constraints, and designated management areas that protect sensitive habitats.

The commenter urges BOEM to effectively engage with Tribal Nations and Indigenous Peoples by applying policies outlined in BOEM's Tribal Nation and Indigenous Peoples Engagement Strategy. The commenter discusses potential impacts to protected species and sensitive habitats including hard-bottom habitats, the California Current ecosystem, kelp forests, coastal wetlands, oyster reefs, and seagrass beds. The commenter expresses concern about ecological data gaps in the OCS, particularly in areas beyond the continental shelf, and states that areas with insufficient data should not be mistaken as suitable for leasing. The commenter also discusses oil spill risks and the shift toward renewable energy sources, suggesting that responsible low-emission energy development can meet future energy needs better than new offshore oil/gas development.

The Pew Charitable Trusts
Document ID: BOEM-2025-0015-25264

The commenter requests that BOEM exclude any lease sales in the Northern Bering Sea, including the Hope, Norton Sound, St. Matthew-Hall, Navarin Basin, Aleutian Basin, and St.

George Basin planning areas. The commenter describes the Northern Bering Sea as culturally and ecologically significant, supporting the subsistence culture of Indigenous peoples and marine mammal migrations, including whales, walruses, and ice seals, and expresses concern about the impact of oil and gas leasing on the region. The commenter describes a persistent lack of industry interest in the region, broad opposition to leasing from Tribes and communities, inadequate spill response capability, and legal withdrawals of the area from leasing consideration as reasons to exclude these areas from leasing. The commenter encourages BOEM to work with Northern Bering Sea Tribes through formal consultation and co-stewardship frameworks.

The Undersigned 20 New England Based Organizations and Communities
Document ID: BOEM-2025-0015-35239

The commenter, representing 20 New England-based organizations, strongly opposes any new oil and gas leasing, exploration, and development in U.S. ocean waters, particularly off the New England coast. The commenter urges BOEM to exclude the North Atlantic OCS Planning Area from the 11th National OCS Program. The commenter cites concerns about oil spills, referencing the 1976 Argo Merchant spill off Nantucket Island that released nearly 8 million gallons of oil. The commenter states that oil and gas drilling would fuel the climate crisis, increase risks to coastal communities, and potentially devastate marine life including fish populations that New England fishermen have relied upon for centuries. The commenter describes the North Atlantic OCS Planning Area as encompassing some of the most productive ecosystems in the world, including the Northeast Canyons and Seamounts Marine National Monument, Stellwagen Bank National Marine Sanctuary, and Georges Bank. The commenter states that offshore drilling jeopardizes coastal businesses and activities that currently support more than 250,000 jobs, $23.7 billion in economic activity, and $12.2 billion in wages in the region.

Treasure Coast Regional Planning Council
Document ID: BOEM-2025-0015-6552

The commenter states that oil and gas leasing and drilling in the South Atlantic, Straits of Florida, and GOA planning areas would conflict with Regional Goals 6.4 and 6.5 in the Strategic Regional Policy Plan concerning protection of beachfront, environmentally sensitive coastal and marine resources, and estuarine resources. The commenter indicates that petroleum spills would damage the region's ecosystem and negatively impact tourism, property values, and the economy, referencing the long-term damage from the Deepwater Horizon spill. The commenter states this would conflict with Strategy 3.3.1 of Regional Goal 3.3 regarding maintaining features that attract tourists. The commenter suggests continuing the current National OCS Program (2024-2029) and directing efforts toward renewable energy sources such as ocean current energy, offshore wind, and solar, which do not present risks of petroleum spills.

Turtle Island Restoration Network
Document ID: BOEM-2025-0015-25300

The commenter strongly opposes the expansion of oil and gas activities in all OCS regions, including the Atlantic, Gulf of America, Pacific, and Alaskan waters. The commenter discusses environmental risks, stating that offshore drilling causes severe damage to marine habitats through seismic blasting, increased vessel traffic, oil spills, and infrastructure development. The commenter references the 2010 Deepwater Horizon disaster and ongoing environmental pollution in the Gulf of America. The commenter also discusses public health risks to frontline communities, particularly in the Gulf of America, where communities suffer from higher rates of asthma, respiratory illness, and cancer due to fossil fuel and industrial facilities. The commenter questions the economic value of offshore drilling, adding that the industry has cut its workforce by 40 percent in the past decade while increasing production by 60 percent through automation and Artificial Intelligence (AI).

Visit Pensacola
Document ID: BOEM-2025-0015-25295

The commenter expresses opposition to the inclusion of new offshore oil and gas leasing off the coast of Florida in the 11th National OCS Oil and Gas Leasing Program. The commenter states that coastal economies like Pensacola are built on clean beaches, healthy ecosystems, and vibrant tourism and marine industries. The commenter describes how the 2010 Deepwater Horizon disaster caused $2.04 billion in lost tourism industry output in northwest Florida alone and $17.2 billion in ecological damage to the Gulf. The commenter states that the potential short-term benefits to energy companies do not outweigh the long-term threats to coastal livelihoods, local industries, and natural resources.

Waterkeeper Alliance
Document ID: BOEM-2025-0015-25301

The commenter strongly opposes the inclusion of any new lease sales in the forthcoming 11th National OCS Oil and Gas Leasing Program. The commenter states that continued leasing for offshore oil and gas exploration is incompatible with national goals for clean water, energy security, and economic prosperity. The commenter discusses how offshore drilling exacerbates climate change, stating that with most new oil and gas extraction moving to oceans, it has become a major driver of GHG emissions. The commenter states that the U.S. does not need more offshore oil and gas drilling to achieve energy security, as it is already a net energy exporter. The commenter also discusses threats to clean water, marine ecosystems, and local economies, referencing the 2010 Deepwater Horizon disaster and noting that between 2010 and 2019, there were at least 5,900 oil spills in the U.S.

Federal Agencies

Department of Defense
Document ID: EMAIL-001

The commenter states that the Department of Defense has maintained a close relationship with BOEM throughout the leasing process and thanks BOEM for informing the DoD of the initiation process to prepare a new National OCS Oil and Gas leasing Program. The commenter reiterates its commitment to balancing national security requirements and economic priorities and continue prioritizing preservation of specialized areas that are critical to national defense. The commenter expresses interest in continuing to coordinate with BOEM on future endeavors.

Mid Atlantic Fishery Management Council
Document ID: BOEM-2025-0015-23673

The commenter expresses opposition to oil and gas exploration and development in the Mid-Atlantic region. The commenter provides economic data showing that in 2022, Mid-Atlantic commercial fishing supported 35,406 jobs and generated $2.1 billion in sales, while recreational anglers took 68 million fishing trips and spent $3.6 billion. The commenter states that oil and gas development could have broad negative impacts on the marine environment, particularly through noise from geologic and geophysical surveys that can harm marine species. The commenter mentions specific concerns about protected areas like the Frank R. Lautenberg Deep Sea Coral Protection Area, which should not be considered for oil and gas leasing. The commenter includes the Council's Policy on Offshore Oil, which outlines 15 policy points emphasizing environmental protection, best management practices, and mitigation measures if offshore oil development proceeds.

National Oceanic and Atmosphere Administration
Document ID: BOEM-2025-0015-35453

The commenter writes in response to BOEM's RFI and discusses Section 307 of the CZMA as an incentive for coastal states to join the National Coastal Management Program. The commenter discusses its potential role in characterizing the OCS, including the use of tools like geospatial data, an EFH Mapper tool, an Environmental Safety Index, and the Environmental Response Management Application. The commenter also states their interest in collaborating with BOEM to work on the development and preparation of the 11th National OCS Program. The commenter attaches an appendix detailing key fisheries and areas of environmental sensitivity and importance in each of the OCS Planning Areas, including: protected species and areas of ecological importance in the North Atlantic; the highly productive Northeast U.S Shelf Regional Ecosystem in the Mid-Atlantic; important commercial and regional fisheries in the South Atlantic; the barrier reef in the Straits of Florida; highly migratory species in the Gulf of America, and essential fish habitat in the Alaska Planning Area, among many other things. The commenter also discussed the importance and value of fisheries off the West Coast Planning Areas and asserts that in 2022, these commercial fisheries yielded 52,602 jobs, $1.37 billion in income, and $1.86 billion in value-added effects to the economy.

National Park Service
Document ID: BOEM-2025-0015-DRAFT-40185

The commenter writes in response to relevant OCSLA factors and to BOEM's Requests for Comment on the 11th National OCS Oil and Gas Leasing Program and attaches a list of NPS units, organized by planning area, for BOEM's consideration. The commenter discusses numerous impacts of oil and gas development on OCS resources and environments, including the potential of catastrophic oil spills, impacts on scenery and viewsheds, threats to endangered mammal, fish, and bird species, significant cultural resources, and more. The commenter expresses concern about impacts to national, state, and local economies from a reduction in tourism and recreation as a result of oil and gas development, and attaches a table detailing # of visitors, local spending, jobs supported, labor income, and total economic output of the different planning areas in the Program. The commenter states that environmentally sensitive areas should be excluded from leasing and reasons that excluding these areas within 15 nautical miles from NPS boundaries have little to no impact on OCS oil and gas development. The commenter lists reasons for proposing exclusion zones in each of the Planning Areas in turn.

New England Fishery Management Council
Document ID: BOEM-2025-0015-6543

The commenter recommends excluding any planning areas in the Northeast region from the 2024-2029 National OCS Oil and Gas Leasing Program. The commenter describes five main concerns: direct displacement of fishing due to survey or extraction activities; potential impacts on sensitive deepwater benthic habitats that overlap with hydrocarbon assessment units; harm to living marine resources from sounds produced by oil and gas operations; potential damage to nearshore fish habitats from infrastructure development; and risks of chronic leaks and catastrophic discharge events. The commenter states that while they recognize the importance of domestic energy development, marine fisheries throughout the Northeast region are vital to the social and economic well-being of communities and provide domestic food security.

Energy Exploration and Production Companies and Associations

API, NOIA, OOC, IPAA, USOGA, AXPC, IADC, EnerGeo Alliance, Energy Workforce and Technology Council, LMOGA
Document ID: BOEM-2025-0015-35234

The commenters state that all 27 OCS planning areas should be kept under consideration and evaluation for the Draft Proposed Program in order to generate jobs, new revenue, and additional production, and to meet energy demand. The commenters support keeping existing exploration and production areas in the GOA and offshore Alaska available for leasing and urge BOEM to include new areas including those in the Atlantic, Pacific, Eastern GOA, and Beaufort and Chukchi Seas of Alaska. The commenters state that the U.S. Energy Information Administration forecasts

U.S. energy to remain relatively steady through 2050, with more than half of U.S. demand expected to be met by oil and natural gas. The commenters discuss declining trends in Alaskan oil production and the resource potential of over 15 billion barrels of oil in the Chukchi and Beaufort Seas, development of which could increase U.S. energy security. The commenters add discussion of the different lease areas in turn, including the history of successful development in the Pacific, the current moratorium on leasing in the Atlantic, and the potential for increased production in the Eastern GOA. The commenters express support for BOEM's planned environmental analysis in lieu of a PEIS. The commenters indicate that offshore oil and gas development has co-existed with other ocean-based industries for decades, including with military operations, commercial and recreational fishing, and coastal tourism industry. Regarding lease terms, the commenters do not support policies that result in shorter lease terms, preferring at least a 10-year lease term for all offshore leases under Federal jurisdiction. The commenters expressed support for the continued use of the current area-wide leasing Program and the current lease sale design. Finally, the commenters discuss tariff impacts on oil and gas development and express interest in working with the Administration to support continued leasing and development.

bp America
Document ID: BOEM-2025-0015-25317

The commenter supports the initiation of a new Five-Year Program and BOEM's commitment to responsible development of offshore energy resources. The commenter recommends that BOEM maintain a consistent schedule of at least one lease sale per year in the GOA to provide predictability for planning and investment. To enable fair market value and support long-term production, the commenter recommends lowering royalty rates for deepwater leases, reassessing minimum bids, rental rates, and lease terms to reflect current market conditions, and eliminating Restricted Joint Bidder rules which the commenter states hinder efficient collaboration among producers who have successfully co-developed in the past.

Chevron U.S.A., Inc.
Document ID: BOEM-2025-0015-25284

The commenter states that a comprehensive, diversified offshore oil and gas leasing and development program is vital to a healthy U.S. economy. The commenter indicates that approximately 11.6 million acres, less than 1percent of the 3.2 billion total acres under Federal jurisdiction, is leased for oil and gas development, with over 95 percent of Federal offshore acreage currently off limits to oil and natural gas development. The commenter reasons that Federal offshore submerged lands need to be evaluated for hydrocarbon potential, and that the new leasing Program should allow access to new areas underexplored on the OCS. The commenter responds to numerous BOEM RFIs and discusses the need for further investigation into environmental risks and concerns, use conflicts, and other potential effects of oil and gas development. The commenter encourages BOEM to offer lease sales on a region-wide basis and urges BOEM not to inadvertently restrict areas with great resource potential. The commenter recommends a 10-year lease term for all offshore leases under Federal jurisdiction and states that the restricted bidders list maintained by BOEM is no longer justified or necessary. The commenter discuss lease terms subject to change, including minimum bids, rental rates, royalty rates, and primary terms, and reason that BOEM should continue to use lease bidding systems that have historically been most beneficial. The commenter ranks the GOA Central and Western Planning Areas as highest priority, followed by the GOA Eastern Planning Area, with planning areas in the Atlantic of some interest but with limited current information to assess actual resource potential. The commenter recommends two lease sales per year in the Central and Western GOA, and two lease sales for each of the remaining planning areas ranked.

Louisiana Mid-Continent Oil & Gas Association
Document ID: BOEM-2025-0015-25292

The commenter urges BOEM to include continued and robust lease sales in the GOA in the next five-year leasing program. The commenter describes the GOA as a national strategic asset vital to Louisiana's economy and America's energy security, providing one of the lowest carbon barrels of oil globally, supporting hundreds of thousands of jobs, and generating billions in government revenue. According to the commenter's 2025 Economic Impact Report, the oil and gas industry supports more than 306,750 jobs and contributed $25.5 billion in total earnings to Louisiana's economy. The commenter states that the offshore sector represents a significant share of these impacts, with the GOA accounting for approximately 15 percent of total U.S. oil production. The commenter also mentions that under GOMESA, a portion of Federal revenues from offshore leasing is shared with Gulf states to fund coastal restoration and hurricane protection projects.

Shell Offshore Inc.
Document ID: BOEM-2025-0015-25336

The commenter expresses support for the 11th National OCS Oil and Gas Leasing Program and recommends that BOEM make new OCS areas available for energy resource assessment as expeditiously as practicable. The commenter states that the OCS is a world-class energy province with potential to provide economic, environmental, and national security benefits and adds that approximately 250,000 people are employed in the U.S. offshore oil and gas industry, producing $59.5 billion in total economic output. The commenter reasons that new oil and gas production from the OCS would help meet continued energy needs, and that granting further access to these areas in the OCS would help assess resource potential. The commenter asserts that competing uses of the OCS can co-exist with oil and gas production and expresses support for mitigating practices to support the existence of environmental resources in the leasing areas. The commenter states that the U.S. should not rely solely on recent GOA leased acreage, as production from existing wells must decline at predictable rates. The commenter supports BOEM's current minimum bid levels, reasonable sliding-scale rentals for deep water and frontier areas, and the use of appropriate “suspension volumes” for deep-water and frontier areas. The commenter generally supports 10-year lease terms for deep water and frontier areas and is open to policy discussion on increased tract sizes.

W&T Offshore, Inc.
Document ID: BOEM-2025-0015-25345

The commenter supports the development of the 11th National OCS Oil and Gas Leasing Program, emphasizing the importance of continued energy development in the GOA. The commenter recommends including the Eastern GOA region in the program, noting they have potential prospects in this area. For lease sales, the commenter suggests two sales per year in the GOA, spaced six months apart, with Eastern GOA sales contingent on lifting the current moratorium. The commenter indicates that shallow water projects have significantly shorter lead times than deepwater projects (10-15 years), and says that infrastructure can be quickly installed in these shallow water projects in the Eastern GOA based on existing expertise. The commenter reports paying over $450 million in Federal royalties to the American taxpayer from 2019-2024 and employing nearly 400 people. In response to BOEM's question about environmental risks within the GOA planning areas, the commenter asserts that oil spills in the GOA since 2010 have had minor implications, and that the commenter contributes to environmental growth measures in and around its leasing platforms. The commenter recommends several changes to lease terms, including maintaining or decreasing minimum bid prices, providing royalty relief for existing leases, extending primary terms for shallow water leases, and removing restrictions on leases placed by prior Administrations.

Non-Energy Industry and Associations

Allied Trade Associations Supporting Offshore
Document ID: BOEM-2025-0015-35233

The commenters, representing 117 organizations, urge BOEM to establish American energy dominance by allowing for more leasing, exploration, and development of U.S. offshore oil and natural gas resources in all OCS planning areas. The commenters state that OCS development is a critical economic driver and one of the main reasons America has become the world's top producer of oil and natural gas. The commenters recommend revising the five-year offshore leasing Program to take full advantage of offshore resources through expanded access and development in the GOA, Alaska, Pacific, and Atlantic planning areas. The commenters state that offshore development is safer than ever and that resources currently produced in the GOA have some of the lowest carbon intensity levels in the world compared to other producing regions. The commenters urge BOEM to reject previous policies that blocked and restricted lease sales.

Bixby Residential, Inc.
Document ID: BOEM-2025-0015-0019

The commenter expresses opposition to including new offshore oil and gas leasing off the coast of California in the 11th National OCS Oil and Gas Leasing Program. The commenter states that Orange County's economy depends on clean beaches, healthy ecosystems, and tourism. The commenter mentions that offshore drilling poses risks to these resources, noting that Orange County has experienced two major oil spills in the commenter's lifetime. The commenter added the potential short-term benefits to energy companies do not outweigh long-term threats to coastal livelihoods and natural resources.

CalWave Inc.
Document ID: BOEM-2025-0015-25299

The commenter anticipates wave energy developers will prioritize development across all four OCS Planning Areas offshore the West Coast and several areas offshore Alaska, with potential development in Federal waters in the Arctic, East Coast, and GOA. The commenter suggests that if BOEM considers creating additional OCS Planning Areas, there would be interest around Hawaii and Guam due to their wave energy potential and relevance to the Department of Defense. The commenter states that wave energy technologies have applications beyond utility-scale power generation, including providing energy resiliency for military installations, supporting subsea maritime domain awareness, and powering unmanned underwater vehicles. The commenter adds that additional applications for wave energy technologies could include coastal onshore microgrids, offshore oil and gas operations, and other industrial processes.

Cape Cod Commercial Fishermen's Alliance
Document ID: BOEM-2025-0015-25329

The commenter discourages BOEM from pursuing leasing options that would lead to exploration and exploitation of hydrocarbon resources on the continental shelf of the North Atlantic Ocean. The commenter discusses the nation’s $183 billion commercial fishing industry that supported 1.6 million jobs in 2022 and has facilitated the growth of coastal communities. The commenter states that oil spills in the North Atlantic region would have more severe impacts than in areas like the GOA due to colder temperatures and reduced exposure to sunlight, which negatively impact natural oil degradation processes. The commenter also expresses concern about seismic testing, which has been shown to cause physiological harm to scallops, which are the most profitable fishery in the Atlantic region.

Carteret County Chamber of Commerce
Document ID: BOEM-2025-0015-25248

The commenter opposes the inclusion of exploration activities like seismic blasting and new offshore oil and gas leasing off the coast of North Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states that Carteret County's economy depends on a healthy coastal and marine environment that supports tourism, commercial and recreational fishing, aquaculture, boat building, and related small businesses. The commenter indicates that offshore oil and gas activities carry risks including oil spills, leaks, habitat destruction, and pollution that could cause long-term harm to the coastal economy, natural resources, and way of life. The commenter urges BOEM to prioritize protection of coastal economies, communities, and ecosystems by excluding exploration and new offshore oil and gas leases from the final leasing program.

Central Coast Outdoors
Document ID: BOEM-2025-0015-0010

The commenter opposes the inclusion of new offshore oil and gas leasing off the coast of California in the 11th National OCS Oil and Gas Leasing Program. The commenter states that their ecotourism business in Los Osos, California depends on the relatively pristine area of Morro Bay, and offshore drilling would put coastal economies at risk with its effects on tourism, property values, and investor confidence. The commenter said it is important to transition away from fossil fuels as quickly as possible to avoid the worst effects of climate change, and that short-term benefits to energy companies do not outweigh long-term threats to coastal communities and resources.

Chamber of Commerce of the United States
Document ID: BOEM-2025-0015-35238

The commenter urges BOEM to expeditiously pursue an expansive 11th National OCS Oil and Gas Leasing Program that opens leasing and development opportunities across the OCS. The commenter states that OCS oil and natural gas production will be needed to meet future energy demands, with the OCS containing an estimated 89.87 billion barrels of undiscovered technically recoverable oil and 327.49 trillion cubic feet of undiscovered technically recoverable natural gas. The commenter indicates that recent events, including increasing electricity demand driven by AI applications, data centers, and domestic manufacturing, and international developments that have made the U.S. economy more vulnerable to foreign actions that disrupt domestic markets, reinforce the need for stable domestic energy production. The commenter states that OCS oil and natural gas leasing supports the national economy, with U.S. GOA operations estimated to have contributed over $34.3 billion to the U.S. GDP in 2023. The commenter adds that OCS wind energy development is tied to OCS oil and gas development through the Inflation Reduction Act of 2022. The commenter supports BOEM's decision to forego preparing a PEIS at this stage of the National Program process, stating that OCSLA Section 18 specifies the appropriate approach to environmental review.

Destination North Myrtle Beach
Document ID: BOEM-2025-0015-6548

The commenter opposes the inclusion of new offshore oil and gas leasing off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states they have actively supported local leaders, businesses, and citizens in opposing offshore exploration and drilling for many years. The commenter expresses concern about negative impacts on their coastal community, tourism, and marine industries. The commenter describes North Myrtle Beach as a community built upon tourism and commercial fishing, with protection of beaches and waterways as a core objective in their long-term strategic vision.

Fisheries Survival Fund
Document ID: BOEM-2025-0015-25356

The commenter expresses concern about the impacts of oil and gas exploration and development on scallop fisheries and asks that BOEM avoid oil and gas development on scallop grounds. The commenter asserts that OCSLA requires balancing of interests in offshore development, which includes the importance and value of the Atlantic scallop fishery, which extends from North Carolina up to Maine. The commenter states that seismic air guns used in exploration have been shown to cause physiological harm to scallops. The commenter also mentions that vibrations from pile driving, necessary for supporting marine structures like oil and gas wells, negatively impact scallops, particularly juveniles. The commenter indicates that East Coast U.S. scallop populations are already under stress due to warming ocean waters, and oil and gas activities would add additional stress to the resource.

Greater Fort Walton Beach Chamber of Commerce
Document ID: BOEM-2025-0015-22324

The commenter opposes the inclusion of new offshore oil and gas leasing off the coast of Florida in the 11th National OCS Oil and Gas Leasing Program. The commenter states in a resolution that Okaloosa County's economy depends on a healthy coastal environment supporting tourism, recreation, fishing, and small businesses. The resolution expresses concern that offshore oil and gas activities carry risks including spills, habitat destruction, and pollution that could harm the coastal economy and natural resources. The commenter urges BOEM to prioritize protection of coastal economies and ecosystems by excluding new offshore oil and gas leases from the final leasing program, and calls on Federal representatives to oppose offshore drilling expansion.

Greater Hollywood Chamber of Commerce
Document ID: BOEM-2025-0015-0018

The commenter opposes the inclusion of new offshore oil and gas leasing off the coast of Florida in the 11th National OCS Oil and Gas Leasing Program. The commenter states that coastal economies like Hollywood, Florida depend on clean beaches, healthy ecosystems, and thriving tourism and hospitality industries that would be put at risk by offshore drilling. The commenter indicates that even the perception of oil and gas activity can erode public confidence, dampen tourism, lower property values, and discourage investment in the region. The commenter urges BOEM to prioritize the protection of coasts in the upcoming leasing program.

Greater Key West Chamber of Commerce
Document ID: BOEM-2025-0015-23149

The commenter, representing over 550 businesses, expresses opposition to including new offshore oil and gas leasing off Florida's coast in the 11th National OCS Oil and Gas Leasing Program. The commenter states that coastal economies like Key West are built on clean beaches, healthy ecosystems, and tourism, which would be put at risk by offshore drilling. The commenter indicates that even the perception of risk from oil and gas activity can negatively affect tourism, property values, and investor confidence, and that potential short-term benefits do not outweigh long-term threats to coastal livelihoods.

Greater Pensacola Chamber of Commerce
Document ID: BOEM-2025-0015-25261

The commenter opposes the expansion of oil or gas leasing off the Florida coast in the eastern GOA. The commenter states that these waters are essential for military training and testing, and allowing oil or gas drilling would significantly impact this training and impede military readiness. The commenter indicates that the economic impact of military bases in Northwest Florida is significant, and any hindrance caused by offshore drilling could negatively impact the local economy. The commenter also mentions potential negative economic and environmental impacts on waters and beaches along the GOA, referencing the Deepwater Horizon spill in 2010.

Hydrokinetic Energy Corp.
Document ID: BOEM-2025-0015-25262

The commenter states that ocean energy developers are interested in OCS Planning Areas offshore the East Coast for deployments in the Gulfstream, and that current energy developers like the commenter prioritize development in areas with strong offshore currents like the Gulfstream between Key West and Cape Hatteras. The commenter references Cook Inlet in Alaska as a key OCS Planning Area and adds that other areas of interest include Southern and Central California, the Gulf of Alaska, and the North Atlantic. The commenter suggests that if BOEM considers creating additional OCS Planning Areas, there would be interest around Hawaii and Guam due to their marine energy potential and relevance to the Department of Defense. The commenter provides details about its technology, which involves 42′ diameter hydrokinetic turbines placed on platform barges in the Gulf Stream to generate electricity for producing hydrogen and oxygen through electrolysis. The commenter adds discussion of additional applications for marine energy technologies, including energy resiliency for fixed bases, charging and docking stations for unmanned underwater vehicles, as well as supporting coastal onshore microgrids and other offshore industrial processes.

Jenkinson's Aquarium
Document ID: BOEM-2025-0015-0006

The commenter opposes new leasing for offshore drilling, describing the current moment as an opportunity to protect oceans and coasts while addressing climate change. The commenter states that new lease sales would lock in production for decades, resulting in hundreds of millions of metric tons of CO2 emissions. The commenter indicates that protecting coasts from new leasing would protect approximately 3.3 million American jobs and $250 billion in GDP from industries like tourism, recreation, and fishing. The commenter suggests that transitioning to renewable energy sources would create good-paying American jobs.

Lowcountry Hospitality Association
Document ID: BOEM-2025-0015-27421

The commenter does not support any offshore drilling activity that would disrupt or disturb the natural sightline of the South Carolina coast.

Maine Coast Fishermen's Association
Document ID: BOEM-2025-0015-25324

The commenter expresses opposition to the inclusion of any leasing areas in the Gulf of Maine in the 11th National OCS Oil and Gas Leasing Program. The commenter asserts that the potential short-term profits for energy companies do not justify the long-term threats to coastal industries and resources. The commenter implores elected officials to support policies that protect the shorelines and reject efforts to expand oil and gas development.

Massachusetts Lobstermen's Association
Document ID: BOEM-2025-0015-0009

The commenter expresses opposition to BOEM's proposed modification to its OCS planning areas for oil and gas activities. The commenter describes commercial fishermen as ecological stewards who depend on healthy ecosystems that will be affected by oil and gas leasing. The commenter cites three major U.S. oil spills (Deepwater Horizon, Exxon Valdez, and Santa Barbara) as evidence of the devastating impacts oil and gas leasing can have on ecosystems and economies, but adds that thousands of oil spills occur annually. The commenter urges BOEM not to allow the 11th National OCS Oil and Gas Leasing Program to proceed to help commercial fishermen continue harvesting seafood from clean waters.

Myrtle Beach Area Chamber of Commerce, Myrtle Beach, MBREDC, Georgetown Chamber, Briarcliffe Acres, Destination NMB
Document ID: BOEM-2025-0015-35229

The commenters express opposition to the inclusion of new offshore oil and gas leasing off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenters state that tourism is a $30 billion industry in South Carolina that is driven by a healthy coastal ecosystem. They report that Myrtle Beach welcomed over 18 million visitors who contributed more than $13 billion in direct spending in 2024, supporting over 82,000 jobs. The commenters express concern about the environmental impact of offshore drilling and seismic testing on the fishing and boating industry and reference President Trump's 2020 memorandum prohibiting drilling in the Atlantic Ocean until 2032.

National Hydropower Association
Document ID: BOEM-2025-0015-25315

The commenter provides information about marine and hydrokinetic energy development across various OCS Planning Areas. The commenter anticipates wave energy developers will be interested in all four OCS Planning Areas offshore the West Coast and several areas offshore Alaska, while tidal energy developers will prioritize areas where large amounts of water flow through narrow inlets or channels. The commenter identifies Cook Inlet in Alaska as a key OCS Planning Area for tidal energy, with other areas of interest including Southern California, Central California, the Gulf of Alaska, and the North Atlantic. The commenter states that current energy developers will prioritize areas with strong offshore currents, including the Straits of Florida and South Atlantic OCS Planning Areas. The commenter suggests that if BOEM considers creating additional OCS Planning Areas, there would be interest around Hawaii and Guam due to their marine energy potential and relevance to the Department of Defense. The commenter adds discussion of different applications of marine energy technologies, including energy resiliency for fixed bases, charging and docking stations for unmanned underwater vehicles, and supporting coastal onshore microgrids and offshore oil and gas operations, among other things.

North Beach Realty LLC
Document ID: BOEM-2025-0015-24282

The commenter opposes new oil and gas exploration, lease sales, and seismic blasting in Federal waters, particularly along the Atlantic coast. The commenter describes their business as dependent on tourism and real estate in North Myrtle Beach, South Carolina. The commenter states that Myrtle Beach welcomed 18 million visitors generating $13 billion in direct spending in 2024, with tourism supporting 82,000 local jobs. The commenter indicates that Horry County generated $31 million in accommodation taxes in 2024, representing 30 percent of the state's total. The commenter expresses concern that offshore drilling would negatively impact property values, tourism revenue, and the local economy. The commenter references President Trump's 2020 memorandum prohibiting drilling in the Atlantic Ocean until 2032 and urges BOEM to honor this precedent.

Old Georgetown Creamery LLC
Document ID: BOEM-2025-0015-35295

The commenter opposes offshore oil and gas drilling in BOEM's 11th National OCS Oil and Gas Leasing Program. The commenter states that their business in Georgetown, South Carolina relies on a clean, healthy coastal environment. The commenter expresses concern that offshore drilling threatens marine ecosystems and the tourism-based economy that sustains local businesses. The commenter urges BOEM to prioritize protecting coastal communities by excluding all new offshore drilling from the final leasing plan.

Oregon Coast Visitors Association
Document ID: BOEM-2025-0015-25280

The commenter opposes including Oregon's coast in the 11th National OCS Oil and Gas Leasing Program. The commenter indicates that tourism provides 25,000 jobs and $2.3 billion in visitor spending on the Oregon Coast, while Oregon's fisheries contribute about $1.6 billion annually, support 11,000 coastal jobs, and generate about $640 million in personal income. The commenter expresses concern that oil and gas exploration would harm these industries, which depend on clean beaches, abundant wildlife, and scenic views.

Outer Banks Association of REALTORS
Document ID: BOEM-2025-0015-25259

The commenter opposes including areas off the North Carolina coast in the 11th National OCS Oil and Gas Leasing program. The commenter states that the Outer Banks is internationally known for pristine ocean and estuarine shorelines that attract millions of visitors annually, supporting many locally owned small businesses and a vibrant recreational and commercial fishing industry. The commenter adds that offshore oil and gas exploration, development, and drilling activities pose unacceptable risks to the economy, businesses, and quality of life, and that potential damage to natural resources outweighs any benefits.

Outer Banks Chamber of Commerce
Document ID: BOEM-2025-0015-25249

The commenter, representing approximately 850 businesses and organizations along the North Carolina coast, opposes the inclusion of exploration, seismic testing/blasting, and new offshore oil and gas leases off the North Carolina coastline in the 11th National OCS Oil and Gas Leasing Program. The commenter states that while it supports energy independence, exploration along the coast would be catastrophic for an area dependent on natural beauty and environment for tourism, recreational and commercial fishing, boat building, and entrepreneurship. The commenter includes tourism statistics, remarking that in 2023, North Carolina realized $35.6 billion in visitor spending, with Dare County ranking fourth in travel expenditures at $2.15 billion and supporting over 13,000 jobs. The commenter expresses concern about the colliding currents off the Outer Banks, stating that an oil spill could be carried both north and south along the Atlantic coastline.

Pacific Coast Federation of Fishermen's Associations (PCFFA)
Document ID: BOEM-2025-0015-25250

The commenter strongly opposes including the Pacific Coast in future offshore oil and gas leasing and asked that Federal waters off the West Coast be excluded from the 11th National OCS Oil and Gas Leasing Program. The commenter states that commercial fishing is an active, essential industry that contributes to food production, economic stability, and the cultural fabric of the coast. The commenter indicates that in 2023, commercial landings in California totaled more than 130 million pounds of seafood with an ex-vessel value exceeding $260 million. The commenter expresses concern that oil and gas development would introduce permanent structures, noise, vessel traffic, and pollution risks that would harm fishing grounds and disrupt the industry. The commenter adds that the areas under consideration are highly productive and support healthy fisheries, and include several National Marine Sanctuaries meant to protect ocean health. The commenter urges BOEM to recognize that allowing new oil and gas leasing would exacerbate conflict between state and Federal ocean policy.

PacWave
Document ID: BOEM-2025-0015-25325

The commenter anticipates marine energy developers will be active across multiple OCS Planning Areas, particularly wave energy developers in all four Planning Areas off the West Coast, as well as areas off Alaska, Guam, and other U.S. facilities in the South Pacific. The commenter suggests that if BOEM considers establishing new Planning Areas, there would be strong developer interest around Hawaii due to its high marine energy potential. The commenter describes various applications for marine energy technologies beyond utility-scale power generation, including enhancing energy resiliency for military installations, supporting subsea maritime domain awareness, and powering unmanned underwater vehicles. The commenter adds other applications of marine energy technologies, including powering coastal microgrids, supporting offshore data center operations, supplying power to offshore platforms, and enabling other industrial processes.

Seattle Aquarium
Document ID: BOEM-2025-0015-25331

The commenter opposes including any East or West Coast Planning Areas in the 11th National OCS Program. The commenter states that offshore oil and gas drilling poses substantial threats to natural resources, coastal economies, and local and Tribal Communities. The commenter references past oil disasters in Santa Barbara, Prince William Sound, and the BP Deepwater Horizon blowout as evidence of lingering impacts on animals, coastal residents, and ocean-dependent businesses. The commenter states that 90 percent of domestic energy production occurs on non-federal lands and waters, suggesting that protecting coastlines would not impede U.S. energy security.

Sheraton Myrtle Beach
Document ID: BOEM-2025-0015-25251

The commenter opposes including new offshore oil and gas leasing off the coast of South Carolina in the 11th National OCS Oil and Gas Leasing Program. The commenter states that Myrtle Beach relies solely on tourism that depends on clean beaches. The commenter expresses concern that offshore drilling puts coastal economies at risk, potentially affecting tourism, property values, and investor confidence. The commenter states that the potential short-term benefits to energy companies do not outweigh long-term threats to coastal livelihoods and natural resources.

Surfside Foods, LLC
Document ID: BOEM-2025-0015-6554

The commenter opposes including new oil and gas leasing areas in the Mid-Atlantic and North Atlantic planning regions. The commenter describes their business as a family-operated seafood processor specializing in Atlantic surfclam and ocean quahog products. The commenter states that these fisheries represent valuable and well-managed shellfish sectors contributing over $30 million annually in ex-vessel revenue. The commenter expresses concern that seismic testing and drilling activities would harm benthic invertebrates and disrupt shellfish populations. The commenter indicates that oil spills could cause catastrophic impacts to shellfish beds, with long recovery times. The commenter states that fishing income supports local taxes, port infrastructure, and food security across coastal economies. The commenter says that protecting marine resources would provide greater economic and environmental benefits than offshore oil and gas development.

T.Becker Power Systems
Document ID: BOEM-2025-0015-6550

The commenter states that Santa Barbara County and the State of California are substantial consumers of petroleum-derived fuels and are constructing public works projects that will increase Vehicle Miles Traveled (VMT) across the County and state. The commenter states that both entities have blocked analysis of VMT reduction alternatives and have submitted environmental documents with false and misleading statistics about alternative transportation programs. The commenter indicates that neither entity has achieved meaningful reduction in petroleum fuel consumption that could offset elimination of crude oil from Federal leases. The commenter mentions that electric vehicle sales have dropped significantly in the first quarter of 2025 and that the State's Advanced Clean Cars II regulation was found by Congress to be false and misleading. The commenter states they have submitted an alternative to the Point Arguello decommissioning proposal, calling for the rigs to be converted into offshore marine oil terminals to allow oil from Federal leases to be put into an existing pipeline.

The Town Dock
Document ID: BOEM-2025-0015-25291

The commenter requests that the oil and gas ban on the U.S. OCS area of the Atlantic coast remain in effect. The commenter states that the United States seafood industry is a global leader in producing healthy and sustainable seafood, and that industrialization of oceans puts fisheries at risk. The commenter references President Trump's Executive Orders to “Restore American Seafood Competitiveness” and “Promote American Seafood Competitiveness and Economic Growth,” suggesting that upholding the oil and gas ban in the Atlantic Ocean would support these initiatives.

Virginia Beach Hotel Assoc, VB Restaurant Assoc & Atlantic Ave Assoc.
Document ID: BOEM-2025-0015-0013

The commenters express opposition to including new offshore oil and gas leasing off the coast of Virginia in the 11th National OCS Oil and Gas Leasing Program. They state that Virginia Beach's coastal economy depends on clean beaches, healthy ecosystems, and tourism as major economic drivers. The commenters indicate that offshore drilling poses risks to tourism, property values, and investor confidence, with potential long-term consequences for small businesses, fisheries, and jobs that rely on a healthy coastal environment. They request that BOEM prioritize coastal protection in the upcoming leasing program.

State-Level Elected Official

California Legislative Central Coast Caucus
Document ID: BOEM-2025-0015-25373

The commenter expresses strong opposition to any oil and gas leasing off the coast of California. The commenter states that offshore oil drilling often damages local economies, biodiversity, and the environment and cites massive oil spills such as the 1969 Santa Barbara blowout and the 2015 spill near Refugio State Beach, the latter of which cost about $257 million to clean up. The commenter adds that California's state economy contributes about $70 million to the state's GDP, of which about 44% is tourism. The commenter mentions the California Clean Coast Act introduced in Congress in April 2025 and adds that many local jurisdictions have also passed resolutions in opposition to offshore oil.

NH Rep Matthew Sabourin dit Choiniere, et al
Document ID: BOEM-2025-0015-35260

The commenter expresses opposition to including the Gulf of Maine in the 11th National OCS Oil and Gas Leasing Program. The commenter describes the Gulf of Maine as an ecologically significant marine ecosystem with diverse marine life including endangered North Atlantic right whales and critical fish habitats. The commenter states that oil and gas exploration would put these ecosystems at risk of pollution, seismic testing, oil spills, and industrial degradation. The commenter mentions that New England coastal communities depend on a clean ocean for fisheries, tourism, and cultural heritage. The commenter indicates that residents of Gulf of Maine states have consistently opposed offshore drilling through state and local resolutions and bipartisan legislation.

Representative Lee Hewitt
Document ID: BOEM-2025-0015-20735

The commenter expresses strong opposition to including the South Atlantic zone in the 11th National OCS Oil and Gas Leasing Program. The commenter states that constituents do not want oil and gas drilling off the South Carolina coast due to potential environmental and economic harm, citing particular concern over the risk of offshore oil spills. The commenter states that all municipalities in the district plus Georgetown County have passed resolutions opposing offshore drilling, and that Governor Henry McMaster also opposes it. The commenter describes the district's beaches, bays, and estuaries as important for tourism and ecology, providing habitats for marine life and birds. The commenter mentions that South Carolina has a $6 billion fishing industry employing 80,000 people and a tourism industry producing nearly $20 billion, both of which would be at risk from oil drilling.

Senator Chip Campsen
Document ID: BOEM-2025-0015-20641

The commenter opposes offshore drilling along the South Carolina coast, describing it as incompatible with the district's coastal economy, current land uses, and way of life. The commenter describes South Carolina's approach to conservation as "collaborative conservation" through public and private partnerships that have protected large coastal areas, an approach embodied in the South Carolina Conservation Bank Act. The commenter remarks that South Carolina's Ashepoo-Combahee-Edisto (ACE) Basin includes 300,000 protected areas. The commenter states that offshore drilling would impair quality of life, economic prosperity, natural resources, historic landmarks, and cultural treasures.

Senator John Laird
Document ID: BOEM-2025-0015-0039

The commenter expresses opposition to leasing along the California coastline. The commenter references past oil spills off the California coast, including the 1969 Santa Barbara spill and 2015 pipeline burst, writing that both events caused environmental and economic damage. The commenter states that offshore drilling would deepen dependence on fossil fuels and undermine California's climate change efforts and renewable energy goals. The commenter mentions that West Coast governors have consistently opposed offshore oil and gas leasing, and that 65 California cities and counties, representing over 21 million California residents, have passed resolutions against offshore drilling. The commenter adds that 27 California cities and counties retain ordinances which prohibit zoning for onshore oil and gas facilities, to support offshore infrastructure, without a popular vote. The commenter specifically opposes the suggestion that marine sanctuaries could be opened for oil and gas exploration, stating this would violate the Energy Policy Act of 2005.

Members of Congress

Multiple Members of Congress
Document ID: BOEM-2025-0015-25349

The commenters express significant concerns over efforts to replace the 2025-2029 National OCS Oil and Gas Leasing Program and strongly oppose all new and expanded oil and gas activities in all regions of the OCS. The commenters state that offshore oil and gas development poses risks to coastal communities, economies, and marine life, citing oil spills and unplugged wells as environmental hazards. The commenters mention that seismic surveys used in oil exploration endanger marine species, referencing a recent NOAA Fisheries biological opinion that found oil and gas activities in the Gulf of Mexico could drive Rice's whale to extinction. The commenters note that the U.S. is already the world's leading oil and gas producer and that companies hold over 2,000 offshore leases covering more than 12 million acres, with only 469 currently producing. The commenters state that BOEM cannot offer sales in areas permanently protected under Section 12(a) of OCSLA, including areas off the Atlantic coast, Pacific coast, Eastern Gulf of

Mexico, and portions of the Arctic Ocean. Further, the commenters discuss the mandate of the OCSLA to consider alternative uses and benefits of coastal resources and the potential impact of oil and gas development on other resources and urge BOEM to engage with the NEPA process to analyze potential impacts. The commenters state that protecting waters from offshore drilling is widely popular, with nearly two-thirds of registered voters expressing support and more than 390 municipalities formally opposing expansion.

U.S. Congress, Juilia Brownley
Document ID: BOEM-2025-0015-25361

The commenter expresses strong opposition to any expansion of oil and gas activities in the OCS. The commenter states that the U.S. is already the world's leading producer of oil and gas, with the majority of current OCS leases being non-producing. The commenter indicates that new offshore leasing would have minimal effect on near-term U.S. oil production since BOEM estimates new leases would not begin producing for five to ten years. The commenter mentions that offshore drilling threatens endangered marine wildlife, coastal communities, and contributes to climate change. The commenter references the 1969 Santa Barbara oil spill as an example of environmental disaster and states that unplugged wells and abandoned drilling infrastructure pose ongoing safety risks. The commenter says that nearly two-thirds of registered voters support protecting U.S. coastlines from new offshore drilling and urges BOEM to refrain from issuing new lease sales.

U.S. Congress, Nancy Mace
Document ID: BOEM-2025-0015-25360

The commenter urges the Department of Interior to preserve the existing moratorium on offshore oil and gas exploration, development, and production off the coast of South Carolina as BOEM develops the 11th National OCS Program. The commenter describes South Carolina's 187 miles of coastline as key to the state's $30 billion tourism industry and vital to fishing and maritime industries. The commenter references President Trump's September 8, 2020 memorandum that withdrew the South Atlantic Planning Area from leasing consideration for the period of July 1, 2022 to June 30, 2032. The commenter states there is widespread bipartisan agreement in South Carolina opposing offshore drilling, with many coastal communities in the state having adopted resolutions against it.

U.S. Congress, Russell Fry
Document ID: BOEM-2025-0015-25256

The commenter urges BOEM to maintain the existing moratorium on offshore oil and gas leasing off South Carolina's coast as it develops the 11th National OCS Oil and Gas Leasing Program. While supporting President Trump's agenda for American energy dominance, the commenter states that energy development must respect regional economic and environmental realities. The commenter describes the importance of South Carolina's coastline to the local tourism and maritime economy, noting that the Myrtle Beach area alone welcomes over 18 million visitors annually, generating $13.2 billion in direct spending and supporting more than 82,000 local jobs. The commenter references President Trump's September 8, 2020 memorandum withdrawing the South Atlantic Planning Area from consideration for oil and gas leasing for a ten-year period beginning July 1, 2022. The commenter states there is strong bipartisan consensus in South Carolina opposing offshore drilling, with many coastal municipalities adopting resolutions against exploration and development in 2019.

Tribes and Tribal Organizations

General Comments and Multiple Regions

No Tribe or Tribal Organization commenters provided general comments or comments on multiple regions.

Alaska Region

Arctic Slope Regional Corporation
Document ID: BOEM-2025-0015-25347

The commenter expresses opposition to oil and gas leasing in the Beaufort, Chukchi, and High Arctic planning areas. The commenter provides some background on the Alaska Native Claims Settlement Act of 1971 and the relationship between the North Slope of Alaska and the Iñupiat people. The commenter states that unlike onshore Arctic development which has significant support in their region, offshore oil and gas development in the Arctic OCS has historically been opposed by North Slope Iñupiat due to concerns about environmental conditions, lack of emergency infrastructure, and risks to subsistence resources and cultural traditions. The commenter describes specific challenges of offshore development in the Arctic, including strong ocean currents, lack of emergency response infrastructure, limited industry interest and lack of viability, and threats to subsistence hunting and cultural traditions. The commenter urges BOEM to reject future leasing in the Beaufort, Chukchi, and High Arctic areas and instead focus on responsible onshore development that strengthens local economies, protects subsistence traditions, and upholds Indigenous self-determination.

Association of Village Council Presidents, Kawerak, and Bering Sea Elders Group
Document ID: BOEM-2025-0015-35243

The commenter expresses opposition to oil and gas leasing in the Bering Sea and asks BOEM to exclude the Hope Basin, Norton Sound Basin, St. Matthew-Hall, Navarin Basin, Aleutian Basin, Aleutian Arc, Bowers Basin, St. George Basin, Shumagin, Kodiak, and Gulf of Alaska from the 11th National OCS Program. The commenter states that Tribes in their regions have opposed offshore oil and gas activities for over 40 years, citing concerns about impacts to ocean resources, subsistence way of life, lack of Tribal involvement in decision-making, and inability to address potential spills. The commenter describes the cultural and ecological importance of the Northern Bering Sea to 76 federally recognized Tribes and its role in their food security. The commenter details their concerns about the substantial risks to the sustainable management of Alaska's fisheries; for example, the commenter shares that Tribe members harvest over 425 pounds of subsistence food per person per year from the Bering Sea, and that the region's fishing industry employs over 11,000 people and generates $794 million in wages annually The commenter mentions that the region is currently facing ecological threats, including the collapse of the Bering Sea snow crab and Yukon River salmon populations, and states that oil and gas activities would add to these overlapping changes and threats. The commenter requests meaningful consultation and meaningful incorporation of indigenous knowledge in BOEM's decision-making and urges BOEM to engage in consultation with affected Tribes to assess the impact of offshore leasing in Alaska. The commenter writes that BOEM will not be able to fully consider the requisite balancing factors without meaningful incorporation of Indigenous Knowledge.

Utqiagvik Trilateral Ukpeagvik Inupiat Corporation, Native Village of Barrow, City of Utqagvik
Document ID: BOEM-2025-0015-19751

The commenter urges BOEM to exclude the Beaufort Sea, Chukchi Sea, and High Arctic planning areas from the leasing program. The commenter describes the importance of these waters as a food source for their community, referring to the ocean as "our garden." The commenter mentions the unpredictable and powerful ice movements in these waters, which can severely impact offshore infrastructure, citing examples of undersea fiber optic cables being severed by ice scouring the seafloor. The commenter states that Arctic offshore oil spills pose unacceptable risks due to limited infrastructure, harsh conditions, and inadequate response capacity, noting that the closest US Coast Guard base is over 1,000 miles away. The commenter requests direct consultation with affected communities and their elected officials for future decisions on Arctic OCS leasing. The commenter also includes a letter from the regional nonprofit, VOICE. The letter remarks that while the area favors responsible onshore resource development, leaders from the region have historically opposed offshore drilling due to the cultural and subsistence significance of the Arctic Ocean. The letter states that food security and subsistence culture are these leaders' highest priority when considering resource development.

Ilisagvik College - Alaska's Only Tribal College
Document ID: BOEM-2025-0015-23273

The commenter urges BOEM to exclude the Beaufort Sea, Chukchi Sea, and High Arctic planning areas from the leasing program. The commenter describes the importance of these waters as a food source for their community, referring to the ocean as "our garden." The commenter mentions the unpredictable and powerful ice movements in these waters, citing examples of undersea fiber optic cables being severed by ice scouring the seafloor. The commenter states that Arctic offshore oil spills pose risks due to limited infrastructure, harsh conditions, and inadequate response capacity, noting that the closest U.S. Coast Guard base is over 1,000 miles away. The commenter requests direct consultation with affected communities and their elected officials for future decisions on Arctic OCS leasing. The commenter also includes a letter from the regional nonprofit, VOICE. The letter remarks that while the area favors responsible onshore resource development, leaders from the region have historically opposed offshore drilling due to the cultural and subsistence significance of the Arctic Ocean. The letter states that food security and subsistence culture are these leaders' highest priority when considering resource development.

Inupiat Community of the Arctic Slope
Document ID: BOEM-2025-0015-35226-02

The commenter urges BOEM to exclude the Beaufort Sea, Chukchi Sea, and High Arctic planning areas from the leasing program. The commenter describes the importance of these waters as a food source for their community, referring to the ocean as "our garden." The commenter mentions the unpredictable and powerful ice movements in these waters, citing examples of undersea fiber optic cables being severed by ice scouring the seafloor. The commenter states that Arctic offshore oil spills pose unacceptable risks due to limited infrastructure, harsh conditions, and inadequate response capacity, noting that the closest US Coast Guard base is over 1,000 miles away. The commenter requests direct consultation with affected communities and their elected officials for future decisions on Arctic OCS leasing, specifically including federally recognized Tribes, Alaska Native Corporations, and municipal governments. The letter referenced and attached a March 2025 letter from the Voice of the Arctic Iñupiat (VOICE), a regional advocacy non-profit comprising the North Slope Iñupiat's elected leadership, to the Senate Committee on Energy and Natural Resources and the House Committee on Natural Resources. This letter expressed concern regarding the impacts of offshore development on the Beaufort and Chukchi seas to the North Slope Iñupiat traditional ways of life, food security, and subsistence culture.

Voice of the Arctic Inupiat (VOICE) Inupiat Community of the Arctic Slope
Document ID: BOEM-2025-0015-35226

The commenter expresses opposition to offshore development in the Beaufort and Chukchi Seas. The commenter writes that since oil was discovered at Prudhoe Bay in the 1960s, they have supported safe and culturally responsible onshore energy development. The commenter states that the region has historically opposed offshore development, emphasizing that the North Slope Inupiat's cultural practices and subsistence needs are closely tied to the Arctic Ocean and its marine mammals. The commenter adds that the unpredictable currents in the Arctic Ocean pose environmental risks due to ice movement, citing an incident in which a piece of sea ice scoured the ocean floor and severed a subsea fiber cable. The commenter writes that any offshore leasing decisions should be made in consultation with local Tribes, Alaska Native corporations, and local governments, and that such communication should be early, transparent, and consistent.

Pacific Region

Yurok Tribe
Document ID: BOEM-2025-0015-0017

The commenter expresses opposition to oil and gas leasing on the OCS overlapping the Yurok Coastline and ocean waters of Northern California. The commenter states that the Yurok Tribe has not ceded ocean territory or sovereign authority over this area. The commenter expresses concern about potential adverse environmental impacts from oil and gas facilities on sacred cultural sites and the ecosystem from deep ocean to the Klamath River headwaters, particularly affecting salmon populations. The commenter references a recent Government Accountability Office report on offshore wind energy development that identified gaps in BOEM and Bureau of Safety and Environmental Enforcement's (BSEE) approach to Tribal consultation and recommends addressing these issues before proceeding with oil and gas lease planning. The commenter also shares concern over a Senate Joint Resolution which nullifies BOEM's final rule on Protection of Marine Archeological Resources, writing that efforts such as this indicate that treaties and other efforts to protect Tribal heritage will not be upheld during the OCS planning process.

Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians
Document ID: BOEM-2025-0015-25327

The commenter expresses opposition to the inclusion of any areas off the Oregon coast in the 11th National OCS Oil and Gas Leasing Program. The commenter supports the comments submitted by the State of Oregon. The commenter states that since time immemorial, the Tribe and its members have resided on the Oregon Coast and relied upon ocean resources, retaining the right to practice their culture, religion, and traditional lifeways within their Ancestral Territory. The commenter indicates that the Ocean and much of the associated shoreline areas are of traditional religious and cultural importance to the Tribe. The commenter mentions that Oregon's coastal and ocean ecosystems are facing increasing threats, including ocean warming, acidification, overfishing, pollution, and development, and that oil and gas development would further threaten Ocean resources critical to the Tribe.

Hoh Indian Tribe
Document ID: BOEM-2025-0015-35451

The commenter expresses opposition to the inclusion of any areas off the Oregon and Washington coasts in the 11th National OCS Oil and Gas Leasing Program due to the grave risks development poses to Tribal resources, cultural sites, rights, and way of life. The commenter states that their rights stem from the Treaty of Olympia and *U.S. v. Washington*, which together establish the Tribe's rights to fishing, harvesting, and gathering in their usual and accustomed area. The commenter adds that these rights would be impaired if any OCS oil and gas activity negatively affects the fish runs and the ecosystems they depend on. The commenter describes the negative effects of oil and gas development on marine wildlife, from acoustic disturbance during the exploration phase and physical alteration of bottom habitat to animal collisions and pollution from spills. The commenter says that their coastal waters are a major upwelling zone and the nutrient-rich waters support the entire food chain, including threatened and endangered species. The commenter states that oil and gas development could also disturb both submerged and coastal cultural sites. The commenter adds that any energy development process should engage with the Tribe early and often and expresses concerns that the Federal government will respect its trust responsibility when it comes to offshore energy, regardless of the type, after the previous offshore wind energy planning process undertaken by BOEM. The commenter also states that oil and gas development in this planning area is economically impractical.

Santa Ynez Band of Chumash Indians
Document ID: BOEM-2025-0015-35450

The commenter urges BOEM not to proceed with the process of developing the 11th National OCS Oil and Gas Leasing Program, and if BOEM does proceed, to maintain Tribal consultation at each stage of the development process. The commenter asserts that the south-central region of California is culturally and ecologically significant to the Chumash Tribe and says that development in the Pacific OCS will conflict with the recent designation of the Chumash Heritage National Marine Sanctuary, as well as the existing Channel Islands National Marine Sanctuary. The commenter discusses requirements under OSCLA, reasons that BOEM cannot lease areas previously withdrawn in the Pacific Region and recommends that BOEM exclude other ecologically and culturally sensitive areas from leasing. The commenter adds that BOEM must prepare an EIS for its 2025 Leasing Program as required under NEPA. The commenter asserts that the coastal and marine area of the Pacific Region is rich in native species diversity and that several ecological concerns, including pollution, species and habitat loss, climate impacts, and damages from oil and gas development are threatening flora, critical habitat, and marine species, including ESA-designated species like birds, whales, turtles, and others. The commenter adds that under the Coastal Zone Management Act and the California Coastal Act, BOEM must submit adequate information to the California Coastal Commission for consideration on the effects of the Leasing Program, and reasons that BOEM must also consider California State laws and policies when developing the leasing program, including the existence of marine protected areas and ecological preserves, which should be excluded from leasing.

Gulf of America Region

No Tribes or Tribal organizations commented on this region.

Atlantic Region

Wampanoag Tribe of Gay Head (Aquinnah)
Document ID: BOEM-2025-0015-25346

The commenter recommends excluding critical habitat for North American Right Whale from areas under consideration for offshore energy leases, citing the cultural significance of these whales to the Tribe. The commenter also recommends excluding Nantucket Sound and surrounding areas, which are eligible for listing in the National Register as a Traditional Cultural Property. The commenter requests that the Tribal consultation process begin early and precede the NEPA process. The commenter suggests that environmental analysis for offshore energy development should consider impacts to federally-listed species, archaeological resources, and air quality. The commenter writes that environmental analysis should also consider compounding effects from multiple projects, noise impacts, safety procedures for accidental releases, and effects of natural disasters on offshore infrastructure. The commenter opposes shortened consultation periods and encourages financial assistance for Tribes to conduct environmental reviews. The commenter expresses concern about the lack of Tribal consultation under the Marine Mammal Protection Act and ESA and shares that they hope to see engagement with Tribes improve in offshore projects.

Passamaquoddy Tribe
Document ID: BOEM-2025-0015-25339

The commenter expresses opposition to oil and gas development in the Gulf of Maine, describing it as “a grave and existential threat” to their identity, traditions, and livelihood. The commenter describes concerns about the impact that oil and gas leasing will have on fisheries, writing that the Tribe’s fisheries are a cultural resource and should be protected as such. The commenter expresses concern about impacts to fishing opportunities, ecosystem health, and species important to the Tribe, particularly whales, eels, Atlantic salmon, lobster, and other marine species. The commenter expresses particular concern over the impact that noise emission from oil and gas development may have on these species, along with how species migratory patterns may change. The commenter recommends using environmental DNA (eDNA) sampling to understand the presence and diversity of marine species within planning areas and urges BOEM to complete a PEIS. The commenter discusses the Tribe's investments in ecosystem restoration and expresses concern that oil and gas development could jeopardize these efforts. The commenter also raises concerns about viewshed impacts to culturally significant sites. The commenter requests that BOEM support Tribal nations’ ability to participate in the environmental review process for the Gulf of Maine, namely by ensuring that Tribes are equipped with the technical assistance, funds, and personnel necessary for engagement.

Academic

Institute for Policy Integrity at NYU School of Law
Document ID: BOEM-2025-0015-19518

The commenter opposes directives that would limit BOEM's consideration of climate impacts in developing the 11th National OCS Oil and Gas Leasing Program. The commenter states that an assessment of "economic, social, and environmental values" of offshore resources requires accounting for downstream climate impacts in economic analysis. The commenter suggests that even if climate impacts are not "plainly required" by the Outer Continental Shelf Lands Act, prior court rulings have determined that agencies may not ignore key factors to their decision making, so long as the agency has the authority to consider those factors. The commenter recommends that BOEM continue to monetize greenhouse gas emissions using the social cost of greenhouse gases (SC-GHG) estimates published by the EPA in 2023. The commenter includes three reports addressing: BOEM's cost-benefit analysis methodology for five-year programs, Interior's authority to consider downstream emissions from offshore leasing, and critiques of the White

House's position that SC-GHG values are too uncertain to use. The commenter states that while there is uncertainty in SC-GHG estimation, any plausible estimate is very likely above zero. The commenter concludes that BOEM should continue to consider and balance upstream and downstream costs and benefits, writing that if BOEM fails to consider climate impacts in plan revisions, its analysis will be imbalanced and unlawful.

Pacific Marine Energy Center, Oregon State University
Document ID: BOEM-2025-0015-33669

The commenter supports the absence of oil and gas lease sales in the Pacific OCS Region and advocates for wave energy development. The commenter describes Oregon State University's PacWave facility as ready to host wave energy developers for testing devices off central Oregon. The commenter suggests wave energy developers may be interested in all four Pacific OCS Planning areas, several in the Alaska region, and potentially federal waters offshore the East Coast and in the Gulf of America. The commenter recommends considering additional OCS Planning Areas around Hawaii and Guam due to their marine energy resource potential. The commenter describes various applications for marine energy technologies beyond utility-scale grids, including Department of Defense uses, coastal microgrids, data center operations, offshore oil and gas platform operations, and other industrial processes. The commenter states that marine energy technologies would have fewer environmental impacts than oil and gas development, particularly regarding greenhouse gas production, ocean temperature, pH, and acoustic impacts, thus better preserving the economically valuable fisheries in the Pacific and Alaska regions.

Form Letter Campaigns

Below is a list of form letter campaigns received during the RFI comment period. The list includes the campaigns, including the originating organization (if identified), the total number of submissions in the campaign, and a brief summary of the information provided as part of the campaign.

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
BOEM-2025-0015-DRAFT-37959	Natural Resources Defense Council	Oppose	12,725	• Submitted 12,725 public comments from NRDC members opposing new offshore oil and gas lease sales. • Expressed concern that offshore drilling threatens endangered marine wildlife, coastal

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				communities, and contributes to climate change.
BOEM-2025-0015-35449	Alaska Wilderness League	Oppose	3,299	• Submitted 3,299 signatures from Alaska Wilderness League supporters opposing offshore oil and gas exploration in the Arctic Ocean. • Expressed concern that drilling risks are amplified in the Arctic environment due to currents, sea ice, and distance from infrastructure and counter to the leasing area withdrawals by previous administrations.
BOEM-2025-0015-6969	Emily Thomas	Oppose	23	• Opposed expansion of offshore drilling in the Gulf as part of a new five-year plan. • Suggested that the Federal government should enforce rules requiring decommissioning of old rigs to protect coastal tourism and fishing economies.
BOEM-2025-0015-6464	Stephen Zelman	Oppose	23	• Opposed new oil and gas lease sales in the next 5-Year OCS Oil and Gas Leasing Program. • Expressed concern that offshore oil and gas development would

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				damage marine ecosystems, wildlife, coastal communities, and tourism industries while worsening the climate crisis.
BOEM-2025-0015-6369	Elizabeth M. Andersen	Oppose	827	• Opposed plans to drill for oil and gas in the New England region. • Expressed that drilling would be destructive to the marine environment, putting delicate seafloor habitats and endangered species like the North Atlantic right whale at risk and increased threat of an oil spill.
BOEM-2025-0015-5149	Shelley Frazier	Oppose	4,298	• Opposed new oil and gas exploration and lease sales in all federal waters. • Expressed concern that oil spills destroy habitats and coastal communities, while seismic blasting harms marine life and reduces fish catch rates.
BOEM-2025-0015-35261	Fran Seldin	Oppose	4,085	• Urged BOEM not to offer any new lease sales in the 11th National Outer Continental Shelf Oil and Gas Leasing Program. • Expressed concern that expanding offshore drilling would harm coastal economies,

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				public health, and the environment.
BOEM-2025-0015-35258	Zanagee Artis	Oppose	36	• Urged BOEM to schedule no new offshore oil and gas lease sales in the 11th National Outer Continental Shelf Oil and Gas Leasing Program. • Stated that climate change poses an existential threat to nature, biodiversity, and humanity, and emphasized the need to protect endangered species such as Rice's whales and Right Whales.
BOEM-2025-0015-35257	Healthy Gulf	Oppose	278	• Expressed opposition to any expansion of offshore drilling in the Gulf in the 11th Program. • Stated that more drilling would cause additional air and water pollution while delaying the transition to clean energy and harming Gulf wildlife including sea turtles, whales, and dolphins. • Suggested that instead of expanded drilling, there is an opportunity for workers and businesses to access jobs to decommission oil infrastructure left behind in the Gulf.

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
BOEM-2025-0015-35256	Climate Hawks Vote Civic Action	Oppose	2,194	• Requested that BOEM halt all new oil and gas drilling and reject the Trump Administration's reversal of the 10th National Outer Continental Shelf Oil and Gas Leasing Program. • Suggested that BOEM should focus on climate impacts and adaptation, managing a reduction in production, protecting prices for American consumers, and planning for a just transition away from fossil fuels.
BOEM-2025-0015-35222	Environmental Action	Oppose	11,148	• Expressed opposition to expanded offshore drilling, especially in new areas like the eastern Gulf, Atlantic, Pacific, and parts of the Arctic currently off limits. • Stated that opening the entire ocean to oil and gas leasing is unnecessary and would put coastlines at risk. • Expressed concern about potential harm and oil spill impacts to diverse coral reefs of Florida, beaches of California, fisheries of the Atlantic, and whale habitat of the Northern Bering Sea.

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
BOEM-2025-0015-35221	Environment America	Oppose	14,246	• Stated opposition to expanding offshore drilling, especially in new areas like the eastern Gulf, Atlantic, Pacific, and parts of the Arctic currently off limits. • Expressed concern that oil exploration in sensitive areas could harm marine life and that potential oil spills could be devastating to ecosystems.
BOEM-2025-0015-34120	Ron Hock	Oppose	6	• Urged BOEM to honor the Executive Order prohibiting offshore oil exploration and drilling in the Northern California region. • Expressed concerns about impacts on the local economy which depends on tourism and fishing, contamination of the food supply, lighting impacts on bird life, noise pollution affecting ocean life forms, and risks from intense storms and earthquakes that could damage platforms.
BOEM-2025-0015-33937	Surfrider Foundation	Oppose	1,475	• Requested protection of all U.S. waters from new oil and gas lease sales in the next 5-year offshore drilling plan.

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				• Stated that new leasing would harm ocean and coastal environments while putting communities at risk of oil spills and worsening climate change.
BOEM-2025-0015-33723	Tanner Hines	Oppose	16	• Urged BOEM to reject proposals for offshore drilling along Georgia's coast. • Stated that offshore drilling poses unacceptable risks from oil spills and seismic testing to marine life and coastal communities. • Suggested that BOEM should prioritize clean energy development and coastal resilience over fossil fuel expansion.
BOEM-2025-0015-29165	Caitlin Archambault	Oppose	547	• Expressed strong opposition to expansion of oil and gas activities in all Outer Continental Shelf regions. • Stated the Gulf of America has been treated as a "sacrifice zone" where marginalized communities have suffered from environmental damage and health risks. • Mentioned that the risks of oil spills, pollutants, noise pollution, and

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				vessel traffic outweigh the limited economic benefits of new leasing.
BOEM-2025-0015-26869	Taylor Mannes	Oppose	6	• Expressed opposition to including new offshore oil and gas leasing off the coast of Florida in the 11th National OCS Program. • Stated that coastal economies depend on clean beaches, healthy ecosystems, and tourism, with Broward County generating over $700 million from beaches each year. Stated that even the perception of risk from oil and gas activity could negatively affect tourism, property values, and investor confidence. • Suggested that potential short-term benefits to energy companies do not outweigh long-term threats to coastal livelihoods and natural resources.
BOEM-2025-0015-23682	Lee Margulies	Oppose	2,473	• Opposed inclusion of new lease sales in the 2029-2034 National OCS Program, stating that continued leasing for offshore oil and gas exploration is incompatible with national goals for clean

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				water, energy security, and economic prosperity. • Stated that offshore drilling exacerbates climate change and that the U.S. does not need more offshore oil and gas drilling to achieve energy security as it is already a net energy exporter.
BOEM-2025-0015-22641	Kim Dongheyon	Oppose	1,032	• Urged BOEM not to lease the national outer continental shelf to offshore drilling due to harmful impacts on marine environments, coastal livelihoods, and community health. More specifically, health impacts on communities and cleanup workers.
BOEM-2025-0015-20416	Art Shervs	Oppose	5,927	• Opposed new oil and gas exploration and lease sales in all federal waters and urged BOEM to keep Pacific and Atlantic planning areas off limits in any new Five-Year Program. • Stated there is bipartisan opposition to expanded offshore drilling off coasts from Florida to Maine and southern California to Washington.
BOEM-2025-0015-20315	David Quick	Oppose	7	• Expressed opposition to including lease sales in the Atlantic Outer

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				Continental Shelf Planning Area in the 10th National OCS Oil and Gas Leasing Program. • Stated that Atlantic coastal communities have repeatedly opposed offshore drilling due to potential impacts on ecosystems, commercial fisheries, tourism, and recreation industries. • Suggested that investing in new fossil fuel infrastructure undermines the transition to renewable energy.
BOEM-2025-0015-18691	Sandra Fisher	Oppose	16	• Opposed seismic testing and drilling along the North Carolina coast, citing the $6.8 billion coastal tourism industry and $2.5 billion fishing industry that could be damaged. • Stated that seismic blasting harms marine life, including endangered North Atlantic right whales and vital fish nurseries. • described that the Atlantic holds only 0.5% of the world's oil while posing significant environmental risks, and stated that over 200 local governments on the East

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				Coast have formally opposed offshore drilling.
BOEM-2025-0015-15062	Francine Zumpano	Oppose	8,402	• Urged the Department of the Interior not to add new lease sales to the 11th National OCS Oil and Gas Leasing Program. • Stated that offshore drilling threatens coastal economies, public health, and safety, releases hazardous air pollutants from drilling operations and suggested BOEM should focus on enforcing decommissioning deadlines for existing infrastructure.
BOEM-2025-0015-0861	Lisa Pisano	Oppose	3,928	• Expressed concern about leasing for oil and gas development off U.S. coasts in the 11th National OCS Oil and Gas Leasing Program. • Stated that routine leaks and accidents threaten clean ocean environments, that also poses threats to various marine species including walruses, beluga whales, sea turtles, and manatees.
BOEM-2025-0015-15123	Ray Parker	Support	5,374	• Stated that offshore energy development has helped make the United States the world's top

Form Letter Document ID	Organization/ Commenter Name	Position	Total Submissions in Campaign	Summary of Submission Letter
				producer of oil and natural gas. • Suggested that the expansion of leasing in all OCS regions would help keep energy prices stable, create jobs, and strengthen energy independence. • Mentioned that modern offshore development is safer than before and that Gulf oil production has among the lowest carbon intensity globally.

General Public

General Comments from Individuals Not Specific to OCS Program Areas

Approximately 84,575 submissions were received from individuals, of which approximately 82,360 were submitted as part of form letter campaigns. Approximately 82,360 of the form letter submissions from individuals express opposition for the 11th National OCS Oil and Gas Leasing Program. None of the form letter submissions from individuals express general support. Of the unique submissions received from individuals, numerous submissions provide general comments with regard to the 11th National OCS Oil and Gas Leasing Program and impacts on the environment, tourism, economy, and climate change.

Commenters in opposition to offshore oil and gas development cite environmental concerns including oil spills, air and water pollution resulting in negative effects on public health, marine resources, and the impacts on recreation and tourism industries. Commenters emphasize that seismic blasting used in oil and gas exploration causes significant harm to marine life. Commenters also emphasize and express concern related to the coastal economies dependent on tourism, recreational and commercial fishing industries, including the economic risks of oil spills on these industries. Commenters state that the economic benefits of offshore drilling are short-term and concentrated, while the long-term costs—environmental degradation, disaster response, and loss of tourism revenue—are widely shared and enduring. Commenters state that expanding offshore drilling contradicts national and global climate goals, including commitments under the

Paris Agreement and efforts to reduce GHG emissions. Commenters also cite the Intergovernmental Panel on Climate Change reports indicating that new fossil fuel development is inconsistent with limiting global warming to 1.5°C or 2°C.

Commenters recommend excluding the Arctic, Atlantic, and Pacific regions from new leasing in the 11th National OCS Program. Commenters urge BOEM to exclude all designated and proposed marine sanctuaries from oil and gas lease consideration, with specific mentions of the Chumash Heritage and Channel Islands sanctuaries. Commenters also recommend that BOEM adopt a "no new leasing" alternative in the upcoming program. Commenters recommend BOEM issue a leasing program with zero new lease sales and redirect resources to cleanup, decommissioning, and enforcement against legacy polluters.

Commenters express concern about the disproportionate impacts of offshore drilling on lower-income communities and communities of color. Several commenters state that coastal and Indigenous communities already face higher exposure to pollution and economic instability from extractive industries, and that most economic benefits from offshore drilling do not stay local. Commenters describe the importance of protecting Indigenous communities and their cultural heritage. Further, commenters describe health risks associated with offshore drilling, including respiratory and cardiovascular problems for coastal communities. Commenters express concern about contamination of seafood and drinking water from drilling operations and oil spills.

Commenters state that the United States is already producing record amounts of oil and gas, making additional offshore leasing unnecessary for energy security. Additionally, commenters state that renewable energy sources such as wind, solar, and tidal power offer more sustainable alternatives that are becoming increasingly efficient and affordable and provide economic benefits. Commenters suggest that the 11th National OCS Oil and Gas Leasing Program contradicts the wishes of coastal communities and some commenters question why BOEM is proposing a new leasing program so soon after the approval of the 2024-2029 five-year plan in December 2023. Commenters call for meaningful consultation with Indigenous communities, coastal residents, and other stakeholders potentially affected by offshore drilling. Commenters urge BOEM to consider the interests of future generations who will inherit the consequences of today's energy policy decisions.

Further, commenters recommend that BOEM conduct a comprehensive environmental impact analysis that incorporates the latest peer-reviewed research on marine mammal vulnerability and oil spill response and consider the climate-related impacts of offshore drilling. Commenters express concern about BOEM's decision to forgo a full NEPA analysis and exclude an evaluation of alternatives in its environmental review process.

Commenters in support of offshore drilling state that offshore drilling will promote American energy independence, strengthen national security, stimulate economic growth, create new jobs in coastal counties, and provide affordable energy for Americans. Commenters suggest that modern offshore development is safer than in the past, with improved technologies and environmental safeguards.

Comments from Individuals Specific to Program Areas

Many individuals provided comments specific to the Alaska, Pacific, Gulf of America, and Atlantic regions.

Alaska Region

Commenters in opposition to oil and gas development in the Alaska region cite the fragility of Alaska’s marine ecosystems, particularly in the Arctic, which support diverse wildlife including marine mammals, fish, and seabirds that will be threatened by offshore drilling activities. Commenters emphasize that Arctic waters face unique environmental challenges, including warming sea temperatures disrupting fish migration, thawing permafrost releasing contaminants, and the bioaccumulation of pollutants in subsistence food sources. Further, commenters describe the extreme difficulty of oil spill cleanup in Arctic conditions. Additionally, commenters express concern about threats to Indigenous communities, particularly Alaska Natives who rely on healthy marine environments for subsistence hunting, fishing, and cultural practices and highlight the disproportionate health impacts on Alaska Native populations. Specifically, the Iñupiat people's opposition to offshore drilling in whaling territory is discussed with an emphasis on the importance of respecting Indigenous knowledge and rights. Commenters state that the long-term costs of potential environmental damage could outweigh the gains, particularly for industries like fishing and tourism. Several commenters state that Alaska's salmon fisheries will be threatened by offshore oil development. Commenters highlight the Arctic's accelerated warming and the potential for offshore drilling to exacerbate climate impacts. Commenters also state that investing in fossil fuel infrastructure locks in decades of future emissions when resources should instead be directed toward renewable energy development.

Commenters in support of offshore leasing in Alaska discuss the significant resource development potential in the region and economic benefits related to diversifying coastal economics that depend on seasonal tourism. Supporters advocate for offshore drilling to promote American energy independence and potentially lower gas prices.

Pacific Region

Commenters in opposition to offshore drilling in the Pacific OCS region express concern about the potential environmental impacts of offshore drilling in the Pacific OCS, citing the risk of oil spills that could negatively impact marine ecosystems, harm wildlife, and damage coastal habitats. Commenters emphasize the ecological significance of the Pacific coast, mentioning that its rich biodiversity will be threatened by oil and gas development. Commenters express concern about the chronic pollution from routine operations, including noise pollution, habitat disruption, and toxic discharges that could harm marine life even without a catastrophic spill and highlight the particular vulnerability of the Pacific OCS to seismic activity. Further, commenters express opposition to drilling near or within marine sanctuaries, specifically mentioning the Channel Islands National Marine Sanctuary, Chumash Heritage National Marine Sanctuary, Monterey Bay National Marine Sanctuary, Greater Farallones, and Cordell Bank. Commenters discuss the Chumash Heritage National Marine Sanctuary stating that oil and gas development will undermine its cultural and ecological significance. Further, commenters reference existing protections for the Pacific coast, including the long-standing Congressional moratorium on offshore drilling and presidential withdrawals that have protected these areas. Specifically, commenters express strong opposition to offshore drilling from West Coast states who formally oppose offshore leasing. Commenters describe the importance of the Pacific coast to California's economy, citing tourism, recreation, commercial and recreational fishing, and other ocean-dependent industries that could be harmed by offshore drilling. Commenters also state that expanding offshore oil and gas development contradicts national and state climate goals and commitments to reduce GHG emissions and recommend the government prioritize renewable energy development.

Commenters in support for offshore drilling in the Pacific OCS region generally discuss economic benefits to California and energy independence.

Gulf Of America Region

Commenters in opposition to offshore drilling in the Gulf of America OCS region express concern related to environmental risks and cite impacts of the 2010 Deepwater Horizon event. Commenters discuss the economic impact on the region and the continued damage to the environment after remediation efforts. Commenters also discuss other recent incidents, including the oil well spill in Louisiana. Commenters also state that in addition to oil spills, routine drilling operations release pollutants into sensitive marine ecosystems. Commenters discuss the region's reliance on tourism, commercial and recreational fishing, and other ocean-dependent industries, remarking that these industries will be threatened by offshore drilling. Further, commenters describe the Gulf of America as a "sacrifice zone" where marginalized communities are disproportionately impacted by environmental damage and public health risks. Commenters urge BOEM to exclude biologically significant and culturally sensitive areas from future lease sales, such as marine sanctuaries, migratory corridors, and subsistence zones and call for coordination with state coastal zone management programs. Some commenters discuss potential conflicts between offshore drilling and military operations, particularly in the Eastern Gulf of America, Jacksonville Range Complex, and Northeast Range Complexes. Commenters suggest focusing on decommissioning existing obsolete oil infrastructure in the Gulf of America instead of expanding drilling. Commenters advocate investing in clean, renewable energy sources like wind and solar instead of expanding offshore drilling.

Commenters in support of offshore drilling in the Gulf of America region suggest the region has the greatest resource development potential. Commenters state that the Eastern Gulf including the Florida coast is primarily a natural gas province. Other commenters claim that drilling sites can coexist with the fishing industry.

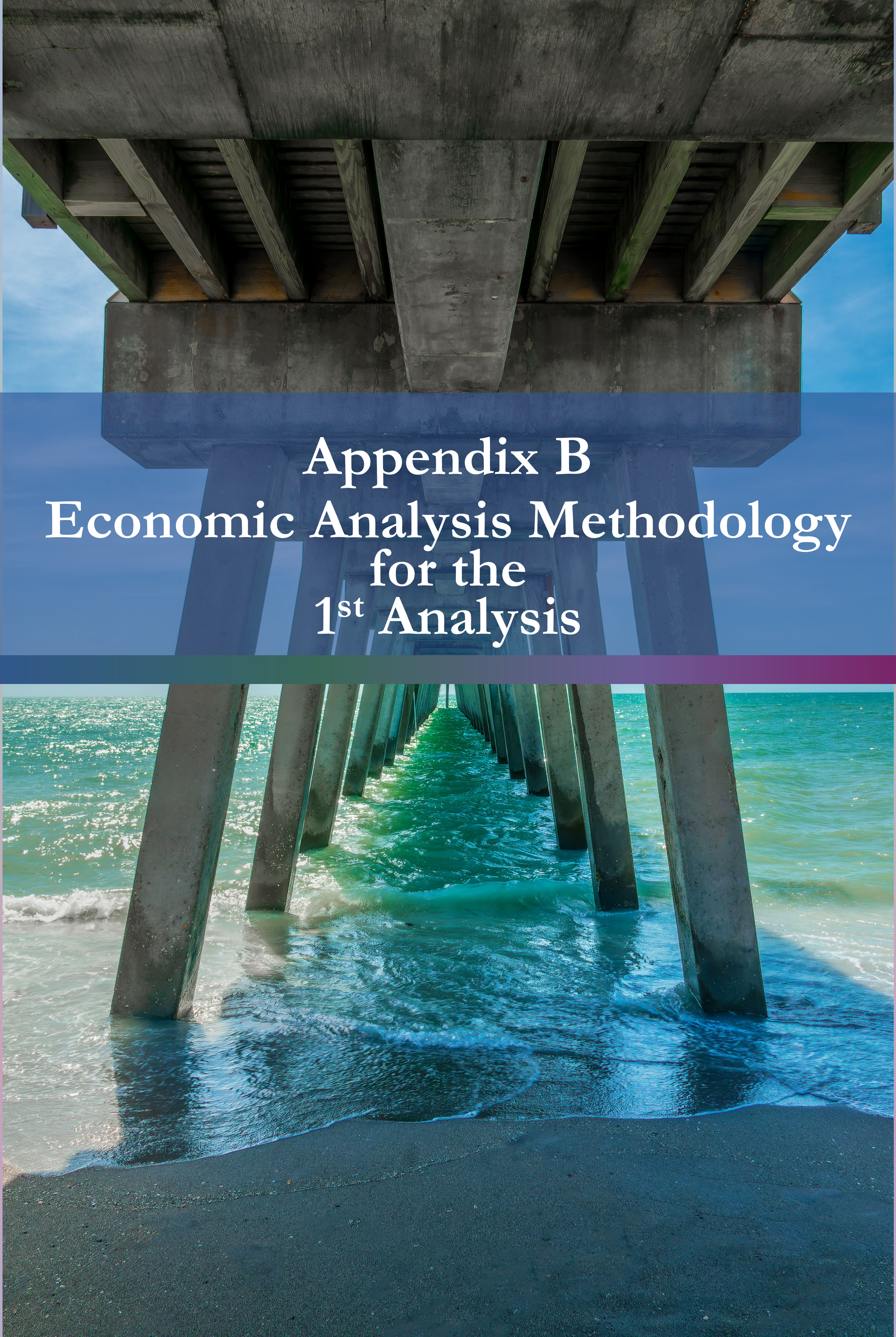
Atlantic Region

Commenters in opposition to offshore drilling in the Atlantic OCS region discuss environmental and ecological concerns of offshore drilling including oil spills and routine drilling operations that result in the release of pollutants into marine ecosystems, contribute to ocean acidification, and cause ongoing environmental degradation. Commenters express concern about seismic testing used in oil exploration and related disruption to marine mammal communication, fish migration patterns, and reduced fish catch rates. Commenters describe the unique ecological value of specific regions, including Gray's Reef. Additionally, commenters express concern that numerous marine species will be threatened by offshore drilling, including sea turtles, manatees, dolphins, whales (particularly the critically endangered Rice's whale and the North Atlantic Right whale), and various bird species. Several comments highlight the fragility of coastal ecosystems such as marshes, barrier islands, and estuaries. Commenters request that BOEM prioritize exclusion of biologically significant and culturally sensitive areas from future lease sales, such as marine sanctuaries, migratory corridors, and subsistence zones.

Commenters emphasize that coastal economies depend on clean beaches, healthy ecosystems, and tourism and state that commercial and recreational fishing industries will be jeopardized by offshore drilling. Commenters state that even the perception of risk from oil and gas activity can negatively affect tourism, property values, and investor confidence, with potential long-term consequences for small businesses and coastal livelihoods. Commenters state that because the oil and gas industry already hold leases on over 12 million acres in the Gulf of America new leases are unnecessary. Commenters call for better coordination with state coastal zone management programs.

Commenters in support of offshore oil and gas leasing in the Atlantic generally suggest moving forward with offshore oil and gas drilling off the Florida coast without providing additional information.

Appendix B
Economic Analysis Methodology for the 1st Analysis



Economic Analysis Methodology

for the

11th National Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program: 1st Analysis

November 2025

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Abbreviations and Acronyms

2021 National Assessment	*2021 Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf*
bbl	barrels of oil
BOE	barrel of oil equivalent
BOEM	Bureau of Ocean Energy Management
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CO	carbon monoxide
DPP	Draft Proposed Program
E.O.	Executive Order
GHG	greenhouse gas
GOA	Gulf of America
GWP	global warming potential
MMBOE	million barrels of oil equivalent
NEV	net economic value
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NPV	net present value
O_3	ozone
OCS	Outer Continental Shelf
OECM	Offshore Environmental Cost Model
PFP	Proposed Final Program
$PM_{2.5}$	Particulate matter with a diameter equal to or less than 2.5 microns
PM_{10}	Particulate matter with a diameter equal to or less than 10 microns
PM	particulate matter
SO_2	sulfur dioxide
USEPA	U.S. Environmental Protection Agency
WEB3	When Exploration Begins, version 3

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Chapter B-1
OCS Inventory Net Benefits for the 1st Analysis Methodology

B-1.1 Non-Monetized Impacts

B-1.1.1 Non-Monetized Costs

The Bureau of Ocean Energy Management (BOEM) conducts the Inventory Net Benefits analysis to capture important costs and benefits associated with new Outer Continental Shelf (OCS) leasing that can be reliably quantified and estimated. Additionally, there are other types of costs and benefits that are not included in the offshore environmental cost model (OECM) or monetized in the Inventory Net Benefits analysis. This appendix supplements the Inventory Net Benefits analysis with a qualitative discussion of the costs and impacts that cannot be monetized.

B-1.1.1.1 Greenhouse Gas Emissions

The OECM estimates the monetary value of possible damages from emissions for six pollutants:

1. Oxides of nitrogen (NO_x)
2. Sulfur oxides (SO_x)
3. Particulate matter with a diameter equal to or less than 10 microns (PM_{10})
4. Particulate matter with a diameter equal to or less than 2.5 microns ($PM_{2.5}$)
5. Carbon monoxide (CO)
6. Volatile organic compounds.

However, the OECM does not estimate a monetary value of damages from emissions for greenhouse gases (GHGs), including methane (CH_4), carbon dioxide (CO_2), and nitrous oxide (N_2O). Nevertheless, the model does calculate the quantity of GHG emissions that would be emitted. As with the criteria pollutants, GHGs are calculated based on the exploration and development assumptions used in the other aspects of the Inventory Net Benefits analysis. Table 1-1 shows the estimated emissions associated with the exploration and development of OCS resources in tons of CO_2 equivalent (CO_2e) for those areas that have hydrocarbon resource potential and/or development potential. Emissions of CH_4 and N_2O are converted to tons of CO_2e using the 100-year GWP conversion factors developed by the U.S. Environmental Protection Agency (USEPA) (USEPA 2023) of 25 times for CH_4 and 298 times for N_2O.[1]

[1] The CO_2e conversion factors reflect differences in the Global Warming Potential (GWP) of individual GHGs. The GWP for a specific GHG is predominantly a function of the average time the gas remains in the atmosphere and how strongly it absorbs energy. CO_2 is used as the benchmark for comparison. For example, in the case of CH_4, which has a 100-year GWP factor of 25, CH_4 emissions cause 25 times as much warming as an equivalent mass of CO_2 emissions over that same 100-year period.

Table 1-1: Greenhouse Gas Emissions, Thousands of Metric Tons of CO_2 Equivalent (CO_2, CH_4, N_2O), Sorted based on Inventory Net Benefits at the $100/bbl Price Case

Planning Area	$40/bbl Price Case	$100/bbl Price Case	$160/bbl Price Case
Central GOA	26,163	47,232	52,992
Western GOA	10,940	19,628	21,568
Southern California	9,340	15,180	19,613
Mid-Atlantic	4,523	7,920	8,733
North Atlantic	3,805	6,490	8,135
Central California	4,638	8,309	11,717
Eastern GOA	9,703	20,828	22,247
Chukchi Sea	*	16,402	36,379
Beaufort Sea	*	11,651	17,486
Cook Inlet	1,171	4,130	5,475
Northern California	3,387	6,053	9,288
North Aleutian Basin	*	3,318	3,737

Key: bbl = barrels; CO_2=carbon dioxide; CH_4=methane; GOA = Gulf of America; N_2O=nitrous oxide. * = The North Aleutian Basin, Chukchi Sea, and Beaufort Sea planning areas have negligible developmental value at $40/bbl and are not modeled; instead, they are shown as 0 at the $40/bbl oil price case.
Note: Emissions of CH_4 and N_2O were converted to tons of CO_2e using the 100-year GWP conversion factors developed by the USEPA (USEPA 2023) of 25 times for CH_4 and 298 times for N_2O.

BOEM has not included any estimates for the social cost of GHG emissions for multiple reasons. First, the National OCS Program is not a rulemaking. Rulemakings are the administrative actions for which the interagency working group originally developed the social cost of carbon protocol. Second, Executive Order (E.O.) 14154 clarifies that the interagency working group has been disbanded and its guidance withdrawn.

B-1.1.1.2 Onshore Infrastructure

Another category of environmental and social cost that is not monetized in the Inventory Net Benefits analysis is the development of onshore infrastructure that directly supports OCS oil and gas activities.

Typically, the Inventory Net Benefits analysis only considers the impacts associated with extracting resources and transporting them to shore. However, BOEM recognizes that additional environmental and social costs can occur as the result of onshore development, especially in frontier areas that lack the onshore resources necessary to support OCS oil and gas development. Most of these costs are too uncertain to quantitatively model given uncertainty surrounding the type, quantity, and location of infrastructure needs, as well as the unknown potential mitigation measures that other permitting agencies could require to minimize or avoid the environmental impacts from onshore-support activities.

In general, construction or development of onshore infrastructure could cause changes in air or water quality, reductions in coastal marshland, and declines in the value of ecosystem services (e.g., loss of flood protection). Vulnerable coastal communities are often located near onshore infrastructure and could be disproportionately impacted by construction or increased use of existing onshore infrastructure. The following is a list of the different types of onshore infrastructure, which are generally associated with OCS oil and gas operations:

Port Facilities: Major maritime staging areas for movement between onshore industries and infrastructure and offshore leases.

Platform Fabrication Yards: Facilities in which platforms are constructed and assembled for transportation to offshore areas. Facilities can also be used for maintenance and storage.

Shipyards and Shipbuilding Yards: Facilities in which ships, drilling platforms, and crew boats are constructed and maintained.

Support and Transport Facilities: Facilities and services that support offshore activities. This includes repair and maintenance yards, supply bases, crew services, and heliports.

Pipelines: Infrastructure used to transport oil and gas from offshore facilities to onshore processing sites and ultimately to end users.

Pipe Coating Plants and Yards: Sites that condition and coat pipelines to transport oil and gas from offshore production locations.

Natural Gas Processing Facilities and Storage Facilities: Sites that process natural gas and separate its component parts for the market, or that store processed natural gas for use during peak periods.

Refineries: Industrial facilities that process crude oil into numerous end-use and intermediate-use products.

Petrochemical Plants: Industrial facilities that intensively use oil and natural gas and their associated byproducts for fuel and feedstocks.

Waste Management Facilities: Sites that process drilling and production wastes associated with offshore oil and gas activities.

Some of this infrastructure is not unique to OCS oil and gas development and could be required even in the absence of OCS leasing. While the development of onshore infrastructure to support OCS oil and gas operations could cause environmental and social costs, there would also be developmental economic benefits associated with facility construction and operation, which are similarly not included in the Inventory Net Benefits analysis.

For these onshore development activities and any associated activities occurring in state waters, BOEM is not the lead permitting or regulatory agency. BOEM compiled additional information on the impacts of onshore infrastructure and included them in the *Volume 2: Supplemental Information to the 2018 Revised Offshore Environmental Cost Model (OECM)* (Industrial Economics Inc. 2018).

B-1.1.1.3 Passive-Use Values

In general, the Inventory Net Benefits analysis includes cost estimates of many types of use values but does not include those that would be considered passive-use values (also referred to as non-use values). Evidence of passive-use values can be found in the trade-offs people make to protect or enhance environmental resources that they do not use. The various types of passive-use values are as follows:

Option Value

An individual's current value includes the desire to preserve the opportunity to use a resource in the future

Bequest Value

An individual's value in having an environmental resource available for his or her children and grandchildren to experience. It is based on the desire to make a current sacrifice to raise the well-being of one's descendants.

Existence Value

Individuals often place value on the existence of an environmental good, even though the individual has no current or potential direct use of the good. An example might be the value a person places on Mount Everest or elephants in Africa even if they do not intend or have the ability to experience them, now or in the future, and have no children to whom to bequeath the experience.

A large body of literature discusses studies of these values. Estimating passive-use values via stated preference surveys, such as the contingent valuation method,[2] requires significant time and resources, and has been subject to scrutiny regarding the validity of results due to their hypothetical nature (e.g., survey respondents place value on having protected resources, but are not actually responsible for the any of the costs associated) (Roach and Wade 2006). While best

[2] Contingent valuation is performed to estimate the economic value of non-market resources and services—such as environmental protection—through surveys that ask respondents to estimate their willingness to pay for such resources or services.

practices have improved the implementation of these methods over time through integration of validity and scope tests (Shaw and Wlodarz 2013), these methods remain resource-intensive processes.

To the extent that some passive-use values exist in the literature, their ability to be transferable to the BOEM context is quite limited. The values were developed using stated preference techniques and the results from such analyses are often highly dependent on the resource and specific context (that would include resource conditions, possible improvements or degradation as a result of policy changes, and payment vehicles). If one were interested in evaluating the extent to which households or individuals hold passive-use values for OCS oil and gas resources or resources affected by the extraction of OCS oil and gas, original empirical research would be needed because a benefit transfer approach would not be appropriate given the importance of the specific context for stated preference studies. Total economic value studies (passive-use values are part of total economic value) are time-consuming and expensive to conduct. Given the national scope of the OECM and the challenge of conducting a large-scale economic valuation study to ascertain potential geographic variability of values, such an approach would be incredibly complex and financially prohibitive. Stated preference methods also remain controversial when applied to elicit values.[3] USEPA notes that stated preferences surveys require careful structure to be useful and relevant (USEPA 2010).

In general, the OECM uses the benefits-transfer method to estimate economic values associated with ecological and ecosystem services. The magnitude of those values not captured by the OECM is difficult to determine without additional primary research.

More discussion on the ecological components not included in the Inventory Net Benefits analysis is in the report titled *Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development - Volume 2: The 2018 Revised Offshore Environmental Cost Model (OECM)* (Industrial Economics Inc. 2018).

B-1.1.1.4 Additional Impacts from Non-Catastrophic Oil Spills

The Inventory Net Benefits analysis quantifies the costs of animal mortality and lost habitat from an oil spill through habitat equivalency analysis, where costs are estimated in terms of the anticipated expense to restore or re-establish damaged habitat. The Inventory Net Benefits analysis, however, does not quantify the values above the restoration cost at which society could value the damaged resource (i.e., the OECM does not monetize impacts on unique resources). Additional information is provided in both Volume 1 and 2 of the OECM documentation (Industrial Economics Inc. 2018, 2023).

[3] The application of survey-based approaches for use values, such as understanding how, and how often, members of a community use a resource, is generally accepted, especially when issues such as recall bias and strategic responses are addressed.

Further, the model does not include ecological costs associated with the use of dispersants, or the air quality costs associated with response vessel activity in the event of an oil spill. Those responding to an oil spill could apply chemical dispersants to affected waters to enhance natural dispersion of spilled oil to reduce surface tension at the oil/water interface, thereby increasing the likelihood that wave motion will break the oil into small droplets that are more easily dissolved into water. The use of dispersants can be controversial, because the dispersants could impact marine species and the environment, particularly in shallow waters (ITOPF 2011).

The impacts of dispersants and response vessel activity are not currently incorporated in the OECM. Adding such impacts to the model would require more detailed data on the likelihood of response activity for a given spill and an estimate of the likely impacts associated with dispersant use. While estimates of potential use could possibly be derived based on historical experience, detailed data relating dispersant use to specific impacts are not readily available.

B-1.1.1.5 Additional Ecological Impacts

The Inventory Net Benefits analysis includes monetized impacts on ecological resources through oil spills but does not monetize the impacts on these resources from general operations. For example, it does not capture costs to habitats or organisms from waste cuttings and drilling muds deposited on the ocean floor near OCS structures, auditory impacts and vessel strikes on marine mammals, or water quality impacts associated with produced water discharged from wells or non-oil discharges from platforms and vessels. BOEM continues to monitor research on these topics for incorporation in future analyses.

B-1.1.1.6 Ecological, Cultural, and Economic Impacts on Subsistence

The Inventory Net Benefits analysis includes a partial consideration of subsistence impacts in the Alaska region, but BOEM recognizes there are other components of subsistence value that cannot be monetized, and that monetization of any portion of subsistence impacts is controversial. In particular, BOEM received feedback from Alaska Native Tribal organizations expressing that cultural and social values cannot be quantified and there is no replacement value for subsistence. The economic models that support the Inventory Net Benefits do not attempt to capture or place a monetary value on cultural identity and heritage, community lifeways, sense of belonging, spiritual practices, community self-reliance, and other elements of a mixed subsistence-cash economy. In addition, subsistence harvests in other regions are not included because harvest data is sparse outside of Alaska.

B-1.1.2 Non-Monetized Benefits

The OECM does not monetize certain benefits from OCS oil and gas activities because a credible assessment of monetized impacts cannot be made, owing to a lack of available data and inability to associate any monetized impacts specifically with new OCS leasing and production. Several categories of these non-monetized benefits, including recreational fishing and diving, national energy security, and the U.S. trade deficit, can only be evaluated qualitatively and are discussed below.

B-1.1.2.1 Recreational Fishing and Diving

Obsolete OCS oil and gas platforms can be converted to artificial reefs to support marine habitat. In the Gulf of America (GOA), where the seafloor consists mostly of soft mud and silt, artificial reefs and platforms can provide additional hard-substrate areas for a variety of species. The benefits of artificial reefs are well documented and could increase the density of fish species around platforms when compared to natural reef sites (BOEM 2012). Additionally, platforms in the GOA provide gathering areas for commercial and recreational anglers. The Central and Western GOA planning areas are particularly popular for recreational fishing and diving. Anglers and divers are most likely to use closer-to-shore platforms for the ease of accessibility, and often take into consideration the platform structure and the location characteristics (CSA Ocean Sciences and SWCA 2025).

Gulf Coast states recognize the potential importance of such aquatic structures to marine species and local activities. The artificial reef programs in these states, as part of the Rigs-to-Reefs Program, have worked to facilitate the permitting, navigational requirements, and liability transfer for decommissioned and reefed rigs on the OCS and in state offshore waters. More information on the artificial reefs and the state programs is included in Appendix A-4 of the *Gulf of Mexico OCS Oil and Gas Lease Sales: 2012–2017 Final Environmental Impact Statement* (BOEM 2012).

B-1.1.2.2 National Energy Security

For the past 50 years, U.S. oil and gas demand, supply, and prices have shaped U.S. national energy policy concerns and national security issues. Because crude oil is used as a source of energy for many goods, services, and economic activities throughout the U.S. economy, supply disruptions, and increases in energy prices affect nearly all U.S. consumers. Accordingly, President Trump issued two E.O.s to support increasing domestic energy resources. These E.O.s are discussed in Chapter 4 of the 1st Analysis and Proposal.

Concerns over energy security stem from the importance of crude oil and natural gas within U.S. economic markets and the energy supply disruptions that can occur due to the characteristics and behavior of the global crude oil supply market. The externalities associated with oil supply disruptions—economic losses in gross domestic product and economic activity—have been shown to be greater for imported oil than domestically produced oil. Increased domestic oil production can boost the share of stable supplies in the world market while increased oil imports, often from unstable regions, can have the opposite effect (Brown and Huntington 2010). Increased oil and gas production from the OCS can help mitigate the impact of supply disruptions and spikes in oil prices on the U.S. economy, mitigating economic downturns as well as the amount of U.S. dollars sent overseas from purchases of crude oil imports.

B-1.1.2.3 U.S. Trade Deficit

Chapter 4 of the 1st Analysis and Proposal provides a discussion of energy's importance in the balance of payments and trade, with an emphasis on the relationship to OCS production and imported oil. In particular, large expenditures on crude oil imports can stifle economic activity and slow down domestic economic growth, as well as impact the rate of U.S. inflation and reduce the real discretionary incomes of U.S. consumers (CRS 2010). Domestic production of oil from the OCS reduces the amount of oil that must be imported from abroad, thereby mitigating the effect that high domestic energy expenditures could have on the U.S. trade deficit.

Chapter B-2
Fair Market Value Analysis: WEB3 Methodology

As described in Chapter 12 of the 1st Analysis, at the National OCS Program development stage, BOEM considers how the timing of offering planning areas for oil and gas leasing affects their value using a hurdle price analysis. The hurdle price is the price below which delaying exploration for the largest potential undiscovered resource field in the sale area is more valuable than immediate exploration.[4] BOEM calculated the hurdle price for 12 planning areas, while the remaining 15 were estimated to have either negligible resources or limited development value. BOEM's hurdle price analysis is one of the numerous factors considered before making a final leasing decision.

BOEM's calculation of the hurdle price for the Draft Proposed Program (DPP) is similar to that used in the 2024—2029 Proposed Final Program (PFP). BOEM uses the WEB3 (When Exploration Begins, Version 3) model to calculate the hurdle prices associated with each planning area. This appendix provides additional information on the methodology behind the hurdle price calculation.

B-2.1 WEB Calculations

BOEM uses the WEB3 model to calculate the social value of offering leases now versus waiting. WEB3 computes the social value of immediate leasing versus delays of 1 through 10 years. BOEM considers leasing in the 11th Program to be immediate leasing (2026), a one-year delay (2027), and up to a four-year delay (2030). Delays of 5 to 10 years are considered as leasing in 2031 through 2035, which are likely after the end of the 11th National OCS Program. If the social value of delaying leasing until the next National OCS Program (i.e., the 12th Program) is higher than leasing at any time during this current period, then delaying the area until the next program could be optimal. This analysis is conducted for planning areas that have hydrocarbon resource potential and/or development potential above negligible.

WEB3 calculates the NEV as follows:

$$NEV = Q(P - V) - F$$

In this equation, Q is the quantity of resources, P is price, V is variable costs, and F is fixed costs. Both the quantity of resources and price inputs are random variables determined by the WEB3 model. BOEM then adjusts the NEV for the environmental and social costs associated with development to calculate the Inventory Net Benefits.

[4] All else being equal, the largest field tends to have the highest net value per equivalent barrel of resources, making it the least likely field to benefit from a delay in being offered for lease. BOEM used the 95th percentile field size as the approximate largest field size available in each planning area.

$$Inventory\ Net\ Benefits = NEV - ESC$$

In this equation, ESC is the estimate of environmental and social costs. BOEM then compares the expected value (denoted by the symbol Et+1) of the Inventory Net Benefits if an area is available for lease immediately with the expected value of the Inventory Net Benefits if leasing is delayed. WEB3 calculates the expected social value in the next period (in time, t + 1) based on the choice to lease or wait in the first period (e.g., "What is the value tomorrow of my choice to explore today?"). The social value of leasing is calculated as follows:

$$SV_L = E_{t+1}[NSV(r_s)|lease\ in\ t]$$

The social value of waiting is calculated as follows:

$$SV_W = \ E_{t+1}[NSV(r_s)|wait\ in\ t]$$

In this equation, SV_L is the social value of leasing and $SV_W$is the social value of waiting. The calculation of social value under both the leasing and waiting scenarios are discounted at the social discount rate, r_s. This analysis uses a social discount rate of 3%.

To calculate the hurdle price, WEB3 solves for the lowest price at which leasing during 2026–2030 produces a higher Inventory Net Benefits than leasing in 2031 or after. This price then becomes the hurdle price, the lowest price at which leasing in the 11th Program becomes optimal as opposed to waiting to lease.

B-2.2 Hurdle Price Assumptions

To calculate the hurdle price, BOEM employs various assumptions to estimate the value of the resources and how this value might change with delay. This section outlines the assumptions for resources, prices, private costs, and social costs.

B-2.2.1 Resource Assumptions

The first step in calculating hurdle prices is to identify the resource assumptions in each planning area. WEB3 uses two separate resource assumptions in calculating the potential field size in a region: the probability that the lessee finds resources during exploration, and, if resources are found, the expected field sizes. BOEM assumes a 20% success rate for exploratory drilling. BOEM models the 95th percentile of the largest field size in each planning area for the hurdle price analysis.

Beginning with the 2019–2024 DPP, BOEM revised the proxy for the largest field size from the 90th percentile field to the 95th percentile field. This change allows for a better reflection of a large field in some of the areas with great exploration risk that have seen little to no exploratory activity. The 95th percentile field size provides a practical estimate of a large field size by eliminating the tails of the resource distribution, and constitutes a reasonable assumption based on known discoveries and/or analog information in each planning area. BOEM uses the same 95th percentile field in this analysis. BOEM continually evaluates its hurdle price methodology to determine the most appropriate assumptions and inputs to use.

After large fields are initially developed, smaller nearby fields can be more economical to develop by sharing existing infrastructure. To reflect this, the analysis models a proxy for the largest field size in each area, rather than the average. This approach prevents excluding areas with potential large prospects, even if average values suggest otherwise. The hurdle price analysis is appropriate at the programmatic level where the decision is simply made whether to include an area in a National OCS Program, and no final decision is made on whether to hold any specific sale, its configuration, or its financial terms.

For the purposes of determining hurdle prices, BOEM analyzed the distribution of expected undiscovered field sizes associated with each planning area from BOEM's *2021 Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf* (2021 National Assessment) (BOEM 2021) estimates at the mean probability. The field size framework is provided by the United States Geological Survey field size classes, which enables grouping of fields. For example, there might be two fields in a range of 2 to 4 million barrels of oil equivalent (MMBOE), three fields in the next class covering 4 to 8 MMBOE, and so on. The corresponding large field size from which hurdle prices are calculated are associated with the 95th percentile of the field size distribution. Table 2-1 shows the estimated field size in each analyzed planning area.

Table 2-1: Assumed Largest Field Size by Planning Area

Planning Area	Large Undiscovered Field (Million BOE)
Beaufort Sea	250
Chukchi Sea	371
North Aleutian Basin	133
Cook Inlet	342
Northern California	45
Central California	44
Southern California	87
Central GOA	179
Western GOA	180
Eastern GOA	173
Mid-Atlantic	358
North Atlantic	356

Key: BOE = barrel of oil equivalent

B-2.2.2 Price Assumptions

The WEB3 model incorporates a specific type of price model appropriate for the analysis of real options for commodities like oil and gas. The price model in WEB3 represents the range of possible future prices generated by a specific algorithm that models a mean-reverting stochastic process. In this formulation, the change in price from one time to the next is random, and the probability of a step up or down reflects a tendency for movement toward the mean level. WEB3 calculates price as the following:

$$P_{t+1} = P_t[\frac{T_{t+1}}{P_t}]^{\alpha}\varepsilon_{t+1}$$

Where: P_t is the real price in time t; T_{t+1} is the real mean trend price in time t; α is the reversion rate; and ε_{t+1} is a random term. The three inputs to this price model are the trend price, the reversion rate, and the volatility that is incorporated in the random term. The mean trend gives the price level in each year that market prices tend to revert to after they have randomly moved off of trend. In other words, if the actual 2026 price is around $60/barrel of oil equivalent (BOE) while the trend price is set at a flat $90, the model estimates the 2027 price by combining an upward price adjustment because the 2026 price is below the trend, along with a random component that could move the price in either direction. The real price in time t = year of lease sale is the “start price” of this process. In the application to the issue of the timing of lease sales, theWEB3 model is solved for the lowest “start price” price that provides a greater value from leasing in the current program versus waiting until the future. That solution is what is called the hurdle price. If the market price at the time of leasing happens to be lower than the calculated hurdle price, then a delay of leasing is indicated.

For the hurdle price analysis, BOEM assumed that the trend price was the BOE price combining $90 per barrel (bbl) of oil and $4.80 per thousand cubic feet of natural gas in 2025 dollars. Following the mean-reversion framework, BOEM assumed that the starting price (which is equivalent to the hurdle price) will revert to the trend price at a rate of 12% of the difference per year. The volatility (that is, the annualized standard deviation) is assumed to be 32%.

An important aspect of WEB3 is that resource estimates and prices are input as BOE values. The gas-oil ratios in each planning area varies significantly, so market and mean trend prices per BOE in each area reflect that area’s weighting of the gas and oil price based on the area-specific gas-oil ratio.

B-2.2.3 Private Cost Assumptions

Once the largest field size is set, WEB3 requires estimates of the private exploration and development costs associated with that field. Exploration and development cost inputs for the WEB3 model are consistent with those used in the calculation of the NEV in Section 9.2 of the PFP. The costs used for both analyses are based on the commercial Que$tor cost modeling system, data collected by BOEM for the socioeconomic analysis of the National OCS Program, and cost estimates used in tract evaluations. BOEM identifies an approximate level of exploration and development activity required to fully develop the largest field in each planning area and calculated total costs based on the individual components. The costs used are representative of the region, field size, and water depth where that field is likely to be found and developed.

In WEB3, a lessee's decision to develop is determined by the net present value (NPV) of the project. In calculating the NPV of a project, a real discount rate of 7% is used. Note that this is different from the social discount rate of 3% that is used to calculate the net value of revenues and social costs. The private discount rate is higher than the social discount rate given differences in the time value of money between private companies and society. The social discount rate is meant to reflect the rate at which society is willing to exchange present consumption for future consumption, whereas the real discount rate applied in WEB3 is intended to represent borrowing costs plus a reasonable rate of return on capital investments.

B-2.2.4 Environmental and Social Cost Assumptions

BOEM estimates the environmental and social costs associated with exploration, development, production, transport, and decommissioning of the 95th percentile field size in each planning area using the OECM. These costs include air emissions, oil spill risks, and other externalities. They are subtracted from the traditional annual input measures of NEV, such as gross revenues and private costs.

Incorporating environmental and social costs into the hurdle price analysis results in slightly higher hurdle prices than those based solely on NEV. This is because the inclusion of these costs reduces NEV to a lower Inventory Net Benefits, increasing the relative impact of higher prices on the estimated value of a given field size. The extent to which hurdle prices change varies by planning area, depending on the magnitude of environmental and social costs relative to the estimated NEV. While the hurdle price calculation does not capture all sources of uncertainty and is not intended to predict future price paths, it remains a valuable screening tool for evaluating areas for inclusion in the 11th Program.

Chapter B-3
References

BOEM. (2012). "Gulf of Mexico OCS Oil and Gas Lease Sales: 2012–2017; Western Planning Area Lease Sales 229, 233, 238, 246, and 248; Central Planning Area Lease Sales 227, 231, 235, 241, and 247 – Final Environmental Impact Statement." OCS EIS/EA BOEM 2012-019Retrieved September 18, 2023, from https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Assessment/NEPA/BOEM-2012-019_v1.pdf.

BOEM. (2021). "2021 National Assessment of Undiscovered Oil and Gas Resources of the U.S. Outer Continental Shelf." OCS Report BOEM 2021-071. Retrieved June 13, 2022, from https://www.boem.gov/sites/default/files/documents/oil-gas-energy/2021-NA_1.pdf.

Brown, S.P.A. and Huntington, H.G. (2010). "Reassessing the Oil Security Premium." Retrieved from https://www.rff.org/publications/working-papers/reassessing-the-oil-security-premium/.

CRS. (2010, February 12, 2010). "The U.S. Trade Deficit, the Dollar, and the Price of Oil." Retrieved January 12, 2016, from https://www.fas.org/sgp/crs/misc/RL34686.pdf.

CSA Ocean Sciences, I. and SWCA. (2025, March 2025). "Understanding the Recreational Uses of Offshore Oil and Gas Platforms on the Outer Continental Shelf of the Gulf of America: Synthesis Report." OCS Study BOEM 2025-012Retrieved May 9, 2025, from https://espis.boem.gov/Final%20Reports/BOEM_2025-012.pdf.

Industrial Economics Inc. (2018). "Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development - Volume 2: Supplemental Information to the 2018 Revised Offshore Environmental Cost Model (OECM)." OCS Study BOEM 2018-067.

Industrial Economics Inc. (2023). "Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development, Volume 1: 2023 Revised Offshore Environmental Cost Model (OECM)."

ITOPF. (2011). "Use of Dispersants to Treat Oil Spills." Technical Information Paper 4Retrieved January 13, 2016, from http://www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP4UseofDispersantstoTreatOilSpills.pdf.

Roach, B. and Wade, W.W. (2006). "Policy evaluation of natural resource injuries using habitat equivalency analysis." Ecological Economics **58**(2): 421–433.

Shaw, W.D. and Wlodarz, M. (2013). "Ecosystems, ecological restoration, and economics: does habitat or resource equivalency analysis mean other economic valuation methods are not needed?" Ambio **42**(5): 628–643. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/23055274.

USEPA. (2010). "Guideline for Preparing Economic Analyses." from https://www.epa.gov/sites/default/files/2017-08/documents/ee-0568-50.pdf.

USEPA. (2023). "Emissions Factors for Greenhouse Gas Inventories." Retrieved May 29, 2025, from https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf.

Appendix C
Protected Species

Appendix C: ESA-Listed Marine and Coastal Species

This table details all ESA-listed species mentioned in the DPP and specifies the regions where each species (or designated species population [DPS]) has ESA status or critical habitat.

Table C-1. ESA-listed Marine and Coastal Species

FISH

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Atlantic salmon	*Salmo salar*	-	-	-	+	E: 65 FR 69459	74 FR 29300	None
Atlantic sturgeon	*Acipenser oxyrinchus*	-	-	-	+	E: 77 FR 5914; T/E: 77 FR 5880	82 FR 39160	None
Boccacio	*Sebastes paucispinis*	-	+	-	-	E (Puget Sound/ Georgia Basin DPS): 75 FR 22276, 79 FR 20802	79 FR 68042	None
Eulachon	*Thaleichthys pacificus*	+	+	-	-	T: 75 FR 13012	76 FR 65324	None
Giant manta ray	*Manta birostris*	-	+	+	+	T: 83 FR 2916	None	-
Green sturgeon	*Acipenser medirostris*	+	+	-	-	T: 72 FR 16284; 71 FR 17757	74 FR 52300	Central California, Northern California, Washington/Oregon
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	-	-	+	-	T: 56 FR 49653	68 FR 13370	Central GOA, Eastern GOA

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Largetooth sawfish[1]	*Pristis*	-	-	+	+	E: 79 FR 73978	None	-
Longfin smelt	*Spirinchus thaleichthys*	-	+	-	-	E (San Francisco Bay-Delta DPS): 89 FR 61029	None	-
Nassau grouper	*Epinephelus striatus*	-	-	+	+	T: 81 FR 42268	None	-
Oceanic whitetip shark	*Carcharhinus longimanus*	-	-	+	+	T: 83 FR 4153	None	-
Salmon (coho, Chinook, sockeye, and chum)	*Oncorhynchus kisutch, O. tshawytscha, O. nerka, O. keta*	+	+	-	-	T/E: 77 FR 19552; 73 FR 7816; 70 FR 37160; 64 FR 50394; 64 FR 14508; 64 FR 14528; 64 FR 14308; 62 FR 24588; 61 FR 56138; 59 FR 222; 57 FR 14653; 56 FR 58619; 55 FR 46515	81 FR 9252; 73 FR 7816; 70 FR 52630; 70 FR 52488; 65 FR 7764; 64 FR 57399; 64 FR 24049; 58 FR 68543; 58 FR 33212	None
Scalloped hammerhead shark	*Sphyrna lewini*	-	+	+	+	T (Central & Southwest Atlantic), E (Eastern Atlantic, Eastern Pacific): 79 FR 38213	None	-
Shortnose sturgeon	*Acipenser brevirostrum*	-	-	-	+	E: 32 FR 4001	None	-
Smalltooth sawfish	*Pristis pectinata*	-	-	+	+	E: 79 FR 73978	74 FR 45353	Eastern Gulf of America (GOA), Straits of FL
Steelhead trout (Several West Coast DPSs[2])	*Oncorhynchus mykiss*	+	+	-	-	T/E: 72 FR 26722; 71 FR 5248; 67 FR 21586; 65 FR 36074; 64 FR 14517; 63 FR 13347; 62 FR 43937	81 FR 9252; 70 FR 52630; 70 FR 52488	None

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Tidewater goby	*Eucyclogobius newberryi*	-	+	-	-	E: 59 FR 5494	78 FR 8745	None
Yelloweye rockfish (Puget Sound/ Georgia Basin DPS)	*Sebastes ruberrimus*	-	+	-	-	E (Puget Sound/ Georgia Basin DPS): 75 FR 22276, 79 FR 20802	79 FR 68042	None

Key: + = species present in OCS Region; - = species not present in OCS Region, or, for the last column, species do not have critical habitat overlapping with planning areas; DPS = distinct population segment; E = Endangered; FR = *Federal Register*; GOA = Gulf of America; T= Threatened.

Notes: [1]Likely extinct in U.S. range; [2]Southern California DPS is ESA Endangered. ESA Threatened DPSs include: California Central Valley DPS, Central California Coast DPS, Lower Columbia River DPS, Middle Columbia River, Northern California DPS, Puget Sound DPS, Snake River Basin DPS, South-Central California Coast DPS, Upper Columbia River DPS, Upper Willamette River DPS.

BIRDS

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Bermuda petrel	*Pterodroma cahow*	-	-	-	+	E: 35 FR 8491	35 FR 8491	None
Black-capped petrel	*Pterodroma hasitata*	-	-	+	+	E: 88 FR 89611	None	-
California condor	*Gymnogyps californianus*	-	+	-	-	E: 32 FR 4001	42 FR 47840, 41 FR 41914	None
California least tern	*Sterna antillarum browni*	-	+	-	-	E: 35 FR 8491	None	-
California Ridgway's rail	*Rallus longirostris obsoletus*	-	+	-	-	E: 35 FR 16047	None	-
Cape Sable seaside sparrow	*Ammospiza maritima mirabilis*	-	-	+	+	E: 88 FR 49310, 32 FR 4001	72 FR 62736, 42 FR 47840, 42 FR 40685	None
Hawaiian petrel	*Pterodroma sandwichensis*	-	+	-	-	E: 32 FR 4001	None	-

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Least tern	*Sternula antillarum*	-	+	+	+	E: 50 FR 21784	None	-
Light-footed Ridgway's rail	*Rallus longirostris levipes*	-	-	+	+	E: 35 FR 16047	None	-
Marbled murrelet	*Brachyramphus marmoratus*	+	+	-	-	T: 57 FR 45328	81 FR 51348	Washington/Oregon, Northern California
Mississippi sandhill crane	*Grus canadensis pulla*	-	-	+	-	E: 38 FR 14678	42 FR 39985	None
Piping plover	*Charadrius melodus*	-	-	+	+	E (Great Lakes), T (Northeast): 50 FR 50726	74 FR 23476; 67 FR 57638	None
Roseate tern	*Sterna dougallii*	-	-	+	+	E (Northeast), T (Southeast): 52 FR 42064	None	-
Rufa red knot	*Calidris canutus rufa*	-	-	+	+	T: 79 FR 73705	None	-
Short-tailed albatross	*Phoebastria albatru*	+	+	-	-	E: 35 FR 8491	None	-
Spectacled eider	*Somateria fischeri*	+	-	-	-	T: 58 FR 27474	66 FR 9146	Chukchi Sea, Navarin Basin, Norton Basin, St. Matthew-Hall
Steller's eider (Alaska breeding population)	*Polysticta stelleri*	+	-	-	-	T (Alaska breeding population): 62 FR 31748	66 FR 8850	St. Matthew-Hall
Western snowy plover	*Charadrius nivosus*	-	+	-	-	T: 58 FR 12864	77 FR 36727	Washington/Oregon, Northern California, Central California, Southern California
Whooping crane	*Grus americana*	-	-	+	-	E: 32 FR 4001	43 FR 20938	None
Wood stork	*Mycteria americana*	-	+	+	+	T: 49 FR 7332	None	-

Key: + = species present in OCS Region; - = species not present in OCS Region, or, for the last column, species do not have critical habitat overlapping with planning areas; DPS = distinct population segment; E = Endangered; FR = *Federal Register*; GOA = Gulf of America; T= Threatened.

SEA TURTLES

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Green turtle	*Chelonia mydas*	+	+	+	+	T: 81 FR 20057	None	-
Hawksbill turtle	*Eretmochelys imbricata*	-	-	+	+	E: 35 FR 8492	64 FR 46693	None
Kemp's ridley turtle	*Lepidochelys kempii*	-	-	+	+	E: 35 FR 18319	None	-
Leatherback turtle	*Dermochelys coriacea*	+	+	+	+	E: 35 FR 8491	44 FR 17710	Central California, Northern California, Southern California, Washington/Oregon
Loggerhead turtle (North Pacific DPS and Northwest Atlantic DPS)	*Caretta caretta*	+	+	+	+	E (North Pacific DPS), T (Northwest Atlantic DPS): 76 FR 58868	79 FR 39755	Central GOA, Eastern GOA, Western GOA, North/Mid-/South Atlantic, Straits of Florida
Olive ridley turtle	*Lepidochelys olivacea*	+	+	-	-	E (Mexico's Pacific Coast breeding colonies), T (all other areas): 43 FR 32800	None	-

Key: + = species present in OCS Region; - = species not present in OCS Region, or, for the last column, species do not have critical habitat overlapping with planning areas; DPS = distinct population segment; E = Endangered; FR = *Federal Register*; GOA = Gulf of America; T= Threatened.

MARINE MAMMALS

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Bearded seal (Beringia DPS)	*Erignathus barbatus*	+	-	-	-	T (Beringia DPS): 77 FR 76739	87 FR 19180	Beaufort Sea, Chukchi Sea, Hope Basin, Norton Basin, Navarin Basin, St. George Basin, St. Matthew-Hall, North Aleutian Basin
Beluga whale (Cook Inlet DPS)	*Delphinapterus leucas*	+	-	-	-	E (Cook Inlet DPS): 73 FR 62919	76 FR 20180	Cook Inlet
Blue whale	*Balaenoptera musculus*	+	+	+	+	E: 35 FR 18319	None	-
Bowhead whale	*Balaena mysticetus*	+	-	-	-	E: 35 FR 18319	None	-
Bryde's whale	*Balaenoptera edeni brydei*	-	+	-	-	E: 84 FR 15446	None	-
Fin whale	*Balaenoptera physalus*	+	+	+	+	E: 35 FR 12222	None	-
Gray whale (Western North Pacific DPS)	*Eschrichtius robustus*	+	+	-	-	E (Western North Pacific DPS): 35 FR 18319	None	-
Guadalupe fur seal	*Arctocephalus townsendi*	-	+	-	-	T: 32 FR 4001	None	-

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Humpback whale (Central America, Western North Pacific, and Mexico DPSs)	*Megaptera novaeangliae*	+	+	-	-	E (Central America and Western North Pacific DPSs), T (Mexico DPS): 81 FR 62259	86 FR 21082	St. George Basin, Aleutian Arc, Shumagin, North Aleutian, Cook Inlet, Kodiak, Gulf of Alaska, Washington/Oregon, Northern California, Central California, Southern California
Killer whale (Southern resident DPS)	*Orcinus orca*	+	+	-	-	E (Southern resident DPS): 70 FR 69903	86 FR 41668	Washington/Oregon, Northern California, Central California
North Atlantic right whale	*Eubalaena glacialis*	-	-	-	+	E: 73 FR 12024	81 FR 4837	North/Mid-/South Atlantic
North Pacific right whale	*Eubalaena japonica*	+	+	-	-	E: 73 FR 12024	73 FR 19000	Kodiak, North Aleutian, St. George Basin
Northern sea otter (Southwest Alaska DPS)	*Enhydra lutris kenyoni*	+	+	-	-	T (Southwest Alaska DPS): 70 FR 46366	74 FR 51988	Aleutian Arc, Cook Inlet, Kodiak, North Aleutian, Shumagin
Polar bear	*Ursus maritimus*	+	-	-	-	T: 73 FR 28212	75 FR 76086	Beaufort Sea, Chukchi Sea, Hope Basin, Norton Basin, St. Matthew-Hall
Rice's whale (previously Bryde's whale, Gulf of Mexico subspecies)	*Balaenoptera ricei*	-	-	+	-	E: 84 FR 15446 (ESA status did not change with taxonomic change)	None	-

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Ringed seal	*Pusa hispida*	+	-	-	-	T: 79 FR 42687	87 FR 19232	Beaufort Sea, Chukchi Sea, Hope Basin, Norton Basin, St. Matthew-Hall, Navarin Basin
Sei whale	*Balaenoptera borealis*	+	+	+	+	E: 35 FR 12222	None	-
Southern sea otter	*Enhydra lutris nereis*	-	+	-	-	T: 42 FR 2965	None	-
Sperm whale	*Physeter macrocephalus*	+	+	+	+	E: 35 FR 18319	None	-
Spotted seal	*Phoca largha*	+	-	-	-	T (foreign): 75 FR 65239	None	-
Steller sea lion (Western DPS)	*Eumetopias jubatus*	+	+	-	-	E (Western DPS): 55 FR 49203	64 FR 14052	Aleutian Arc
West Indian manatee	*Trichechus manatus*	-	-	+	+	T: 32 FR 4001	42 FR 47840	None

Key: + = species present in OCS Region; - = species not present in OCS Region, or, for the last column, species do not have critical habitat overlapping with planning areas; DPS = distinct population segment; E = Endangered; FR = *Federal Register*; GOA = Gulf of America; T= Threatened.

Note: This table highlights marine mammals (or DPSs) with ESA status, but all marine mammals are protected under the Marine Mammal Protection Act (16 U.S.C. 1361-1407).

INVERTEBRATES

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
Black abalone	*Haliotis cracherodii*	-	+	-	-	E: 74 FR 1937	76 FR 66806	None
Boulder star coral	*Orbicella franksi*	-	-	+	+	T: 79 FR 53852	88 FR 54026	Straits of Florida, Eastern GOA, Central GOA, Western GOA
Elkhorn coral	*Acropora palmata*	-	-	+	+	T: 79 FR 53852	70 FR 14052	Eastern GOA, Straits of FL
Lobed star coral	*Orbicella annularis*	-	-	+	+	T: 79 FR 53852	88 FR 54026	Straits of Florida, Eastern GOA, Central GOA, Western GOA
Mountainous star coral	*Orbicella faveolata*	-	-	+	+	T: 79 FR 53852	88 FR 54026	Straits of Florida, Eastern GOA, Central GOA, Western GOA
Pillar coral	*Dendrogyra cylindrus*	-	-	+	+	T: 79 FR 53852	88 FR 54026	Straits of Florida
Queen Conch	*Aliger gigas*	-	-	+	+	T: 89 FR 11208	None	-
Rough cactus coral	*Mycetophyllia ferox*	-	-	+	+	T: 79 FR 53852	88 FR 54026	Straits of Florida, Eastern GOA
Staghorn coral	*Acropora cervicornis*	-	-	+	+	T: 79 FR 53852	70 FR 14052	Eastern GOA
White abalone	*Haliotis sorenseni*	-	+	-	-	E: 66 FR 29046	None	-

Key: + = species present in OCS Region; - = species not present in OCS Region, or, for the last column, species do not have critical habitat overlapping with planning areas; DPS = distinct population segment; E = Endangered; FR = *Federal Register*; GOA = Gulf of America; T= Threatened.

OTHER

Common Name	Latin Name	Alaska Region	Pacific Region	GOA Region	Atlantic Region	ESA Status	Critical Habitat and FR Number	Planning Areas with Critical Habitat
American crocodile	*Crocodylus acutus*	-	-	+	+	T: 72 FR 13027	42 FR 47840, 41 FR 41914	None
Beach mice	*Peromyscus polionotus spp.*	-	-	+	-	E: 49 FR 23794, 50 FR 23872, 63 FR 70053	71 FR 60238, 72 FR 4330	None
California red-legged frog	*Rana draytonii*	-	+	-	-	T: 61 FR 25813	75 FR 12816	None
Florida bonneted bat	*Eumops floridanus*	-	-	+	+	E: 78 FR 61003	89 FR 16624	None
Florida salt marsh vole	*Microtus pennsylvanicus dukecampbelli*	-	-	+	-	E: 56 FR 1457	None	-

Key: + = species present in OCS Region; - = species not present in OCS Region, or, for the last column, species do not have critical habitat overlapping with planning areas; DPS = distinct population segment; E = Endangered; FR = *Federal Register*; GOA = Gulf of America; T= Threatened.

Figure C-1. Overlapping Critical Habitat within and Adjacent to BOEM Planning Areas

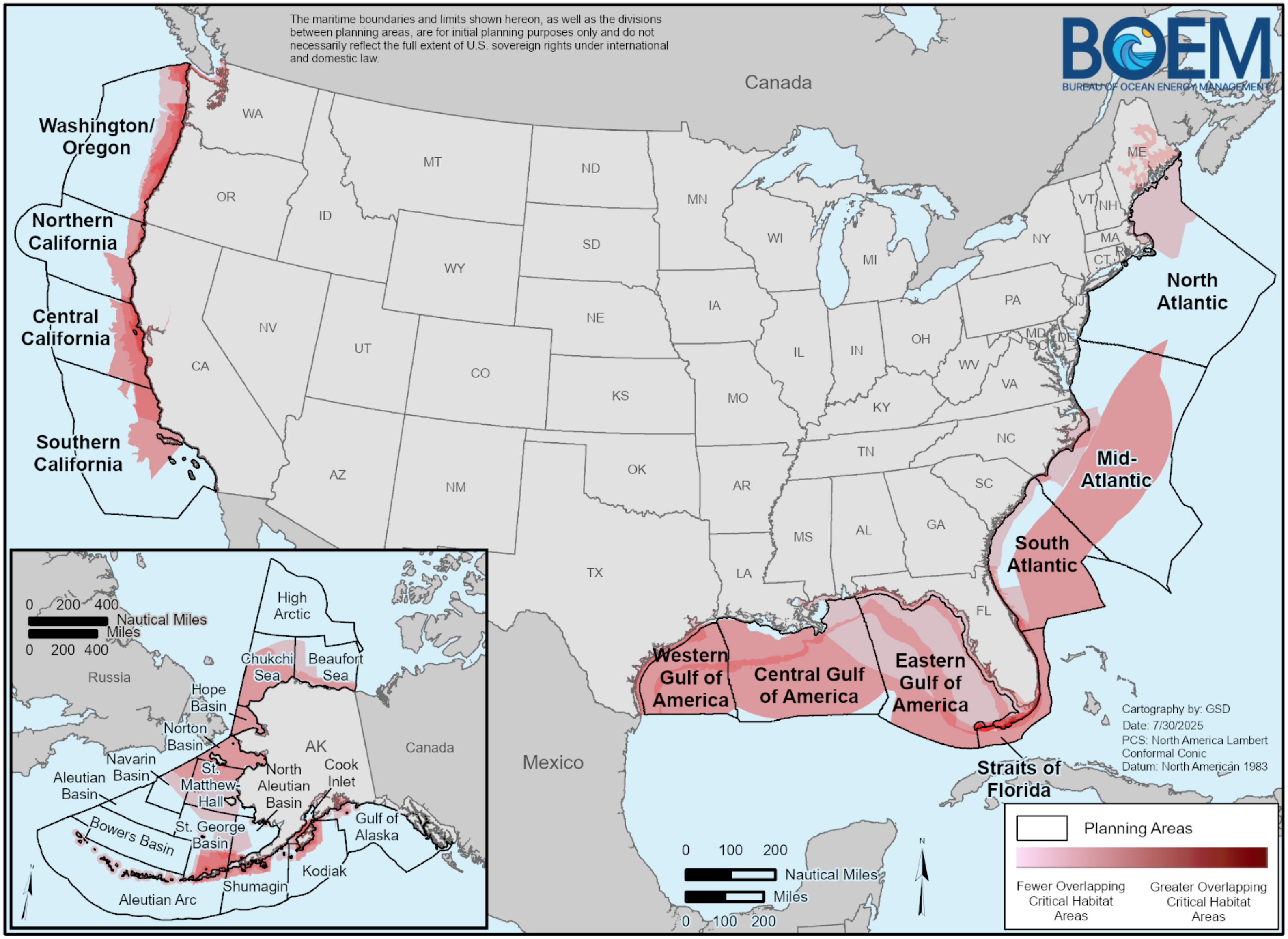


Figure C-2. Overlapping Essential Fish Habitat Within and Adjacent to BOEM Planning Areas

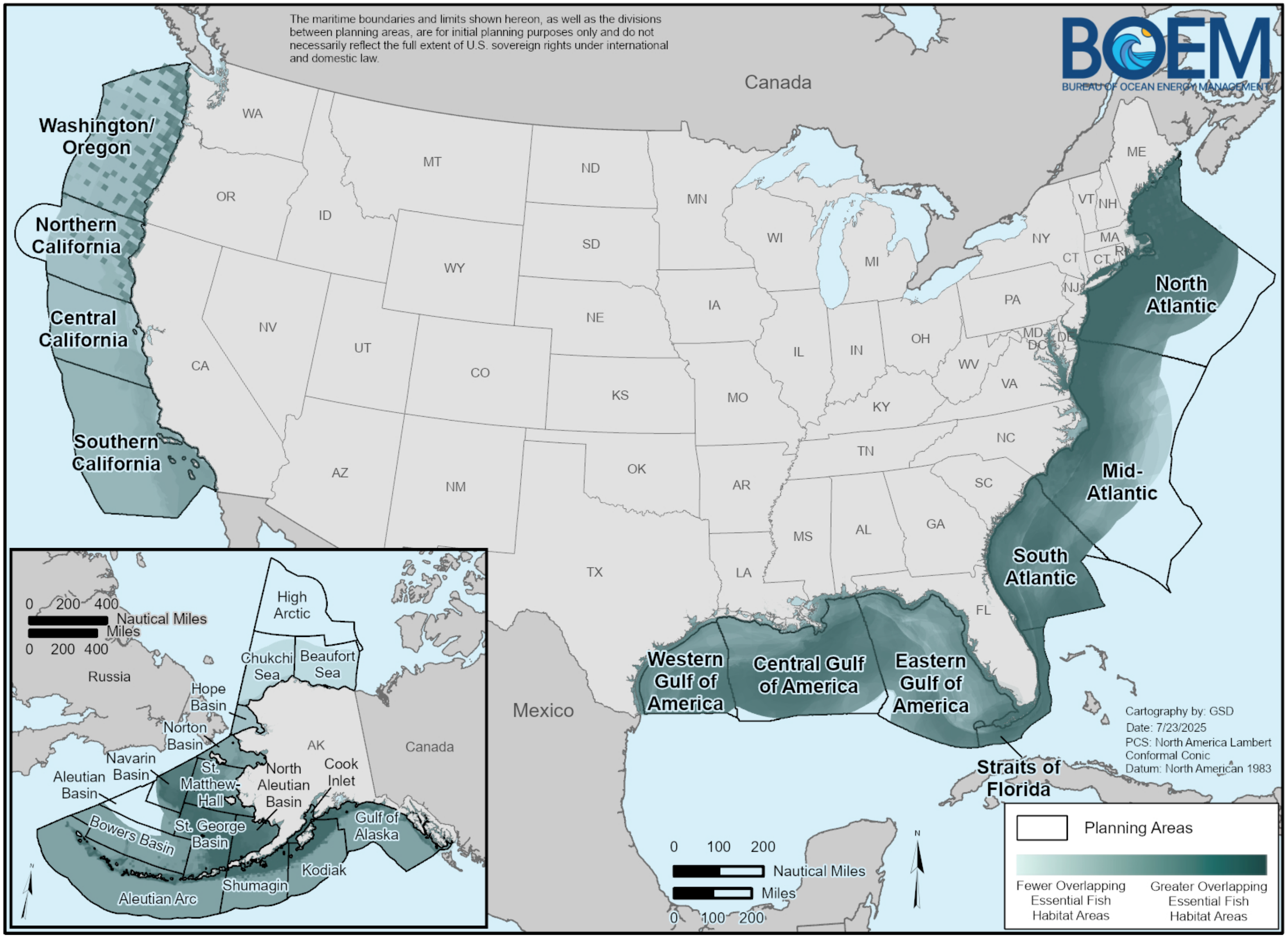
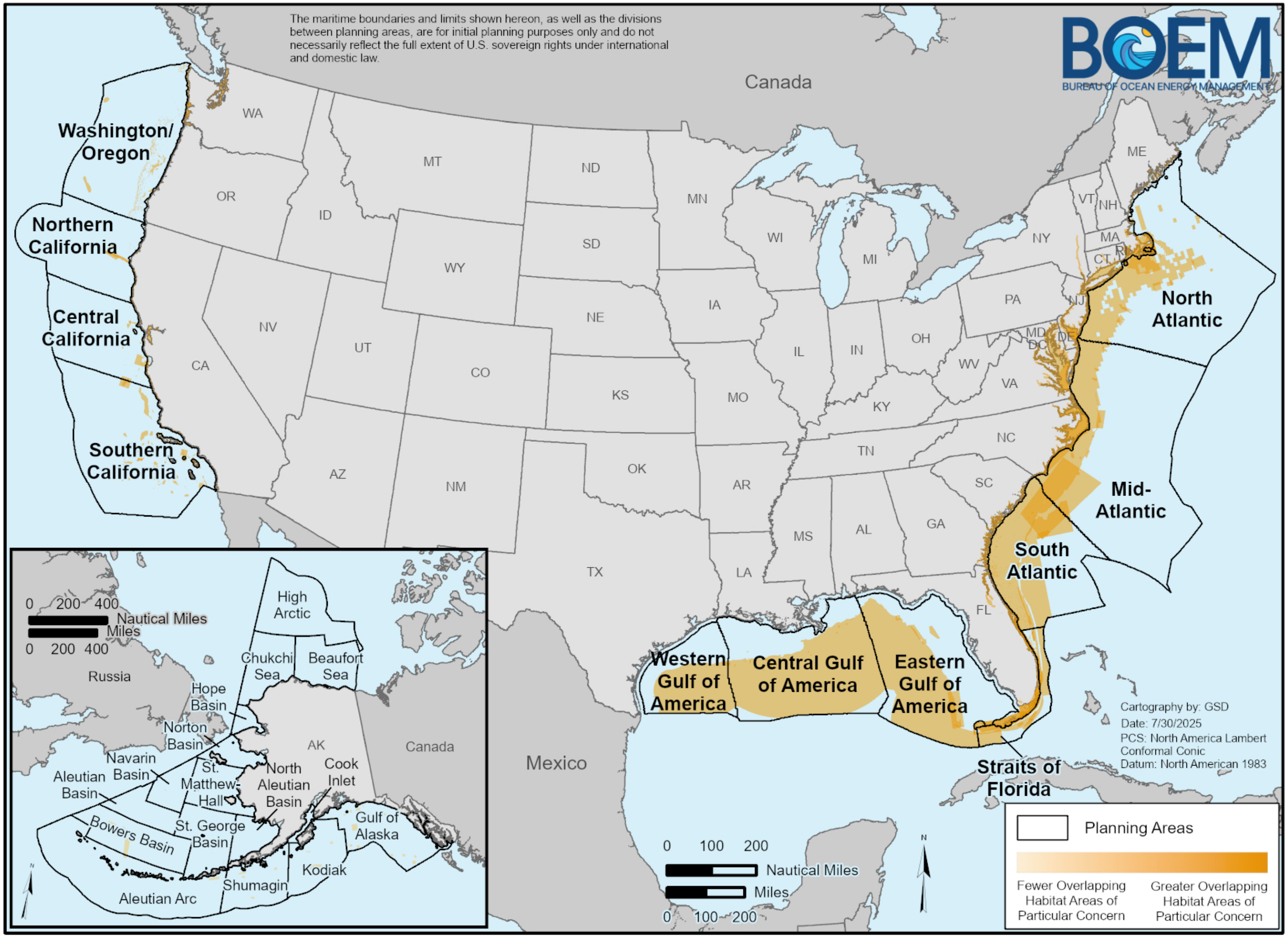
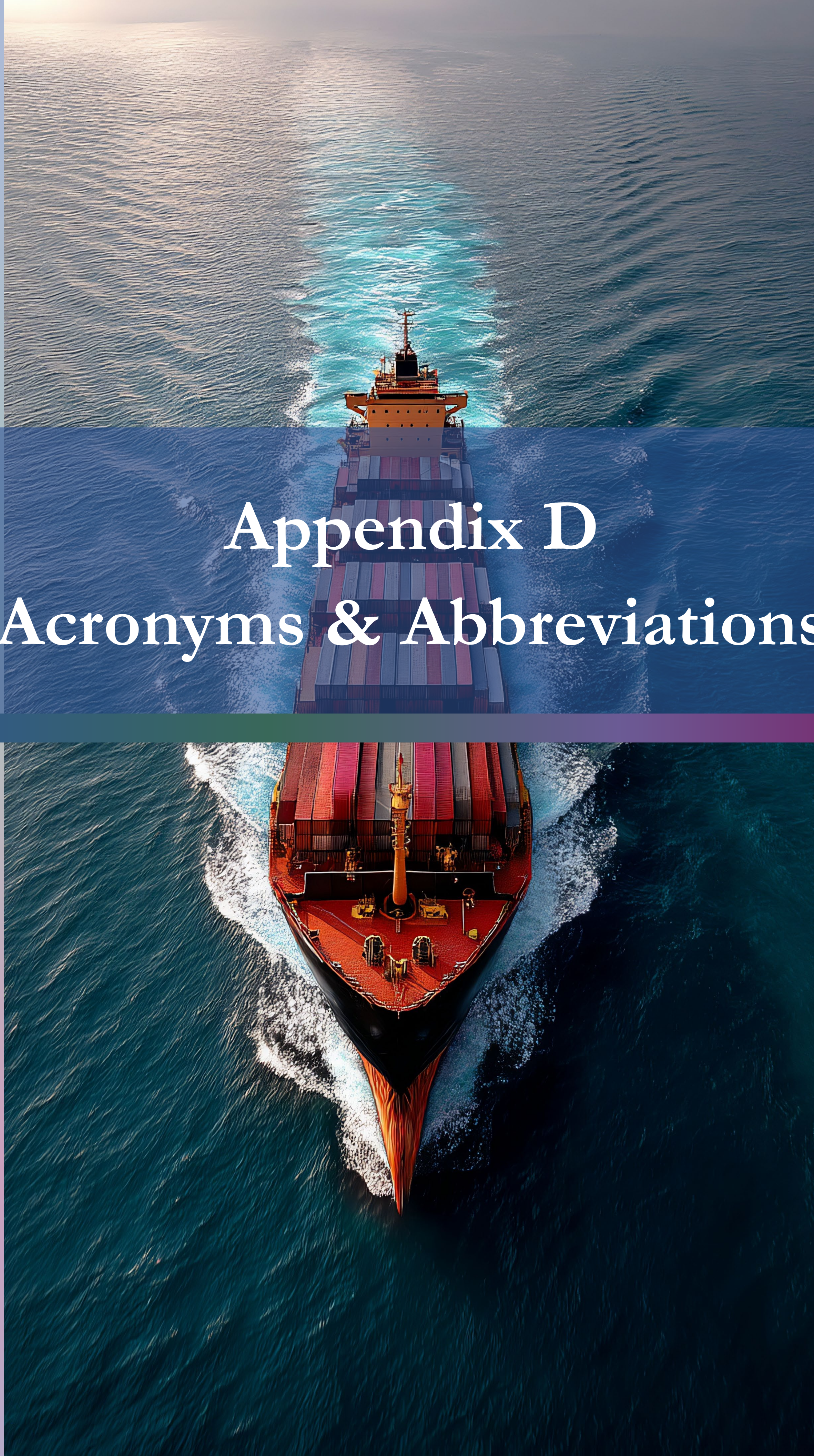


Figure C-3. Overlapping Habitat Areas of Particular Concern in and adjacent to BOEM Planning Areas



Appendix D
Acronyms & Abbreviations



Appendix D: Acronyms and Abbreviations

°	degree
§	Section
2-D	two-dimensional
3-D	three-dimensional
2021 National Assessment	*Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf, 2021*
11th Program	11th National OCS Oil and Gas Leasing Program
ADF&G	Alaska Department of Fish & Game
AEO	Annual Energy Outlook
Agreement	*Agreement between the United States of America and the United Mexican States Concerning Transboundary Hydrocarbon Reservoirs in the Gulf of Mexico*
ANCSA	Alaska Native Claims Settlement Act
AOA	Aquaculture Opportunity Area
API	American Petroleum Institute
Arctic FMP	Arctic Fishery Management Plan
Area ID	Area Identification
bbl	barrels of oil
BBO	billion barrels of oil
BBOE	billion barrels of oil equivalent
Bcf	billion cubic feet
BLM	Bureau of Land Management
BOE	barrel of oil equivalent
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
Call	Call for Information and Nominations
CDE	catastrophic discharge event
CEC	contaminants of emerging concern
CER	Categorical Exclusion Review
CO_2	carbon dioxide
CMP	coastal management program
CSE	Center for Sustainable Economy, 779 F.3d 588 (D.C. Cir. 2015)
CV	coefficients of variation
CZM	Coastal Zone Management
D.C.	District of Columbia
Decommissioning PEIS	*Final Programmatic Environmental Impact Statement for Oil and Gas Decommissioning Activities on Pacific Outer Continental Shelf*
Department	United States Department of the Interior
DNA	Determination of NEPA Adequacy
DOD	Department of Defense
DOE	Department of Energy
DPP	Draft Proposed Program

DPS	distinct population segment
E&D	exploration and development scenario
EA	environmental assessment
EEZ	Exclusive Economic Zone
EFH	essential fish habitat
EIA	Energy Information Administration
EIS	environmental impact statement
ENSO	El Niño-Southern Oscillation
E.O.	Executive Order
ESA	Endangered Species Act of 1973
ESP	Environmental Studies Program
ESPIS	Environmental Studies Program Information System
FGBNMS	Flower Garden Banks National Marine Sanctuary
FMV	fair market value
FONSI	Finding of No Significant Impact
FR	*Federal Register*
FY	fiscal year
FSN	Final Sale Notice
ft	feet
G&G	geological and geophysical
GAO	Government Accountability Office
GDP	gross domestic product
GOA	Gulf of America
GOMESA	Gulf of Mexico Energy Security Act of 2006
GRASP	Geologic Resource Assessment Program
GSMFC	Gulf States Marine Fisheries Commission
GW	gigawatt
HAB	harmful algal blooms
HAPC	habitat area of particular concern
HPF	Historic Preservation Fund
HPHT	high pressure, high temperature
IPF	impact-producing factor
IRA	Inflation Reduction Act
ISR	intelligence, surveillance, and reconnaissance
IUCN	International Union for Conservation of Nature
LME	Large Marine Ecosystem
LNG	liquefied natural gas
LWCF	Land and Water Conservation Fund
MarketSim	Market Simulation Model
mcf	thousand cubic feet
mi^2	square miles
MST	marine sensitivity toolkit
National OCS Program	National OCS Oil and Gas Leasing Program
NAAQs	National Ambient Air Quality Standards

NASA	National Aeronautics and Space Administration
NASCA	North American Submarine Cable Association
NEPA	National Environmental Policy Act of 1969
NEV	net economic value
NMFS	National Marine Fisheries Service
NMS	National Marine Sanctuary
NOA	notice of availability
NOAA	National Oceanic and Atmospheric Administration
NOS	Notice of Sale
NP	national park
NPFMC	North Pacific Fishery Management Council
NPP	net primary productivity
NPS	National Park Service
nm	nautical mile
nm^2	square nautical miles
NRDC	National Resources Defense Council
NREL	National Renewable Energy Laboratory
NS	national seashore
NWR	national wildlife refuge
NYMEX	New York Mercantile Exchange
OBBBA	One Big Beautiful Bill Act
OCS	Outer Continental Shelf
OECM	Offshore Environmental Cost Model
OPAREA	Operational Area
P.L.	Public Law
PADD	Petroleum Administration for Defense District
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenol
PDO	Pacific Decadal Oscillation
PFAS	polyfluoroalkyl substances
PFP	Proposed Final Program
PFMC	Pacific Fishery Management Council
RESA	relative environmental sensitivity assessment
RFI	Request for Information and Comments
ROD	Record of Decision
S.O.	Secretary’s Order
SAFMC	South Atlantic Fishery Management Council
SAV	submerged aquatic vegetation
SCB	Southern California Bight
Secretary	Secretary of the Interior
SPR	Strategic Petroleum Reserve
$t\ C\ km^{-2}\ yr^{-1}$	metric tons of carbon per square kilometer per year
TAPS	Trans-Alaska Pipeline System
Tcf	trillion cubic feet

TEU	twenty-foot-equivalent units
TMAA	Temporary Maritime Activities Area
UERR	undiscovered economically recoverable resources
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTRR	undiscovered technically recoverable resources
VGPM	Vertically Generalized Production Model
Watt I	California v. Watt, 688 F.2d 1290 (D.C. Cir. 1981)
Watt II	California v. Watt, 712 F.2d 584 (D.C. Cir. 1983)
WEB3	When Exploration Begins, version 3
WTI	West Texas Intermediate

Appendix E
Glossary

Appendix E: Glossary

2-D Seismic — A seismic survey where a line of geophones captures enough information to generate a two-dimensional (height and length) image of the Earth's subsurface directly below the line.

3-D Seismic — A seismic survey where a three-dimensional image of the subsurface is developed by combining numerous energy sources and multiple lines of geophones. The image consists of height, length, and side-to-side information that gives better resolution to the subsurface.

Area Identification (Area ID) — The Area ID is an administrative pre-lease step that describes the geographical area of the proposed actions (proposed lease sale areas) and identifies the alternatives, mitigating measures, and issues to be analyzed in the corresponding National Environmental Policy Act document.

area-wide leasing — All available (unleased and not withdrawn) acreage in the program area will be offered in the lease sale.

barrel — The standard unit of measurement of liquids in the petroleum industry, which is 42 U.S. standard gallons.

barrel of oil equivalent (BOE) — The amount of energy resource (in this document, natural gas) that is equal to one barrel of oil on an energy basis. The conversion is based on the assumption that one barrel of oil produces the same amount of energy when burned as 5,620 cubic feet of natural gas.

basin — A depression in the earth's surface where sediments are deposited, usually characterized by sediment accumulation over a long interval; a broad area of the earth beneath which layers of rock are inclined, usually from the sides toward the center.

benthic — Ecological zone at the bottom of a body of water; in this document, the seafloor surface and subsurface.

bid — An offer for an OCS lease submitted by a potential lessee in the form of a cash bonus dollar amount or other commitments responding to a variable fiscal term as specified in the final notice of sale.

block — A numbered area on an OCS leasing map or official protraction diagram (OPD). Blocks are portions of OCS leasing maps and OPDs that are themselves portions of planning areas. Blocks vary in size, but are typically 5,000 to 5,760 acres (about 9 square miles or 2,304 hectares). Each block has a specific identifying number, area, and latitude and longitude coordinates that can be pinpointed on a leasing map or OPD.

bonus bid — The cash consideration paid to the United States by the successful bidder for a mineral lease. The payment is made in addition to the rent and royalty obligations specified in the lease.

Bureau of Ocean Energy Management — On October 1, 2011, the Bureau of Ocean Energy Management (BOEM) was created. BOEM is responsible for managing development of the Nation's offshore resources in an environmentally and economically responsible way. Functions include: Leasing, Plan Administration, Environmental Studies, Resource Evaluation, Economic Analysis, and the Renewable Energy Program.

Bureau of Safety and Environmental Enforcement — On October 1, 2011, the Bureau of Safety and Environmental Enforcement (BSEE) was created. BSEE is responsible for enforcing safety and environmental regulations. Functions include: all field operations including Permitting and Inspections; Research for Offshore Regulatory Programs; Oil Spill Response, and Training; and Environmental Compliance functions.

categorical exclusion — A category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations (§1507.3) and for which, therefore, neither an environmental assessment nor an environmental impact statement pursuant to NEPA is required (40 CFR 1508.4).

categorical exclusion review — The process by which an agency determines whether an action falls within a categorical exclusion.

catastrophic discharge event — A low-probability, unexpected, and unauthorized large discharge of oil into the environment that could cause long-term and widespread effects on marine and coastal environments.

conceptual play — Geologic plays in which hydrocarbons have not been detected, but for which geological and geophysical data, integrated with regional geologic knowledge, suggest that hydrocarbon accumulations may exist.

continental shelf — A broad, gently sloping, shallow feature extending from the shore to the continental slope.

continental slope — A relatively steep, narrow feature paralleling the continental shelf, the region in which the steepest descent to the ocean bottom occurs.

conventional reservoir — A hydrocarbon accumulation in which reservoir and fluid characteristics typically allow oil or natural gas to flow readily into a well. This distinguishes the resources from unconventional reservoirs where there is little to no significant force driving the migration of resources to a wellbore.

conventional resources — Oil and gas resources in conventional reservoirs where buoyant forces keep resources in place beneath a caprock.

conventional recovery methods — Producing oil and gas resources using traditional extraction methods, such as natural pressure, pumping, or by using secondary methods such as gas or water injection.

critical habitat — A designated area that is essential to the conservation of an endangered or threatened species that may require special management considerations or protection.

crude oil — Petroleum in its natural state as it emerges from a well, or after it passes through a gas-oil separator, but before refining or distillation.

Department of the Interior (Department, USDOI) — The Department of the Interior is a Cabinet-level agency that manages America's vast natural and cultural resources.

Determination of NEPA Adequacy — A Determination of NEPA Adequacy memo is not a NEPA document but is used by BOEM in the decision file to document review of existing NEPA documentation for applicability and adequacy to address a new proposed action. A new decision document must be prepared for the new proposed action and the existing NEPA analyses must be cited in the decision document for the proposed action (43 CFR 46.300(a)(2)).

development — Activities following exploration, including the installation of facilities and the drilling and completion of wells for production purposes.

Development and Production Plan — A plan describing the specific work to be performed on an offshore lease after a successful discovery, including all development and production activities that the lessee proposes to undertake during the time period covered by the plan and all actions to be undertaken up to and including the commencement of sustained production. The plan also includes descriptions of facilities and operations to be used, well locations, current geological and geophysical information, environmental safeguards, safety standards and features, schedules, and other relevant information. All lease operators are required to formulate and obtain approval of such plans by BOEM before development and production activities may begin; requirements for submittal of the plan are identified in 30 CFR 550.241.

Draft Proposed Program (DPP) — Section 18 of the OCS Lands Act requires the Secretary of the Interior to prepare and maintain a schedule of proposed OCS oil and gas lease sales determined to "best meet national energy needs for the five-year period following its approval or reapproval." The DPP contains the first of three proposals to be issued before a new National OCS Program may be approved. Preparation and approval of a National OCS Program is based on a consideration of principles and factors specified by Section 18 to determine the size, timing, and location of lease sales.

endangered species — Any species that is in danger of extinction throughout all or a significant portion of its range and has been officially listed by the appropriate Federal agency (either the National Oceanic and Atmospheric Administration [NOAA] or U.S. Fish and Wildlife Service) under the Endangered Species Act; a species is determined to be endangered (or threatened) because of any of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) over utilization for commercial, sporting, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or man-made factors affecting its continued existence.

environmental assessment — A concise public document prepared pursuant to NEPA and the Council on Environmental Quality regulations. In the document, a Federal agency proposing (or reviewing) an action provides evidence and analysis for determining whether it must prepare an environmental impact statement or whether it finds there is no significant impact (i.e., Finding of No Significant Impact).

environmental sensitivity — A measure of the vulnerability and resilience of a region's ecological components to potential adverse impacts of offshore oil and gas exploration and development activities in the context of existing conditions.

established play — Geologic plays in which hydrocarbons have been discovered and a petroleum system has been proven to exist.

Exclusive Economic Zone (EEZ) — The maritime region adjacent to the territorial sea, extending 200 nautical miles (nm) from the baseline of the territorial sea, in which the United States has exclusive rights and jurisdiction over living and non-living natural resources.

exploration — The process of searching for minerals preliminary to development. Exploration activities include: (1) geophysical surveys, (2) any drilling to locate an oil or gas reservoir, and (3) the drilling of additional wells after a discovery to delineate a reservoir. It enables the lessee to determine whether to proceed with development and production.

Exploration Plan — A plan submitted by a lessee (30 CFR 250.33) that identifies all the potential hydrocarbon accumulations and wells that the lessee proposes to drill to evaluate the accumulations within the lease or unit area covered by the plan. All lease operators are required to obtain approval of such a plan by a BOEM Regional Supervisor before exploration activities may commence.

field — Area consisting of a single reservoir or multiple reservoirs all grouped on, or related to, the same general geologic structural feature and/or stratigraphic trapping condition. There could be two or more reservoirs in a field that are separated vertically by impervious strata, laterally by geologic barriers, or both.

formation — A bed or deposit sufficiently homogeneous to be distinctive as a unit. Each different formation is given a name, frequently as a result of the study of the formation outcrop at the surface and sometimes based on fossils found in the formation.

geological data — Information derived from rocks of the seabed to provide information on the geological character of rock strata.

geological surveys — Geological surveying on the OCS consists of bottom sampling, shallow coring, and deep stratigraphic tests. These surveys provide data that are useful in determining the general geology of an area and whether the right types of rocks exist for petroleum formation and accumulation.

geophysical data — Facts, statistics, or samples that have not been analyzed or processed, pertaining to gravity, magnetic, seismic, or other surveys/systems.

geophysical surveys — Geophysical surveys on the OCS provide data about the seafloor and the subsurface. Comprised of 2-D and 3-D seismic surveys, as well as multi-component, high-resolution, wide-azimuth, and other advanced types of seismic surveys, the surveys obtain data for hydrocarbon exploration and production, identify possible seafloor or shallow depth geologic hazards, and locate potential archaeological resources and hard-bottom habitats that should be avoided.

hurdle price — The price below which delaying exploration for the largest potential undiscovered field in the sale area is more valuable than immediate exploration.

hydrocarbon — Any of a large class of organic compounds containing primarily carbon and hydrogen; comprising paraffins, olefins, members of the acetylene series, alicyclic hydrocarbons, and aromatic hydrocarbons; and occurring, in many cases, in petroleum, natural gas, coal, and bitumens.

lease — A legal document executed between a landowner, as lessor, and a company or individual (as lessee) that conveys the right to explore the leased area for minerals or other resources on the OCS for a specified period. The term also means the geographic area covered by that authorization, whichever the context requires.

lease sale — A BOEM proceeding by which leases of certain OCS tracts are offered for lease by competitive sealed bidding and during which bids are received, announced, and recorded.

lease period — Duration of an OCS lease. Oil and gas leases are issued for a primary term of between 5 and 10 years. After that, the term continues if there is production in paying quantities or if the lease is suspended.

lessee — An entity, person, or persons to whom a lease is awarded; the recipient of a lease.

liquefied natural gas (LNG) — Natural gas is converted to LNG by cooling it to a temperature of -256°F, at which point it becomes a liquid. This simple process allows natural gas to be transported from an area of abundance to an area where it is needed. Once the LNG arrives at its destination, it is either stored as a liquid, or is converted back to natural gas and delivered to end-users.

marine protected area — Any area of the marine environment that has been reserved by Federal, state, territorial, Tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.

minerals — Minerals include oil, gas, sulfur, and associated resources, and all other minerals authorized by an Act of Congress to be produced from public lands, as defined in Section 103 of the Federal Land Policy and Management Act of 1976.

moratorium —Restriction on what areas BOEM can offer for OCS oil and gas leasing.

natural gas — A mixture of hydrocarbon compounds and small quantities of various non-hydrocarbons existing in gaseous phase at the surface or in solution with crude oil in natural underground reservoirs at reservoir conditions.

nearshore waters — Offshore waters that extend from the shoreline out to the limit of the territorial seas (12 nm).

net social value — The discounted gross revenues from the produced oil and natural gas minus the private, environmental, and social costs required to realize the economic value of the resources.

net economic value (NEV) — The value to society that is derived from the resources in the ground. The NEV equals the discounted gross revenues from the produced oil and natural gas minus the private costs required to realize the economic value of the resources.

Oil Spill Response Plan — A plan submitted to BSEE by the lease or unit operator prior to using a facility covered by the plan that details provisions for fully defined specific actions to be taken following discovery and notification of an oil spill occurrence (30 CFR part 254).

Outer Continental Shelf (OCS) — All submerged lands seaward and outside the area of lands beneath navigable waters. Lands beneath navigable waters are interpreted as extending from the coastline to 3 nm into the Atlantic Ocean, the Pacific Ocean, the Arctic Ocean, Cook Inlet, and the Gulf of America, excluding the coastal waters off Texas and western Florida. Lands beneath navigable waters are interpreted as extending from the coastline to 3 marine leagues into the Gulf of America off Texas and western Florida.

Operator (designated operator) — The person or company engaged in the business of drilling for, producing, or processing oil, gas, or other minerals and the designated operator is recognized by BOEM as the official contact and responsible party for the lease activities or operations.

pelagic — Pertaining to the part of the open sea or ocean comprising the water column.

petroleum — An oily, flammable, bituminous liquid that occurs in many places in the upper strata of the earth, either in seepages or in reservoirs; essentially a complex mixture of hydrocarbons of different types with small amounts of other substances; any of various substances (as natural gas or shale oil) similar in composition to petroleum.

petroleum system — All of the geologic components and processes which create a suitable environment to generate, accumulate, and preserve oil and gas. Elements such as source rock, reservoir rock, and the trapping mechanism, along with fluids migration methods are necessary for the creation of a suitable hydrocarbon reservoir.

planning area — An administrative subdivision of the OCS area used as the initial areas compared in the National OCS Program analyses.

play (geologic play) — A group of known and/or postulated pools that share common geologic, geographic, and temporal properties, such as history of hydrocarbon generation, migration, reservoir development, and entrapment.

pool — A discovered or undiscovered accumulation of hydrocarbons.

production — Activities that take place after the successful completion of a well, including removal of minerals, field operations, transfer of minerals to shore, operation monitoring, maintenance, and workover drilling.

primary production — The production of biomass from inorganic carbon and water through photosynthesis or chemosynthesis. The primary productivity of a marine community is its capacity to produce energy for its component species, which thus sets limits on the overall biological production in marine ecosystems.

Proposed Program — The second in a series of three proposed leasing schedules to be issued before a new National OCS Program may be approved.

Proposed Final Program (PFP) — The third in a series of three leasing proposals developed before the Secretary of the Interior may take final action to approve the new National OCS Program. The PFP is submitted to the President and Congress, along with copies of the comments received on the Proposed Program, and responses to recommendations from the governors.

Record of Decision (ROD) — The final step in the EIS process. The ROD identifies the selected alternative, presents the basis for the decision, identifies alternatives considered, specifies the environmentally preferable alternative, and provides information on appropriate mitigation measures.

recoverable resources — Portion of the identified oil or gas resources that can be economically extracted under current technological constraints.

rent — Periodic payments made by the holder of a lease, prior to production in paying quantities, for the right to use the land or resources for purposes established in the lease.

Request for Information and Comments (RFI) — The first step in the development of a National OCS Program. BOEM publishes a *Federal Register* notice to request information and comments from states and local governments, Tribal governments, Native American and Alaska Native organizations, Federal agencies, environmental and fish and wildlife organizations, the oil and gas industry, non-energy industries, other interested organizations and entities, and the general public for use in the preparation of the National OCS Program. BOEM seeks a wide array of information including information associated with the economic, social, and environmental values of all OCS resources, as well as the potential impact of oil and gas exploration and development on resource values of the OCS and the marine, coastal, and human environments.

reservoir — Subsurface, porous, permeable rock body in which oil or gas or both may have accumulated.

resource — Concentrations in the earth's crust of naturally occurring liquid or gaseous hydrocarbons that can conceivably be discovered and recovered. Normal use encompasses both discovered and undiscovered resources.

royalty — Payment, in value (money) or in kind, of a stated proportionate interest in production from mineral deposits by the lessees to the lessor.

secondary production — Generation of biomass of consumer (heterotrophic) organisms. Its definition may be limited to include the consumption of primary producers by herbivorous consumers, but is more commonly defined to include all biomass generation by heterotrophs.

seismic — Pertaining to, characteristic of, or produced by, earthquakes or Earth vibrations; having to do with elastic waves in the Earth.

seismic survey — A method of geophysical prospecting using the generation, reflection, refraction, detection, and analysis of elastic waves in the Earth. Seismic surveys use sound waves that are sent through the ocean floor to map the subsurface.

spudding — To begin drilling a well.

stipulation — Specific measures imposed upon a lessee that apply to a lease. Stipulations are attached as a provision of a lease; they may apply to some or all tracts in a sale. For example, a stipulation might limit drilling to a certain time of the year or certain areas.

tract — An area of the seabed that may be offered for lease. It is a designation assigned, for administrative and statutory purposes, to a block or combination of blocks that are identified by an official protraction diagram prepared by BOEM. A tract may not exceed 5,760 acres unless it is determined that a larger area is necessary to comprise a reasonable economic production unit.

trap — A geologic feature that permits the accumulation and prevents the escape of accumulated fluids (hydrocarbons) from the reservoir.

unconventional recovery methods — Enhanced technological and engineering techniques used to produce oil and gas resources, such as horizontal drilling and hydraulic fracturing.

unconventional resources — Oil and gas resources trapped in formations that have lower permeability and/or porosity than rocks that have typically produced oil and gas resources in the past. These formations are commonly referred to as shale or tight formations. In recent years, these types of formations have been increasingly produced using hydraulic fracturing.

Undiscovered Economically Recoverable Resources (UERR) — The portion of the undiscovered technically recoverable resources that are economically recoverable under specified economic and technologic conditions, including prevailing prices and costs.

Undiscovered Technically Recoverable Resources (UTRR) — Oil and gas that could be produced from the subsurface using conventional extraction techniques without any consideration of economic viability.

well — A hole drilled or bored into the earth, usually cased with metal pipe, to produce gas or oil a hole for the injection under pressure of water or gas into a subsurface rock formation.

Appendix F
References

Appendix F: References

Abdallah, S. and Laserre, P. (2008). "A Real Option Approach to the Protection of a Habitat." Retrieved September 20, 2014, from http://www.er.uqam.ca/nobel/r25314/publications/PDF/caribou110819.pdf.

ABS. (2016). "2016 Update of Occurrence Rates for Offshore Oil Spills." Retrieved September 18, 2023, from https://www.bsee.gov/sites/bsee.gov/files/osrr-oil-spill-response-research/1086aa.pdf.

Adams, J., Felis, J.J., Mason, J.W. and Takekawa, J.Y. (2014). "Pacific Continental Shelf Environmental Assessment (PaCSEA): Aerial Seabird and Marine Mammal Surveys off Northern California, Oregon, and Washington, 2011–2012."

ADF&G. (2015, January 2015). "Estimates of Participation, Catch, and Harvest in Alaska Sport Fisheries during 2011." *Fishery Data Series*, No. 15-04.Retrieved July 16, 2025, from https://www.boem.gov/Cook-Inlet-Lease-Sale-244-Final-EIS-Volume-1/.

ADF&G. (2024, September 2024). "2023 Lower Cook Inlet Area Salmon Annual Management Report." Retrieved July 16, 2025, from https://coast.noaa.gov/enowexplorer/#/employment/total/2021/02016/.

ADNR. (2016). "Annual Gross Oil Production." Retrieved August 15, 2017, from http://dog.dnr.alaska.gov/Information/Data.

AGDC. (2024, February 26, 2024). "Alaska Gas Development Corporation: House Resources Committee Presentation." Retrieved May 15, 2025, from https://alaska-lng.com/wp-content/uploads/2024/09/02.26.2024_AGDC-House-Resources-Committee_Final.pdf.

Ahr, B.J., Reyier, E.A., Iafrate, J.D., Kalinowsky, C., Arendt, M., Frazier, B.S. and Stolen, E.D. (2025). "Multi-year Migrations of Four Coastal Shark Species in the Southeastern USA: Trends in Timing and Temperature." Marine Ecology Progress Series **758**: 103–123.

Ainley, D.G., Spear, L.B., Tynan, C.T., Barth, J.A., Pierce, S.D., Ford, R.G. and Cowles, T.J. (2005). "Physical and Biological Variables affecting Seabird Distributions during the Upwelling Season of the Northern California Current." Deep Sea Research Part II **52**: 123–143.

Alaska Department of Environmental Conservation. (2024). "Alaska's Integrated Report." Retrieved 2025 Jul 16, from https://integrated-report-adec.hub.arcgis.com/.

Alaska Department of Fish and Game. (2017). "Marbled Murrelet (*Brachyramphus marmoratus*) Species Profile." Retrieved 2021 Apr 8, from https://www.adfg.alaska.gov/index.cfm?adfg=marbledmurrelet.main#:~:text=Distribution%2FRange,Washington%2C%20British%20Columbia%20and%20Alaska.

Alaska Department of Fish and Game (2022). Alaska Caribou Herds. Juneau (AK), State of Alaska, Department of Fish and Game.

Alaska Department of Fish and Game (2023). 2023 Lower Cook Inlet Commercial Salmon Fishery Season Summary. Juneau (AK), State of Alaska, Department of Fish and Game, Division of Commercial Fisheries**:** 2.

Alaska Department of Fish and Game. (2025a). "Arctic-Yukon-Kuskokwim Commercial Fishing Information by Area." Retrieved 2025 Jun 23, from https://www.adfg.alaska.gov/index.cfm?adfg=fishingcommercialbyarea.interior.

Alaska Department of Fish and Game (2025b). Community Subsistence Information System: Representative Years for Coastal Communities.

Alaska Department of Fish and Game. (2025c). "Killer whale (*Orcinus orca*)." Retrieved 2025 Jun 24, from https://www.adfg.alaska.gov/index.cfm?adfg=killerwhale.main.

Alaska Department of Fish and Game. (Undated). "Arctic-Yukon-Kuskokswim." Retrieved July 15, 2025, from https://alaskaseagrant.org/fishbiz/fisheries-explorer/.

Alaska Eskimo Whaling Commission. (2021). "Our Story." Retrieved 2025 Jul 18, from https://www.aewc-alaska.org/our-story.

Alaska Sea Grant (2009). North Aleutian Basin Energy-Fisheries: Workshop Proceedings, Anchorage, Alaska.

Alaska Sea Grant. (2025). "Fisheries Explorer Map." Retrieved July 8, 2025, from https://alaskaseagrant.org/fishbiz/fisheries-explorer/.

Alaska Tours. (2021, January 7, 2021). "All About the Arctic National Wildlife Refuge (ANWR)." Retrieved July 16, 2025, from https://irma.nps.gov/Stats/SSRSReports/National%20Reports/Visitation%20By%20State%20and%20By%20Park%20(2017%20-%20Last%20Calendar%20Year).

Alexander-Bloch, B. (2010, December 15, 2010). "Vietnamese-American Fishers Fight for Oil Spill Claim Approval." *New Orleans Times-Picayune*, from http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/12/vietnamese-american_fishermen.html.

Allen, C.D., Lemons, G.E., Eguchi, T., LeRoux, R.A., Fahy, C.C., Dutton, P.H., Hoyt Peckham, S. and Seminoff, J.A. (2013). "Stable Isotope Analysis Reveals Migratory Origin of Loggerhead Turtles in the Southern California Bight." Marine Ecology Progress Series **472**: 275–285.

Allen, L.G., Williams, J.P., Bredvik-Curran, J., Pondella II, D.J., Graham, S. and Martinez-Takeshita, N. (2022). "A Quarter Century of Monitoring the Fish Assemblages of San Diego Bay, California, from 1996 to 2019." Bulletin, Southern California Academy of Sciences **121**(3): 111–134.

An, S. and Verhoeven, J.T.A. (2019). Wetland Functions and Ecosystem Services: Implications for Wetland Restoration and Wise Sse. Wetlands: Ecosystem Services, Restoration, and Wise Use. S. An and Verhoeven, J. Cham (CH), Springer**:** 1–10.

Anderson, C.M., Mayes, M. and LaBelle, R.P. (2012). "Oil Spill Occurrence Rates for Offshore Spills." OCS Report 2012-069 and BSEE Report No. 2012-069.

Andres, M. (2021). "Spatial and Temporal Variability of the Gulf Stream near Cape Hatteras." Journal of Geophysical Research: Oceans **126**(9): e2021JC017579.

Arctic Council. (2020, March 2020). "Arctic Shipping Status Report #1: 2024 Update." Retrieved June 16, 2025, from https://pame.is/images/03_Projects/ASSR/ASSR_1_-_2024_update.pdf.

Arimitsu, M., Schoen, S., Piatt, J., Marsteller, C. and Drew, G. (2021a). "Monitoring the Recovery of Seabirds and Forage Fish following a Major Ecosystem Disruption in Lower Cook Inlet."

Arimitsu, M.L., Piatt, J.F., Hatch, S., Suryan, R.M., Batten, S., Bishop, M.A., Campbell, R.W., Coletti, H., Cushing, D., Gorman, K., Hopcroft, R.R., Kuletz, K.J., Marsteller, C., McKinstry, C., McGowan, D., Moran, J., Pegau, S., Schaefer, A., Schoen, S., Straley, J. and von Biela, V.R. (2021b). "Heatwave-induced Synchrony within Forage Fish Portfolio Disrupts Energy Flow to Top Pelagic Predators." Global Change Biology **27**(9): 1859–1878.

Arimitsu, M.L., Piatt, J.F. and Mueter, F. (2016). "Influence of Glacier Runoff on Ecosystem Structure in Gulf of Alaska Fjords." Marine Ecology Progress Series **560**: 19–40.

Arp, C.D., Jones, B.M., Schmutz, J.A., Urban, F.E. and Jorgenson, M.T. (2010). "Two Mechanisms of Aquatic and Terrestrial Habitat Change along an Alaskan Arctic Coastline." Polar Biology **33**: 1629–1640.

Arrigo, K.R., Perovich, D.K., Pickart, R.S., Brown, Z.W., Van Dijken, G.L., Lowry, K.E., Mills, M.M., Palmer, M.A., Balch, W.M., Bahr, F., Bates, N.R., Benitez-Nelson, C.R., Bowler, B., Brownlee, E., Ehn, J.K., Frey, K.E., Garley, R., Laney, S.R., Lubelczyk, L., Mathis, J., Matsuoka, A., Mitchell, B.G., Moore, G.W.K., Ortega-Retuerta, E., Pal, S., Polashenski, C.M., Reynolds, R.A., Schieber, B., Sosik, H.M., Stephens, M. and Swift, J.H. (2012). "Massive Phytoplankton Blooms under Arctic Sea Ice." Science **336**(6087): 1408.

Arrow, K. and Fisher, A. (1974). "Environmental Preservation, Uncertainty, and Irreversibility." The Quarterly Journal of Economics **88**(2): 312–319.

Arteaga, L.A. and Rousseaux, C.S. (2023). "Impact of Pacific Ocean heatwaves on phytoplankton community composition." Communications Biology **6**: 263.

Ashley, J., Pilat, A., Ohlweiler, A., Ogden, C., O'Pella, J. and Ozbay, G. (2024). "Microplastics in Atlantic Ribbed Mussels (*Geukensia demissa*) from the Delaware Inland Bays, USA." Microplastics **3**(1): 147–164. Retrieved from https://doi.org/10.3390/microplastics3010009

Association of Pacific Ports. (Undated). "Port of Valdez, Alaska." from https://pacificports.org/directory/port-of-valdez-alaska/.

Athanase, M., Köhler, R., Heuzé, C., Lévine, X. and Williams, R. (2025). "The Arctic Beaufort Gyre in CMIP6 models: present and future." Journal of Geophysical Research: Oceans **130**(4): e2024JC021873.

Austin, D., Dosemagen, S., Marks, B., McGuire, T., Prakash, P. and Rogers, B. (2014). "Offshore Oil and Deepwater Horizon: Social Effects on Gulf Coast Communities, Volume II." OCS Study BOEM 2014-618Retrieved October 15, 2010, from https://espis.boem.gov/final%20reports/5385.pdf.

Austin, D., J., L., V.M., P. and J., S. (2022). "Social Impacts of the Deepwater Horizon Oil Spill on Coastal Communities along the U.S. Gulf of Mexico." BOEM 2022-0214https://espis.boem.gov/final%20reports/BOEM_2022-021.pdf.

Axler, K.E., Goldstein, E.D., Nielsen, J.M., Deary, A.L. and Duffy-Anderson, J.T. (2023). "Shifts in the Composition and Distribution of Pacific Arctic Larval Fish Assemblages in Response to Rapid Ecosystem Change." Global Change Biology **29**(15): 4212–4233.

Bachiller, E., Skaret, G., Nottestad, L. and Slotte, A. (2016). "Feeding Ecology of Northeast Atlantic Mackerel, Norwegian Spring-spawning Herring and Blue Whiting in the Norwegian Sea." PLoS ONE **11**(2): e0149238.

Baird, E., Bourque, J., Brooke, S., Campbell-Swarzenski, P., Clostio, R., Coykendall, K., Davies, A., Demopoulos, A., Duineveld, G., France, S., Heil, A., Horton, A., Howard, A., Jensen, J.O., Kellogg, C.A., Lawler, S., Mather, R., McClain-Counts, J., Meyer, K., Mienis, F., Morrison, C., Nizinski, M., Phillips, N., Prouty, N., Rhode, M., Roark, B., Robertson, C., Ross, S.W., Sanders, L., Shroades, K., Sogluizzo, A., Springmann, M., Viada, S., Waller, R., Wolf-Watts, M. and Young, C. (2017). "Exploration and Research of Mid-Atlantic Deepwater Hard Bottom Habitats and Shipwrecks with Emphasis on Canyons and Coral Communities: Atlantic Deepwater Canyons Study. Volume I: Final Technical Report."

Baird, P.A., Gould, P.J., Lensink, C.J. and Sanger, G.A. (1983). "The Breeding Biology and Feeding Ecology of Marine Birds in the Gulf of Alaska."

Balcom, B., Biggs, D.C., Hu, C., Montagna, P. and Stockwell, D.A. (2011). "A Comparison of Marine Productivity Among Outer Continental Shelf Planning Areas." OCS Study BOEMRE 2011-019Retrieved September 18, 2023, from https://espis.boem.gov/final%20reports/5121.PDF.

Ballut-Dajud, G.A., Sandoval Herazo, L.C., G., F.-L., Marin-Muniz, J.L., Lopez Mendez, M.C. and Betanzo-Torres, E.A. (2022). "Factors Affecting Wetland Loss: A Review." Land **11**(3). Retrieved from https://doi.org/10.3390/land11030434

Barans, C.A. and Henry Jr., V.J. (1984). "A Description of the Shelf Edge Groundfish Habitat along the Southeastern United States." Northeast Gulf Science **7**(1): 77–96.

Barco, S.G., Burt, M.L., DiGiovanni Jr., R.A., Swingle, W.M. and Williard, A.S. (2018). "Loggerhead Turtle *Caretta caretta* Density and Abundance in Chesapeake Bay and the Temperate Ocean Waters of the Southern Portion of the Mid-Atlantic Bight." Endangered Species Research **37**: 269–287.

Barfield, A. and Landry, C.E. (2019, April 26, 2019). "Valuation of Beach Quality." Retrieved August 13, 2025, from https://oxfordre.com/environmentalscience/display/10.1093/acrefore/9780199389414.001.0001/acrefore-9780199389414-e-464.

Barlow, J. and Forney, K.A. (2007). "Abundance and Population Density of Cetaceans in the California Current Ecosystem." Fishery Bulletin **105**: 509–526.

Barrick Novagold. (2020). "Donlin Gold." Retrieved September 4, 2020, from https://www.novagold.com/_resources/projects/technical_report_donlin_gold.pdf.

Bates, E., Gianou, K., Hennessey, J., Culver, M., Doerpinghaus, J., Niles, C., Pierce, J., McCord, A., Lassiter, K. and Whiting, L. (2018). "Marine Spatial Plan for Washington's Pacific Coast." https://fortress.wa.gov/ecy/publications/documents/1706027.pdf.

BEA. (2025a). "U.S. International Trade in Goods and Services, February 2025." *Exhibit 9, U.S. Trade in Petroleum and Non-Petroleum Products by End-Use* Retrieved April 29, 2025, from https://www.bea.gov/sites/default/files/2025-04/trad0225.pdf.

BEA. (2025b). "U.S./International Trade in Goods and Services, February 2025." https://www.bea.gov/news/2025/us-international-trade-goods-and-services-february-2025.

Benson, S.R., Forney, K.A., Moore, J.E., LaCasella, E.L., Harvey, J.T. and Carretta, J.V. (2020). "A Long-term Decline in the Abundance of Endangered Leatherback Turtles, *Dermochelys coriacea*, at a Foraging Ground in the California Current ecosystem." Global Ecology and Conservation **24**: e01371.

Best Surf Destinations. (2023). "A Complete Guide to Surfing California." Retrieved 2025 Jul 1, from https://www.bestsurfdestinations.com/surfing-california.

Bi, H., Z. Weng, R. Yue, J. Sui, C.N. Mulligan, K. Lee, S. Pegau, Z. Chen and An, C. (2025). "Oil Spills in Coastal Regions of the Arctic and Subarctic: Environmental Impacts, Response Tactics, and Preparedness." Science of the Total Environment **958**(178025). Retrieved from https://www.sciencedirect.com/science/article/pii/S0048969724081828.

Biggs, D.C. and Ressler, P.H. (2001). "Distribution and Abundance of Phytoplankton, Zooplankton, Ichthyoplankton, and Micronekton in the Deepwater Gulf of Mexico." Gulf of Mexico Science **19**(1): 7–29.

Bird Alliance of Oregon. (2025). "Oregon Birding Hotspots." Retrieved 2025 Jun 24, from https://birdallianceoregon.org/go-outside/destinations/oregon-birding/.

Bjorndal, K.A. (1997). Foraging Ecology and Nutrition of Sea Turtles. The Biology of Sea Turtles. P. L. Lutz and Musick, J. A. Boca Raton (FL), CRC Press. **1:** 199–231.

BLS. (2025). "Employment and Earnings Table B-3a." *Current Employment Statistics - CES (National)* Retrieved July 15, 2025, from https://www.bls.gov/web/empsit/ceseeb3a.htm.

BOEM. (2012). "Gulf of Mexico OCS Oil and Gas Lease Sales: 2012–2017; Western Planning Area Lease Sales 229, 233, 238, 246, and 248; Central Planning Area Lease Sales 227, 231, 235, 241, and 247 – Final Environmental Impact Statement." OCS EIS/EA BOEM 2012-019Retrieved September 18, 2023, from https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Assessment/NEPA/BOEM-2012-019_v1.pdf.

BOEM. (2014). "Economic Inventory of Environmental and Social Resources potentially impacted by a Catastrophic Discharge Event within OCS Regions." Retrieved September 18, 2023, from https://www.boem.gov/sites/default/files/oil-and-gas-energy-program/Leasing/Five-Year-Program/2017-2022/Economic-Inventories-for-CDE.pdf.

BOEM. (2015). "Gulf of Mexico OCS Oil and Gas Lease Sales: 2016 and 2017; Central Planning Area Lease Sales 241 and 247, Eastern Planning Area Lease Sale 226. Final Environmental Impact Statement." Retrieved 2020 Nov 5, from https://www.boem.gov/sites/default/files/boem-newsroom/Library/Publications/2015/BOEM-2015-033.pdf.

BOEM. (2016a, December 2016). "Cook Inlet Planning Area Oil and Gas Lease Sale 244 Final Environmental Impact Statement." OCS EIS/EA BOEM 2016-069Retrieved July 16, 2025, from https://www.boem.gov/Cook-Inlet-Lease-Sale-244-Final-EIS-Volume-1/.

BOEM. (2016b). "Gulf of Mexico OCS Oil and Gas Lease Sale: 2016. Western Planning Area Lease Sale 248, Final Supplemental Environmental Impact Statement." https://www.boem.gov/BOEM-2016-005/.

BOEM. (2017a). "Catastrophic Spill Event Analysis: High-Volume, Extended Duration Oil Spill Resulting from Loss of Well Control on the Gulf of Mexico Outer Continental Shelf, 1st Revision." BOEM 2017-007.

BOEM. (2017b). "Draft Environmental Impact Statement: Liberty Development Project Development and Production Plan in the Beaufort Sea, Alaska." OCS EIS/EA BOEM 2016-010Retrieved February 23, 2018, from https://www.boem.gov/2016-010-Volume-1-Liberty-EIS/.

BOEM. (2017c). "Gulf of Mexico OCS Oil and Gas Lease Sales: 2017-2022 Gulf of Mexico Lease Sales 249, 250, 251, 252, 253, 254, 256, 257, 259, and 261. Final Multisale Environmental Impact Statement." OCS EIS/EA BOEM 2017-009Retrieved August 3, 2017, from https://www.boem.gov/BOEM-EIS-2017-009-v1/.

BOEM. (2017d). "Gulf of Mexico OCS Proposed Geological and Geophysical Activities, Western, Central, and Eastern Planning Areas: Final Programmatic Environmental Impact Statement. Volume III, Appendices E-L." OCS EIS/EA BOEM 2017-051Retrieved September 18, 2023, from https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Assessment/NEPA/BOEM-2017-051-v3.pdf.

BOEM. (2018). "2019-2024 National Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program."

BOEM. (2021a). "2021 National Assessment of Undiscovered Oil and Gas Resources of the U.S. Outer Continental Shelf." OCS Report BOEM 2021-071Retrieved June 13, 2022, from https://www.boem.gov/sites/default/files/documents/oil-gas-energy/2021-NA_1.pdf.

BOEM. (2021b). "Deepwater Gulf of Mexico Report 2019." Retrieved December 12, 2021, from https://www.boem.gov/regions/gulf-mexico-ocs-region/deepwater-gulf-mexico-report-2019-boem-2021-005.

BOEM. (2021c). "Fact Sheet: 2021 National Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf."

BOEM. (2021d). "Gulf of Mexico Catastrophic Spill Event Analysis: High-Volume, Extended-Duration Oil Spill Resulting from Loss of Well Control on the Gulf of Mexico Outer Continental Shelf." OCS

Report BOEM 2021-007Retrieved August 28, 2023, from https://www.boem.gov/sites/default/files/documents/environment/GOM%20Catastrophic%20Spill%20Event%20Analysis%202021.pdf.

BOEM. (2022a, February 2021). "2023-2028 National OCS Oil and Gas Leasing Program Draft Programmatic Environmental Impact Statement." OCS EIS/EA BOEM 2022-00XRetrieved September 18, 2023, from https://www.boem.gov/sites/default/files/documents/oil-gas-energy/national-program/2023-2028-NationalOCSOilGasLeasingDraftPEISVol1.pdf.

BOEM. (2022b). "Cook Inlet Planning Area Oil and Gas Lease Sale 258 in Cook Inlet Alaska." OCS EIS/EA BOEM 2022-061Retrieved June 18, 2025, from https://www.boem.gov/sites/default/files/documents/regions/alaska-ocs-region/2022_1020%20LS%20258%20FEIS%20Compiled_508.pdf.

BOEM (2022c). Cook Inlet Planning Area oil and gas Lease Sale 258 in Cook Inlet, Alaska. Final environmental impact statement: chapters 1–5, appendix A and Appendix B. Anchorage (AK), U.S. Department of the Interior, Bureau of Ocean Energy Management, Alaska OCS Region**:** 428.

BOEM. (2023a). "2024-2029 National OCS Oil and Gas Leasing Proposed Final Program Final Programmatic EIS." https://www.boem.gov/sites/default/files/documents/oil-gas-energy/national-program/2023-2028-NationalOCSOilGasLeasingDraftPEISVol1.pdf.

BOEM. (2023b). "Economic Analysis Methodology for the 2024-2029 National Outer Continental Shelf Oil and Gas Leasing Proposed Final Program." BOEM-2023-059https://www.boem.gov/2024-2029-Economic-Analysis-Methodology

BOEM. (2023c). "Feasibility Study for Renewable Energy Technologies in Alaska Offshore Waters." Feasibility Study BOEM 2023-076Retrieved July 16, 2025, from https://espis.boem.gov/final%20reports/BOEM_2023-076.pdf.

BOEM. (2023d). "Programmatic Description of the Potential Effects from Gulf of Mexico OCS Oil- and Gas-Related Activities: A Supporting Information Document."

BOEM. (2023e). "Seamount Benthic Mapping and Characterization for Deep-sea Corals, Benthic Ecosystems, and Critical Minerals of the Aleutian Islands (MM-21-04)."

BOEM (2024a). California Offshore Wind Draft Programmatic Environmental Impact Statement. Volume I: Chapters 1–4. Camarillo (CA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs**:** 659.

BOEM (2024b). Gulf of Mexico Regional OCS Oil and Gas Lease Sales Draft Programmatic Environmental Impact Statement. New Orleans (LA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico Regional Office**:** 742.

BOEM. (2025a). "2024 Geological & Geophysical Data Inventory: U.S. Outer Continental Shelf through 2024." OCS Report BOEM 2025-034.

BOEM. (2025b, May 2025). "The Economic Contributions of U.S. Offshore Energy Activities during Fiscal Year 2024."

BOEM. (2025c). "Gulf of Mexico Energy Security Act (GOMESA)." Retrieved May 14, 2025, from https://www.boem.gov/oil-gas-energy/energy-economics/gulf-mexico-energy-security-act-gomesa.

BOEM. (2025d). "Virtual Archaeology Museum." Retrieved 2025 Jul 3, from https://www.boem.gov/environment/virtual-archaeology-museum.

Boesch, D.F. (1979). Benthic Ecological Studies: Macrobenthos. Middle Atlantic Outer Continental Shelf Environmental Studies Volume II-B. Washington (DC), U.S. Department of the Interior, Bureau of Land Management, Branch of Environmental Studies**:** 6.1–6.301.

Boles, J.R., Garven, G. and Peltonen, C. (2023). "Hydrocarbon Production Reduces Natural Methane Seeps in the Santa Barbara Channel." Marine and Petroleum Geology **151**: 106187.

Bonsell, C. and Dunton, K.H. (2021). "Slow Community Development Enhances Abiotic Limitation of Benthic Community Structure in a High Arctic Kelp Bed." Frontiers in Marine Science **8**.

Bowden, J.A., Mehdi, Q., Blackman, L.E., Correia, K., Sinkway, T.D., Marcin, J., Furman, B.T., Congdon, V. and Aufmuth, J. (2025). "Sand dollars (*Mellita quinquiesperforata*): A New Bioindicator for Tracking PFAS in Coastal Waters." Marine Pollution Bulletin **213**: 117673.

Braje, T.J., Maloney, J.M., Gusick, A.E., Erlandson, J.M., Nyers, A., Davis, L., Gill, K.M., Reeder-Myers, L. and Ball, D. (2019). "Working from the Known to the Unknown: Linking the Subaerial Archaeology and the Submerged Landscapes of Santarosae Island, Alta California, USA." Open Quaternary **5**(10): 1–15.

Brasseaux and Davis (2022). Shrimp from the Bay to the Bayou. Asian-Cajun Fusion. Jackson, Mississippi, University Press of Mississippi**:** 211–215.

Braun-McNeill, J. and Epperly, S.P. (2004). "Spatial and Temporal Distribution of Sea Turtles in the Western North Atlantic and the U.S. Gulf of Mexico from Marine Recreational Fishery Statistics Survey (MRFSS)." Marine Fisheries Review **64**(4): 50–56.

BREA. (2020). "The Economic Contribution of the International Cruise Industry in the United States in 2019." Retrieved July 16, 2025, from The Contribution of the International Cruise Industry to the U.S. Economy in 2019. Prepared for: Cruise Lines International Association. .

Briggs, K.T., Chu, E.W., Lewis, D.B., Tyler, W.B., Pitman, R.L. and Hunt Jr., G.L. (1981). "Final Report: Summary of Marine Mammal and Seabird Surveys of the Southern California Bight Area, 1975–1978. Volume III: Investigators' Reports. Part III: Seabirds - Book I."

Britton, J.C. and Morton, B. (1989). Shore Ecology of the Gulf of Mexico. Austin (TX), University of Texas Press.

Brodeur, R.D., Suchman, C.L., Reese, D.C., Miller, T.W. and Daly, E.A. (2008). "Spatial Overlap and Trophic Interactions between Pelagic Fish and Large Jellyfish in the Northern California Current." Marine Biology **154**(4): 649–659.

Brooke, S. and Schroeder, W.W. (2007). "State of Deep Coral Ecosystems in the Northern Gulf of Mexico Region: Texas to the Florida Straits." *NOAA Technical Memorandum CRCP-3*.

Brooke, S.D., Watts, M.W., Heil, A.D., Rhode, M., Mienis, F., Duineveld, G.C.A., Davies, A.J. and Ross, S.W. (2017). "Distributions and Habitat Associations of Deep-water Corals in Norfolk and Baltimore Canyons, Mid-Atlantic Bight, USA." Deep Sea Research Part II: Topical Studies in Oceanography **137**: 131–147.

Brooks, J.M. and Darnell, R.M. (1991). Mississippi-Alabama Continental Shelf Ecosystem Study: Data Summary and Synthesis. Volume I: Executive Summary. New Orleans (LA), U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region**:** 43.

Brooks, J.M., Fisher, C., Cordes, E., Baums, I., Bernard, B., Church, R., Etnoyer, P., German, C., Goehring, E., MacDonald, I., Roberts, H., Shank, T., Warren, D., Welsh, S. and Wolff, G. (2012). Exploration and research of northern Gulf of Mexico deepwater natural and artificial hard-bottom habitats with emphasis on coral communities: reefs, rigs, and wrecks—“Lophelia II” interim report. New Orleans

(LA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico OCS Region**:** 139.

Brooks, R.A., Purdy, C.N., Bell, S.S. and Sulak, K.J. (2006). "The Benthic Community of the Eastern U.S. Continental Shelf: A Literature Synopsis of Benthic Faunal Resources." Continental Shelf Research **26**(6): 804–818.

Brown, C.L., Bembenic, T., Brown, M., Cold, H., Coleman, J., Donaldson, E., Egelhoff, J., Jones, B., Keating, J.M., Sill, L.A., Urquia, M., Wilcox, C. and Barnett, T. (2023). Alaska Subsistence and Personal Use Salmon Fisheries 2020 Annual Report. Anchorage (AK), State of Alaska, Department of Fish and Game, Division of Subsistence**:** 338.

Brown, C.L. and Koster, D. (2022, January 2022). "Subsistence Harvests of Pacific Halibut in Alaska, 2022." Technical Paper No. 509.

BSEE. (2023). "Rigs to Reefs." Retrieved 2023 Feb 14, from https://www.bsee.gov/what-we-do/environmental-compliance/environmental-programs/rigs-to-reefs.

BSEE and USCG. (2024, August 2024). "Offshore Information for Area Contingency Planning: Pacific Species Profiles and Best Management Practices (BMPs)."

BTS. (2019). "Port Freight Statistics in 2018, Annual Report to Congress 2019." Retrieved September 16, 2020, from https://rosap.ntl.bts.gov/view/dot/43525.

BTS (2024). 2024 Port Performance Freight Statistics Program: Annual Report to Congress. Washington (DC), U.S. Department of Transportation, Bureau of Transportation Statistics**:** 49.

BTS (2025a). Port Performance Freight Statistics: 2025 Annual Report. Washington (DC), U.S. Department of Transportation, Bureau of Transportation Statistics**:** 73.

BTS. (2025b). "U.S. Top 25 Container Ports based on Twenty-Foot Equivalent Units 2020." Retrieved 2025 Jun 13, from https://www.bts.gov/geography/geospatial-portal/us-top-25-container-ports-based-twenty-foot-equivalent-units-2020.

Bureau of Indian Affairs. (2025). "About us." Retrieved 2025 Jul 8, from https://www.bia.gov/about-us.

Buster, N.A. and Holmes, C.W. (2011). Gulf of Mexico Origin, Waters, and Biota. College Station, Texas, Texas A&M University Press.

Byrnes, M.R., Davis Jr., R.A., Kennicutt II, M.C., Kneib, R.T., Mendelssohn, I.A., Rowe, G.T., Tunnell Jr., J.W., Vittor, B.A. and Ward, C.H. (2017). Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill. Volume 1: Water Quality, Sediments, Sediment Contaminants, Oil and Gas Seeps, Coastal Habitats, Offshore Plankton and Benthos, and Shellfish. New York (NY), Springer.

California Energy Commission. (2025). "California Oil Refinery Locations and Capacities." Retrieved May 13, 2025, from https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/californias-oil-refineries.

California Ocean Protection Council (2022). Statewide Microplastics Strategy. Sacramento (CA), State of California, Ocean Protection Council**:** 37.

California State Water Resources Control Board. (2023, 2023 Sep 11). "Nonpoint Source Management Program." Retrieved 2025 Jul 18, from https://www.waterboards.ca.gov/water_issues/programs/nps/.

Campi, A. (2005). "From Refugees to Americans: Thirty Years of Vietnamese Immigration to the United States." https://www.americanimmigrationcouncil.org/wp-content/uploads/2025/01/RefugeestoAmericans.pdf.

Cardona, Y., Bracco, A., Villareal, T.A., Subramaniam, A., Weber, S.C. and Montoya, J.P. (2016). "Highly Variable Nutrient Concentrations in the Northern Gulf of Mexico." Deep Sea Research Part II: Topical Studies in Oceanography **129**: 20–30.

Carretta, J.V., Oleson, E.M., Forney, K.A., Muto, M.M., Weller, D.W., Lang, A.R., Baker, J., Hanson, B., Orr, A.J., Barlow, J., Moore, J.E. and Brownell Jr, R.L. (2022). U.S. Pacific marine mammal stock assessments: 2021. La Jolla (CA), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center**:** 395.

Carroll, M., Gentner, B., Larkin, S., Quigley, K., Perlot, N., Dehner, L. and Kroetz, A. (2016, March 2016). "An Analysis of the Impacts of the Deepwater Horizon Oil Spill on the Gulf of Mexico Seafood Industry."   OCS Study BOEM 2016-020https://espis.boem.gov/Final%20Reports/5518.pdf.

Carter, G.A., Lucas, K.L., Biber, P.D., Criss, G.A. and Blossom, G.A. (2011). "Historical Changes in Seagrass Coverage on the Mississippi Barrier Islands, Northern Gulf of Mexico, Determined from Vertical Aerial Imagery (1940–2007)." Geocarto International **26**(8): 663–673.

Casazza, T.L. and Ross, S.W. (2008). "Fishes Associated with Pelagic *Sargassum* and Open Water Lacking *Sargassum* in the Gulf Stream off North Carolina." Fishery Bulletin **106**(4): 348–363. Retrieved from https://spo.nmfs.noaa.gov/sites/default/files/pdf-content/2008/1064/casazza.pdf.

CDFW. (2008). "Culture of Oysters." *Status of the Fisheries Report 2008* https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=34440.

CDFW (2014). Poundage and Value of Landings by Port, Los Angeles Area During 2014.

CDFW (2020). The Status of Commercial Marine Aquaculture in California: Draft Report. Sacramento (CA), State of California, Department of Fish and Wildlife, Fish and Game Commission**:** 42.

CDFW. (2025a, 2025 Jan 23). "Dungeness Crab Enhanced Status Report."   Retrieved 2025 Jul 3, from https://marinespecies.wildlife.ca.gov/dungeness-crab.

CDFW (2025b). Marine Fisheries Data Explorer: Top Species.

Ceriani, S.A., Casale, P., Brost, M., Leone, E.H. and Witherington, B.E. (2019). "Conservation Implications of Sea Turtle Nesting Trends: Elusive Recovery of a Globally Important Loggerhead Population." Ecosphere **10**(11): e02936.

Chan, F., Barth, J.A., Blanchette, C.A., Byrne, R.H., Chavez, F., Cheriton, O., Feely, R.A., Friederich, G., Gaylord, B., Gouhier, T., Hacker, S., Hill, T., Hofmann, G., McManus, M.A., Menge, B.A., Nielsen, K.J., Russell, A., Sanford, E., Sevadjian, J. and Washburn, L. (2017). "Persistent Spatial Structuring of Coastal Ocean Acidification in the California Current System." Scientific Reports **7**(1): 2526.

Chang, Y.-L. and Oey, L.-Y. (2012). "Why Does the Loop Current Tend to Shed More Eddies in Summer and Winter?" Geophysical Research Letters **39**(5): L05605.

Checkley, D.M. and Barth, J.A. (2009). "Patterns and Processes in the California Current System." Progress in Oceanography **83**: 49–64.

Chesapeake Bay Program. (2024). "Submerged Aquatic Vegetation Outcome Management Strategy 2015–2025, v.5."   https://www.chesapeakebay.net/files/documents/2024-2025-SAV-Management-Strategy_FINAL-4.30.24.pdf.

Churchill, J.H. and Berger, T.J. (1998). "Transport of Middle Atlantic Bight shelf water to the Gulf Stream near Cape Hatteras." Journal of Geophysical Research **103**(C13): 30605–30621.

City of Nome. (2024). "Port of Nome Strategic Development Plan Update – Phase A: Background & Engagement."   Retrieved June 17, 2025, from https://www.nomealaska.org/sites/default/files/fileattachments/port_of_nome/page/12402/2024-05-13_pon_strategic_plan_update_-_phase_a_final.pdf".

Clarke, J.T., Ferguson, M.C., Curtice, C. and Harrison, J. (2015). "Biologically Important Areas for Cetaceans within U.S. Waters – Arctic Region." Aquatic Mammals **41**(1): 94–103.

Clement-Kinney, J., Assmann, K.M., Maslowski, W., Björk, G., Jakobsson, M., Jutterström, S., Lee, Y.L., Osinski, R., Semiletov, I., Ulfsbo, A., Wåhlström, I. and Anderson, L.G. (2022). "On the Circulation, Water Mass Distribution, and Nutrient Concentrations of the Western Chukchi Sea." Ocean Science **18**(1): 29–49.

Cochrane, G.R., Kuhnz, L.A., Gilbane, L., Dartnell, P., Walton, M.A.L. and Paull, C.K. (2022). California Deepwater Investigations and Groundtruthing (Cal DIG) I, Volume 3—Benthic Habitat Characterization Offshore Morro Bay, California. Reston (VA), U.S. Department of the Interior, U.S. Geological Survey**:** 28.

Cole, S., Hanak, E. and Peterson, C. (2024). "Agricultural Land Use in California." https://www.ppic.org/wp-content/uploads/agricultural-land-use-in-california.pdf.

Coletti, H., Iken, K., Jones, T., Konar, B., Lindeberg, M., Saupe, S. and Venator, S. (2017). "Evaluation of Nearshore Communities and Habitats in Lower Cook Inlet, Alaska." OCS Study BOEM 2017-045.

Collard, S.B. (1990). "Leatherback Turtles Feeding near a Watermass Boundary in the Eastern Gulf of Mexico." Marine Turtle Newsletter **50**: 12–14. Retrieved from http://www.seaturtle.org/mtn/archives/mtn50/mtn50p12.shtml.

Collins, C.A., Pennington, J.T., Castro, C.G., Rago, T.A. and Chavez, F.P. (2003). "The California Current System off Monterey, California: Physical and Biological Coupling." Deep Sea Research Part II: Topical Studies in Oceanography **50**(14–16): 2389–2404.

Conrad, J.M. and Kotani, K. (2005). "When to Drill? Trigger Prices for the Arctic National Wildlife Refuge." Resource and Energy Economics **27**: 273–286.

Continental Shelf Associates Inc (1979). South Atlantic Hard Bottom Study. Washington (DC), U.S. Department of the Interior, Bureau of Land Management**:** 371.

Cordes, E., Demopoulos, A., Bernard, B., Brooke, S., Brooks, J., Joye, S., Miksis-Olds, J., Quattrini, A., Sutton, T. and Wolff, G. (2024). Deepwater Atlantic Habitats II: Continued Atlantic Research and Exploration in Deepwater Ecosystems with Focus on Coral, Canyon, and Seep Communities. Sterling (VA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Environmental Programs**:** 639.

Cornish, V. (2015). "Gulf of Mexico Marine Mammal Research and Monitoring Meeting: Summary Report."

Corrales-Ugalde, M., Sponaugle, S., Cowen, R.K. and Sutherland, K.R. (2021). "Seasonal Hydromedusan Feeding Patterns in an Eastern Boundary Current show Consistent Predation on Primary Consumers." Journal of Plankton Research **43**(5): 712–724.

Cosentino-Manning, N., Kenworthy, W.J., Handley, L., Wild, M., Rouhani, S. and Spell, R. (2015). Submerged Aquatic Vegetation Exposure to Deepwater Horizon Spill. Washington (DC), U.S. Department of Commerce, National Oceanic and Atmospheric Administration**:** 192.

Couvillion, B.R., Schoolmaster, D. and Fischer, M. (2017). Land Area Change in Coastal Louisiana (1932 to 2016). U. S. G. S. U.S. Department of the Interior. Reston, Virginia.

Coyle, K.O., Hermann, A.J. and Hopcroft, R.R. (2019). "Modeled Spatial-Temporal Distribution of Productivity, Chlorophyll, Iron and Nitrate on the Northern Gulf of Alaska Shelf Relative to Field Observations." Deep Sea Research Part II: Topical Studies in Oceanography **165**: 163–191.

CPRA. (2022). "Barrier Island Status Report: Draft Fiscal Year 2023 Annual Plan." Retrieved August 13, 2023, from https://coastal.la.gov/wp-content/uploads/2022/01/BARRIER_ISLAND_STATUS_AP_FY23.pdf.

Craig, J.K., Kellison, G.T., Binion-Rock, S.M., Regan, S.D., Karnauskas, M., Lee, S.-K., He, R., Allen, D.M., Bacheler, N.M., Blondin, H., Bucklel, J.A., Burton, M.L., Cross, S.L., Freitag, A., Groves, S.H., Hayes, C.A., Kimball, M.E., Morely, J.W., Munoz, R.C., Murray, G.D., Reimer, J.J., Shertez, K.W., Shropshire, T.A., Siegfried, K.I., Taylor, J.C. and Volkov, D.L. (2021). Ecosystem Status Report for the U.S. South Atlantic Region, National Oceanic and Atmospheric Administration.

Crear, D.P., Lawson, D.D., Seminoff, J.A., Eguchi, T., LeRoux, R.A. and Lowe, C.G. (2016). "Seasonal Shifts in the Movement and Distribution of Green Sea Turtles *Chelonia mydas* in Response to Anthropogenically Altered Water Temperatures." Marine Ecology Progress Series **548**: 219–232.

Crear, D.P., Lawson, D.D., Seminoff, J.A., Eguchi, T., LeRoux, R.A. and Lowe, C.G. (2017). "Habitat Use and Behavior of the East Pacific Green Turtle, *Chelonia mydas*, in an Urbanized System." Bulletin, Southern California Academy of Sciences **116**(1): 17–32.

Creel, R., Guimond, J., Jones, B.M., Nielsen, D.M., Bristol, E., Tweedie, C.E. and P., O.P. (2024). "Permafrost Thaw Subsidence, Sea-Leverl Rise, and Erosion are Transforming Alaska's Arctic Coastal Zone." PNAS **121**(50).

Cross, J.N., Niemi, A., Steiner, N.S. and Pilcher, D.J. (2021). Ocean Acidification. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration**:** 6.

CSA Ocean Sciences, I. and SWCA. (2025, March 2025). "Understanding the Recreational Uses of Offshore Oil and Gas Platforms on the Outer Continental Shelf of the Gulf of America: Synthesis Report." OCS Study BOEM 2025-012Retrieved May 9, 2025, from https://espis.boem.gov/Final%20Reports/BOEM_2025-012.pdf.

CSA Ocean Sciences Inc, De Leo, F.C. and Ross, S.W. (2019). Large Submarine Canyons of the United States Outer Continental Shelf Atlas. Sterling (VA), U.S. Department of the Interior, Bureau of Ocean Energy Management**:** 52.

Cummings, C. and Gold, R. (2013) "Rising U.S. Oil Output Gives Policy Makers More Options." Wall Street Journal Online, .

Curtice, C., Cleary, J., Shumchenia, E. and Halpin, P. (2019). Marine-life Data and Analysis Team (MDAT) Technical Report on the Methods and Development of Marine-life Data to Support Regional Ocean Planning and Management. Durham (NC), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Centers for Coastal Ocean Science, Duke University Marine Geospatial Ecology Lab, Loyola University Chicago**:** 81.

Cury, P., Bakun, A., Crawford, R.J.M., Jarre, A., Quiñones, R.A., Shannon, L.J. and Verheye, H.M. (2000). "Small Pelagics in Upwelling Systems: Patterns of Interaction and Structural Changes in "Wasp-waist" Ecosystems." ICES Journal of Marine Science **57**(3): 603–618.

Cuyno, L., Schug, D., Flight, M., Bhattacharya, A. and Horsch, E. (2022). Kenai Peninsula Borough Economy, 2008 to 2020. Anchorage (AK), U.S. Department of the Interior, Bureau of Ocean Energy Management**:** 271.

Dahl, K.A., Edwards, M.A. and Patterson III, W.F. (2019). "Density-dependent Condition and Growth of Invasive Lionfish in the Northern Gulf of Mexico." Marine Ecology Progress Series **623**: 145–159.

Dahl, K.A. and Patterson III, W.F. (2014). "Habitat-specific Density and Diet of Rapidly Expanding Invasive Red Lionfish, *Pterois volitans*, Populations In the Northern Gulf of Mexico." PLoS ONE **9**(8): e105852.

Daly, K.L., Remsen, A., Outram, D.M., Broadbent, H., Kramer, K. and Dubickas, K. (2021). "Resilience of the Zooplankton Community in the Northeast Gulf of Mexico During and After the Deepwater Horizon Oil Spill." Marine Pollution Bulletin **163**: 111882.

Daneshgar Asl, S., Amos, J., Woods, P., Garcia-Pineda, O. and MacDonald, I.R. (2016). "Chronic, Anthropogenic Hydrocarbon Discharges in the Gulf of Mexico." Deep Sea Research Part II: Topical Studies in Oceanography **129**: 187–195.

Datsky, A.V. (2015). "Fish fauna of the Chukchi Sea and perspectives of its commercial use." Journal of Ichthyology **55**: 185–209.

Davey, R. (2025, 2025 Feb 6). "Understanding Contaminants Impacting Cook Inlet Beluga Whales." Retrieved 2025 Jul 16, from https://defenders.org/blog/2025/02/understanding-contaminants-impacting-cook-inlet-beluga-whales.

Davis, G.A. and Schantz, R. (2000, February 3, 2000). "Selling Oil Leases: A Long-Term Real Options Analysis."

Davis, R.W. and Fargion, G.S. (1996). Distribution and Abundance of Cetaceans in the North-Central and Western Gulf of Mexico, Final Report. Volume II: Technical Report. New Orleans (LA), U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region**:** 357.

Day, R.H., Kissling, M.L., Kuletz, K.J., Nigro, D.A. and Pyle, P. (2020, 2020 Mar 4). "Kittlitz's Murrelet (*Brachyramphus brevirostris*), Version 1.0." *Birds of the World* Retrieved 2021 Jul 21, from https://doi.org/10.2173/bow.kitmur.01.

Deepwater Horizon Natural Resource Damage Assessment Trustees (2016). *Deepwater Horizon* Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Response and Restoration**:** 1659.

Deerstone Consulting. (2017). "Anchorage Energy Landscape and Opportunities Analysis." Retrieved January 4, 2022, from https://www.muni.org/departments/mayor/aware/resilientanchorage/documents/anchorage%20energy%20landscape%20and%20opportunities%20analysis%20may%202017.pdf.

Demopoulos, A.W.J., Ross, S.W., Kellogg, C.A., Morrison, C.L., Nizinski, M., Prouty, N.G., Bourque, J.R., Galkiewicz, J.P., Gray, M.A., Springmann, M.J., Coykendall, D.K., Miller, A., Rhode, M., Quattrini, A., Ames, C.L., Brooke, S., McClain-Counts, J., Roark, E.B., Buster, N.A., Phillips, R.M. and Frometa, J. (2017). Deepwater Program: Lophelia II, Continuing Ecological Research on Deep-sea Corals and Deep-reef Habitats in the Gulf of Mexico. Reston (VA), U.S. Department of the Interior, U.S. Geological Survey**:** 287.

Dennison, W.C., Orth, R.J., Moore, K.A., Stevenson, J.C., Carter, V., Kollar, S., Bergstrom, P.W. and Batiuk, R.A. (1993). "Assessing Water Quality with Submersed Qquatic Vegetation: Habitat Requirements as Barometers of Chesapeake Bay health." BioScience **43**(2): 86–94.

Dew, C.B. (2010). Podding Behavior of Adult King Crab and its Effect on Abundance-estimate Precision. Biology and management of exploited crab populations under climate change. G. H. Kruse, Eckert, G. L., Foy, R. J. et al. Fairbanks (AK), Alaska Sea Grant, University of Alaska Fairbanks**:** 129–151.

Dhineka, K., Mishra, P., Ikenoue, T., Nakajima, R., Itoh, M., Sambandam, M., Kaviarasan, T. and Marigoudar, M. (2024). "Arctic threads: Microplastic Fibres in Chukchi and Beaufort Sea Sediments." Marine Pollution Bulletin **208**: 116954.

Dismukes, D. (2014). "Onshore Oil and Gas Infrastructure to Support Development in the Mid-Atlantic OCS Region." OCS Study BOEM 2014-657.

Dismukes, D.E. (2010). Fact book: Offshore Oil and Gas Industry Support Sectors. New Orleans (LA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Regulation and Enforcement, Gulf of Mexico OCS Region**:** 148.

Ditlevsen, P. and Ditlevsen, S. (2023). "Warning of a Forthcoming Collapse of the Atlantic Meridional Overturning Circulation." Nature Communications **14**: 4254.

Ditty, J.G., Zieske, G.G. and Shaw, R.F. (1988). "Seasonality and Depth Distribution of Larval Fishes in the Northern Gulf of Mexico above Latitude 26°00′N." Fishery Bulletin **86**(4): 811–823.

DOD. (2024). "2024 Arctic Strategy." Retrieved June 16, 2025, from https://media.defense.gov/2024/Jul/22/2003507411/-1/-1/0/DOD-ARCTIC-STRATEGY-2024.PDF.

DOE. (2024). "SPR Drawdowns (IEA Collective Actions)." Retrieved May 2, 2025, from https://www.energy.gov/sites/default/files/2024-12/History%20of%20SPR%20Releases.pdf.

DOE. (Undated–a). "History of SPR Releases." Retrieved July 7, 2025, from https://www.energy.gov/ceser/history-spr-releases.

DOE. (Undated–b). "SPR Quick Facts." Retrieved May 2, 2025, from https://www.energy.gov/ceser/spr-quick-facts.

Dolan, R. and Lins, H. (1987). "Beaches and Barrier Islands." Scientific American **257**(1): 68–77.

Dooley, J.K. (1972). "Fishes Associated with the Pelagic Sargassum Complex, with a Discussion of the Sargassum Community." Contributions in Marine Science **16**: 1–32. Retrieved from https://repositories.lib.utexas.edu/handle/2152/18022.

DOT. (2023). "Port Profiles 2023." Retrieved August 13, 2023, from https://explore.dot.gov/views/PortProfiles2023/HomeDashboard.

Duncan, C.D. and Havard, R.W. (1980). "Pelagic Birds of the Northern Gulf of Mexico." American Birds **34**(2): 122–132. Retrieved from https://sora.unm.edu/node/112789.

Duncan, E., Adams, C., Caldow, C., Chavez, E., Clarke, E., Coleman, H., Everett, M., Hourigan, T., Laidig, T., Waddell, J. and Winship, A. (2023). NOAA West Coast Deep-Sea Coral Initiative 2018–2021: Final Report. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service**:** 83.

Eastern Research Group. (2014). "Assessing the Impacts of the Deepwater Horizon Oil Spill on Tourism in the Gulf of Mexico Region." OCS Study BOEM 2014-661https://digital.library.unt.edu/ark:/67531/metadc955576/m2/1/high_res_d/5451.pdf.

Ebbin, S.A. (2017). "Fishing for Food: Piloting an Exploration of the Invisible Subsistence Harvest of Coastal Resources in Connecticut." Agriculture & Food Security **6**: 12.

Ebertz, O. (2021) "State allows Donlin Gold to Lease Land for 315-miles Pipeline."

Edwards, E. (2023). "The Economic Impact of North Carolina's Oyster Mariculture Industry."

Eguchi, T., McClatchie, S., Wilson, C., Benson, S.R., LeRoux, R.A. and Seminoff, J.A. (2018). "Loggerhead turtles (*Caretta caretta*) in the California Current: Abundance, Distribution, and Anomalous Warming of the North Pacific." Frontiers in Marine Science **5**: 452.

Eguiluz, V.M., Fernandez-Gracia, J., Irigoien, X. and Duarte, C.M. (2016). "A Quantitative Assessment of Arctic Shipping in 2010-2014." Sci Rep **6**: 30682. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/27477878.

EIA (2016). "Oil Production in Federal Gulf of Mexico Projected to Reach Record High in 2017." Retrieved from http://www.eia.gov/todayinenergy/detail.cfm?id=25012.

EIA. (2018). "Oil Imports and Exports." Retrieved August 24, 2018, from https://www.eia.gov/energyexplained/index.php?page=oil_imports.

EIA. (2019). "Crude Oil Used by U.S. Refineries Continues to get Lighter in Most Regions." *Today in Energy* Retrieved July 7, 2025, from https://www.eia.gov/todayinenergy/detail.php?id=41653.

EIA. (2020, February 25, 2020). "U.S. Crude Oil Production Increases; Imports Remain Strong to Support Refinery Operations." *Today in Energy* Retrieved May 1, 2025, from https://www.eia.gov/todayinenergy/detail.php?id=42936.

EIA. (2022a, October 24, 2022). "As Much as 15 Million Barrels of Crude Oil Sold from the U.S. Strategic Petroleum Reserve." Retrieved May 2, 2025, from https://www.eia.gov/todayinenergy/detail.php?id=54359.

EIA. (2022b, June 28, 2022). "Significant Volumes of Gasoline and Distillate Move from the Gulf Coast to the East Coast." *Today in Energy* Retrieved May 15, 2025, from https://www.eia.gov/todayinenergy/detail.php?id=52919.

EIA. (2023a). "Alaska: Profile Analysis." Retrieved September 2000, from https://www.eia.gov/state/analysis.php?sid=AK.

EIA. (2023b, March 2023). "Summary of Legislation and Regulations Included in the Annual Energy Outlook 2023."

EIA. (2024a). "Gasoline Explained: Factors Affecting Gasoline Prices." Retrieved May 15, 2025, from https://www.eia.gov/energyexplained/gasoline/factors-affecting-gasoline-prices.php.

EIA. (2024b). "Louisiana Profile Overview." Retrieved July 9, 2025, from https://www.eia.gov/state/?sid=LA.

EIA. (2024c, 2024 Jun 24). "New England Utility Closes Import-dependent Gas-fired Power Plant, Keeps LNG Import Option." Retrieved 2025 Jun 18, from https://www.eia.gov/todayinenergy/detail.php?id=62404.

EIA. (2024d). "Rankings: Total Energy Consumed per Capita, 2022." Retrieved May 15, 2025, from https://www.eia.gov/state/rankings/.

EIA. (2024e). "Refinery Capacity, 2024: Table 3 Capacity of Operable Petroleum Refineries by State as of January 1, 2024." Retrieved July 9, 2025, from https://www.eia.gov/petroleum/refinerycapacity/archive/2024/table3.pdf.

EIA. (2024f). "U.S. Energy Facts Explained." *Import and Exports* Retrieved June 6, 2025, from https://www.eia.energyexplained/us-energy-facts/imports-and-exports.php.

EIA. (2024g, August 28, 2024). "U.S. Energy Spending Increased by more than 20% in 2022." *Today in Energy* Retrieved February 21, 2025, from https://www.eia.gov/todayinenergy/detail.php?id=62945.

EIA. (2025a). "2025 Annual Energy Outlook: Table 3-5, Petroleum Products Supplied by Type." Retrieved June 24, 2025, from https://www.eia.gov/totalenergy/data/browser/index.php?tbl=T03.05#/?f=A&start=1949&end=2024&charted=16.

EIA. (2025b). "AEO 2025: Table 2 Energy Consumption by Sector and Source." Retrieved July 8, 2025, from https://www.eia.gov/outlooks/aeo/data/browser/#/?id=2-AEO2025&cases=ref2025&sourcekey=0.

EIA. (2025c). "Annual Energy Outlook 2025: Table 1.1 Primary Energy Overview." Retrieved June 26, 2025, from https://www.eia.gov/totalenergy/data/browser/index.php?tbl=T01.04C?/?f=A&start=1949&end=2023&charted=0-6.

EIA. (2025d). "Annual Energy Outlook: Narrative." Retrieved June 23, 2025, from https://www.eia.gov/outlooks/aeo/pdf/2025/AEO2025-narrative.pdf.

EIA. (2025e). "Crude Imports: Imports from World to Total U.S." Retrieved April 30, 2025, from https://www.eia.gov/petroleum/imports/browser/#/?g=v&gg=i&od=d&ps=0&v=l&vs=PET_IMPORTS.WORLD-US-LSW.A~PET_IMPORTS.WORLD-US-MED.A~PET_IMPORTS.WORLD-US-HSO.A~PET_IMPORTS.WORLD-US-HSW.A~PET_IMPORTS.WORLD-US-LSO.A.

EIA. (2025f). "Exports by PADD." Retrieved May 15, 2025, from.

EIA. (2025g). "Natural Gas: Natural Gas Consumption by End Use." Retrieved May 13, 2025, from https://www.eia.gov/dnav/ng/ng_cons_sum_a_epg0_vc0_mmcf_a.htm

EIA. (2025h). "Natural Gas: Natural Gas Gross Withdrawals and Production." Retrieved April 29, 2025, from https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_FGW_mmcf_a.htm.

EIA. (2025i). "Natural Gas: U.S. Natural Gas Exports and Re-exports by Country." Retrieved May 1, 2025, from https://www.eia.gov/dnav/ng/ng_move_expc_s1_m.htm.

EIA. (2025j). "Natural Gas: U.S. Natural Gas Marketed Production." Retrieved June 25, 2025, from https://www.eia.gov/dnav/ng/hist/n9050us2a.htm.

EIA. (2025k). "Petroleum & Other Liquids: Crude Oil and Lease Condensate Production by API Gravity." Retrieved April 30, 2025, from https://www.eia.gov/dnav/pet/pet_crd_api_adc_mbblpd_m.htm.

EIA. (2025l). "Petroleum & Other Liquids: Crude Oil Production." Retrieved April 29, 2025, from https://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbblpd_a.htm.

EIA. (2025m). "Petroleum & Other Liquids: Cushing, OK WTI Spot Price FOB." Retrieved May 2, 2025, from https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RWTC&f=M.

EIA. (2025n, April 30, 2025). "Petroleum & Other Liquids: Exports." Retrieved April 30, 2025, from https://www.eia.gov/dnav/pet/pet_move_exp_a_epc0_eex_mbbl_a.htm.

EIA. (2025o). "Petroleum & Other Liquids: Movements by Pipeline, Tanker, Barge and Rail between PAD Districts." Retrieved July 9, 2025, from https://www.eia.gov/dnav/pet/pet_move_ptb_a_EPC0_TNR_mbbl_a.htm.

EIA. (2025p). "Petroleum & Other Liquids: Petroleum Products Movements by Pipeline, Tanker, Barge and Rail between PAD Districts." Retrieved July 9, 2025, from https://www.eia.gov/dnav/pet/pet_move_ptb_a_EPP0_TNR_mbbl_a.htm.

EIA. (2025q). "Petroleum & Other Liquids: Product Supplied." Retrieved May 13, 2025, from https://www.eia.gov/dnav/pet/pet_cons_psup_a_epp2_vpp_mbbl_a.htm.

EIA. (2025r). "Petroleum & Other Liquids: Refinery & Blender Net Input." Retrieved May 2, 2025, from https://www.eia.gov/dnav/pet/pet_pnp_inpt_a_epc0_yir_mbbl_a.htm.

EIA. (2025s). "Petroleum & Other Liquids: Weekly U.S. Exports of Crude Oil." Retrieved May 12, 2025, from https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=wcrexus2&f=w.

EIA. (2025t). "Petroleum Refineries Data." Retrieved May 13, 2025, from https://atlas.eia.gov/datasets/eia::petroleum-refineries-1/explore?location=38.088284%2C-81.521793%2C4.00&showTable=true.

EIA. (2025u, April 2025). "Table 1.1. Net Generation by Energy Source: Totals (All Sectors)." *Electric Power Monthly* Retrieved July 8, 2025, from https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=table_1_01.

EIA. (2025v). "Texas Profile Overview." Retrieved May 15, 2025, from https://www.eia.gov/state/?sid=TX.

EIA (2025w). Total Energy Nominal Prices (Case Reference Case), U.S. Energy Information Administration.

EIA. (2025x, April 10, 2025). "U.S. Crude Oil Exports Reached a New Record in 2024." Retrieved May 12, 2025, from https://www.eia.gov/todayinenergy/detail.php?id=64964

EIA. (2025y). "U.S. Energy Consumption by Source and Sector, 2024." Retrieved May 16, 2025, from.

EIA. (2025z, May 5, 2025). "Why California Usually Pays More at the Pump for Gasoline." Retrieved May 15, 2025, from https://www.eia.gov/todayinenergy/detail.php?id=65184.

EIA. (Undated). "Natural Gas: Definitions, Sources, and Explanatory Notes." Retrieved July 8, 2025, from https://www.eia.gov/dnav/ng/TblDefs/ng_prod_whv_tbldef2.asp.

Engel, R. and Windrem, R. (2014). "How the U.S. Oil, Gas Boom Could Shake Up Global Order." *NBC News* Retrieved December 3, 2014, from http://www.cnbc.com/id/100606163.

Epperly, S.P., Braun, J., Chester, A.J., Cross, F.A., Merriner, J.V. and Tester, P.A. (1995a). "Winter Distribution of Sea Turtles in the Vicinity of Cape Hatteras and their Interactions with the Summer Flounder Trawl Fishery." Bulletin of Marine Science **56**(2): 547–568.

Epperly, S.P., Braun, J. and Veishlow, A. (1995b). "Sea Turtles in North Carolina Waters." Conservation Biology **9**(2): 384–394.

Fabry, V.J., McClintock, J.B., Mathis, J.T. and Grebmeier, J.M. (2009). "Ocean Acidification at High Latitudes: The Bellwether." Oceanography **22**(4): 160–171.

Farquharson, L.M., Mann, D.H., Swanson, D.K., Jones, B.M., Buzard, R.M. and Jordan, J.W. (2018). "Temporal and Spatial Variability in Coastline Response to Declining Sea-Ice in Northwest Alaska." Marine Geology **404**: 71–83.

Farwell, C., Reddy, C.M., Peacock, E., Nelson, R.K., Washburn, L. and Valentine, D.L. (2009). "Weathering and the Fallout Plume of Heavy Oil from Strong Petroleum Seeps near Coal Oil Point, California." Environmental Science & Technology **43**(10): 3542–3548.

Fisher, A.C. and Hanemann, W.M. (1987). "Quasi-Option Value: Some Misconceptions Dispelled." Journal of Environmental Economics and Management **14**(2): 183–190.

Fisher, C.R., Hsing, P.-Y., Kaiser, C.L., Yoerger, D.R., Roberts, H.H., Shedd, W.W., Cordes, E.E., Shank, T.M., Berlet, S.P., Saunders, M.G., Larcom, E.A. and Brooks, J.M. (2014). "Footprint of *Deepwater Horizon* Blowout Impact to Deep-water Coral Communities." PNAS **111**(32): 11744–11749.

Fisher, C.R., Montagna, P.A. and Sutton, T. (2016). "How Did the Deepwater Horizon Oil Spill Impact Deep-sea Ecosystems?" Oceanography **29**(3): 182–195.

Fiske, S.J. and Callaway, D. (2020). An Ethnographic Study of Subsistence Fishing on the Potomac and Anacostia Rivers. Washington (DC), U.S. Department of the Interior, National Park Service**:** 373.

Flannery, B.G., Russ, O.L., St. Martin, M.L., Beatty, W.S., Worman, K.K., Garlich-Miller, J.L., Gill, V.A., Lemons, P.L., Monson, D.H., Kloecker, K.A., Esler, D. and Wenburg, J.K. (2021). "Genetic Variation in Sea Otters (*Enhydra lutris*) from the North Pacific with Relevance to the Threatened Southwest Alaska Distinct Population Segment." Marine Mammal Science **38**(3): 858–880.

Florida Department of Agriculture and Consumer Services. (2025). "Aquaculture Submerged Land Leasing." Retrieved 2025 Jul 8, from https://www.fdacs.gov/Agriculture-Industry/Aquaculture/Aquaculture-Submerged-Land-Leasing.

Florida Fish and Wildlife Conservation Commission. (2025a). "American Crocodile." Retrieved 2025 Jul 9, from https://myfwc.com/wildlifehabitats/profiles/reptiles/american-crocodile/.

Florida Fish and Wildlife Conservation Commission. (2025b). "Florida Bonneted Bat." Retrieved 2025 Jul 9, from https://myfwc.com/wildlifehabitats/profiles/mammals/bats/florida-bonneted-bat/.

Florida Fish and Wildlife Conservation Commission. (2025c). "Red Tide Current Status." Retrieved 2025 Jul 9, from https://myfwc.com/research/redtide/statewide/.

Florida Health. (2024, 2024 Sep 12). "Florida Healthy Beaches." Retrieved 2025 Jul 9, from https://www.floridahealth.gov/environmental-health/beach-water-quality/index.html.

Flower Garden Banks National Marine Sanctuary. (2021). "Sanctuary Expansion." from https://flowergarden.noaa.gov/management/sanctuaryexpansion.html.

Fodrie, F.J., Heck Jr., K.L., Powers, S.P., Graham, W.M. and Robinson, K.L. (2010). "Climate-related, Decadal-scale Assemblage Changes of Seagrass-associated Fishes in the Northern Gulf of Mexico." Global Change Biology **16**(1): 48–59.

Fogarty, M.J. and Murawski, S.A. (1998). "Large-scale Disturbance and the Structure of Marine Systems: Fishery Impacts on Georges Bank." Ecological Applications **8**(1): S6–S22.

Fraley, K.M., Hamman, C.R., Sutton, T.M., Robards, M.D., Jones, T. and Whiting, A. (2023). "Per- and Polyfluoroalkyl Substances and Mercury in Arctic Alaska Coastal Fish of Subsistence Importance." Environmental Toxicology and Chemistry **42**(11): 2329–2335.

Fraser, S.B. and Sedberry, G.R. (2008). "Reef Morphology and Invertebrate Distribution at Continental Shelf Edge Reefs in the South Atlantic Bight." Southeastern Naturalist **7**(2): 191–206.

Freeman, A.M., III (1984). "Notes: The Quasi-Option Value of Irreversible Development." Journal of Environmental Economics and Management **11**(3): 292–295.

Frey, K.E., Comiso, J.C., Cooper, L.W., Garcia-Eidell, C., Grebmeier, J.M. and Stock, L.V. (2022, 2022 Nov 22). "Arctic Ocean Primary Productivity: The Response of Marine Algae to Climate Warming and Sea Ice Decline." Retrieved 2025 Jul 17, from https://arctic.noaa.gov/report-card/report-card-2022/arctic-ocean-primary-productivity-the-response-of-marine-algae-to-climate-warming-and-sea-ice-decline/.

Frey, W.H. (2021, 2021 Sep 21). "Mapping America's Diversity with the 2020 Census." Retrieved 2025 Jul 3, from https://www.brookings.edu/research/mapping-americas-diversity-with-the-2020-census/.

Fritts, T.H., Hoffman, W. and McGehee, M.A. (1983a). "The Distribution and Abundance of Marine Turtles in the Gulf of Mexico and Nearby Atlantic waters." Journal of Herpetology **17**(4): 327–344.

Fritts, T.H., Irvine, A.B., Jennings, R.D., Collun, L.A., Hoffman, W. and McGehee, M.A. (1983b). Turtles, Birds, and Mammals in the Northern Gulf of Mexico and Nearby Atlantic Waters: An Overview Based on Aerial Surveys of OCS Areas, with Emphasis on Oil and Gas Effects. Washington (DC), U.S. Department of the Interior, Fish and Wildlife Service, Division of Biological Services**:** 480.

FWS. (2025a). "Manatee." Retrieved 2025 Jul 7, from https://www.fws.gov/species/manatee-trichechus-manatus.

FWS. (2025b). "Perdido Key Beach Mouse." Retrieved 2025 Jul 9, from https://www.fws.gov/species/perdido-key-beach-mouse-peromyscus-polionotus-trissyllepsis.

GAO. (2019). "Offshore Oil and Gas: Opportunities Exist to Better Ensure a Fair Return on Federal Resources." GAO-19-531Retrieved June 23, 2022, from https://www.gao.gov/products/gao-19-531.

GAO. (2025, April 2025). "Offshore Wind Energy: Actions Needed to Address Gaps in Interior's Oversight of Development." *Report to Congressional Requesters* GAO-25-106998https://files.gao.gov/reports/GAO-25-106998/index.html.

Garrison, L.P., Ortega-Ortiz, J. and Rappucci, G. (2020). Abundance of Marine Mammals in Waters of the U.S. Gulf of Mexico During the Summers of 2017 and 2018, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Southeast Fisheries, Science Center, Protected Resources and Biodiversity Division**:** 56.

Garrison, L.P., Soldevilla, M.S., Martinez, A. and Mullin, K.D. (2024). "A Density Surface Model Describing the Habitat of the Critically Endangered Rice's Whale *Balaenoptera ricei* in the Gulf of Mexico." Endangered Species Research **54**: 41–57.

Gautier, D.L., K.J. Bird, R.R. Charpentier, A. Grantz, D.W. Houseknect, T.R. Klett, T.E. Moore, J.K. Pitman, C.J. Schenk, J.H. Schuenemeyer, K. Sorensen, M.E. Tennyson, Z.C. Valin and Wandrey, C.J. (2009). "Assessment of Undiscovered Oil and Gas in the Arctic." Science **324**: 1175–1179.

Gavrilchuk, K., Lesage, V., Ramp, C., Sears, R., Bérubé, M., Bearhop, S. and Beauplet, G. (2014). "Trophic Niche Partitioning among Sympatric Baleen Whale Species following the Collapse of Groundfish Stocks in the Northwest Atlantic." Marine Ecology Progress Series **497**: 285–301.

Gelatt, T.S. and Gentry, R. (2017). Northern Fur Seal *(Callorhinus ursinus)*. Encyclopedia of marine mammals. B. Würsig, Thewissen, J. G. M. and Kovacs, K. M. San Diego (CA), Academic Press**:** 645–648.

Gerard, T., Lamkin, J.T., Kelly, T.B., Knap, A.H., Laiz-Carrión, R., Malca, E., Selph, K.E., Shiroza, A., Shropshire, T.A., Stukel, M.R., Swalethorp, R., Yingling, N. and Landry, M.R. (2022). "Bluefin Larvae in Oligotrophic Ocean Foodwebs, Investigations of Nutrients to Zooplankton: Overview of the BLOOFINZ-Gulf of Mexico Program." Journal of Plankton Research **44**(5): 600–617.

Global Energy Monitor. (2025, 2025 Feb 2). "Neptune LNG Terminal." Retrieved 2025 Jun 18, from https://www.gem.wiki/Neptune_LNG_Terminal.

Godley, B.J., Blumenthal, J.M., Broderick, A.C., Coyne, M.S., Godfrey, M.H., Hawkes, L.A. and Witt, M.J. (2008). "Satellite Tracking of Sea Turtles: Where Have We Been and Where Do We Go Next?" Endangered Species Research **4**: 3–22.

Goetz, K.T., Sheldden, K.E.W., Sims, C.L., Waite, J.M. and Wade, P.R. (2023, May 2023). "Abundance and Trend of Belugas (Delphinapterous leucas) in Cook Inlet, Alaska, June 2021 and June 2022."

Gorbics, C.S. and Bodkin, J.L. (2001). "Stock Structure of Sea Otters (enhydra lutris kenyoni) in Alaska." Marine Mammal Science **17**(3): 632–647.

Govoni, J.J., Hare, J.A., Davenport, E.D., Chen, M.H. and Marancik, K.E. (2010). "Mesoscale, Cyclonic Eddies as Larval Fish Habitat Along the Southeast United States Shelf: A Lagrangian Description of the Zooplankton Community." ICES Journal of Marine Science **67**(3): 403–411.

Gower, J.F.R. and King, S.A. (2011). "Distribution of Gloating *Sargassum* in the Gulf of Mexico and the Atlantic Ocean Mapped using MERIS." International Journal of Remote Sensing **32**(7): 1917–1929.

Grace, J.K., Duran, E., Ottinger, M.A., Woodrey, M.S. and Maness, T.J. (2022). "Microplastics in the Gulf of Mexico: A Bird's Eye View." Sustainability **14**(13): 7849.

Grebmeier, J.M. (2012). "Shifting Patterns of Life in the Pacific Arctic and Sub-Arctic Seas." Annual Review of Marine Science **4**: 63–78.

Grebmeier, J.M., Bluhm, B.A., Cooper, L.W., Danielson, S.L., Arrigo, K.R., Blanchard, A.L., Clarke, J.T., Day, R.H., Frey, K.E., Gradinger, R.R., Kedra, M., Konar, B., Kuletz, K.J., Lee, S.H., Lovvorn, J.R., Norcross, B.L. and Okkonen, S.R. (2015). "Ecosystem Characteristics and Processes Facilitating Persistent Macrobenthic Biomass Hotspots and Associated Benthivory in the Pacific Arctic." Progress in Oceanography **135**: 92–114.

Grebmeier, J.M., Cooper, L.W., Feder, H.M. and Sirenko, B.I. (2006). "Ecosystem Dynamics of the Pacific-influenced Northern Bering and Chukchi Seas in the Amerasian Arctic." Progress in Oceanography **71**(2-4): 331–361.

Grebmeier, J.M., Frey, K.E., Cooper, L.W. and Kędra, M. (2018). "Trends in Benthic Macrofaunal Populations, Seasonal Sea Ice Persistence, and Bottom Water Temperatures in the Bering Strait Region." Oceanography **31**(2): 136–151.

Gulf Council (2005). Final Generic Amendment Number 3 for Addressing Essential Fish Habitat Requirements, Habitat Areas of Particular Concern, and Adverse Effects of Fishing in Fishery Management Plans of the Gulf of Mexico. Tampa (FL), Gulf of Mexico Fishery Management Council**:** 106.

Gulf Council (2016). Final Report, 5-year Review of Essential Fish Habitat Requirements, Including Review of Habitat Areas of Particular Concern and Adverse Effects of Fishing and Non-fishing in the Fishery Management Plans of the Gulf of Mexico. Washington (DC), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Gulf of Mexico Fishery Management Council**:** 502.

Gulf Restoration Network. (2001, Spring 2001, updated Spring 2004). "A Guide to Protecting Wetlands in the Gulf of Mexico."

Gulf States Marine Fisheries Commission. (2025). "Regional Aquaculture Small Grants Program." Retrieved August 21, 2025, from https://www.gsmfc.org/aquaculture.

Gullah Geechee Cultural Heritage Corridor Commission (2012). Gullah Geechee Cultural Heritage Corridor Management Plan. Denver (CO), U.S. Department of the Interior, National Park Service, Denver Service Center**:** 294.

Halpin, P., Balderama, E., Cleary, J., Curtice, C., Fogarty, M., Kinlan, B., Perretti, C., Ribera, M., Roberts, J., Shumchenia, E. and Winship, A. (2019). Marine Life Summary Data Products for Northeast Ocean Planning, Northeast Ocean Data.

Hamilton, P., Donohue, K., Hall, C., Leben, R., Quian, H., Sheinbaum, J. and Watts, R. (2015). Observations and Dynamics of the Loop Current. New Orleans (LA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico OCS Region**:** 420.

Hampton-Miller, C.J., Neitlich, P.N. and Swanson, D.K. (2022). "A High-resolution Map of Coastal Vegetation for Two Arctic Alaskan Parklands: An Object-oriented Approach with Point Training Data." PLoS ONE **17**(8): e0273893.

Haney, J.C., Michael, P.E., Gleason, J.S., Wilson, R.R., Satge, Y.G., Hixson, K.M. and Jodice, P.G.R. (2025). "Relative Abundance, Seasonal Occurrence, and Distribution of Marine Birds in the Northern Gulf of Mexico." Marine Ornithology **53**(1): 171–188.

Hardy, R.F., Hu, C., Witherington, B., Lapointe, B., Meylan, A., Peebles, E., Meirose, L. and Hirama, S. (2018). "Characterizing a Sea Turtle Developmental Habitat Using Landsat Observations of Surface-

Pelagic Drift Communities in the Eastern Gulf of Mexico." IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing **11**(10): 3646–3659.

Hastings, K.K., Gelatt, T.S., Maniscalco, J.M., Jemison, L.A., Towell, R., Pendleton, G.W. and Johnson, D.S. (2023). "Reduced Survival of Steller Sea Lions in the Gulf of Alaska Following Marine Heatwave." Frontiers in Marine Science **10**: 1127013.

Hauri, C., Irving, B., Dupont, S., Pagés, R., Hauser, D.D.W. and Danielson, S.L. (2024). "Insights into Carbonate Environmental Conditions in the Chukchi Sea." Biogeosciences **21**: 1135–1159.

Hauser, D.D.W., Laidre, K.L., Suydam, R.S. and Richard, P.R. (2014). "Population-specific Home Ranges and Migration Timing of Pacific Arctic Beluga Whales (*Delphinapterus leucas*)." Polar Biology **37**(8): 1171–1183.

Hayes, S.A., Josephson, E., Maze-Foley, K. and Rosel, P.E. (2022). U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments 2021. Woods Hole (MA), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Science Center**:** 387.

Hayes, S.A., Josephson, E., Maze-Foley, K., Rosel, P.E., McCordic, J., Wallace, J., Brossard, A., Chavez-Rosales, S., Cole, T.V.N., Garrison, L.P., Hatch, J., Henry, A., Horstman, S.C., Linden, D., Litz, J., Lyssikatos, M.C., Mullin, K.D., Murray, K., Orphanides, C., Pace, R.M., Palka, D.L., Powell, J., Precoda, K., Soldevilla, M. and Wenzel, F.W. (2023). U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments 2022. Woods Hole (MA), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Science Center**:** 262.

Heil, C.A. and Muni-Morgan, A.L. (2021). "Florida's Harmful Algal Bloom (HAB) Problem: Escalating Risks to Human, Environmental and Economic Health with Climate Change." Frontiers in Ecology and Evolution **9**: 646080.

Henke, M., Miesse, T., de Souza de Lima, A., Ferreira, C.M. and Ravens, T.M. (2024). "Increasing Coastal Exposure to Extreme Wave Events in the Alaskan Arctic as the Open Water Season Expands." Communications Earth & Environment **5**: 165.

Henkel, S.K., Goldfinger, C., Romsos, C., Hemery, L.G., Havron, A. and Politano, K. (2014). Benthic Habitat Characterization Offshore the Pacific Northwest. Volume 2: Evaluation of Continental Shelf Benthic Communities. Camarillo (CA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Pacific OCS Region**:** 218.

Henry, J.M. and Bankston, C.L.I. (2002). Blue Collar Bayou: Louisiana Cajuns in the New Economy of Ethnicity. Westport, Connecticut, Praeger Publishers.

Herke, S.W. and Foltz, D.W. (2002). "Phylogeography of Two Squid (*Loligo pealei* and *L. plei)* in the Gulf of Mexico and Northwestern Atlantic Ocean." Marine Biology **140**(1): 103–115.

Hickey, B.M. and Banas, N.S. (2008). "Why is the Northern End of the California Current System So Productive?" Oceanography **21**(4): 90–107.

Hinchliffe, C., Kuriyama, P.T., Punt, A.E., Field, J.C., Thompson, A.R., Santora, J.A., Muhling, B.A., Koenigstein, S., Hernvann, P.-Y. and Tommasi, D. (2025). "Long-term Population Trend of Northern Anchovy (*Engraulis mordax*) in the California Current System." ICES Journal of Marine Science **82**(1): fsae177.

Ho, M., Kessouri, F., Frieder, C.A., Sutula, M., Bianchi, D. and McWilliams, J.C. (2023). "Effect of Ocean Outfall Discharge Volume and Dissolved Inorganic Nitrogen Load on Urban Eutrophication Outcomes in the Southern California Bight." Scientific Reports **13**: 22148.

Hoegh-Guldberg, O., Cai, R., Poloczanska, E.S., Brewer, P.G., Sundby, S., Hilmi, K., Fabry, V.J. and Jung, S. (2014). The Ocean. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. V. R. Barros, Field, C. B., Dokken, D. J. et al. Cambridge (UK), Cambridge University Press**:** 1655–1731.

Hoelting, K. and Burkardt, N. (2017). Human dimensions of climate change in coastal Oregon. Washington (DC), U.S. Department of the Interior, Bureau of Ocean Energy Management**:** 218.

Hostettler, F.D., Rosenbauer, R.J., Lorenson, T.D. and Dougherty, J. (2004). "Geochemical Characterization of Tarballs on Beaches along the California Coast. Part I— Shallow Seepage Impacting the Santa Barbara Channel Islands, Santa Cruz, Santa Rosa, and San Miguel." Organic Geochemistry **35**(6): 725–746.

Hu, C., Hardy, R., Ruder, E., Geggel, A., Feng, L., Powers, S., Hernandez, F., Graettinger, G., Bodnar, J. and McDonald, T. (2016). "*Sargassum* coverage in the Northeastern Gulf of Mexico during 2010 from Landsat and airborne observations: implications for the Deepwater Horizon oil spill impact assessment." Marine Pollution Bulletin **107**(1): 15–21.

Hughes, B.B., Levey, M.D., Brown, J.A., Fountain, M.C., Carlisle, A.B., Litvin, S.Y., Greene, C.M., Heady, W.N. and Gleason, M.G. (2014). "Nursery functions of the U.S. West Coast estuaries: the state of knowledge for juveniles of focal invertebrate and fish species."

Humpert, M. (2025) "Alaska Looking to Re-Enter Global LNG Market with Massive $44bn Project." High North News.

Hunt, G.L.J., Drew, G.S., Jahncke, J. and Piatt, J.F. (2005). "Prey Consumption and Energy Transfer by Marine Birds in the Gulf of Alaska." Deep Sea Research Part II **52**: 781–797.

ICF International, Southeastern Archaeological Research and Davis Geoarchaeological Research (2013). Inventory and analysis of coastal and submerged archaeological site occurrence on the Pacific Outer Continental Shelf. Camarillo (CA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Pacific OCS Region**:** 366.

IHS Markit. (2018). "2018 Comparative Analysis of the Federal Oil and Gas Fiscal Systems: Gulf of Mexico International Comparison." OCS Study BOEM 2018-XXXRetrieved September 18, 2023, from https://www.boem.gov/sites/default/files/oil-and-gas-energy-program/Energy-Economics/Fair-Market-Value/2018-GOM-International-Comparison.pdf.

Industrial Economics Inc. (2012, September 2012). "Identification of Outer Continental Shelf Renewable Energy Space-Use Conflicts and Analysis of Potential Mitigation Measures." OCS Study BOEM 2012-083.

Industrial Economics Inc. (2014a). Economic Inventory of Environmental and Social Resources Potentially Impacted by a Catastrophic Discharge Event within OCS Regions. Washington (DC), U.S. Department of the Interior, Bureau of Ocean Energy Management**:** 196.

Industrial Economics Inc. (2014b). "Marine Sector Analysis Report: Recreation and Tourism." https://www.msp.wa.gov/wp-content/uploads/2014/03/RecreationSectorAnalysis.pdf.

Industrial Economics Inc. (2015a). "Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development – Volume 1: The 2015 Revised Offshore Environmental Cost Model (OECM)." OCS Study BOEM 2015-052.

Industrial Economics Inc. (2015b, December 2015). "Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development – Volume 2: Supplemental Information to the 2015 Revised Offshore Environmental Cost Model (OECM)."

Industrial Economics Inc. (2018). "Forecasting Environmental and Social Externalities Associated with Outer Continental Shelf (OCS) Oil and Gas Development - Volume 2: Supplemental Information to the 2018 Revised Offshore Environmental Cost Model (OECM)." OCS Study BOEM 2018-067.

Industrial Economics Inc. (2023). "Consumer Surplus and Energy Substitutes for OCS Oil and Gas Production: The 2023 Revised Market Simulation Model (MarketSim)." OCS Study BOEM 2023-055.

IPCC. (2021). "Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change." https://report.ipcc.ch/ar6/wg1/IPCC_AR6_WGI_FullReport.pdf.

Iribarne, O., Armstrong, D. and Fernández, M. (1995). "Environmental impact of intertidal juvenile dungeness crab habitat enhancement: effects on bivalves and crab foraging rate." Journal of Experimental Marine Biology and Ecology **192**(2): 173–194.

Jacox, M.G., Edwards, C.A., Hazen, E.L. and Bograd, S.J. (2018). "Coastal upwelling revisited: Ekman, Bakun, and improved upwelling indices for the U.S. West Coast." Journal of Geophysical Research: Oceans **123**(10): 7332–7350.

Jahn, A., Holland, M.M. and Kay, J.E. (2024). "Projections of an ice-free Arctic Ocean." Nature Reviews Earth & Environment **5**: 164–176.

Jimenez, R. (2021, 2021 May 3). "Social indicators of gentrification pressure: how gentrification is affecting 29 fishing communities in the northeast United States." *Silver Spring (MD)* Retrieved 2025 Jun 11, from https://storymaps.arcgis.com/stories/56781eb366f1485e8ffd7c96b16f133f.

Jodice, P.G.R., Michael, P.E., Gleason, J.S., Haney, J.C. and Satgé, Y.G. (2021). "Revising the marine range of the endangered black-capped petrel *Pterodroma hasitata*: occurrence in the northern Gulf of Mexico and exposure to conservation threats." Endangered Species Research **46**: 49–65.

Jodice, P.G.R., Ronconi, R.A., Rupp, E., Wallace, G.E. and Satgé, Y. (2015). "First satellite tracks of the endangered black-capped petrel." Endangered Species Research **29**(1): 23–33.

Johnson, M.A. (2021). "Subtidal surface circulation in Lower Cook Inlet and Kachemak Bay, Alaska." Regional Studies in Marine Science **41**: 101609.

Johnston, M.A., Nuttall, M.F., Eckert, R.J., Embesi, J.A., Slowey, N.C., Hickerson, E.L. and Schmahl, G.P. (2013). Long-term monitoring at the East and West Flower Garden Banks National Marine Sanctuary, 2009-2010. Volume 1: technical report. New Orleans (LA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico OCS Region**:** 218.

Jones, B.M., Irrgang, A.M., Farquharson, L.M., Lantuit, H., Whalen, D., Ogorodov, S., Grigoriev, M., Tweedie, C., Gibbs, A.E., Strzelecki, M.C., Baranskaya, A., Belova, N., Sinitsyn, A., Kroon, A., Maslakov, A., Vieira, G., Grosse, G., Overduin, P., Nitze, I., Maio, C., Overbeck, J., Bendixen, M., Zagórski, P. and Romanovsky, V.E. (2020). Coastal permafrost erosion. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration**:** 10.

Jorgenson, M.T. and Brown, J. (2005). "Classification of the Alaskan Beaufort Sea Coast and estimation of carbon and sediment inputs from coastal erosion." Geo-Marine Letters **25**: 69–80.

Jouanno, J., Almar, R., Muller-Karger, F., Morvan, G., van Tussenbroek, B., Benshila, R., Marchesiello, P. and Addo, K.A. (2025). "Socio-ecological vulnerability assessment to *Sargassum* arrivals." Scientific Reports **15**: 9998.

Joye, S.B. (2020). "The geology and biogeochemistry of hydrocarbon seeps." Annual Review of Earth and Planetary Sciences **48**: 205–231.

Judicial Branch of California. (2025). "California Tribal communities." Retrieved 2025 Jul 9, from https://courts.ca.gov/programs-initiatives/tribalstate-programs/california-tribal-communities.

Justić, D., Kourafalou, V., Mariotti, G., He, S., Weisberg, R., Androulidakis, Y., Barker, C., Bracco, A., Dzwonkowski, B., Hu, C., Huang, H., Jacobs, G., Le Hénaff, M., Liu, Y., Morey, S., Nittrouer, J., Overton, E., Paris, C.B., Roberts, B.J., Rose, K., Valle-Levinson, A. and Wiggert, J. (2021). "Transport processes in the Gulf of Mexico along the river-estuary-shelf-ocean continuum: a review of research from the Gulf of Mexico Research Initiative." Estuaries and Coasts **45**(5): 621–657.

Kaplan, B., Beegle-Krause, C.J., McCay, D.F., Copping, A. and Geerlofs, S. (2010). Updated summary of knowledge: selected areas of the Pacific Coast, final report. Camarillo (CA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region**:** 955.

Kaplanis, N.J., Denny, M.W. and Raimondi, P.T. (2024). "Vertical distributions of rocky intertidal organisms shifts with sea-level variability on the northeast Pacific Coast." Global Change Biology **30**(10): e17527.

Karnauskas, M., Schirripa, M.J., Kelble, C.R., Cook, G.S. and Craig, J.K. (2013). Ecosystem status report for the Gulf of Mexico. Miami (FL), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center**:** 58.

Kassar, I. and Lasserre, P. (2002). "Species Preservation and Biodiversity Value: A Real Options Approach." *CIRANO Scientific Series 2002s-82* Retrieved October 15, 2014, from http://www.cirano.qc.ca/pdf/publication/2002s-82.pdf.

Keating, J.M., Koster, D. and Van Lanen, J.M. (2020). Recovery of a subsistence way of life: assessments of resource harvests in Cordova, Chenega, Tatitlek, Port Graham, and Nanwalek, Alaska since the *Exxon Valdez* oil spill. Anchorage (AK), State of Alaska, Department of Fish and Game, Division of Subsistence**:** 100.

Keister, J.E., Di Lorenzo, E., Morgan, C.A., Combes, V. and Petersons, W.T. (2011). "Zooplankton species composition is linked to ocean transport in the Northern California Current." Global Change Biology **17**: 2498–2511.

Kenitz, K.M., Anderson, C.R., Carter, M.L., Eggleston, E., Seech, K., Shipe, R., Smith, J., Orenstein, E.C., Franks, P.J.S., Jaffe, J.S. and Barton, A.D. (2023). "Environmental and ecological drivers of harmful algal blooms revealed by automated underwater microscopy." Limnology and Oceanography **68**(3): 598–615.

Kennicutt II, M.C. (2017). Sediment contaminants of the Gulf of Mexico. Habitats and biota of the Gulf of Mexico: before the Deepwater Horizon oil spill. C. H. Ward. New York (NY), Springer. **1:** 217–273.

Khalil, S.M., Grandy, G.M. and Raynie, R.C. (2020). "Ecosystem restoration in Louisiana — a decade after the Deep Water Horizon oil spill." Shore & Beach **88**(1): 38–48.

Kiln. (2016). "Shipmap." Retrieved 2025 Jul 3, from https://www.shipmap.org/.

Kimmel, D.G., Boicourt, W.C., Pierson, J.J., Roman, M.R. and Zhang, X. (2010). "The vertical distribution and diel variability of mesozooplankton biomass, abundance and size in response to hypoxia in the Northern Gulf of Mexico USA." Journal of Plankton Research **32**(8): 1185–1202.

Kinlan, B.P., Winship, A.J., White, T.P. and Christensen, J. (2016). "Modeling At-Sea Occurrence and Abundance of Marine Birds to Support Atlantic Marine Renewable Energy Planning: Phase I Report." OCS Study BOEM 2016-039Retrieved September 18, 2023, from https://repository.library.noaa.gov/view/noaa/18106/noaa_18106_DS1.pdf.

Kirwan, M.L. and Gedan, K.B. (2019). "Sea-level driven land conversion and the formation of ghost forests." Nature Climate Change **9**: 450–457.

Kiszka, J., Caputo, M., Vollenweider, J., Heithaus, M., Aichienger Dias, L. and Garrison, L.P. (2023). "Critically endangered Rice's whales (*Balaenoptera ricei)* selectively feed on high-quality prey in the Gulf of Mexico." Scientific Reports **13**(6710).

Koenigstein, S., Jacox, M.G., Pozo Buil, M., Fiechter, J., Muhling, B.A., Brodie, S., Kuriyama, P.T., Auth, T.D., Hazen, E.L., Bograd, S.J. and Tommasi, D. (2022). "Population projections of Pacific sardine driven by ocean warming and changing food availability in the California Current." ICES Journal of Marine Science **79**: 2510–2523.

Kofinas, G., BurnSilver, S.B., Magdanz, J., Stotts, R. and Okada, M. (2016). "Subsistence Sharing Networks and Cooperation: Kaktovik, Wainwright, and Venetie, Alaska." BOEM Report 2015-023DOI; AFES Report MP 2015-02.

Konar, M., Qiu, S., Tougher, B., Vause, J., Tlusty, M., Fitzsimmons, K., Barrows, R. and Cao, L. (2019). "Illustrating the hidden economic, social and ecological values of global forage fish resources." Resources, Conservation & Recycling **151**: 104456.

Kramer, S.H. (1991). "Growth, mortality, and movement of juvenile California halibut *Paralichthys californicus* in shallow coastal and bay habitats of San Diego County, California." Fishery Bulletin **89**(2): 195–207.

Kraus, S.D., Kenney, R.D., Mayo, C.A., McLellan, W.A., Moore, M.J. and Nowacek, D.P. (2016). "Recent scientific publications cast doubt on North Atlantic right whale future." Frontiers in Marine Science **3**: 137.

Kuletz, K.J., Ferguson, M.C., Hurley, B., Gall, A.E., Labunski, E.A. and Morgan, T.C. (2015). "Seabird Distribution and Abundance in the Eastern Chukchi and Western Beaufort Seas, 2008-2014." Deep Sea Research Part II **118**: 53–67.

Kuletz, K.J., Gall, A.E., Morgan, T.C., Prichard, A.K., Eisner, L.B., Kimmel, D.G., De Robertis, A., Levine, R.M., Jones, T. and Labunski, E.A. (2024). "Seabird Responses to Ecosystem Changes Driven by Marine Heatwaves in a Warming Arctic." Marine Ecology Progress Series.

Kuletz, K.J. and Labunski, E.A. (2017). "Seabird Distribution and Abundance in the Offshore Environment, Final Report." OCS Study BOEM 2017-004.

Kurian, J., Colas, F., Capet, X., McWilliams, J.C. and Chelton, D.B. (2011). "Eddy properties in the California Current System." Journal of Geophysical Research **116**(C8): C08027.

Kvenvolden, K.A. and Cooper, C.K. (2003). "Natural Seepage of Crude Oil into the Marine Environment." Geo-Marine Letters **23**(3-4): 140–146.

Kwok, R. (2018). "Arctic sea ice thickness, volume, and multiyear ice coverage: losses and coupled variability (1958–2018)." Environmental Research Letters **13**: 105005.

Labunski, E.A., Kuletz, K.J., Lanctot, R., Saalfeld, S., Morgan, T.C., McGuire, R.L. and Gall, A.E. (2022). Marine bird distribution and abundance in offshore waters. Anchorage (AK), U.S. Department of the Interior, Bureau of Ocean Energy Management, Alaska Regional Office**:** 193.

Lang, M.W., Stedman, S., Ingebritsen, J.C. and Griffin, R.K. (2024). "Status and Trends of Wetlands in the Coastal Watersheds of the Conterminous united States 2009 to 2019."

Largier, J.L. (2020). "Upwelling bays: how coastal upwelling controls circulation, habitat, and productivity in bays." Annual Review of Marine Science **12**: 415–447.

Larned, W., Stehn, R. and Platte, R. (2011, August 21, 2012). "Waterfowl Breeding Population Survey Arctic Coastal Plain, Alaska."

Lasala, J.A., Macksey, M.C., Mazzarella, K.T., Main, K.L., Foote, J.J. and Tucker, A.D. (2023). "Forty years of monitoring increasing sea turtle relative abundance in the Gulf of Mexico." Scientific Reports **13**(1): 17213.

Lawrence Livermore National Laboratory. (2024). "Estimated U.S. Energy Consumption in 2023: 93.6 Quads." Retrieved May 27, 2025, from https://contenthub.llnl.gov/sites/contenthub/files/styles/orig/public/2024-10/energy-2023-united-states-2800px.jpg?itok=nlX3V6V1.

Lazard. (2025, June 2025). "Levelized Cost of Energy Plus." Retrieved May 21, 2025, from https://www.lazard.com/media/uounhon4/lazards-lcoeplus-june-2025.pdf.

Lecours, V., Oxton, A., Khor, D. and Tiplea, J. (2024). "High-Resolution Ensemble Modelling of Coral Distributions in the Northern Gulf of Mexico Based on Geomorphology: Coral Diversity and Benthic Habitat Fragmentation from Oil and Gas Infrastructure to Inform Spatial Planning." Aquatic Conservation.

Lee, D.S. (2015). Gulf Stream chronicles: a naturalist explores life in an ocean river. Chapel Hill (NC), UNC Press Books.

Lees, D.C. and Driskell, W.B. (2004). Annual report for National Park Service intertidal reconnaissance survey to assess composition, distribution, and habitat of marine/estuarine infauna inhabiting soft sediments in the southwestern Alaska network. Leucadia (CA), U.S. Department of the Interior, National Park Service, Southwestern Area Network**:** 40.

Leirness, J.B., Adams, J., Ballance, L.T., Coyne, M., Felis, J.J., Joyce, T., Pereksta, D.M., Winship, A.J., Jeffrey, C.F.G., Ainley, D., Croll, D., Evenson, J., Jahncke, J., McIver, W., Miller, P.I., Pearson, S., Strong, C., Sydeman, W., Waddell, J.E., Zamon, J.E. and Christensen, J. (2021). Modeling at-sea density of marine birds to support renewable energy planning on the Pacific Outer Continental Shelf of the contiguous United States. Camarillo (CA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Pacific OCS Region**:** 409.

Levin, L.A. (2005). "Ecology of cold seep sediments: interactions of fauna with flow, chemistry and microbes." Oceanography and Marine Biology: An Annual Review **43**: 1–46. Retrieved from http://levin.ucsd.edu/publications/Levin%20OMBAR%2005.pdf.

Levine, R.M., De Robertis, A., Grünbaum, D., Wildes, S., Farley, E.V., Stabeno, P.J. and Wilson, C.D. (2023). "Climate-driven shifts in pelagic fish distributions in a rapidly changing

Pacific Arctic." Deep Sea Research Part II: Topical Studies in Oceanography **208**: 105244.

Li, S., Lin, P., Dou, T., Xiao, C., Itoh, M., Kikuchi, T. and Qin, D. (2022). "Upwelling of Atlantic water in Barrow Canyon, Chukchi Sea." Journal of Geophysical Research: Oceans **127**(3): e2021JC017839.

Lilly, L.E. and Ohman, M.D. (2021). "Euphausiid spatial displacements and habitat shifts in the southern California Current System in response to El Nino ˜ variability." Progress in Oceanography **193**: 102544.

Lindo-Atichati, D., Bringas, F., Goni, G., Muhling, B., Muller-Karger, F.E. and Habtes, S. (2012). "Varying mesoscale structures influence larval fish distribution in the Northern Gulf of Mexico." Marine Ecology Progress Series **463**: 245–257.

Logerwell, E., Busby, M., Carothers, C., Cotton, S., Duffy-Anderson, J., Farley, E., Goddard, P., Heintz, R., Holladay, B., Horne, J. and Johnson, S. (2015). "Fish Communities across a Spectrum of Habitats in the Western Beaufort Sea and Chukchi Sea." Progress in Oceanography **136**: 115–132.

Lohrenz, S.E., Weidemann, A.D. and Tuel, M. (2003). "Phytoplankton spectral absorption as influenced by community size structure and pigment composition." Journal of Plankton Research **25**(1): 35–61.

LOOP. (2023). "History."   Retrieved August 1, 2025, from https://www.loopllc.com/about/history.

Louisiana Department of Health. (2025). "Beach monitoring program."   Retrieved 2025 Jul 9, from https://ldh.la.gov/bureau-of-sanitarian-services/beach-monitoring-program.

Love, M.S., Morris, P., McCrae, M. and Collins, R. (1990). Life history aspects of 19 rockfish species (Scorpaenidae: *Sebastes*) from the Southern California Bight. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service**:** 44.

Ludwin, R.S., Dennis, R., Carver, D., McMillan, A.D., Losey, R., Clague, J., Jonientz-Trisler, C., Bowechop, J., Wray, J. and James, K. (2005). "Dating the 1700 Cascadia earthquake: great coastal earthquakes in Native stories." Seismological Research Letters **76**(2): 140–148.

Luyendyk, B.P., Washburn, L., Banerjee, S., Clark, J.F. and Quigley, D.C. (2003). A methodology for investigation of natural hydrocarbon gas seepage in the Northern Santa Barbara Channel, final technical summary, final study report. Camarillo (CA), U.S. Department of the Interior, Minerals Management Service, Pacific OCS Region**:** 73.

Lyon, G.S. and Stein, E.D. (2010). "Effluent Discharges to the Southern California Bight from Power Generating Stations in 2005." *2010 Annual Report* https://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2010AnnualReport/ar10_015_028.pdf.

MacDonald, B.D., Lewison, R.L., Madrak, S.V., Seminoff, J.A. and Eguchi, T. (2012). "Home ranges of East Pacific green turtles *Chelonia mydas* in a highly urbanized temperate foraging ground." Marine Ecology Progress Series **461**: 211–221.

MacDonald, I.R., Garcia-Pineda, O., Beet, A., Daneshgar Asl, S., Feng, L., Graettinger, G., French-McCay, D., Holmes, J., Hu, C., Huffer, F., Leifer, I., Muller-Karger, F., Solow, A., Silva, M. and Swayze, G. (2015). "Natural and unnatural oil slicks in the Gulf of Mexico." Journal of Geophysical Research: Oceans **120**(12): 8364–8380.

MacDonald, I.R., Schroeder, W.W. and Brooks, J.M. (1996). Chemosynthetic ecosystems study, final report. Volume II: technical report. New Orleans (LA), U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region**:** 335.

Macinko, S. and Schumann, S. (2007). "Searching for subsistence: in the field in pursuit of an elusive concept in small-scale fisheries." Fisheries **32**(12): 592–600.

MARAD. (2024, 2024 Sep 11). "National Port Readiness Network (NPRN)."   Retrieved 2025 Jun 10, from https://www.maritime.dot.gov/ports/national-port-readiness-network-nprn.

MARAD. (2025, 2025 Mar 21). "The Maritime Administration issues the license for the Delfin LNG, LLC deepwater port application."   Retrieved 2025 Apr 22, from https://www.maritime.dot.gov/newsroom/maritime-administration-issues-license-delfin-lng-llc-deepwater-port-application.

Marine Mammal Commission. (2023). "Climate Change and Alaska Native Subsistence Hunting." Retrieved June 17, 2025, from https://www.mmc.gov/wp-content/uploads/Climate-Change-Alaska-Native-Subsistence-Factsheet-11.20.2023.pdf.

Mason, J.W., McChesney, G.J., McIver, W.R., Carter, H.R., Takekawa, J.Y., Golightly, R.T., Ackerman, J.T., Orthmeyer, D.L., Perry, W.M., Yee, J.L., Pierson, M.O. and McCrary, M.D. (2007). At-sea distribution and abundance of seabirds off southern California: a 20-year comparison. Camarillo (CA), Cooper Ornithological Society.

Massey, L.M., Penna, S., Zahn, E., Lawson, D. and Davis, C.M. (2023). "Monitoring Green Sea Turtles in the San Gabriel River of Southern California." Animals **13**(3): 434.

McDowell Group. (2020, January 2020). "The Role of the Oil & Gas Industry in Alaska's Economy." Retrieved September 18, 2023, from https://www.aoga.org/wp-content/uploads/2021/01/Reports-2020.1.23-Economic-Impact-Report-McDowell-Group-CORRECTED-2020.12.3.pdf.

McKinley Research Group. (2021, February 2021). "The Economic Benefits of Bristol Bay Salmon." McKinleyResearchGroup2121EconomicBenefitBristolBaySalmon.pdf.

McKinley Research Group. (2023). "Economic impact of Juneau's cruise industry."

McKinney, L.D., Shepherd, J.G., Wilson, C.A., Hogarth, W.T., Chanton, J., Murawski, S.A., Sandifer, P.A., Sutton, T., Yoskowitz, D., Wowk, K., Özgökmen, T.M., Joye, S.B. and Caffey, R. (2021). "The Gulf of Mexico: an overview." Oceanography **34**(1): 30–43.

McLachlan, A. and Brown, A.C. (2006). The ecology of sandy shores. New York (NY), Academic Press.

McNutt, M., Camilli, R., Guthrie, G., Hsieh, P., Labson, V., Lehr, B., Maclay, D., Ratzel, A. and M., S. (2011). "Assessment of Flow Rate Estimates for the Deepwater Horizon/Macondo Well Oil Spill, Flow Rate Technical Group Report to the National Incident Command, Interagency Solutions Group."

Meier, W.N. and Stroeve, J. (2022). "An updated assessment of the changing Arctic sea ice cover." Oceanography **35**(3–4): 10–19.

Mendelssohn, I.A., Byrnes, M.R., Kneib, R.T. and Vittor, B.A. (2017). Coastal Habitats of the Gulf of Mexico. Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill. C. Ward. New York, New York, Springer.

Menza, C., Leirness, J.B., White, T.P., Winship, A., Kinlan, B.P., Zamon, J.E., Ballance, L., Becker, E., Forney, K., Adams, J., Pereksta, D.M., Pearson, S., Pierce, J., Antrim, L., Wright, N. and Bowlby, E. (2015, June 2015). "Modeling Seabird Distributions off the Pacific Coast of Washington."

Meunier, Z.D., Hacker, S.D. and Menge, B.A. (2024). "Regime shifts in rocky intertidal communities associated with a marine heatwave and disease outbreak." Nature Ecology & Evolution **8**: 1285–1297.

Meyer-Gutbrod, E.L., Greene, C.H., Davies, K.T.A. and Johns, D.G. (2021). "Ocean regime shift is driving collapse of the North Atlantic right whale population." Oceanography **34**(3): 22–31.

Michael, P.E., Haney, J.C., Gleason, J.S., Hixon, K.M., Satge, Y.G. and Jodice, P.G.R. (2025). "Flying Fish Habitat and Co-Occurrence with Seabirds in the Northern Gulf of Mexico." Fisheries Oceanography.

Michael, P.E., Hixon, K.M., Gleason, J.S., Haney, J.C., Satgé, Y.G. and Jodice, P.G.R. (2023). "Migration, Breeding Location, and Seascape Shape Seabird Assemblages in Northern Gulf of Mexico." PLoS ONE **18**(6).

Mid-Atlantic Fishery Management Council (2016). Amendment 16 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan. Measures to protect deep sea corals from impacts of fishing gear. Environmental assessment, regulatory impact review, and initial regulatory flexibility analysis. Dover (DE), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Mid-Atlantic Fishery Management Council**:** 420.

Mid-Atlantic Regional Council on the Ocean. (2014, 2014 Mar 1). "MARCO overview." Retrieved 2018 Apr 26, from http://midatlanticocean.org/about/marco-overview/.

Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (2023). 2023 report to Congress. Washington (DC), U.S. Environmental Protection Agency**:** 167.

Mitchell, T. (2025). LNG In, LNG Out: The Race to Import and/or Export Alaska Natural Gas. Alaska Business.

MMS. (2003). "Cook Inlet Planning Area: Oil and Gas Lease Sale 191 and 199, Final Environmental Impact Statement." MMS 2003–005.

Moore, G.W.K. and Stabeno, P.J. (2015). "Synthesis of Arctic Research (SOAR) in Marine Ecosystmes of the Pacific Arctic." Progress in Oceanography **136**: 1–11.

Moore, G.W.K., Steele, M., Schweiger, A.J., Zhang, J. and Laidre, K.L. (2022). "Thick and old sea ice in the Beaufort Sea during summer 2020/21 was associated with enhanced transport." Communications Earth & Environment **3**: 198.

Moors-Murphy, H.B. (2014). "Submarine canyons as important habitat for cetaceans, with special reference to the Gully: a review." Deep Sea Research Part II: Topical Studies in Oceanography **104**: 6–19.

Morrison, C. (2018). "An update on cold seeps in the northwestern Atlantic Ocean." Retrieved 2020 Mar 18, from https://oceanexplorer.noaa.gov/okeanos/explorations/ex1806/background/seeps/welcome.html.

Moser, M.L. and Lee, D.S. (2012). "Foraging over *Sargassum* by western North Atlantic seabirds." Wilson Journal of Ornithology **124**(1): 66–72.

Muller-Karger, F.E., Smith, J.P., Werner, S., Chen, R., Roffer, M., Liu, Y., Muhling, B., Lindo-Atichati, D., Lamkin, J., Cerdeira-Estrada, S. and Enfield, D.B. (2015). "Natural variability of surface oceanographic conditions in the offshore Gulf of Mexico." Progress in Oceanography **134**: 54–76.

Mykoniatis, N. and Ready, R. (2020). "Evaluating habitat-fishery interactions: submerged aquatic vegetation and blue crab fishery in the Chesapeake Bay." Resources and Environmental Economics **2**(2): 207–217.

NACS. (2025, April 18, 2025). "Another Refinery to Close in California." Retrieved May 12, 2025, from https://www.convenience.org/Media/Daily/2025/April/18/3-Another-Refinery-To-Close-in-California_Ops.

National Academies of Sciences, Engineering, and Medicine (2024). Current realities of the gulf coast. Community-driven relocation: recommendations for the U.S. Gulf Coast Region and beyond. Washington (DC), The National Academies Press**:** 123–171.

National Audubon Society. (2025). "Important bird areas." Retrieved 2025 Jul 3, from https://gis.audubon.org/portal/apps/sites/?_gl=1*1vrit6x*_gcl_au*MjA0MDgyMTA4OS4xNzUyMDMyMjIx*_ga*NzM1OTIzNDQ5LjE3NTIwMzIyMjE.*_ga_X2XNL2MWTT*czE3NTIwMzIyMjEkbzEkZzEkdDE3NTIwMzIyMjQkajU3JGwwJGgw#/nas-hub-site.

National Centers for Coastal Ocean Science. (2020). "A 2020 assessment of metals, legacy contaminants, and contaminants of emerging concern on the South Atlantic Coast." Retrieved 2025 Jul 16, from https://coastalscience.noaa.gov/project/a-2020-assessment-of-metals-legacy-contaminants-and-contaminants-of-emerging-concern-in-the-southeast-atlantic-southeast/.

National Centers for Coastal Ocean Science. (2021). "A 2021 assessment of metals, legacy contaminants, and contaminants of emerging concern on the Mid-Atlantic Coast." Retrieved 2025 Jul 16, from https://coastalscience.noaa.gov/project/a-2021-assessment-of-metals-legacy-contaminants-and-contaminants-of-emerging-concern-in-the-mid-atlantic/.

National Centers for Coastal Ocean Science. (2023). "A 2023 assessment of metals, legacy contaminants, and contaminants of emerging concern on the Gulf Coast." Retrieved 2025 Jul 16, from https://coastalscience.noaa.gov/project/a-2023-assessment-of-metals-legacy-contaminants-and-contaminants-of-emerging-concern-in-the-gulf-coast/.

National Centers for Coastal Ocean Science. (2024). "A 2024 assessment of metals, legacy contaminants, and contaminants of emerging concern on the Pacific coast, Alaska, and Hawaii." Retrieved 2025 Jul 16, from https://coastalscience.noaa.gov/project/a-2024-assessment-of-metals-legacy-contaminants-and-contaminants-of-emerging-concern-in-the-pacific-west-coast-alaska-and-hawaii/.

National Centers for Coastal Ocean Science. (2025). "A 2025 assessment of metals, legacy contaminants, and contaminants of emerging concern on the North Atlantic Coast." Retrieved 2025 Jul 16, from https://coastalscience.noaa.gov/project/a-2025-assessment-of-metals-legacy-contaminants-and-contaminants-of-emerging-concern-in-the-u-s-coastal-northeast/.

National Centers for Environmental Information. (2013). "Gulf data atlas." Retrieved 2025 Jul 7, from https://www.ncei.noaa.gov/maps/gulf-data-atlas/atlas.htm.

National Centers for Environmental Information. (2020, 2020 Oct 27). "A long-term view of the Gulf of Mexico: NCEI updates a critical regional climatology." Retrieved 2025 Jul 8, from https://www.ncei.noaa.gov/news/long-term-view-gulf-mexico.

National Centers for Environmental Information. (2025). "Gulf data atlas: eastern oyster." Retrieved 2025 Jun 17, from https://www.ncei.noaa.gov/maps/gulf-data-atlas/atlas.htm.

National Ocean Economics Program. (2025a). "Coastal economy data." Retrieved 2025 Jun 3, from https://oceaneconomics.org/NOEP/Market/coastal/coastalEcon.asp?IC=N.

National Ocean Economics Program. (2025b). "Income and poverty." Retrieved 2025 Jun 13, from https://noep.shinyapps.io/enowplus_housing_income_migration/#section-income-and-poverty.

National Ocean Service. (2025, 2025 Jun 11). "NOAA forecasts large summer "dead zone" for Gulf of America." Retrieved 2025 Jun 24, from https://oceanservice.noaa.gov/news/jun25/dead-zone-goa.html.

New England Fishery Management Council. (2017). "Final omnibus essential fish habitat amendment 2. Volume 2: EFH and HAPC designation alternatives and environmental impacts."

New England Fishery Management Council. (2025). "NEFMC habitat policies for offshore energy, aquaculture, submarine cables." Retrieved 2025 Jul 15, from https://www.nefmc.org/library/nefmc-habitat-policies-for-offshore-energy-aquaculture-submarine-cables.

New Jersey Department of Environmental Protection. (2025, 2025 Jul 24). "Harmful algal blooms (HAB) - division of water monitoring, standards & pesticide control." Retrieved 2025 Jul 29, from https://dep.nj.gov/hab/.

Nielsen, J.M., Rogers, L.A., Brodeur, R.D., Thompson, A.R., Auth, T.D., Deary, A.L., Duffy-Anderson, J.T., Galbraith, M., Koslow, J.A. and Perry, R.I. (2020). "Responses of ichthyoplankton assemblages to the recent marine heatwave and previous climate fluctuations in several Northeast Pacific marine ecosystems." Global Change Biology **27**(3): 506–520.

Nisbet, I.C.T., Veit, R.R., Auer, S.A. and White, T.P. (2013). The marine birds of the eastern United States and the Bay of Fundy: distributions, numbers, trends, threats, and management. Cambridge (MA), Nuttall Ornithological Club.

NMFS (2017). Final amendment 10 to the 2006 consolidated Atlantic highly migratory species fishery management plan: essential fish habitat and environmental assessment. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Atlantic Highly Migratory Species Management Division**:** 442.

NMFS. (2018). "Commercial fisheries statistics, 2016." Retrieved 2018 Jan 26, from https://www.st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/annual-landings/index.

NMFS (2022). Southern distinct population segment of North American green sturgeon (*Acipenser medirostris*). 5-year review: summary and evaluation. Sacramento (CA), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, California Central Valley Office**:** 63.

NMFS (2024a). Endangered Species Act Section 7(a)(2) biological and conference opinion: development and production of oil and gas reserves and beginning stages of decommissioning within the southern California planning area of the Pacific Outer Continental Shelf region. Long Beach (CA), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, West Coast Region, Protected Resources Division**:** 259.

NMFS (2024b). Fisheries economics of the United States 2021. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Science and Technology, Economics and Social Analysis Division**:** 198.

NMFS (2024c). Fisheries economics of the United States 2022. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Science and Technology, Economics and Social Analysis Division**:** 28.

NMFS. (2024d). "Fisheries Economics of the United States, 2022." NOAA Tech. Memo NMFS-F/SPO-248https://www.fisheries.noaa.gov/resource/document/fisheries-economics-united-states-reports.

NMFS (2024e). Fisheries of the United States 2022. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service**:** 24.

NMFS. (2025, 2025 May 9). "Sea turtle stranding and salvage network (STSSN)." Retrieved 2025 Jun 25, from https://www.sefsc.noaa.gov/species/turtles/strandings.htm.

NMFS and FWS. (2015). "Kemp's Ridley Sea Turtle (Lepidochelys kempii) 5-year review: Summary and Evalution."

NOAA. (2013). "Ocean Explorer Cold-Water Corals in the Gulf of Mexico." Retrieved June 26, 2017, from http://oceanexplorer.noaa.gov/explorations/12lophelia/background/corals/corals.html.

NOAA (2016). Shoreline mileage of the United States. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office for Coastal Management**:** 2.

NOAA. (2017, 2017 Dec 12). "Monitor National Marine Sanctuary." Retrieved 2025 Jul 3, from https://web.archive.org/web/20171217014648/https://monitor.noaa.gov/shipwrecks/.

NOAA. (2019a, 2019 Sep 20). "New marine heatwave emerges off West Coast, resembles "the Blob"." Retrieved 2020 May 11, from https://www.fisheries.noaa.gov/feature-story/new-marine-heatwave-emerges-west-coast-resembles-blob.

NOAA (2019b). Oceanographic data collected during expedition YG1902L2: EXPRESS: ROV characterization of the deep-sea coral and sponge community along the Western US Coast (YG1902L2) from 2019-10-22 to 2019-11-07. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

NOAA (2020). Flower Garden Banks National Marine Sanctuary 2019 research and monitoring report. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries**:** 31.

NOAA (2021a). Economics: National Ocean Watch Data. Charleston, South Carolina, NOAA Office for Coastal Management.

NOAA. (2021b). "ENOW explorer." Retrieved 2025 Jun 23, from https://coast.noaa.gov/enowexplorer/#/employment/total/2021/02016/.

NOAA. (2021c). "Total Ocean Economy." Retrieved July 16, 2025, from https://coast.noaa.gov/enowexplorer/#/employment/total/2021/02016/.

NOAA (2022a). Commercial Fish Economic Impacts by State.

NOAA (2022b). Recreational Effort.

NOAA (2023). Recreational Trip Expenditures.

NOAA. (2024a, December 2024). "Alaska Marine Mammal Stock Assessments, 2023."

NOAA (2024b). Alaska: Deep-Sea Coral Portal.

NOAA. (2024c, September 2024). "Chumash Heritage National Marine Sanctuary Final Environmental Impact Statement." I.

NOAA. (2024d). "NOAA Regional and State Report on the U.S. Marine Economy." https://coast.noaa.gov/data/digitalcoast/pdf/econ-report-regional-state.pdf.

NOAA. (2025a). "Alaska, Deep-Sea Coral Research & Technology Program." Retrieved 2025 Jul 17, from https://www.deepseacoraldata.noaa.gov/regions/Alaska.

NOAA. (2025b). "Alaska, Ocean Acidification Program." Retrieved 2025 Jul 17, from https://oceanacidification.noaa.gov/Regions/Alaska.aspx.

NOAA. (2025c). "Coastal Population." Retrieved August 25, 2025.

NOAA. (2025d). "Gulf of America Region." *National Marine Ecosystem Status* Retrieved August 13, 2025, from https://ecowatch.noaa.gov/regions/gulf-of-america.

NOAA. (2025e). "Gulf of Maine Harmful Algal Bloom Forecast." Retrieved July 9, 2025, from https://coastalscience.noaa.gov/science-areas/habs/hab-forecasts/gulf-of-maine/.

NOAA. (2025f). "Mid-Atlantic Bight, Ocean Acidification Program." Retrieved 2025 Jul 17, from https://oceanacidification.noaa.gov/regions/mid-atlantic-bight/.

NOAA Fisheries (2022). Fisheries economics of the U.S. data tool, 2022. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

NOAA Fisheries (2023a). Deep Sea Coral Research and Technology Program: 2022 report to Congress. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, NOAA Fisheries**:** 18.

NOAA Fisheries (2023b). Recreational and Commercial Landings.

NOAA Fisheries. (2023c, May 2024). "Status of Stocks 2023: Annual Report to Congress on the Status of U.S. Fisheries." https://www.fisheries.noaa.gov/s3/2024-04/2023SOS-final.pdf.

NOAA Fisheries (2023d). Top Commercial Fishing for U.S. Ports.

NOAA Fisheries (2024a). Alaska seafood snapshot. Anchorage (AK), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Alaska Fisheries Science Center, Resource Ecology and Fisheries Management**:** 63.

NOAA Fisheries. (2024b, 2025 Jul 15). "Aquaculture in New England and the Mid-Atlantic." Retrieved 2024 Dec 12, from https://www.fisheries.noaa.gov/new-england-mid-atlantic/aquaculture/aquaculture-new-england-and-mid-atlantic.

NOAA Fisheries. (2024c, 2024 Nov 21). "Elkhorn coral." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/species/elkhorn-coral.

NOAA Fisheries (2024d). Endangered Species Act recovery status review for the giant manta ray (*Mobula birostris*). Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service**:** 144.

NOAA Fisheries. (2024e, 2024 Nov 22). "Fin whale." Retrieved 2025 Jun 24, from https://www.fisheries.noaa.gov/species/fin-whale.

NOAA Fisheries. (2024f). "Fisheries of the United States 2022." Retrieved June 27, 2025, from https://s3.amazonaws.com/media.fisheries.noaa.gov/2025-01/FUS-2022-final3.pdf.

NOAA Fisheries. (2024g, 2024 Nov 26). "Gray whale." Retrieved 2025 Jun 24, from https://www.fisheries.noaa.gov/species/gray-whale.

NOAA Fisheries. (2024h, 2024 Nov 26). "Minke whale." Retrieved 2025 Jun 24, from https://www.fisheries.noaa.gov/species/minke-whale.

NOAA Fisheries (2024i). Overfishing and overfished stocks as of December 31, 2024. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, NOAA Fisheries.

NOAA Fisheries. (2024j, 2024 Oct 9). "Pacific sardine." Retrieved 2025 Jul 3, from https://www.fisheries.noaa.gov/species/pacific-sardine.

NOAA Fisheries. (2024k, February 2024). "State of Alaska Aquaculture Report." Retrieved July 16, 2025, from https://www.boem.gov/Cook-Inlet-Lease-Sale-244-Final-EIS-Volume-1/.

NOAA Fisheries. (2024l, 2024 Dec 19). "West coast highly migratory species." Retrieved 2025 Jul 3, from https://www.fisheries.noaa.gov/west-coast/sustainable-fisheries/west-coast-highly-migratory-species.

NOAA Fisheries (2024m). What Happened to All the Alaska Snow Crabs? Dive in with NOAA Fisheries. USA.

NOAA Fisheries. (2024n, 2024 Jan 17). "White abalone." Retrieved 2025 Jun 24, from https://www.fisheries.noaa.gov/species/white-abalone.

NOAA Fisheries. (2025a, 2025 Apr 24). "2017–2025 North Atlantic right whale unusual mortality event." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2025-north-atlantic-right-whale-unusual-mortality-event.

NOAA Fisheries. (2025b). "Atlantic highly migratory species: recreational fishermen." Retrieved 2025 Jul 15, from https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species/recreational-fishermen.

NOAA Fisheries. (2025c). "Atlantic Sturgeon." Retrieved July 3, 2025.

NOAA Fisheries. (2025d, 2025 May 22). "Brown shrimp." Retrieved 2025 Jul 8, from https://www.fisheries.noaa.gov/species/brown-shrimp.

NOAA Fisheries. (2025e, 2021 Dec 14). "Critical habitat for loggerhead sea turtle." Retrieved 2025 Jul 2, from http://www.nmfs.noaa.gov/pr/species/turtles/loggerhead.html.

NOAA Fisheries. (2025f, 2025 Mar 6). "Dall's porpoise." Retrieved 2025 Jul 7, from https://www.fisheries.noaa.gov/species/dalls-porpoise.

NOAA Fisheries. (2025g). "Fisheries economics of the United States - data tool." Retrieved 2025 Jul 15, from https://www.fisheries.noaa.gov/foss/f?p=215:44:9570913461039::::P44_DATA_TYPE:recEffort.

NOAA Fisheries. (2025h, 2025 May 29). "Green turtle." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/species/green-turtle.

NOAA Fisheries. (2025i, 2025 Apr 28). "Gulf sturgeon." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/species/gulf-sturgeon.

NOAA Fisheries. (2025j, 2025 Mar 4). "Harbor porpoise." Retrieved 2025 Jul 7, from https://www.fisheries.noaa.gov/species/harbor-porpoise.

NOAA Fisheries. (2025k, 2025 May 29). "Hawksbill turtle." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/species/hawksbill-turtle.

NOAA Fisheries. (2025l, 2025 May 22). "Impacts of invasive lionfish." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/southeast/ecosystems/impacts-invasive-lionfish.

NOAA Fisheries. (2025m, 2025 May 29). "Kemp's ridley turtle." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/species/kemps-ridley-turtle.

NOAA Fisheries. (2025n, 2025 May 29). "Leatherback turtle." Retrieved 2025 Jul2, from https://www.fisheries.noaa.gov/species/leatherback-turtle/overview.

NOAA Fisheries. (2025o, 2025 Jul 9). "Loggerhead turtle." Retrieved 2025 May 29, from https://www.fisheries.noaa.gov/species/loggerhead-turtle/overview.

NOAA Fisheries. (2025p, 2025 Mar 19). "Makah Tribal whale hunt." Retrieved 2025 Jun 30, from https://www.fisheries.noaa.gov/west-coast/marine-mammal-protection/makah-tribal-whale-hunt.

NOAA Fisheries. (2025q, 2025 Jun 9). "Nassau grouper." Retrieved 2025 Jun 30, from https://www.fisheries.noaa.gov/species/nassau-grouper.

NOAA Fisheries. (2025r, 2025 May 12). "North Atlantic right whale." Retrieved 2025 May 19, from https://www.fisheries.noaa.gov/species/north-atlantic-right-whale/overview.

NOAA Fisheries. (2025s, 2025 Jun 12). "Oceanic whitetip shark." Retrieved 2025 Jun 24, from https://www.fisheries.noaa.gov/species/oceanic-whitetip-shark/overview.

NOAA Fisheries. (2025t, 2025 May 29). "Olive ridley turtle." Retrieved 2025 Jul 10, from https://www.fisheries.noaa.gov/species/olive-ridley-turtle/overview.

NOAA Fisheries. (2025u, 2025 Jun 6). "Pacific halibut." Retrieved 2025 Jun 25, from https://www.fisheries.noaa.gov/species/fin-whale.

NOAA Fisheries. (2025v, 2025 Jun 23). "Pacific whiting: subsistence fishing." Retrieved 2025 Jul 3, from https://www.fisheries.noaa.gov/species/pacific-whiting/subsistence-fishing.

NOAA Fisheries. (2025w, 2025 May 22). "Pink shrimp." Retrieved 2025 Jul 8, from https://www.fisheries.noaa.gov/species/pink-shrimp.

NOAA Fisheries. (2025x, 2025 Apr 16). "Revitalizing the gulf: highlights from 15 years of restoration." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/feature-story/revitalizing-gulf-highlights-15-years-restoration

NOAA Fisheries. (2025y, 2025 May 22). "Salmon and steelhead fisheries on the west coast." Retrieved 2025 Jul 3, from https://www.fisheries.noaa.gov/west-coast/sustainable-fisheries/salmon-and-steelhead-fisheries-west-coast.

NOAA Fisheries. (2025z, 2025 Feb 26). "Scalloped hammerhead shark." Retrieved 2024 Jun 24, from https://www.fisheries.noaa.gov/species/scalloped-hammerhead-shark/.

NOAA Fisheries. (2025aa, 2025 Feb 26). "Scalloped hammerhead shark: conservation & management." Retrieved 2024 Jun 24, from https://www.fisheries.noaa.gov/species/scalloped-hammerhead-shark/conservation-management.

NOAA Fisheries. (2025ab, 2025 Aug 4). "Sea turtles in Alaska? Yes, we have them in the far north!" Retrieved 2025 Jun 24, from https://www.fisheries.noaa.gov/feature-story/sea-turtles-alaska-yes-we-have-them-far-north.

NOAA Fisheries. (2025ac). "Sea turtles, by species." Retrieved 2025 Jul 2, from https://www.fisheries.noaa.gov/sea-turtles#by-species.

NOAA Fisheries. (2025ad). "Shortnose Sturgeon." Retrieved August 14, 2025.

NOAA Fisheries. (2025ae, 2025 Jun 12). "Smalltooth sawfish." Retrieved 2025 Jul 9, from https://www.fisheries.noaa.gov/species/smalltooth-sawfish.

NOAA Fisheries. (2025af, 2025 May 22). "Staghorn coral." Retrieved 2025 Jul 8, from https://www.fisheries.noaa.gov/species/staghorn-coral.

NOAA Fisheries. (2025ag). "Understanding ocean acidification." Retrieved 2025 Jul 3, from https://www.fisheries.noaa.gov/insight/understanding-ocean-acidification.

NOAA Fisheries. (2025ah, 2025 Apr 3). "Western Atlantic bluefin tuna." Retrieved 2025 Jun 24, from https://www.fisheries.noaa.gov/species/western-atlantic-bluefin-tuna

NOAA Fisheries. (2025ai, 2025 Jun 23). "White shrimp." Retrieved 2025 Jul 8, from https://www.fisheries.noaa.gov/species/white-shrimp.

NOAA Ocean Exploration. (2025). "Deep search 2019: deep sea exploration to advance research on coral/canyon/cold seep habitats." Retrieved 2025 Jul 9, from https://oceanexplorer.noaa.gov/explorations/19deepsearch/welcome.html.

NOAA Office for Coastal Management (2022). NOAA report on the U.S. marine economy: regional and state profiles. Charleston (SC), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office for Coastal Management**:** 76.

NOAA Office for Coastal Management (2024a). 2024 marine economy Report. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office for Coastal Management**:** 1.

NOAA Office for Coastal Management (2024b). NOAA regional and state report on the U.S. marine economy. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office for Coastal Management**:** 51.

NOAA Office for Coastal Management. (2025a). "California." Retrieved 2025 Jun 13, from https://coast.noaa.gov/states/california.html.

NOAA Office for Coastal Management (2025b). Coastal America: a demographic and economic picture. Monterey (CA), Middlebury Institute of International Studies at Monterey, Center for the Blue Economy**:** 80.

NOAA Office for Coastal Management. (2025c). "Oregon." Retrieved 2025 Jun 13, from https://coast.noaa.gov/states/oregon.html.

NOAA Office for Coastal Management. (2025d). "Washington." Retrieved 2025 Jun 13, from https://coast.noaa.gov/states/washington.html.

NOAA Office of Response and Restoration. (2025, 2025 Apr 14). "Largest oil spills affecting U.S. waters since 1969." Retrieved 2025 Jun 9, from https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/largest-oil-spills-affecting-us-waters-1969.html.

NOEP (2024). Alaska Coastal Economy Data.

Norcross, B.L., Apsens, S.J., Bell, L.E., Bluhm, B.A., Dissen, J.N., Edenfield, L.E., Frothingham, A., Gray, B.P., Hardy, S.M., Holladay, B.A., Hopcroft, R.R., Iken, K.B., Smoot, C.A., Walker, K.L. and Wood, E.D. (2017). "US-Canada Transboundary Fish and Lower Trophic Communities: Abundance, Distribution, Habitat and Community Analysis."

North Pacific Fishery Management Council. (2009, August 2009). "Fishery Management Plan for Fish Resources of the Arctic Management Area." Retrieved July 8, 2025, from https://npfmc.b-cdn.net/wp-content/uploads/ArcticFMP-1.pdf.

North Pacific Fishery Management Council (2013). Habitat areas of particular concern (HAPC): areas of skate egg concentration, public review draft. Anchorage (AK), North Pacific Fishery Management Council**:** 120.

North Pacific Fishery Management Council (2014). Fishery management plan for the scallop fishery off Alaska. Anchorage (AK), North Pacific Fishery Management Council**:** 175.

North Pacific Fishery Management Council (2017). Fishery management plan for groundfish of the Gulf of Alaska. Anchorage (AK), North Pacific Fishery Management Council**:** 149.

North Pacific Fishery Management Council (2024). Appendix A to the fishery management plan for the salmon fisheries in the EEZ off Alaska: essential fish habitat (EFH) and habitat areas of particular concern (HAPC). Anchorage (AK), State of Alaska, Department of Fish and Game, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Alaska Region, North Pacific Fishery Management Council**:** 91.

North Slope Borough Assembly. (2019). "North Slope Borough comprehensive plan 2019–2039." https://www.north-slope.org/wp-content/uploads/2022/02/NSB_Comprehensive_Plan_2019-2039.pdf.

Northeast Ocean Data. (2017). "Northeast Ocean Data: Marine Life Summary Data Products for Northeast Ocean Planning." Retrieved July 26, 2017, from http://www.northeastoceandata.org.

Northwest Indian Fisheries Commission (2024). Tribal natural resources management 2024 annual report from the Treaty Tribes in Western Washington. Olympia (WA), Northwest Indian Fisheries Commission**:** 16.

NPFMC. (2023). "Essential Fish Habitat." Retrieved June 24, 2025, from https://www.npfmc.org/fishery-management-plan/efh/.

NPFMC. (2025). "Arctic Fishery Management Plan for Fish Resources of the Arctic Management Area (Arctic FMP)."

NPS (2016). State of the park report: Bering Land Bridge National Park Preserve, Alaska. Washington (DC), U.S. Department of the Interior, National Park Service**:** 97.

NPS. (2022). "About Us: Visitation Numbers." Retrieved May 16, 2022, from https://www.nps.gov/aboutus/visitation-numbers.htm.

NPS. (2023, 2023 Dec 26). "Northwest & Arctic Region." Retrieved 2025 Jul 8, from https://www.nps.gov/anch/planyourvisit/northwest-arctic-region.htm.

NPS (2025). Visitation by State and by Park for Calendar Year: 2024.

NRC (1996). The Bering Sea Ecosystem. Washington, D.C, National Academy Press.

NREL (2021) "Cook Inlet Tidal Energy Resource Characterization Effort."

O'Neil, J.M., Heil, C.A., Glibert, P.M., Solomon, C.M., Greenwood, J. and Greenwood, J.G. (2024). "Plankton community changes and nutrient dynamics associated with blooms of the pelagic cyanobacterium *Trichodesmium* in the Gulf of Mexico and the Great Barrier Reef." Water **16**(12): 1663.

Oertel, G.F. (1985). "The barrier island system." Marine Geology **63**(1-4): 1–18.

Office of Environmental Health Hazard Assessment (2022). Indicators of climate change in California. Sacramento (CA), State of California, Environmental Protection Agency, Office of Environmental Health Hazard Assessment.

Oldach, E., Killeen, H., Shukla, P., Brauer, E., Carter, N., Fields, J., Thomsen, A., Cooper, C., Mellinger, L., Wang, K., Hendrickson, C., Neumann, A., Bøving, P.S. and Fangue, N. (2022). "Managed and unmanaged whale mortality in the California Current Ecosystem." Marine Policy **140**: 105039.

OMB (2003). Circular A-4, Regulatory Analysis.

ONRR. (2021). "Fiscal Year Disbursements." Retrieved December 12, 2021, from https://revenuedata.doi.gov/downloads/disbursements/.

ONRR. (2025). "FY 2024 Oil and Gas Disbursements Data." Retrieved February 3, 2025, from https://revenuedata.doi.gov/downloads/disbursements/. .

Orben, R.A., Porquez, J. and Suryan, R. (2025). "Year-round and Diel Patterns in Habitat Use of Seabirds off Oregon." OCS Study BOEM 2025-009.

Oregon State Legislature (2016). Tribal governments in Oregon, background brief. Salem (OR), State of Oregon, Oregon State Legislature**:** 4.

Osborne, E., Hu, X., Hall, E.R., Yates, K., Vreeland-Dawson, J., Shamberger, K., Barbero, L., Martin Hernandez-Ayon, J., Gomez, F.A., Hicks, T., Xu, Y.-Y., McCutcheon, M.R., Acquafredda, M., Chapa-Balcorta, C., Norzagaray, O., Pierrot, D., Munoz-Caravaca, A., Dobson, K.L., Williams, N., Rabalais, N. and Dash, P. (2022). "Ocean acidification in the Gulf of Mexico: drivers, impacts, and unknowns." Progress in Oceanography **209**: 102882.

Osborne, E.B., Thunell, R.C., Gruber, N., Feely, R.A. and Benitez-Nelson, C.R. (2020). "Decadal variability in twentieth-century ocean acidification in the California Current Ecosystem." Nature Geoscience **13**(1): 43–49.

Overbeck, J.R. and Buzard, R.M. (2020). Erosion at Alaska communities: introduction to recently released shoreline change maps, Alaska Tribal Conference on Environmental Management.

Pace III, R.M., Corkeron, P.J. and Kraus, S.D. (2017). "State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales." Ecology and Evolution **7**(21): 8730–8741.

Pacific Fishery Management Council. (2014). "Appendix A to the Pacific Coast salmon fishery management plan as modified by amendment 18 to the Pacific Coast salmon plan: identification and description of essential fish habitat, adverse impacts, and recommended conservation measures for salmon."

Pacific Fishery Management Council. (2025a). "Pacific coast groundfish fishery management plan for the California, Oregon, and Washington groundfish fishery."

Pacific Fishery Management Council. (2025b). "Tribes." Retrieved 2025 Jul 15, from https://www.pcouncil.org/fishing-communities/tribes/.

Packer, D.B., Boelke, D., Guida, V. and McGee, L.-A. (2007). State of deep coral ecosystems in the northeastern U.S. region. The state of deep coral ecosystems of the United States: 2007. Report No.: NOAA Technical Memorandum CRCP-3. S. E. Lumsden, Hourigan, T. F., Bruckner, A. W. and Dorr, G. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service**:** 195–231.

Palka, D.L., Chavez-Rosales, S., Josephson, D., Cholewiak, D., Haas, H.L., Garrison, L., Jones, M., Sigourney, D., Waring, G., Jech, M., Broughton, E., Soldevilla, M., Davis, G., DeAngelis, A., Sasso, C.R., Winton, M.V., Smolowitz, R.J., Fay, G., LaBrecque, E., Leiness, J.B., Dettloff, Warden, M., Murray, K. and Orphanides, C. (2017). Atlantic marine assessment program for protected species: 2010–2014. Washington (DC), U.S. Department of the Interior, Bureau of Ocean Energy Management, Atlantic OCS Region**:** 230.

Parker, R.O., Colby, D.R. and Willis, T.D. (1983). "Estimated amount of reef habitat on a portion of the U.S. South Atlantic and Gulf of Mexico continental shelf." Bulletin of Marine Science **33**(4): 935–940. Retrieved from http://www.ingentaconnect.com/content/umrsmas/bullmar/1983/00000033/00000004/art00012.

Partnership for Delaware Estuary. (2022). "Technical report for the Delaware Estuary and Basin." https://delawareestuary.org/data-and-reports/treb/.

Patel, S.H., Barco, S.G., Crowe, L.M., Manning, J.P., Matzen, E., Smolowitz, R.J. and Haas, H.L. (2018). "Loggerhead turtles are good ocean-observers in stratified mid-latitude regions." Estuarine, Coastal and Shelf Science **213**: 128–136.

Payne, C.M., Bianucci, L., van Dijken, G.L. and Arrigo, K.R. (2021). "Changes in under-ice primary production in the Chukchi Sea from 1988 to 2018." Journal of Geophysical Research: Oceans **126**(9): e2021JC017483.

Pershing, A.J. and Kemberling, A. (2024). "Decadal comparisons identify the drivers of persistent changes in the zooplankton community structure in the northwest Atlantic." ICES Journal of Marine Science **81**(3): 564–574.

PFMC. (2025). "Tribes."

Piatt, J.F., Byrd, G.V., Litzow, M.A., Shultz, M., Harding, A., van Pelt, T., Kettle, A. and Kitaysky, A.S. (2004, August 2004). "Exxon Valdez Oil Spill: Restoration Project Final Report, Protocols for Long-Term Monitoring of Seabird Ecology in the Gulf of Alaska."

Piatt, J.F., Harding, A.M.A., Shultz, M., Speckman, S.G., van Pelt, T.I., Draw, G.S. and Kettle, A.B. (2007). "Seabirds as Indicators of Marine Food Supplies: Cairns Revisited." Marine Ecology Progress Series **352**: 221–234.

Pindyck, R. (2001). "The Dynamics of Commodity Spot and Futures Markets: A Primer." Energy Journal **22**(3): 1–29.

Pine, W.E., III, , Walters, C.J., Camp, E.V., Bouchillon, R., Ahrens, R., Sturmer, L. and Berrigan, M.E. (2015). "The Curious Case of Eastern Oyster Crassostrea virginica Stock Status in Apalachicola Bay, Florida." Ecology and Society **20**(3).

Pinsky, M.L., Eikeset, A.M., McCauley, D.J., Payne, J.L. and Sunday, J.M. (2019). "Greater vulnerability to warming of marine versus terrestrial ectotherms." Nature **569**: 108–111.

Pinsky, M.L., Worm, B., Fogarty, M.J., Sarmiento, J.L. and Levin, S.A. (2013). "Marine taxa track local climate velocities." Science **341**(6151): 1239–1242.

Pipeline & Gas Journal. (2025, 2025 Apr 18). "Delfin secures final permits for first U.S. offshore LNG export facility." Retrieved 2025 Jun 18, from https://pgjonline.com/news/2025/april/delfin-secures-final-permits-for-first-us-offshore-lng-export-facility.

Point 97 and Surfrider Foundation (2015). An economic and spatial baseline of coastal recreation in Washington. Olympia (WA), State of Washington, Department of Natural Resources: 99.

Pomeroy, L. (1991). Relationships of Primary and Secondary Production in Lakes and Marine Ecosystems. Comparative Analyses of Ecosystems: Patterns, Mechanisms, and Theories. J. Cole, Lovett, G. and Findlay, S. New York, New York, Springer: 97–119.

Port of Alaska. (2025). "Don Young Port of Alaska 2025 Proposed Utility/Enterprise Budgets." Retrieved June 17, 2025, from https://www.muni.org/Departments/budget/utilitiesEnterprise/2025%20Utilities/Web%2004%20-%20Port%20of%20Alaska.pdf".

Potter, H., Hsu, C.Y. and DiMarco, S.F. (2021). "Rapid dissipation of a Loop Current eddy due to interaction with a severe Gulf of Mexico hurricane." Ocean Dynamics **71**: 911–922.

Powell, E.N. (1995). Evidence for temporal change at seeps. In: MacDonald IR, Schroeder WW, Brooks JM, editors. Chemosynthetic ecosystems study, final report. Volume II: technical report. New Orleans (LA), U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region: 65.

Pozo Buil, M., Jacox, M.G., Fiechter, J., Alexander, M.A., Bograd, S.J., Curchitser, E.N., Edwards, C.A., Rykaczewski, R.R. and Stock, C.A. (2021). "A dynamically downscaled ensemble of future projections for the California Current System." Frontiers in Marine Science **8**: 612874.

Precht, W.F. and Aronson, R.B. (2004). "Climate flickers and range shifts of reef corals." Frontiers in Ecology and the Environment **2**(6): 307–314.

Price, J.C., L. Cuyno, B. Cox, P. Burden, M. Malukoff and Manderlink, N. (2025, February 2025). "Narrative Descriptions of Potential Economic Impact Patterns for Oil and Gas Projects in Frontier Outer Continental Shelf Planning Areas." OCS Study BOEM 2025-004.

Pulster, E., Gracia, A., Armenteros, M., Toro-Farmer, G., Snyder, S.M., Carr, B.E., Schwaab, M.R., Nicholson, T.J., Mrowicki, J. and Murawski, S.A. (2020). "A first comprehensive baseline of hydrocarbon pollution in Gulf of Mexico fishes." Scientific Reports **10**(1): 6437.

Qi, D., Chen, L., Chen, B., Gao, A., Zhong, W., Feely, R.A., Anderson, L.G., Sun, H., Chen, J., Chen, M., Zhan, L., Zhang, Y. and Cai, W.-J. (2017). "Increase in acidifying water in the western Arctic Ocean." Nature Climate Change **7**: 195–199.

Quakenbush, L.T., Citta, J., George, J.C., Hiede-Jrgensen, M.P., Brower, H., Harwood, L., Adams, B., Pokiak, C., Pokiak, J. and Lea, E. (2018). "Bering-Chukchi-Beaufort Stock of Bowhead Whales: 2006-2017 Satellite Telemetry Results with Some Observations on Stock Sub-Structure."

Quakenbush, L.T., Crawford, J.A., Citta, J.J. and Nelson, M.A. (2016, June 2016). "Pinniped Movements and Foraging: Village-Based Walrus Habitat Use Studies in the Chukchi Sea." OCS Study BOEM 2016-053.

Quattrini, A.M., Nizinski, M.S., Lunden, J.J., Mienis, F., Morrison, C.L., Sautter, L., Seim, H., Todd, R.E. and Reed, J. (2023). Cold-water coral reefs of the Southeastern United States. Cold-water coral reefs of the world. E. Cordes and Mienis, F. Cham (CH), Springer: 91–126.

Quimby, B., Crook, S.E.S., Miller, K.M., Ruiz, J. and Lopez-Carr, D. (2020). "Identifying, defining and exploring angling as urban subsistence: pier fishing in Santa Barbara, California." Marine Policy **121**: 104197.

Rabalais, N.N. and Turner, R.E. (2016). "Effects of the Deepwater Horizon Oil Spill on Coastal Marshes and Associated Organisms." Oceanography **29**(3): 150–159. Retrieved from http://www.jstor.org/stable/24862717.

Rabalais, N.N. and Turner, R.E. (2019). "Gulf of Mexico hypoxia: past, present, and future." Limnology and Oceanography **28**(4): 117–124.

Radfar, S., Moftakhari, H. and Moradkhani, H. (2024). "Rapid intensification of tropical cyclones in the Gulf of Mexico is more likely during marine heatwaves." Communications Earth & Environment **5**: 421.

Rahmstorf, S., Box, J.E., Feulner, G., Mann, M.E., Robinson, A., Rutherford, S. and Schaffernicht, E.J. (2015). "Exceptional twentieth-century slowdown in Atlantic Ocean overturning circulation." Nature Climate Change **5**: 475–480.

Rappucci, G., Garrison, L.P., Soldevilla, M., Ortega-Ortiz, J., Reid, J., Aichinger-Dias, L., Mullin, K. and Litz, J. (2023). "Gulf of Mexico Marine Assessment Program for Protected Species (GoMMAPPS): Marine Mammals." OCS Study BOEM 2023-042.

Rathburn, A.E., Levin, L.A., Tryonc, M., Gieskes, J.M., Martin, J.B., Pérez, M.E., Fodrie, F.J., Neira, C., Fryer, G.J., Mendoza, G., McMillan, P.A., Kluesnea, J., Adamic, J. and Ziebis, W. (2009). "Geological and biological heterogeneity of the Aleutian margin (1965–4822 m)." Progress in Oceanography **80**(1-2): 22–50.

Raval, A. (2018) "Oil Majors Return to Deepwater Drilling." Financial Times.

Raymond-Yakoubian, J. (2018). Arctic Vessel Traffic and Indigenous Communities in the Bering Strait Region of Alaska. Sustainable Shipping in a Changing Arctic. L. Hildebrand, L. Brigham, T. Johansson. **7**.

Redlinger, M., Burdick, J. and Gregersen, L. (2018). "Cook Inlet Natural Gas Availability." Retrieved September 18, 2023, from https://dog.dnr.alaska.gov/Documents/ResourceEvaluation/CI_Natural_Gas_Availability_Study_2018.pdf.

Regis, H. and Walton, S. (2022). Subsistence in Coastal Louisiana. Volume 1: An Exploratory Study. New Orleans (LA), U.S. Department of the Interior, Bureau of Ocean Energy Management, New Orleans Office**:** 171.

Reich, D.A., Balouskus, R., French-McCay, D., Fontenault, J., Rowe, J., Singer-Leavitt, Z., Etkin, D.S., Michel, J., Nixon, Z., Boring, C., McBrien, M. and Hay, B. (2014). Assessment of marine oil spill risk and environmental vulnerability for the state of Alaska. Seattle (WA), U.S. Department of Commerce, National Oceanic and Atmospheric Administration**:** 133.

Renner, M., Hunt Jr., G.L., F., P.J. and Byrd, G.V. (2008). "Seasonal and Distributional Patterns of Seabirds along the Aleutian Archipelago." Marine Ecology Progress Series **357**: 301–311.

Renner, M., Kuletz, K.J. and Labunski, E.A. (2017). Seasonality of seabird distribution in Lower Cook Inlet. Anchorage (AK), U.S. Department of the Interior, Bureau of Ocean Energy Management**:** 46.

Ribera, M., Pinsky, M. and Richardson, D. (2021). Distribution and biomass data for fish species along the U.S. east coast from about Cape Hatteras north to Canadian waters, created by The Nature Conservancy for the Marine-life and Data Analysis Team, Northeast Ocean Data.

Ribic, C.A., Davis, R., Hess, N. and Peake, D. (1997). "Distribution of seabirds in the northern Gulf of Mexico in relation to mesoscale features: initial observations." ICES Journal of Marine Science **54**(4): 545–551.

Rider, M.J., Avens, L., Haas, H.L., Hatch, J.M., Patel, S.H. and Sasso, C.R. (2024). "Where the leatherbacks roam: movement behavior analyses reveal novel foraging locations along the Northwest Atlantic shelf." Frontiers in Marine Science **11**: 1325139.

Roberts, J.J., Best, B.D., Mannocci, L., Fujioka, E., Halpin, P.N., Palka, D.L., Garrison, L.P., Mullin, K.D., Cole, T.V.N., Khan, C.B., McLellan, W.A., Pabst, D.A. and Lockhart, G.G. (2016). "Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico." Scientific Reports **6**: 22615.

Robinson Willmott, J.C., Forcey, G. and Kent, A. (2013). "The Relative Vulnerability of Migratory Bird Species to Offshore Wind Energy Projects on the Atlantic Outer Continental Shelf: An Assessment Method and Database." OCS Study BOEM 2013–207.

Rolland, R.M., Schick, R.S., Pettis, H.M., Knowlton, A.R., Hamilton, P.K., Clark, J.S. and Kraus, S.D. (2016). "Health of North Atlantic right whales *Eubalaena glacialis* over three decades: from individual health to demographic and population health trends." Marine Ecology Progress Series **542**: 265–282.

Rosati, J.D. (2009). Concepts for functional restoration of barrier islands. Washington (DC), U.S. Department of the Army, Corps of Engineers**:** 14.

Ross, S.W. and Brooke, S. (2012). "Mid-Atlantic deepwater canyons." Retrieved 2018 Apr 12, from https://oceanexplorer.noaa.gov/explorations/12midatlantic/background/canyons/canyons.html.

Rowe, G.T. and Kennicutt II, M.C. (2009). Northern Gulf of Mexico continental slope habitats and benthic ecology study, final report. New Orleans (LA), U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region**:** 417.

Ruppel, C.D., Hoy, S. and Cuellar, S. (2023, 2023 Jul 24). "Newly discovered Aleutian Margin cold seeps host gas hydrate and dense colonies of tubeworms." Retrieved 2025 Jul 17, from https://oceanexplorer.noaa.gov/news/oer-updates/2023/ak-seep-discovery.html.

Russell, T.M., Pereksta, D.M., Tietz, J.R., Vernet, M., Jahncke, J. and Ballance, L.T. (2025). "Increase of tropical seabirds (Sula) in the California Current Ecosystem with warmer ocean conditions." Frontiers in Marine Science **12**: 1561438.

Rystad Energy (2025) "Key Trends: What's in Store for US GOM Upstream Sector in 2025?".

S&P Capital IQ. (2025, April 30, 2025). "Light Sweet Crude Oil Futures."

Sammarco, P.W. (2014). "Determining the Geographical Distribution and Genetic Affinities of Corals on Offshore Platforms, Northern Gulf of Mexico." OCS Study BOEM 2014–011.

San Francisco Estuary Institute. (2000). "San Francisco Bay seafood consumption report."

Sandoval-Belmar, M., Smith, J., Moreno, A.R., Anderson, C., Kudela, R.M., Sutula, M., Kessouri, F., Caron, D.A., Chavez, F.P. and Bianchi, D. (2023). "A cross-regional examination of patterns and environmental drivers of *Pseudo-nitzschia* harmful algal blooms along the California coast." Harmful Algae **126**: 102435.

Sasso, C.R., Richards, P.M., Benson, S.R., Judge, M., Putnam, N.F., Snodgrass, D. and Stacy, B.A. (2021). "Leatherback turtles in the Eastern Gulf of Mexico: foraging and migration behavior during the autumn and winter." Frontiers in Marine Science **8**(660798).

Sassorossi, W.S., Tuttle, M.C., Evans, A.M., Rawls, J., Holland, S.E., Fadem, C.M., Stotts, I. and Miller, H.L. (2024). Identifying coastal and submerged cultural heritage on the Alaska Outer Continental Shelf. Anchorage (AK), U.S. Department of the Interior, Bureau of Ocean Energy Management, Alaska OCS Region**:** 187.

Schiff, K., McLaughlin, K., Moore, S. and Cao, Y. (2019). Southern California Bight. World seas: an environmental evaluation. Volume I: Europe, the Americas, and West Africa. C. Sheppard. London (UK), Elsevier: 465–482.

Schwing, F.B., O'Farrell, M., Steger, J.M. and Baltz, K. (1996). Coastal upwelling indices: West Coast of North America 1946–95. Pacific Grove (CA), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Fisheries Environmental Laboratory, Southwest Fisheries Science Center: 32.

Scigliano, E. (2016). "Sustainable Development: Taking the Guesswork out of Shellfish Aquaculture Planning." Retrieved 2025 Jun 28, from https://seagrant.noaa.gov/sustainable-development-taking-the-guesswork-out-of-shellfish-aquaculture-planning/.

Scully-Engelmeyer, K.M., Granek, E.F., Nielsen-Pincus, M. and Brown, G. (2021). "Participatory GIS mapping highlights indirect use and existence values of

coastal resources and marine conservation areas." Ecosystem Services **50**: 101301.

Sea Grant. (2025). "Aquaculture in South Carolina." Retrieved August 1, 2025, from https://www.scseagrant.org/aquaculture.

Sedberry, G.R., Cooksey, C.L., Crowe, S.F., Hyland, J., Jutte, P.C., Ralph, C.M. and Sautter, L.R. (2004). Characterization of deep reef habitat off the Southeastern U.S., with particular emphasis on discovery, exploration, and description of reef fish spawning sites: final report. Charleston (SC), State of South Carolina, Department of Natural Resources: 77.

Selph, K.E., Swalethorp, R., Stukel, M.R., Kelly, T.B., Knapp, A.N., Fleming, K., Hernandez, T. and Landry, M.R. (2022). "Phytoplankton community composition and biomass in the oligotrophic Gulf of Mexico." Journal of Plankton Research **44**(5): 618–637.

Seminoff, J.A., Komoroske, L.M., Amorocho, D., Arauz, R., Chacón-Chaverrí, D., de Paz, N., Dutton, P.H., Donoso, M., Heidemeyer, M., Hoeffer, G., Jones, T.T., Kelez, S., Lemons, G.E., Rguez-Baron, J.M., Sampson, L., Santos Baca, L., Steiner, T., Vejar Rubio, M., Zárate, P., Zavala-Norzagaray, A. and Popp, B.N. (2021). "Large-scale patterns of green turtle trophic ecology in the eastern Pacific Ocean." Ecosphere **12**(6): e03479.

Semonov, A., Zhang, X., Rinke, A., Dorn, W. and Dethloff, K. (2019). "Arctic intense summer storms and their impacts on sea ice—a regional climate modeling study." Atmosphere **10**(4): 218.

Shaffer, S.A., Tremblay, Y., Weimerskirch, Y., Scott, D., Thompson, D.R., Sagar, P.M. and Moller, H. (2006). "Migratory Shearwaters Integrate Oceanic Resources Across the Pacific Ocean in an Endless Summer." Proceedings of the National Academy of Sciences **103**(34).

Shapiro-Garza, E., Rajaee, M., Cohen, S., Klein, C. and Joyce, A. (2022). "Subsistence fish consumption on the Lower Cape Fear River, summary of research 2016–2022."

Sharp, S.M., McLellan, W.A., Rotstein, D.S., Costidis, A.M., Barco, S.G., Durham, K., Pitchford, T.D., Jackson, K.A., Daoust, P.-Y., Wimmer, T., Couture, E.L., Bourque, L., Frasier, T., Frasier, B., Fauquier, D., Rowles, T.K., Hamilton, P.K., Pettis, H. and Moore, M.J. (2019). "Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis* mortalities between 2003 and 2018." Diseases of Aquatic Organisms **135**(1): 1–31.

Shay, L.K. and Uhlhorn, E.W. (2008). "Loop Current response to hurricanes Isidore and Lili." Monthly Weather Review **136**(9): 3248–3274.

Shoop, C.R. and Kenney R.D. (1992). "Seasonal Distributions and Abundances of Loggerhead and Leatherback Sea Turtles in Waters of the Northeastern United States." Herpetological Monographs **6**: 43–67.

Silver, A., Gangopadhyay, A., Gawarkiewicz, G., Taylor, A. and Sanchez-Franks, A. (2021). "Forecasting the Gulf Stream path using buoyancy and wind forcing over the North Atlantic." Journal of Geophysical Research: Oceans **126**(8): e2021JC017614.

Slacum Jr., H.W., Burton, W.H. and Methratta, E.T. (2010). "Assemblage structure in shoal and flat-bottom habitats on the inner continental shelf of the Middle Atlantic Bight, USA." Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science **2**: 277–298.

Smith, M.A., Goldman, M.S., Knight, E.J. and Warrenchuk, J.J., Eds. (2017). Ecological atlas of the Bering, Chukchi, and Beaufort seas. Anchorage (AK), Audubon Alaska.

Soldevilla, M.S., Debich, A.J., Garrison, L.P., Hildebrand, J.A. and Wiggins, S.M. (2022). "Rice's whales in the northwestern Gulf of Mexico: call variation and occurrence beyond the known core habitat." Endangered Species Research **48**: 155–174.

South Atlantic Fishery Management Council. (2007). "Policies for the protection and restoration of essential fish habitats from marine aquaculture." https://safmc.net/documents/attach2_safmcaquaculturepolicy-pdf.

South Atlantic Fishery Management Council. (2025). "Coral: coral and live bottom habitat." Retrieved 2025 Jul 9, from https://safmc.net/fishery-management-plans/coral/.

South Carolina Sea Grant Consortium. (Undated). "Oyster Farming in South Carolina." Retrieved June 26, 2025, from https://www.scseagrant.org/aquaculture.

Southall, B., Mazurek, R. and Eriksen, R. (2023). "Vulnerability Index to Scale Effects of Offshore Renewable Energy on Marine Mammals and Sea Turtles off the U.S. West Coast (VIMMS)." OCS Study BOEM 2023-057.

Southern California Coastal Ocean Observing System and Central and Northern California Ocean Observing System. (2025). "Harmful algal bloom monitoring alert program." Retrieved 2025 Jul 5, from https://sccoos.org/california-hab-bulletin/harmful-algal-bloom/.

Sparks, L.M. and DiMatteo, A. (2023). Sea turtle distribution and abundance on the east coast of the United States. Newport (RI), U.S. Department of the Navy, Naval Undersea Warfare Center Division**:** 176.

Spies, R.B., Senner, S. and Robbins, C.S. (2016). "An overview of the northern Gulf of Mexico ecosystem." Gulf of Mexico Science **33**(1): 98–121.

Springer, A.M. and McRoy, C.P. (1993). "The Paradox of Pelagic Food Webs in the Northern Bering Sea—III Patterns of Primary Production." Continental Shelf Research **13**(5/6): 575–599.

Stabeno, P.J., Bell, S., Berchok, C., Cokelet, E.D., Cross, J., McCabe, R.M., Mordy, C.W., Overland, J., Strausz, D., Sullivan, M. and Tabisola, H.M. (2023). "Long-term biophysical observations and climate impacts in US Arctic marine ecosystems." Oceanography **36**(2–3): 78–85.

Stabeno, P.J., Bell, S., Cheng, W., Danielson, S., Kachel, N.B. and Mordy, C.W. (2016). "Long-term observations of Alaska Coastal Current in the northern Gulf of Alaska." Deep Sea Research Part II: Topical Studies in Oceanography **132**: 24–40.

Stabeno, P.J., Bond, N.A., Hermann, A.J., Kachel, N.B., Mordy, C.W. and Overland, J.E. (2004). "Meteorology and oceanography of the Northern Gulf of Alaska." Continental Shelf Research **24**(7-8): 859–897.

Stabeno, P.J., Kachel, N.B., Moore, S.E., Napp, J.M., Sigler, M., Yamaguchi, A. and Zerbini, A.N. (2012). "Comparison of Warm and Cold Years on the Southeastern Bering Sea Shelf and some Implications for the Ecosystem." Deep Sea Research II **62-70**: 31–45.

Stabeno, P.J., Schumacher, J.D. and Ohtani, K. (1999). "The Physical Oceanography of the Bering Sea: A Summary of Physical, Chemical, and Biological Characteristics, and a Synopsis of Research on the

Bering Sea." *Dynamics of the Bering Sea : a summary of physical, chemical, and biological characteristics, and a synopsis of research on the Bering Sea* AK-SG-99-03Retrieved August 17, 2017, from https://www.pmel.noaa.gov/pubs/outstand/stab1878/general.shtml.

Stafford, K.M., George, C., Harcharek, Q. and Moore, S.E. (2023). "Humpback whale sightings in northern Arctic Alaska." Marine Mammal Science **40**(1): 246–253.

Stalfort, D., Roberts, B. and Culvern, C. (2021). Alternative oil spill occurrence estimators for determining rates for the Atlantic Outer Continental Shelf. Sterling (VA), U.S. Department of the Interior, Bureau of Ocean Energy Management**:** 101.

Stallins, J.A., Hsu, L.-C., Zinnert, J.C. and Brown, J.K. (2020). "How bottom-up and top-down controls shape dune topographic variability along the U.S. Virginia barrier island coast and the inference of dune dynamical properties." Journal of Coastal Conservation **24**: 30.

Stanistreet, J.E., Nowacek, D.P., Baumann-Pickering, S., Bell, J.T., Cholewiak, D.M., Hildebrand, J.A., Hodge, L.E.W., Moors-Murphy, H.B., Van Parijs, S.M. and Read, A.J. (2017). "Using passive acoustic monitoring to document the distribution of beaked whale species in the western North Atlantic Ocean." Canadian Journal of Fisheries and Aquatic Sciences **74**(12): 2098–2109.

State of Alaska. (2018, March 23, 2018). "Alaska Mariculture Development Plan." Retrieved July 16, 2025, from https://www.boem.gov/Cook-Inlet-Lease-Sale-244-Final-EIS-Volume-1/.

Steimle, F.W. and Zetlin, C. (2000). "Reef habitats in the Middle Atlantic Bight: abundance distribution, associated biological communities and fishery resource use." Marine Fisheries Review **62**(2): 24–42.

Steinberg, S.J. and Moore, S.L. (2017). "San Diego Bay fish consumption study: identifying fish consumption patterns of anglers in San Diego Bay."

Stephensen, S.W. and Irons, D.B. (2003). "Comparison of colonial breeding seabirds in the eastern Bering Sea and Gulf of Alaska." Marine Ornithology **31**(2): 167–173. Retrieved from http://www.marineornithology.org/PDF/31_2/31_2_167-173.pdf.

Sturges, W., Lugo-Fernandez, A. and Shargel, M.D. (2005). Circulation in the Gulf of Mexico: Observations and Models. Introduction to Circulation in the Gulf of Mexico. Washington, D.C., American Geophysical Union**:** 1–10.

Suess, E., Borhmann, G., von Huene, R., Linke, P., Wallaman, K., Lammers, S., Sahling, H., Winckler, G., Lutz, R.A. and Orange, D. (1998). "Fluid venting in the eastern Aleutian subduction zone." Journal of Geophysical Research **103**(B2): 2597–2614.

Surma, S., Pakhomov, E.A. and Pitcher, T.J. (2022). "Pacific herring (*Clupea pallasii*) as a key forage fish in the southeastern Gulf of Alaska." Deep Sea Research Part II: Topical Studies in Oceanography **196**: 105001.

Suryan, R.M., Arimitsu, M.L., Coletti, H.A., Hopcroft, R.R., Lindeberg, M.R., Barbeaux, S.J., Batten, S.D., Burt, W.J., Bishop, M.A., Bodkin, J.L., Brenner, R., Campbell, R.W., Cushing, D.A., Danielson, S.L., Dorn, M.W., Drummond, B., Esler, D., Gelatt, T., Hanselman, D.H., Hatch, S.A., Haught, S., Holderied, K., Iken, K., Irons, D.B., Kettle, A.B., Kimmel, D.G., Konar, B., Kuletz, K.J., Laurel, B.J., Maniscalco, J.M., Matkin, C., McKinstry, C.A.E., Monson, D.H., Moran, J.R., Olsen, D., Palsson, W.A., Pegau, W.S., Piatt, J.F., Rogers, L.A., Rojek, N.A., Schaefer, A., Spies, I.B., Straley, J.M., Strom, S.L., Sweeney, K.L., Szymkowiak, M., Weitzman, B.P., Yasumiishi, E.M. and Zador, S.G. (2021). "Ecosystem response persists after a prolonged marine heatwave." Scientific Reports **11**: 6235.

Sutton-Grier, A.E. and Sandifer, P.A. (2019). "Conservation of wetlands and other coastal ecosystems: a commentary on their value to protect biodiversity, reduce disaster impacts, and promote human health and well-being." Wetlands **39**: 1295–1302.

Sutton, R., Mason, S.A., Stanek, S.K., Willis-Norton, E., Wren, I.F. and Box, C. (2016). "Microplastic contamination in the San Francisco Bay, California, USA." Marine Pollution Bulletin **109**(1): 230–235.

Sutton, T.T., Clark, M.R., Dunn, D.C., Halpin, P.N., Rogers, A.D., Guinotte, J., Bograd, S.J., Angel, M.V., Perez, J.A.A., Wishner, K., Haedrich, R.L., Lindsay, D.J., Drazen, J.C., Vereshchaka, A., Piatkowski, U., Morato, T., Błachowiak-Samołyk, K., Robison, B.H., Gjerde, K.M., Pierrot-Bults, A., Bernal, P., Reygondeau, G. and Heino, M. (2017). "A global biogeographic classification of the mesopelagic zone." Deep Sea Research Part I: Oceanographic Research Papers **126**: 85–102.

Sutton, T.T., Milligan, R.J., Daly, K., Boswell, K.M., Cook, A.B., Cornic, M., Frank, T., Frasier, K., Hahn, D., Hernandez, F., Hildebrand, J., Hu, C., Johnston, M.W., Joye, S.B., Judkins, H., Moore, J.A., Murawski, S.A., Pruzinsky, N.M., Quinlan, J.A., Remsen, A., Robinson, K.L., Romero, I.C., Rooker, J.R., Vecchione, M. and Wells, R.J.D. (2022). "The open-ocean Gulf of Mexico after *Deepwater Horizon*: synthesis of a decade of research." Frontiers in Marine Science **9**: 753391.

Swam, L.M., Rider, M.M., Apeti, D.A. and Pisarski, E. (2023). A 2017 assessment of contaminants of emerging concern in the Gulf of Mexico. Silver Spring (MD), U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, National Centers for Coastal Ocean Science**:** 70.

Taurozzi, D. and Scalici, M. (2024). "Seabirds from the poles: microplastics pollution sentinels." Frontiers in Marine Science **11**: 1343617.

Taylor, P.C., W. Maslowski, J. Perlwitz and Wuebbles, D.J. (2017). Arctic changes and their effects on Alaska and the rest of the United States. Climate Science Special Report: Fourth National Climate Assessment. D. J. Wuebbles, D.W. Fahey, K.A. Hibbard et al. Washington, D.C., U.S. Global Change Research Program. **1:** 303–332.

Tenore, K.R. (1985). Seasonal changes in soft bottom macroinfauna of the U.S. South Atlantic Bight. Oceanography of the southeastern U.S. continental shelf. L. P. Atkinson, Menzel, D. W. and Bush, K. A. Washington (DC), Wiley. **2:** 130–140.

Terhaar, J., Lauerwald, R., Regnier, P., Gruber, N. and Bopp, L. (2021). "Around one third of current Arctic Ocean primary production sustained by rivers and coastal erosion." Nature Communications **12**: 169.

The Louis Berger Group Inc. (2004). OCS-related infrastructure in the Gulf of Mexico fact book. New Orleans (LA), U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region**:** 235.

Thompson, A.R., Hyde, J.R., Watson, W., Chen, D.C. and Guo, L.W. (2016). "Rockfish assemblage structure and spawning locations in southern California identified through larval sampling." Marine Ecology Progress Series **547**: 177–192.

Thompson, A.R., Swalethorp, R., Alksne, M., Santora, J.A., Hazen, E.L., Leising, A., Satterthwaite, E., Sydeman, W.J., Anderson, C.R., Auth, T.D., Baumann-Pickering, S., Baumgardner, T., Bjorkstedt, E.P., Bograd, S.J., Bowlin, N.M., Burke, B.J., Daly, E.A., Dewar, H., Field, J.C., Fisher, J.L., Garfield, N., Gidding, A., Goericke, R., Golightly, R.T., Gómez-Ocampo, E., Gomez-Valdes, J., Hildebrand, J.A., Jacobson, K.C., Jacox, M.G., Jahncke, J., Johns, M., Jones, J.M., Lavaniegos, B., Mantua, N., McChesney, G.J., Medina, M.E., Melin, S.R., Miranda, L.E., Morgan, C.A., Nickels, C.F., Orben, R.A., Porquez, J.M., Preti, A., RObertson, R.R., Rudnick, D.L., Sakuma, K.M., Schacter, C.R., Schroeder, I.D., Scopel, L., Snodgrass, O.E., Thompson, S.A., Warzybok, P., Whitaker, K., Watson, W., Weber, E.D. and Wells, B. (2024). "State of the California Current ecosystem report in 2022: a tale of two La Niñas." Frontiers in Marine Science **11**: 1294011.

Thorsteinson, L.K. and Love, M.S. (2016a). Alaska Arctic marine fish ecology catalog. Reston (VA), U.S. Department of the Interior, U.S. Geological Survey**:** 784.

Thorsteinson, L.K. and Love, M.S. (2016b). "Alaska Arctic Marine Fish Ecology Catalog: U.S. Geological Survey Scientific Investigations Report 2016-5038." OCS Study, BOEM 2016-048Retrieved July 26, 2017, from http://dx.doi.org/10.3133/sir20165038.

Timmermans, M.-L. and Toole, J.M. (2023). "The Arctic Ocean's Beaufort Gyre." Annual Review of Marine Science **15**: 223–248.

Todorov, A. (2023). "Arctic Shipping: Trends, Challenges, and Ways Forward." Retrieved June 17, 2025, from https://www.belfercenter.org/sites/default/files/pantheon_files/files/publication/Todorov_Arctic%20Shipping%20Challenges%20Brief_FINAL.pdf.

Tolowa Dee-ni' Nation. (2025). "Yurok-Tolowa Dee-ni' indigenous marine stewardship area." Retrieved 2025 Jun 18, from https://www.tolowa.gov/341/Yurok-Tolowa-Dee-ni-Indigenous-Marine-St.

TRC Environmental Corporation (2012). Inventory and analysis of archaeological site occurrence on the Atlantic Outer Continental Shelf. New Orleans (LA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico OCS Region**:** 349.

Turner, R.E. and Rabalais, N.N. (2019). The Gulf of Mexico. World seas: an environmental evaluation. C. Sheppard. London (UK), Academic Press. **1:** 445–464.

U.S. Census Bureau (2023). A state-sorted list of all 2020 Census urban areas for the U.S., Puerto Rico, and Island Areas first sorted by state FIPS code, then sorted by urban area census. Washington (DC), U.S. Census Bureau.

U.S. Census Bureau (2024). Quickfacts: Alaska, population. Washington (DC), U.S. Department of Commerce, U.S. Census Bureau.

U.S. Committee on the Marine Transportation System. (2019). "A Ten-Year Projection of Maritime Activity in the U.S. Arctic Region, 2020–2030." Retrieved June 16, 2025, from https://oceanconservancy.org/wp-content/uploads/2021/08/CMTS_2019_Arctic_Vessel_Projection_Report.pdf.

U.S. Department of State (2023). The outer limits of the extended continental shelf of the United States of America: executive summary. Washington (DC), U.S. Department of State**:** 100.

U.S. Navy. (2022). "Gulf of Alaska Navy Training Activities Supplemental Impact Statement/Overseas Environmental Impact Statement." Retrieved July 16, 2025, from https://www.nepa.navy.mil/Portals/20/Documents/Pacific%20Fleet/GOA/files/EIS/Final_SEIS_2022/01_GOAFinalSEISOEISSeptember2022.pdf.

U.S. Navy. (2024). "Navy Launches Operation Ice Camp 2024 in the Arctic Ocean." Retrieved July 16, 2025, from https://media.defense.gov/2024/Jul/22/2003507411/-1/-1/0/DOD-ARCTIC-STRATEGY-2024.PDF.

University of Maryland Center for Environmental Science. (2024). "Chesapeake Bay & watershed report card 2023/2024."

Uribe-Martínez, A., Espinoza-Tenorio, A., Cruz-Pech, J.B., Cupido-Santamaría, D.G., Trujillo-Córdova, J.A., García-Nava, H., Flores-Vidal, X., Gudiño-Elizondo, N., Herguera, J.C., Appendini, C.M. and Cuevas, E. (2024). "An affordable operational oil spill monitoring system in action: a diachronic multiplatform analysis of recent incidents in the southern Gulf of Mexico." Environmental Monitoring and Assessment **196**: 1069.

Ury, E.A., Yang, X., Wright, J.P. and Bernhardt, E.S. (2021). "Rapid deforestation of a coastal landscape driven by sea-level rise and extreme events." Ecological Applications **31**(5): e02339.

USACE (2022a). Waterborne tonnage for principal U.S. ports and all 50 states and U.S. territories; waterborne tonnages for domestic, foreign, imports, exports and intra-state waterborne traffic. Washington (DC), U.S. Department of the Army, Corps of Engineers.

USACE. (2022b). "Waterborne Tonnage for Principal U.S. Ports and all 50 States and U.S. Territories; Waterborne Tonnages for Domestic, Foreign, Imports, Exports, and Intra-state Waterborne Traffic." Retrieved June 10, 2025, from https://usace.contentdm.oclc.org/digital/collection/p16021coll2/id/14589.

USACE (2025). USACE Accepting Bids for First Phase of Port of Nome Project Construction.

USCG. (2016, December 23, 2016). "Preliminary Findings: Port Access Route Study in the Chukchi Sea, Bering Strait, and Bering Sea." USCG-2014-0941Retrieved June 16, 2025, from https://navcen.uscg.gov/sites/default/files/pdf/PARS/Bering_Strait_PARS_General.pdf.

USDA (2017). Pacific Northwest region almanac 2017. Washington (DC), U.S. Department of Agriculture**:** 28.

USDOI. (1983, March). "Procedures for OCS Bid Adequacy Including the Final Report of the OCS Fair Market Value Task Force."

USEPA. (2014, January 2014). "An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska." 3.Retrieved July 25, 2017, from https://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=522977.

USEPA (2021). National coastal condition assessment. Washington (DC), U.S. Environmental Protection Agency, Office of Research and Development, Office of Water**:** 87.

USEPA (2024). List of areas protected by Regional Haze Program. Washington (DC), U.S. Environmental Protection Agency**:** 22.

USEPA. (2025a, 2025 Apr 3). "About Bristol Bay." Retrieved 2025 Jul 14, from https://www.epa.gov/bristolbay/about-bristol-bay.

USEPA. (2025b, June 30, 2025). "Current Nonattainment Counties for All Criteria Pollutants." Retrieved July 30, 2025, from https://www3.epa.gov/airquality/greenbook/ancl.html#CA.

USEPA. (2025c, June 30, 2025). "Details of Criteria Pollutant Nonattainment Area Summary Report." Retrieved July 2, 2025, from.

USFWS. (2013). "Vision for a Healthy Gulf of Mexico Watershed." Retrieved July 26, 2017, from https://www.fws.gov/gulfrestoration/pdf/VisionDocument.pdf.

USFWS. (2023). "Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA)." Retrieved July 9, 2025, from https://www.fws.gov/project/louisiana-ecological-services-coastal-restoration

USFWS. (Undated). "Alaska Migratory Birds Office." Retrieved August 21, 2025, from https://www.fws.gov/office/alaska-migratory-birds/seabirds-alaska.

USGS. (2008). "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle."

Valverde, R.A. and Holzwart, K.R. (2017). Sea turtles of the Gulf of Mexico. Habitats and biota of the Gulf of Mexico: before the Deepwater Horizon oil spill. C. Ward. New York (NY), Springer. **2:** 1189–1351.

Van Parijs, S.M. (2015). "Letter of introduction to the biologically important areas issue." Aquatic Mammals **41**(1): 1.

Veit, R.R., White, T.P., Perkins, S.A. and Curley, S. (2016). Abundance and distribution of seabirds off southeastern Massachusetts, 2011–2015: final report. Sterling (VA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs**:** 82.

Villalobos, C., Love, B.A. and Olson, M.B. (2020). "Ocean acidification and ocean warming effects on Pacific herring (*Clupea pallasi*) early life stages." Frontiers in Marine Science **7**: 597899.

Wagner, R. (2024). Louisiana BEACH grant report: 2024 swimming season. Washington (DC), U.S. Environmental Protection Agency**:** 80.

Wang, V.H., Zapfe, C.R. and Hernandez, F.J. (2021). "Assemblage structure of larval fishes in epipelagic and mesopelagic waters of the northern Gulf of Mexico." Frontiers in Marine Science **8**: 766369.

Wang, X., Liu, Y., Key, J.R. and Dworak, R. (2022). "A new perspective on four decades of changes in Arctic sea ice from satellite observations." Remote Sensing **14**(8): 1846.

Ward, M., A.K. Spalding, A. Levine, E.A. Wolters (2022). "California shellfish Farmers: Perceptions of Changing Ocean Conditions and Strategies for Adaptive Capacity." Ocean and Coastal Management **225**(106155).

Warrick, J.A., Conrad, J.E., Papesh, A., Lorenson, T. and Sliter, R. (2022). Assessment of significant sand resources in federal and California state waters of the San Francisco, Oceanside, and Silver Strand Littoral Cell study areas along the continental shelf of California. Reston (VA), U.S. Department of the Interior, U.S. Geological Survey**:** 117.

Washington Tribes. (2025). "Washington Tribes." Retrieved 2025 Jul 9, from https://www.washingtontribes.org/.

Weber, E., Baumann-Pickering, S., Baumgartner, T., Bjorkstedt, E., Bograd, S., Burke, B., Cadena-Ramirez, J., Daly, E., Cruz, M.d.l., Dewar, H., Field, J., Fisher, J., Giddings, A., Goericke, R., Hazen, E., Hildebrand, J., Horton, C., Jacobson, K., Jacox, M., Jahncke, J., Kahru, M., Kudela, R., Lavaniegos, B., Leising, A., Melin, S. and Miranda-Bojorquez, L. (2021). "State of the California Current 2019-2020: Back to the Future with Marine Heatwaves?" Frontiers in Marine Science **8**(709454).

Weijermars, R. and Sun, Z. (2018). "Regression Analysis of Historic Oil Prices: A Basis for Future Mean Reversion Price Scenarios." Global Finance **35**. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S1044028317302004.

Weingartner, T.J., Pickart, R., Winsor, P., Corlett, W.B., Dobbins, E.L., Fang, Y.-C., Irvine, C., Irving, B., Li, M., Lu, K., Potter, R., Statscewich, H. and Stoudt, C. (2017). Characterization of the circulation on the continental shelf areas of the Northeastern Chukchi and Western Beaufort Seas. Anchorage (AK), U.S. Department of the Interior, Bureau of Ocean Energy Management, Alaska OCS Region**:** 246.

Weisberg, R.H. and Liu, Y. (2021). "Local and deep-ocean forcing effects on the West Florida continental shelf circulation and ecology." Frontiers in Marine Science **9**: 863227.

Wenner, E.L., Knott, D.M., Van Dolah, R.F. and Burrell Jr., V.G. (1983). "Invertebrate communities associated with hard bottom habitats in the South Atlantic Bight." Estuarine, Coastal and Shelf Science **17**(2): 143–158.

Western Arctic Caribou Herd Working Group (2024). Caribou trails: news from the Western Arctic Caribou Herd Working Group. Anchorage (AK), State of Alaska, Department of Fish and Game.

Western Hemisphere Shorebird Reserve Network. (2025). "San Francisco Bay." Retrieved 2025 Jun 24, from https://whsrn.org/whsrn-sities/san-francisco-bay.

White, H.K., Hsing, P.-Y., Cho, W., Shank, T.M., Cordes, E.E., Quattrini, A.M., Nelson, R.K., Camilli, R., Demopoulos, A.W.J., German, C.R., Brooks, J.M., Roberts, H.H., Shedd, W., Reddy, C.M. and Fisher, C.R. (2012). "Impact of the *Deepwater Horizon* oil spill on a deep-water coral community in the Gulf of Mexico." PNAS **109**(50): 20303–20308.

White, T.P. and Veit, R.R. (2020). "Spatial ecology of long-tailed ducks and white-winged scoters wintering on Nantucket Shoals." Ecosphere **11**(1): e03002.

Whitfield, A.K. (2016). "The role of seagrass meadows, mangrove forests, salt marshes and reed beds as nursery areas and food sources for fishes in estuaries." Reviews in Fish Biology and Fisheries **27**: 75–110.

Whitney, K. (2014). "Domesticating nature?: surveillance and conservation of migratory shorebirds in the “Atlantic Flyway”." Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences **45**: 78–87.

WHSRN. (2019). "Yukon Delta NWR." Retrieved July 16, 2025, from https://irma.nps.gov/Stats/SSRSReports/National%20Reports/Visitation%20By%20State%20and%20By%20Park%20(2017%20-%20Last%20Calendar%20Year).

Wilkinson, T., Wiken, E., Bezaury-Creel, J., Hourigan, T., Agardy, T., Herrmann, H., Janishevski, L., Madden, C., Morgan, L. and Padilla, M. (2009). "Marine Ecoregions of North America." Retrieved September 18, 2023, from http://www.cec.org/files/documents/publications/3256-marine-ecoregions-north-america-en.pdf.

Williams, M.J.P., Gisclair, B.R., Cerny-Chipman, E., LeVine, M. and Peterson, T. (2021). "The heat is on: Gulf of Alaska Pacific cod and climate-ready fisheries." ICES Journal of Marine Science **79**(2): 573–583.

Winship, A.J., Kinlan, B.P., White, T.P., Leirness, J.B. and Christensen, J. (2018). Modeling at-sea density of marine birds to support Atlantic renewable energy planning, final report. Sterling (VA), U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs**:** 81.

Winship, A.J., Leirness, J.B., Coyne, M., Coyne, M., Howell, J., Saba, V.S. and Christensen, J. (2023). Modeling the distributions of marine birds at sea to inform planning of energy development on the US Atlantic Outer Continental Shelf. Sterling (VA), U.S. Department of the Interior, Bureau of Ocean Energy Management**:** 434.

Woods Hole Oceanographic Institution. (2025). "Forecasting HABs in the Gulf of Maine." Retrieved 2025 Jul 9, from https://northeasthab.whoi.edu/habs/forecasting/.

Wright-Fairbanks, E.K. and Saba, G.K. (2022). "Quantification of the dominant drivers of acidification in the coastal Mid-Atlantic Bight." Journal of Geophysical Research: Oceans **127**(11): e2022JC018833.

Wright, B. (2022). "Delfin LNG Expects Investment Decision on Floating LNG Project this Year: The Export Project in the US Gulf of Mexico could Handle Up to 13 MPTA of Liquified Natural Gas." Journal of Petroleum Technology. Retrieved from https://jpt.spe.org/delfin-lng-expects-investment-decision-on-floating-lng-project-this-year.

Xiu, P., Chai, F., Curchitser, E.N. and Castruccio, F.S. (2018). "Future changes in coastal upwelling ecosystems with global warming: the case of the California Current System." Scientific Reports **8**(1): 2866.

Yarbro, L.A. and Carlson Jr., P.R. (2016). Seagrass integrated mapping and monitoring program mapping and monitoring report no. 2. St. Petersburg (FL), State of Florida, Fish and Wildlife Research Institute, Fish and Wildlife Conservation Commission**:** 294.

Yeung, C. and Yang, M.-S. (2025). "Macroinfauna Communities on the Bering Sea Continental Shelf."

Yonkos, L.T., Friedel, E.A., C., P.-R.A., Ghosal, S. and D., A.C. (2014). "Microplastics in Four Estuarine Rivers in the Chesapeake Bay, U.S.A." Environmental Science & Technology **48**(24): 14195–14202.

Zang, Z., Ji, R., Feng, Z., Chen, C., Li, S. and Davis, C. (2021). "Spatially varying phytoplankton seasonality on the Northwest Atlantic Shelf: a model-based assessment of patterns, drivers, and implications." ICES Journal of Marine Science **78**(5): 1920–1934.

Zengel, S., Weaver, J., Mendelssohn, I.A., Graham, S.A., Lin, Q., Hester, M.W., Willis, J.M., Silliman, B.R., Fleeger, J.W., McClenachan, G., Rabalais, N.N., Turner, R.E., Hughes, A.R., Cebrian, J., Deis, D.R., Rutherford, N. and Roberts, B.J. (2002). "Meta-Analysis of Salt March Vegetation Impacts and Recovery: A Synthesis Following the Deepwater Horizon Oil Spill." Ecological Applications **32**(1).

Zhang, Y., Hu, C., McGillicuddy, D.J., Barnes, B.B., Liu, Y., Kourafalou, V.H., Zhang, S. and Hernandez, F.J. (2024). "Pelagic Sargassum in the Gulf of Mexico driven by ocean currents and eddies." Harmful Algae **132**: 102566.

Zimmerman, R.A. and Biggs, D.C. (1999). "Patterns of distribution of sound-scattering zooplankton in warm- and cold-core eddies in the Gulf of Mexico, from a narrowband acoustic Doppler current profiler survey." Journal of Geophysical Research: Oceans **104**(C3): 5251–5262.

Zinnert, J.C., Stallins, J.A., Brantley, S.T. and Young, D.R. (2017). "Crossing scales: the complexity of barrier-island processes for predicting future change." BioScience **67**(1): 39–52.

Zinnert, J.C., Via, S.M., Nettleton, B.P., Tuley, P.A., Moore, L.J. and Stallins, J.A. (2019). "Connectivity in coastal systems: barrier island vegetation influences upland migration in a changing climate." Global Change Biology **25**(7): 2419–2430.

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To manage development of U.S. Outer Continental Shelf (OCS) energy, mineral, and geological resources in an environmentally and economically responsible way.