United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Memorandum

To: Elizabeth Klein
Director

From: David Diamond
Acting Chief, Office of Renewable Energy

DAVID DIAMOND Digitally signed by DAVID DIAMOND Date: 2023.07.28 15:04:18 -04'00'

Subject: Central Atlantic Area Identification Pursuant to 30 C.F.R. § 585.211(b)

I. Purpose

The purpose of this memorandum is to document the analysis and rationale used to develop recommendations for three Final Wind Energy Areas (WEAs) in the Central Atlantic offshore the States of Delaware, Maryland, and the Commonwealth of Virginia. The Bureau of Ocean Energy Management (BOEM) Office of Renewable Energy Programs is requesting concurrence from the BOEM Director on the recommended Final WEAs.

II. Development of the Final WEAs Recommendation

On November 16, 2022, BOEM published on Regulations.gov for public comment the analysis and rationale used to develop recommendations for Draft WEAs. The detailed analysis and the rationale for the Draft WEAs are documented in the Development of the Central Atlantic Wind Energy Areas, which can be found at https://www.boem.gov/central-atlantic.

During the 30-day Draft WEA comment period, BOEM held four engagement meetings to gather feedback from federally recognized Tribes, Federal, State and local governments, nongovernmental organizations, fishery and maritime industries, wind developers, and the public at large. The comment period closed on December 16, 2022, and BOEM received 67 comments on the Draft WEAs. BOEM reviewed the comments, and through a partnership with NOAA's National Centers for Coastal Ocean Science (NCCOS), new data were incorporated into the Central Atlantic spatial model to inform the Final WEA recommendation. A summary of the major comments received on the Draft WEAs is located in **Appendix A.** The detailed analysis and the rationale for the Final WEA recommendation is documented in the Final WEA Report, "A Wind Energy Area Siting Analysis for the Central Atlantic Call Area," which is located in **Appendix B** of this document.

A. Major Differences Between the Draft and Final WEAs

BOEM recommends several changes to the Draft WEAs that resulted from new information becoming available and comments received on the Draft WEAs. These changes resulted in additional removal of areas due to spatial incompatibility with wind energy (constrained or constraint) or modifications within the suitability submodels (weighting). BOEM made the following changes to the size of the WEAs based on recommendations received. For a more complete description of changes after the publication of the Draft WEAs, please refer to the Final WEA Report.

1. Department of Defense (DoD) Activities

DoD is committed to supporting national offshore wind energy goals, and BOEM works closely with DoD to identify areas that avoid or minimize impacts to national defense. National defense activities conducted on the outer continental shelf are most typically at-sea military testing, training, and operations using the airspace, sea surface, and undersea space. As a part of BOEM's ongoing coordination with DoD, the Military Aviation and Installation Assurance Siting Clearinghouse (Clearinghouse) coordinated review of the Central Atlantic Call Areas. NCCOS incorporated the DoD Assessment into the Constraints and National Security submodels of the Central Atlantic spatial model.

a. The U.S. Air Force provided the Clearinghouse with an assessment on February 17, 2023. Therein, the Air Force divided the Central Atlantic Call Area into six priority categories to display the general severity of potential impacts to missions presented by offshore wind turbine development (Figure 1). These impacts range from severe (Priority 1) to no impact (Priority 6). The U.S. Air Force considered Priority 1, 2 and 3 areas to contain constraints such that they are appropriate for removal from consideration as Final Wind Energy Areas (WEAs). Priority Areas 4, 5 and 6 were weighted and added to the National Security Submodel. as described in the Final WEA report.

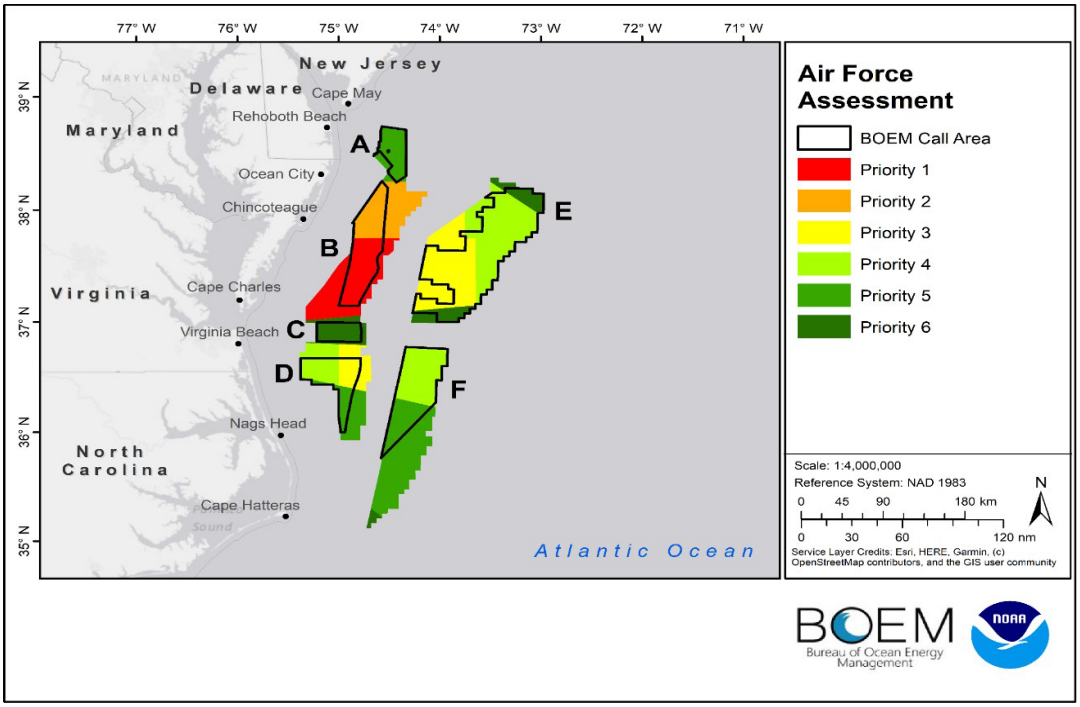


Figure 1: U.S. Air Force Assessment on Central Atlantic Call Areas

After additional consultation with the Clearinghouse on the suitability in Call Area B, BOEM and the Department of the Air Force (DAF) agreed to undertake an in-depth review of a subsection in the northern portion of Call Area B that the DAF designated as having Priority 2-level severity of impact (Figure 2). The purpose of this review is to determine if the impacts to military operations could be accepted or mitigated if the development in Call Area B is restricted to this subsection. This subsection was weighted 0.5 denoting uncertainty in the National Security Submodel in order to determine if suitable area for wind development could exist should the area be cleared by DAF. The results of this additional model run identified suitable area within subsection B which has been named B-1 (Figure 9). The DAF will complete a final in-depth review of B-1 which will be used to inform whether or not any area within B-1 should be proposed as a lease area in any future proposed sale notice. If the area is proposed for leasing, necessary mitigation would be identified in the sale notice(s) to inform bidders in advance of a future lease sale.

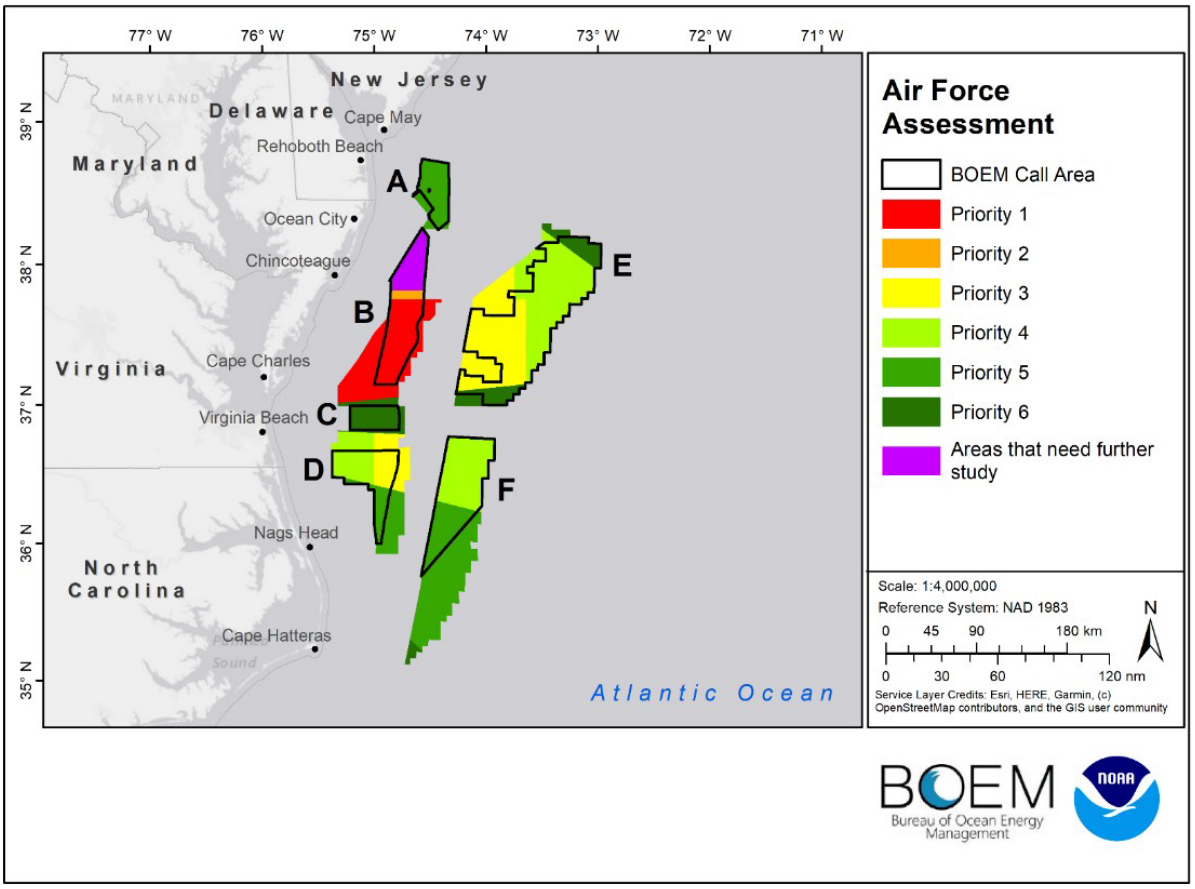


Figure 2: Adjusted DAF Assessment on Central Atlantic Call Areas

b. The U.S. Navy provided the Clearinghouse with a draft assessment on February 10, 2023. This assessment evaluated risk to national defense missions and prioritized the locations where potential conflicts will generate the greatest risk to national security due to the magnitude of impacts and the inability to feasibly or affordably mitigate them (Figure 3). The U.S. Navy assessment grouped the level of impact into the following categories:

- Priority 1: Extreme risk to Naval Testing, Training and Readiness. Development in these locations will conflict with current and future Navy requirements, and generate the greatest consequences to the Navy, to possibly include mission failure. Affected activities include those that must take place near fixed shore infrastructure, and intense operations that are hazardous to non-participants. Replicating capabilities or mitigating the impacts on missions is not considered feasible.
- Priority 2: Major risk to Naval Testing, Training and Readiness. Development will conflict with current and future Navy requirements and diminish the capacity of the area to support critical capabilities. Mitigating impacts is not considered feasible without negative consequences to at-sea military readiness activities.
- Priority 3: Modest risk to Naval Testing, Training and Readiness. Development will conflict with current and future Navy requirements,

and impact future flexibility for large scale test and training activities.

The Navy separately identified Call Areas A and C as areas with the potential to conflict with Navy at-sea activities. However, the Navy anticipates an ability to acceptably mitigate mission impacts in these areas through the inclusion of stipulations in the lease sale.

The Navy considers areas identified as Priority 1 and 2 to be currently unsuitable for wind energy development and, thus, BOEM removed them from further consideration (Figure 3). The areas removed as constraints included the entirety of Call Areas B and D as well as portions in E and F.

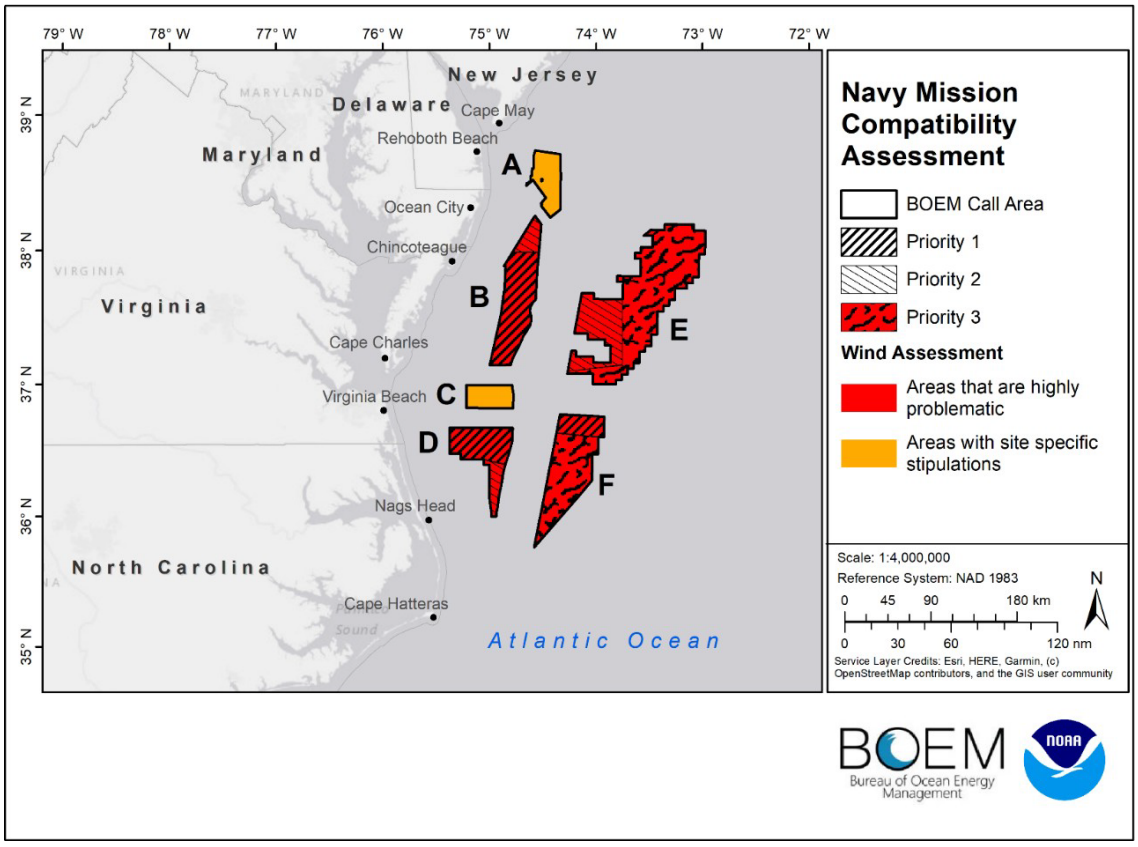


Figure 3: U.S. Navy Assessment on Central Atlantic Call Areas

Following DoD and Department of Navy (DON) commitment to evaluate the compatibility of the subset of Call Area B *(*Figure 4), this subsection was weighted 0.5 denoting uncertainty in the National Security Submodel in order to determine if suitable area for wind development could exist should the area be cleared by DON. The results of this additional model run identified suitable area within subsection B which has been named B-1 (Figure 9). The DON will complete a final in-depth review of B-1 which will be used to inform whether or not any area within B-1 should be proposed as a lease area in any future proposed sale notices. If the area is proposed for leasing, necessary mitigation would be identified in the sale notice(s) to inform bidders in advance of a future

lease sale.

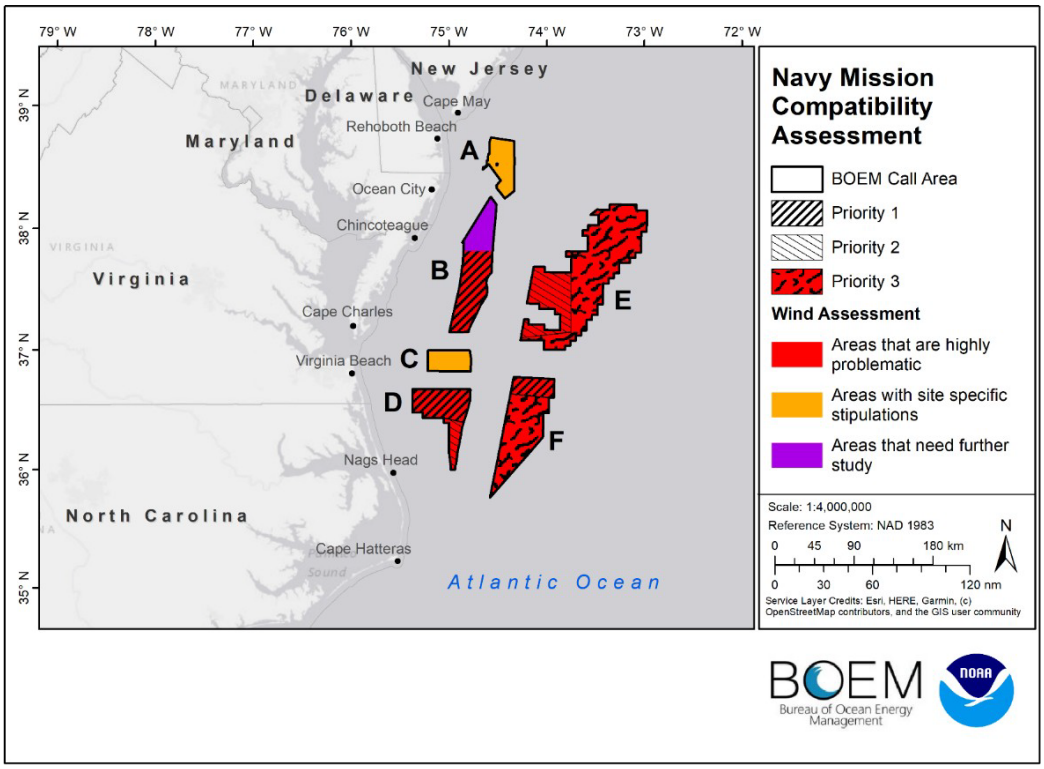


Figure 4: Adjusted DON Assessment on Central Atlantic Call Areas

2. NASA Mission Compatibility Assessment

The National Aeronautics and Space Administration (NASA) provided a mission compatibility assessment. Red areas were determined to be incompatible with wind energy development. These areas were assigned a score of 0 and moved to the constraints submodel. After additional consultation with NASA, the red area on the map below was modified to remove overlap with the northern portion of Call Area B and subsequently added to the National Security Submodel with a weighted score of 0.5; an in-depth assessment is being conducted by NASA on this area to determine if existing and future activities could co-exist with wind energy development, with appropriate mitigation. Yellow areas within NASA's Hazard Area were assigned a score of 0.5 (Figure 5). The results of the final in-depth NASA assessment will be used to inform whether the northern portion of Area B should be proposed as a lease area in any future proposed sale notice. If the area is proposed for leasing, necessary mitigation would be identified in the sale notice(s) to inform bidders in advance of a future lease sale.

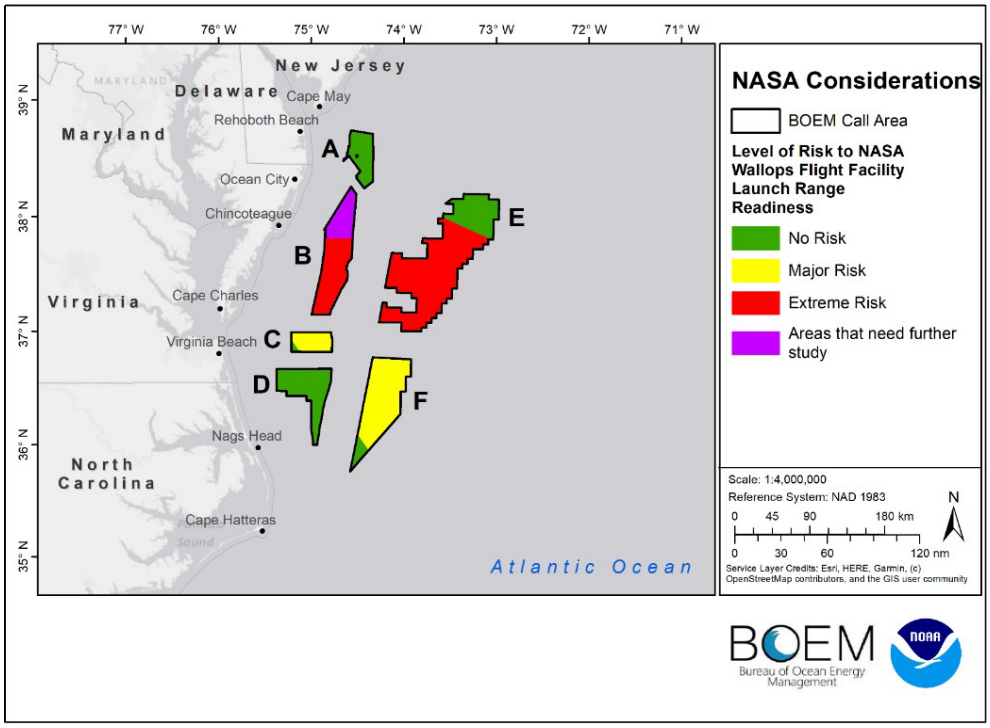


Figure 5: Adjusted NASA Assessment on Central Atlantic Call Areas

3. Navigation

BOEM incorporated the U.S. Coast Guard (USCG) Consolidated Port Approaches Port Access Route Studies, which was published on September 9, 2022, (CPAPARS) as a constraint in the NCCOS spatial model, because the USCG's safety fairways, once finalized, would prohibit the presence of surface structures. This data layer was updated to include USCG's modifications to proposed shipping safety fairways published on March 10, 2023 (Figure 6). The March 2023 proposed modifications reduced the amount of the area removed from consideration (constraints) within Call Area A and the northern portion of Call Area B. As the proposed safety fairways have not been finalized, BOEM will continue coordinating with USCG throughout both agencies' processes, including during any future development of any proposed lease areas.

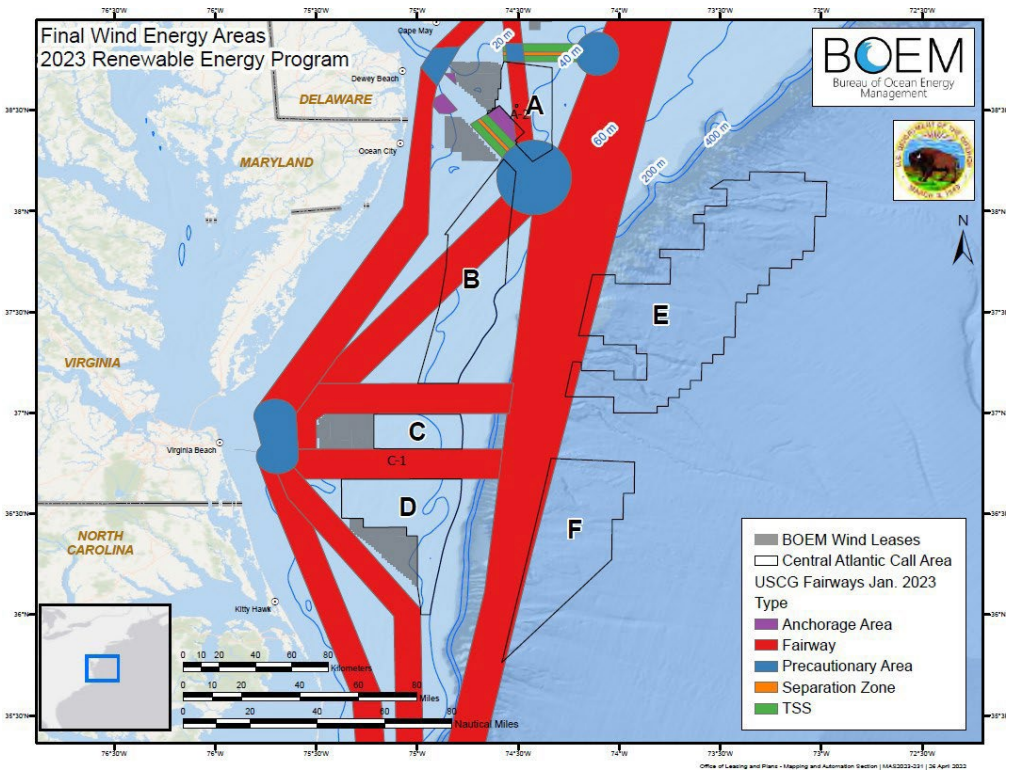


Figure 6: USCG modified PARS

4. *Deep Sea Corals*

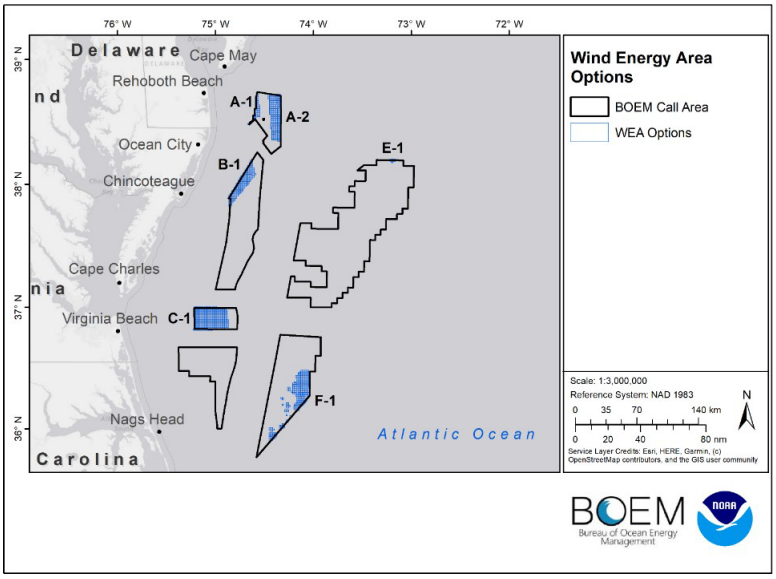
Deep sea corals provide habitat for diverse ecologically and economically important marine species within the Atlantic Ocean and beyond. In the mid-Atlantic, the National Marine Fisheries Service (NMFS) designated the Frank R. Lautenberg Deep Sea Coral Protection Area across over 40,000 square miles of seafloor, including canyon heads and canyons offshore of the shelf break. Deep sea corals have been observed or are expected to occur (modeled suitable habitat) within and adjacent to the deepwater draft WEAs (Areas E and F). BOEM removed from consideration observed coral locations with a 1,000 m buffer; canyon heads were also removed as they are considered highly suitable for deep sea coral habitat. The broader Frank R. Lautenberg Deep Sea Coral Protection Area was not removed. Instead, BOEM incorporated the modeled coral and hard bottom habitat as a combined habitat layer provided by NMFS within the natural resources submodel in the suitability model. Thus, the probability of coral occurrence in the deepwater WEAs was weighted based on the intensity of their potential occurrence (Z-membership function). After publishing the draft WEAs, the joint BOEM and NCCOS modeling team discovered that the weighting of the coral and hardbottom sublayer in the model did not accurately reflect NMFS' recommendations. The coral and hardbottom sublayer was rescaled for the Final WEAs model run resulting in slightly less wind energy suitability in the western extent of Area E.

5. *Blue Water Fishermen's Association Exclusion Area*

Following the publication of the draft WEAs, the Blue Water Fishermen's Association (BWFA) contacted BOEM to review pelagic longline (PLL) fishing activities along the shelf break. Through BOEM's partnership with NCCOS, BOEM was able to provide BWFA with Vessel Monitoring System (VMS) transit data specific to PLL activities (from 2012-2022) within the Central Atlantic broad planning area. The PLL activities overlap with 62 aliquots, or aliquot parts, in the Call Area, totaling 22,068 acres along the northwestern region of draft WEA E-1. The PLL community explained that their operations occur in the dynamic oceanographic conditions along the shelf break and deepwater areas near E-1. PLL fisheries data (VMS; 2012-2022) provided by NOAA showed an overlap with the western reaches of Area E. In discussions with the BWFA, they indicated a need for more space for their gear, which can be miles long when fully deployed. The proximity of PLL gear to floating offshore wind platforms and mooring lines poses an entanglement risk. The BWFA submitted a formal comment (December 16, 2022) during the draft WEA open comment period requesting the removal of those aliquots that overlap with PLL fishing activities. The Final WEA model reflects the removal of those aliquots recommended by the BWFA.

B. Final WEA Recommendations

After carefully considering all received comments and additional data, NCCOS provided BOEM with six Final WEA Options (Figure 7). Two of these, A-1 and E-1, are currently not considered viable based on the small number of suitable acres available for development combined with the likely wake effects and needed setbacks from an existing lease for A-1. BOEM continued analyzing the four remaining Final WEA options for consideration.



Option	*Acres*
A-1	*19,570*
A-2	*101,767*
B-1	*78,285*
C-1	*143,755*
E-1	*3,202*
F-1	***101,411***

Figure 7: Final Wind Energy Area Options at 95% confidence interval

1. *Characterization of Option A-2*

Option A-2 encompasses 101,767 acres and is approximately 26.4 nautical miles (nm) from Delaware Bay (Figure 8). The mean depth of A-2 is 37 m and it has a capacity of 1.2-2.3 GW.[1] Remaining conflicts in A-2 include surf clam and scallop fishing areas, and sand ridge trough complexes. BOEM recommends adopting option A-2 as a Final WEA.

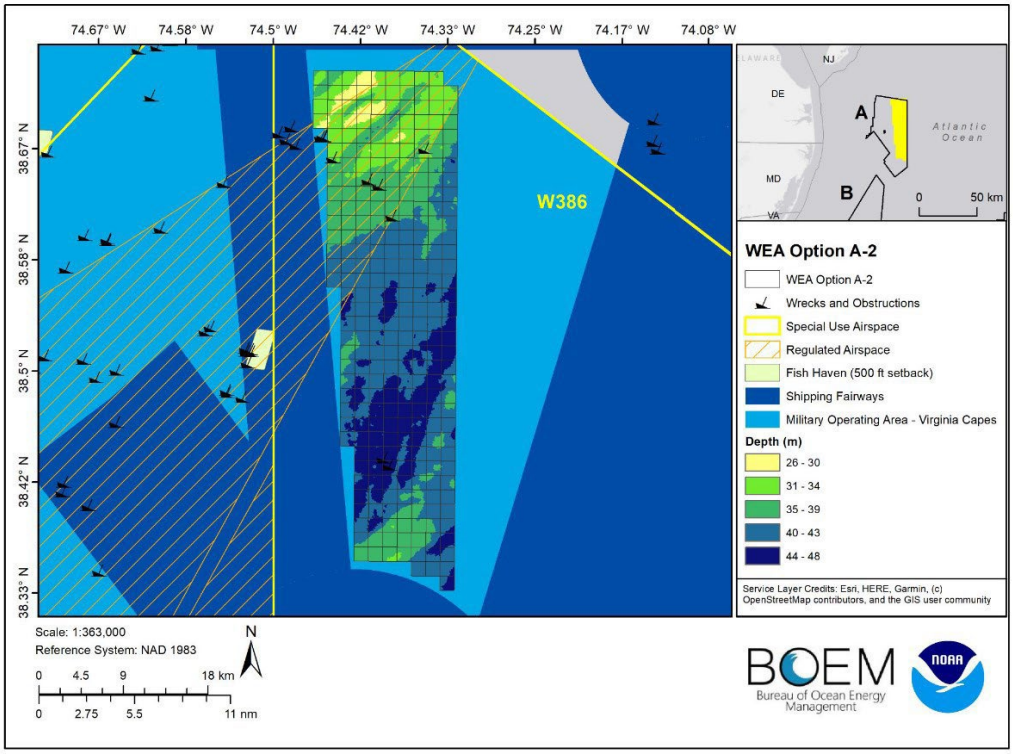


Figure 8: Final Wind Energy Area Option A-2

2. *Characterization of Option B-1*

Option B-1 is located in the northwest portion of Call Area B (Figure 9). The 78,285-acre site is located approximately 24.5 nm offshore Assateague Island, 56 nm southeast of the Delaware Bay inlet, and 23.5 nm offshore Ocean City, MD. The mean depth of B-1 is 32 m, with a maximum depth of 42 m and a minimum of 22 m; estimated capacity ranges from 0.9 - 1.8 GW. Remaining conflicts include fishing activities, fisheries surveys, vessel traffic, and additional assessment by the DoD Clearinghouse and NASA. BOEM recommends adopting option B-1 as a Final WEA.

[1] Capacity estimated using National Renewable Energy Laboratory's 3 megawatts per square kilometer (0.01214058 MW/acre) (low estimate) and the Coastal Virginia Offshore Wind Commercial Project, lease OCS A-0483, proposed facility of 2,587 MW within 112,799 acres (0.02293460 MW/acre) (high estimate).

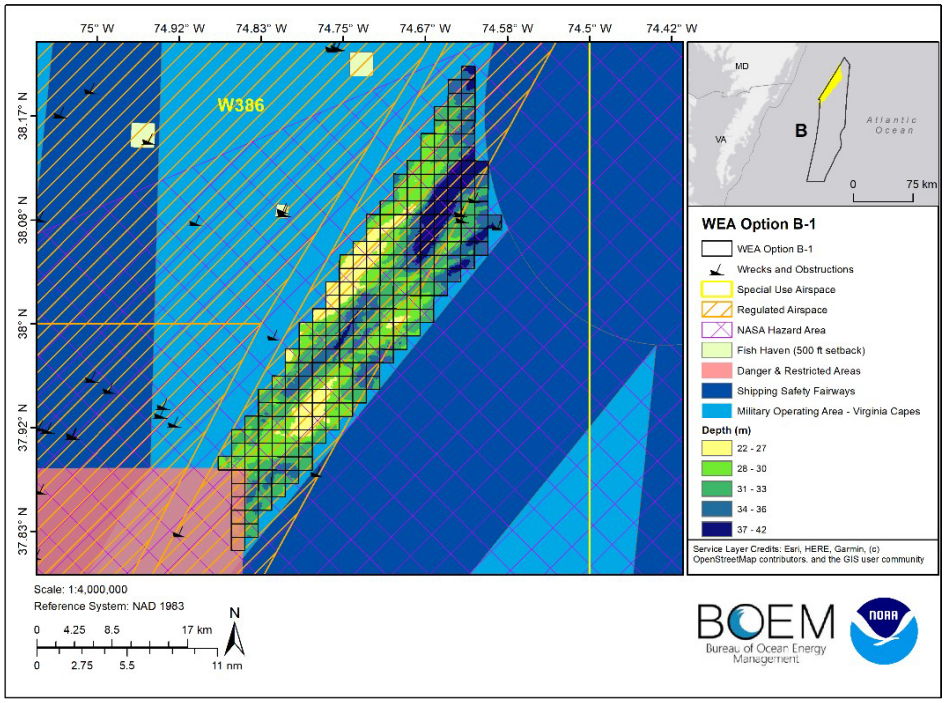


Figure 9: Final Wind Energy Area Option B-1

3. *Characterization of Option C-1*

Option C-1 encompasses 143,755 acres and is approximately 35 nm from Chesapeake Bay (Figure 10). The mean depth of C-1 is 36.5 m. BOEM recommends expanding C-1 to the east to contain all of the area identified as draft WEA C (Figure 11). The expanded C-1 WEA encompasses 176,506 acres and would support approximately 2.1 – 4.0 GW of energy production if fully developed. Due to the proposed USCG shipping and safety fairway nearby, it is expected that the vessel traffic will shift from draft WEA C into this fairway, which will aid in deconflicting the expanded eastern portion (Figure 12). Remaining conflicts include a NMFS recommended 20 km conservation setback along the 100 m contour on the shelf break, NMFS independent fisheries surveys, and an area in the center of WEA C-1 that has recently experienced increased fishing effort. BOEM recommends adopting option C-1 as a Final WEA.

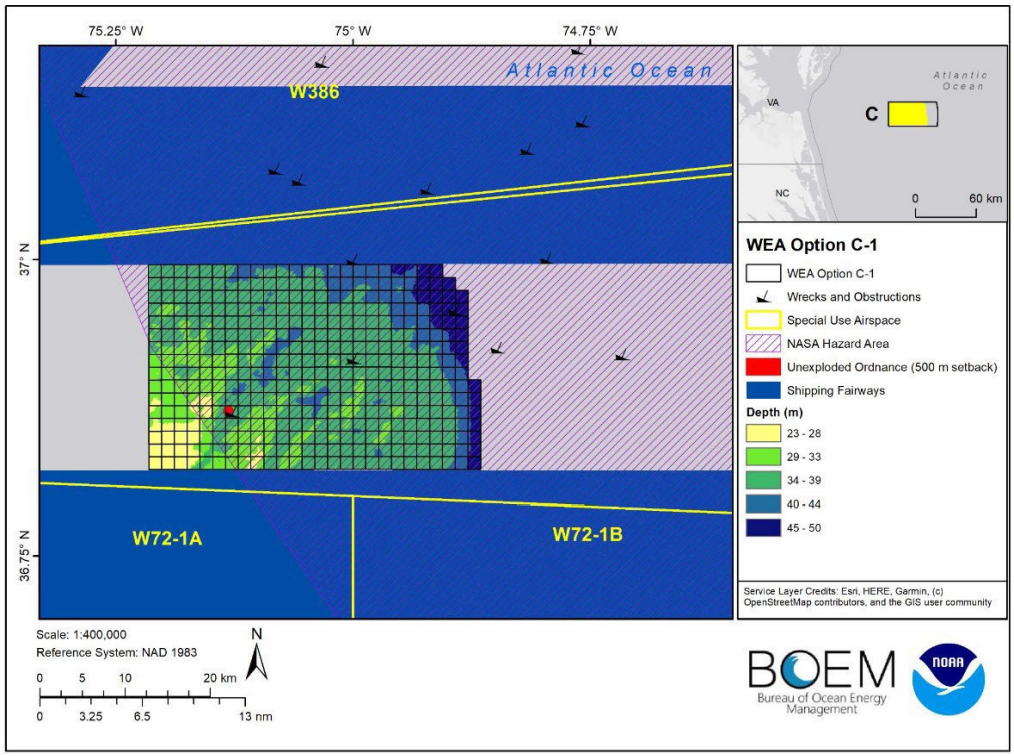


Figure 10: Final Wind Energy Area Option C-1

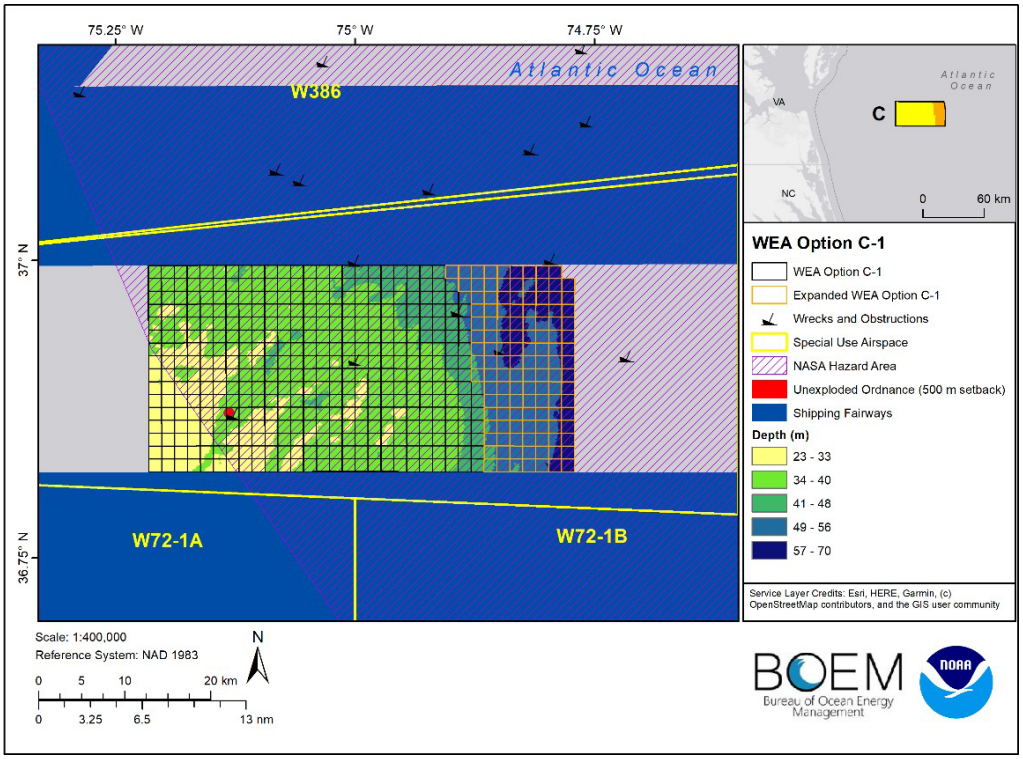


Figure 11: Final Wind Energy Area Option C-1 Expanded

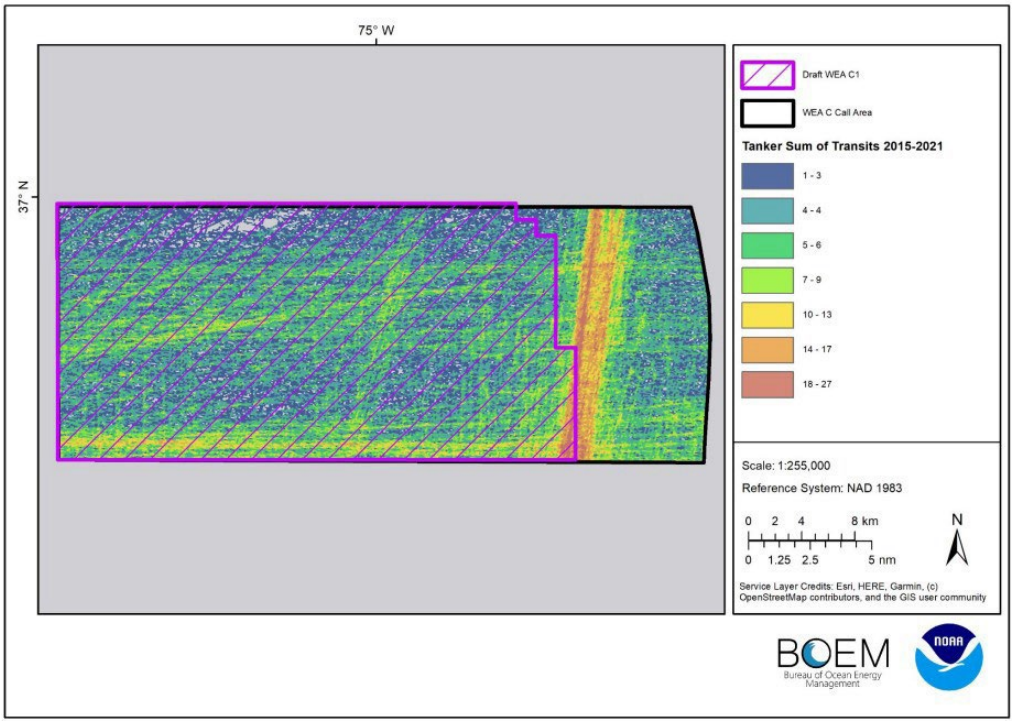


Figure 12: Tanker Sum of transits (2015-2021) in expanded Option C

4. Characterization of Option F-1

Option F-1 encompasses 101,767 acres and is approximately 90 nm from Chesapeake Bay (Figure 13). The mean depth of F-1 is 2,437 m. and it is considered a deepwater Call Area.

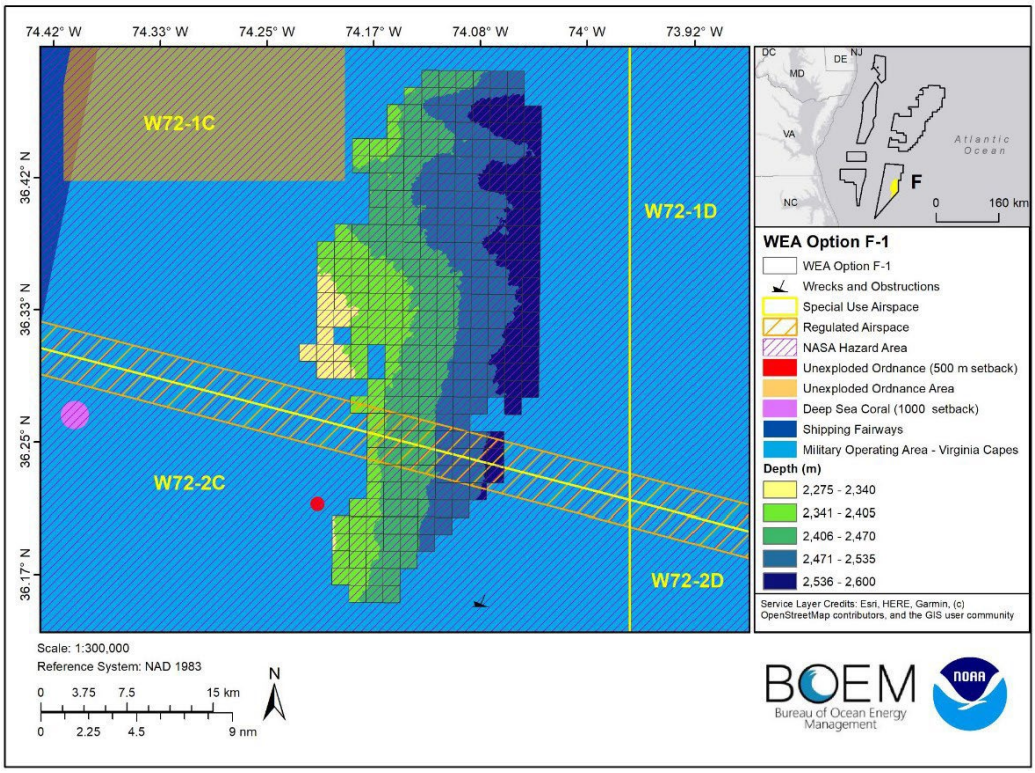


Figure 13: Final Wind Energy Area Option F-1

BOEM is recommending deferring WEA identification within the entirety of the deepwater Call Areas until further study can be completed. Feedback received, or lack thereof, indicates questions remain on the near-term technological and cost viability of floating wind facilities in ultra-deepwaters beyond 1,300 m and at significant distance from shore. In addition, several identified constraints and other information received related to suitability of these areas require further investigation to allow for a more informed determination. Some of these issues include acquiring more information and study of the DoD and NASA compatibility assessments, and data on deep sea coral locations and habitat. Deferring a WEA determination at this time would preserve the entirety of Areas E and F as Call Areas.

III. Conclusion

As a result of the comments received and as discussed above, BOEM has made several revisions to the Draft WEAs. BOEM recommends moving forward with Options A-2, B-1, and the expanded C-1 area as the Final Wind Energy Areas for the Central Atlantic (Figure 14).

The final WEAs total 356,558 acres and would support approximately 4.3 – 8.1 GW of energy production if fully developed. The final WEAs represent approximately 9.1% of the 3,897,388 acre Call Area.

While not all potential conflicts could be avoided in the final WEAs, if the areas were to move forward in the leasing process, additional public comment through

a proposed sale notice will help to inform final lease area boundaries and possible lease stipulations to further mitigate potential impacts from wind energy development.

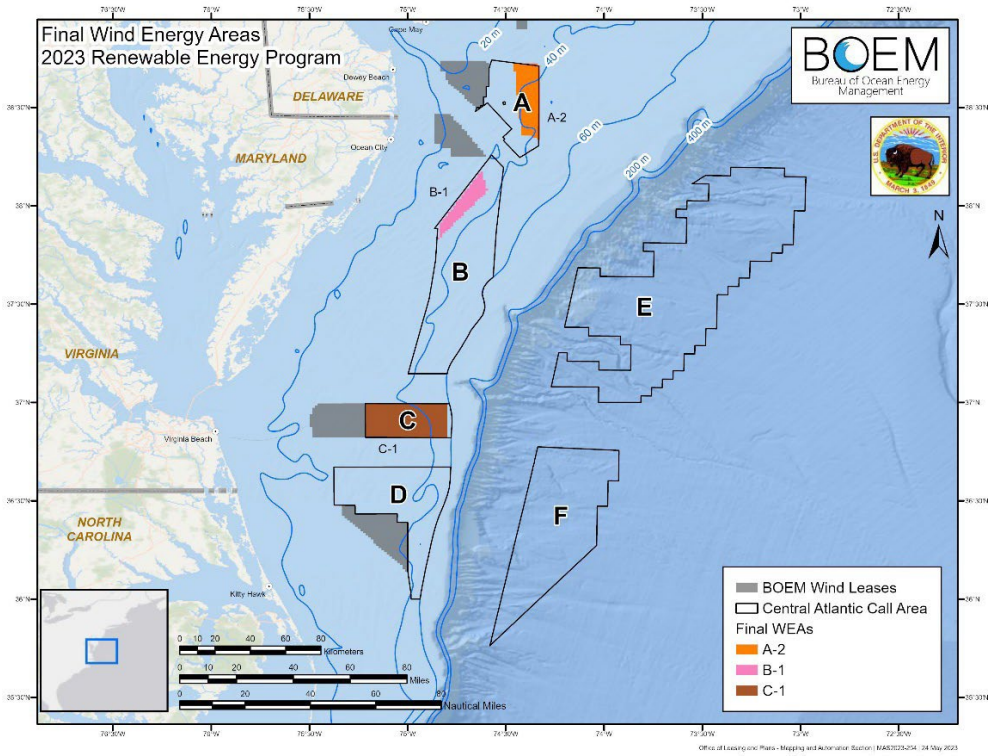


Figure 14: Final Wind Energy Area Recommendations

FOR FURTHER INFORMATION CONTACT: Bridgette Duplantis, Project Coordinator, Office of Leasing and Plans, Leasing and Financial Responsibility Section, 1201 Elmwood Park Boulevard, New Orleans, Louisiana 70123, Bridgette.Duplantis@boem.gov.

IV. Director Concurrence

☒ Yes

☐ No

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Elizabeth Klein
Director, Bureau of Ocean Energy Management