United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Ventura Fish and Wildlife Office
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IN REPLY REFER TO:
2025-0129931-S7-001

August 29, 2025

Memorandum

To: Susan Zaleski, Acting Regional Supervisor, Bureau of Ocean Energy Management, Camarillo, California

From: Catherine Darst, Field Supervisor, Ventura Fish and Wildlife Office, U.S. Fish and Wildlife Service, Ventura, California CATHERINE DARST Digitally signed by CATHERINE DARST Date: 2025.08.29 09:22:35 -07'00'

Subject: Biological Opinion on Existing Outer Continental Shelf Oil and Gas Development and Production Activities in the Southern California Planning Area, San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties, California

Dear Susan Zaleski:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Bureau of Ocean Energy Management's (BOEM) and the Bureau of Safety and Environmental Enforcement's (BSEE) proposed authorizations of activities associated with the continued development and production of oil and gas reserves within the Southern California Planning Area and these proposed authorizations' effects on the federally endangered California least tern (*Sterna antillarum browni*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), salt marsh bird's-beak (*Cordylanthus maritimum maritimum*), and tidewater goby (*Eucyclogobius newberryi*); the federally threatened western snowy plover (*Charadrius nivosus nivosus*), marbled murrelet (*Brachyramphus marmoratus*) and southern sea otter (*Enhydra lutris nereis*); and designated critical habitat of the western snowy plover and tidewater goby in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.). The Southern California Planning Area extends from the northern boundary of San Luis Obispo County south to the Mexican border and includes waters 3 to 200 miles offshore.

We have based this biological opinion on information that accompanied your July 16, 2025, request for consultation, including the biological assessment (BOEM 2025), and information in our files. These documents, and others relating to the consultation, are located at the Ventura Fish and Wildlife Office.

Not Likely to Adversely Affect Determination

A full description of the proposed federal action which this biological opinion considers is included below in the Description of the Proposed Action section; briefly summarized, BOEM

and BSEE propose to authorize continued development and production of offshore oil and gas reserves on the outer continental shelf of the Pacific Coast within the Southern California Planning Area for a period of 20 years.

Your request for consultation also included the determination that the proposed action may affect but is not likely to adversely affect the federally endangered short-tailed albatross (*Phoebastria albatrus*), Hawaiian petrel (*Pterodroma sandwichensis*), and the federally threatened California red-legged frog (*Rana draytonii*) and its designated critical habitat.

Short-Tailed Albatross

You have requested our concurrence with your determination that the proposed authorizations may affect, but are not likely to adversely affect the endangered short-tailed albatross. The short-tailed albatross occurs within coastal areas near the Southern California Planning Area but are not expected to be present in the action area with any regularity. Of all of the project activities, only the potential for oil spills might affect the short-tailed albatross. As discussed below, you have requested that we analyze the effects on listed species of oil spills of a size between 50 and 1,000 barrels of oil that are reasonably certain to occur sometime over the 20-year approval period during the day-to-day oil production and development. The rarity of short-tailed albatross in the action area means that they would almost certainly not be present when a 50 to 1,000 barrel spill occurs (itself a rarity); therefore we concur with BOEM's determination that the proposed authorizations may affect, but are not likely to adversely affect the short-tailed albatross because the chance that spills that are reasonably certain to occur from day-to-day oil production and development activities are likely to contact short-tailed albatross is discountable.

Hawaiian Petrel

You have requested our concurrence with your determination that the proposed authorizations may affect, but are not likely to adversely affect the endangered Hawaiian petrel. Like short-tailed albatross, the Hawaiian petrel occurs within coastal areas near the Southern California Planning Area, but are not expected to be present in the action area with any regularity. Of all of the project activities, only the potential for oil spills might affect the Hawaiian petrel. The rarity of Hawaiian petrel in the action area means that they would almost certainly not be present when a 50 to 1,000 barrel spill occurs (itself a rarity); therefore we concur with BOEM's determination that the proposed authorizations may affect, but are not likely to adversely affect the Hawaiian petrel because the chance that spills that are reasonably certain to occur from day-to-day oil production and development activities are likely to contact Hawaiian petrel is discountable.

California Red-Legged Frog

You have requested our concurrence with your determination that the proposed authorizations may affect, but are not likely to adversely affect the threatened California red-legged frog. The California red-legged frog occurs within coastal areas near the Southern California Planning

Area, particularly in creeks upstream of lagoons and estuaries such as San Antonio Creek and Arroyo Grande Creek. Of all of the project activities, only the potential for oil spills might affect the California red-legged frog. You have requested that we analyze the effects on listed species of oil spills of a size between 50 and 1,000 barrels of oil that are reasonably certain to occur sometime over the 20-year approval period during the day-to-day oil production and development. Oil spill trajectory models presented in the biological assessment indicate that such spills may contact coastal areas inhabited by the California red-legged frog. These oil spill trajectory models are based on wind and current projections and do not incorporate any changes to volume, trajectory and fate of oil from spill response measures and are thus conservative estimates. California red-legged frogs do not inhabit brackish waters within lagoons and estuaries most likely to contact spilled oil, and we do not expect California red-legged frogs would be exposed to oil from spills associated with this authorization. Therefore, we concur with BOEM's determination that the proposed authorizations may affect, but are not likely to adversely affect the California red-legged frog because spills that are reasonably certain to occur from day-to-day oil production and development activities are unlikely to contact the California red-legged frog or its habitats.

Critical Habitat of the California Red-Legged Frog

You have requested our concurrence with your determination that the proposed authorizations may affect, but are not likely to adversely affect designated critical habitat of the California red-legged frog. Multiple units of designated critical habitat of the California red-legged frog are present within coastal areas adjacent to the Southern California Planning Area, ranging from Unit SLO-2 near Cambria to Unit STB-6 near Gaviota. These critical habitat units contain all four Physical or Biological Features (PBFs) essential to the survival and recovery of the California red-legged frog, as defined by Service (75 FR 12816). Oil spills that are reasonably certain to occur during the day-to-day oil production and development activities considered in this biological opinion may contact coastal portions of these critical habitat units. Oil spill trajectory models presented in the biological assessment indicate that such spills may contact coastal portions of these critical habitat units. These oil spill trajectory models are based on wind and current projections and do not incorporate any changes to the volume, trajectory and fate of oil from spill response measures and are thus conservative estimatesIt is unlikely that spills that are reasonably certain to occur during the day-to-day oil production and development activities would have sufficient volume to contact upstream habitats containing PBFs of critical habitat for the species (aquatic non-breeding and aquatic breeding habitat, respectively). Accordingly, it is unlikely that these spills would either reduce the availability of any PBFs or impair the function of critical habitat units for the survival and recovery of the California red-legged frog. Therefore, we concur with BOEM's determination that the proposed authorizations may affect, but are not likely to adversely affect California red-legged frog designated critical habitat because spills that are reasonably certain to occur during the day-to-day oil production and development activities are unlikely to affect the availability of the PBFs or the conservation function of critical habitat units.

Consultation History

On March 28, 2017, we received a letter from BOEM dated March 27, 2017, requesting programmatic consultation on BOEM's proposed authorizations for ongoing oil production and development activities. This letter also contained a biological assessment for BOEM's proposed authorizations dated March 2017. As detailed below, the letter specifically requested consultation on BOEM's proposed authorizations for four categories of ongoing activities and indicated that BOEM would seek individual consultation on authorizations for three additional categories of ongoing activities. We coordinated with the Carlsbad Fish and Wildlife Office to review the programmatic consultation request and requested additional information from BOEM in a letter on July 28, 2017. BOEM submitted a new biological assessment, revised from the March 2017 biological assessment to the Service on April 8, 2019. In response to Service comments on the April 2019 biological assessment, BOEM then submitted a further revision to the biological assessment to the Service on December 5, 2019 (BOEM 2019). We subsequently requested additional information from BOEM to initiate consultation and received the requested information on July 1, 2020. We submitted a draft biological opinion to BOEM on June 1, 2021. On May 20, 2025 BOEM submitted a new draft biological assessment to the Service requesting programmatic consultation, and on July 16, 2025 we received a final biological assessment and initiated consultation on the same day. We refer to this July 2025 revision as the project's biological assessment for this consultation and make no further reference to these previous versions of the biological assessment.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

BOEM describes the proposed activities in detail in the project's biological assessment (BOEM 2025). The Southern California Planning Area contains 30 active leases, 14 of which are producing, with 23 platforms, 400 or fewer wells at any given time, and 208 miles of pipelines that produce and transport oil and gas to shore. Within the Southern California Planning Area, oil production peaked at more than 200,000 barrels of oil (bbl) per day in 1996, but production has declined gradually over time. Due to various operations issues such as a pipeline rupture, the production has since diminished to just over 7,000 bbl per day (as of June 2023). Once operational issues are resolved, the daily production is expected to rebound to no more than 50,000 bbl per day, but will continue to diminish through time. Similarly, gas production within the Southern California Planning Area peaked at 77 million cubic feet per day and has declined to a temporary rate of 6,712 million cubic feet per day during 2022. Overall, oil and gas production in the Southern Pacific Planning Area is expected to continue to decline gradually over time. Approximately 260 million bbl and 540 billion cubic feet of natural gas are estimated to remain in oil and gas fields within reach of existing platforms in the Southern California Planning Area.

BOEM and BSEE would authorize a wide series of activities involved with continued development and production of offshore oil and gas reserves. However, BOEM has requested programmatic consultation on only a few specific ongoing activities, as well as future approvals of these same activities: (1) approval of oil and gas development and production plans and plan revisions, including day-to-day production and development activities including: discharges and emissions, support vessel and aircraft activity, well conductor removal, pipeline repair and replacement, and cable repair and replacement (2) approval of applications for permits to drill and permits to modify, (3) BSEE inspection flights of facilities using helicopters, and (4) BSEE-initiated oil spill response equipment exercises. For any activities beyond the four above activities considered in this biological opinion, BOEM would evaluate effects on listed species and initiate separate consultations with the Service as necessary.

The first of these four activities, approval of oil and gas development and production plans and plan revisions, would involve approval of day-to-day production and development activities. BOEM does not anticipate the submission of new oil and gas development and production plans, but does expect applicants to revise or supplement existing plans if substantive changes are made. Day-to-day production and development activities would include gaseous emissions as well as discharges of (1) drilling muds and cuttings; (2) produced water; (3) well treatment, completion, and workover fluids (including fluids associated with hydraulic fracturing and acidization); (4) deck drainage fluids; (5) sanitary wastes and domestic wastes; (6) non-contact cooling water; and (7) fire control test water. Day-to-day production and development activities would also include approximately 30 daily boat trips and 3 to 4 daily helicopter trips between shore and offshore facilities. Day-to-day production and development activities would include lighting of all decks of offshore facilities throughout the night. BOEM has requested that we consider the effects of ongoing day-to-day production and development activities in this biological opinion. BOEM has also requested that we consider the effects on listed species of oil spills that are reasonably certain to occur during these day-to-day oil production and development activities in this biological opinion. As we discuss in detail in the effects analysis below, based on oil spill volume records and its experience in the Southern California Planning Area, BOEM estimates that the volume of a spill that is reasonably certain to occur during these day-to-day oil production and development activities is in the 50 to 1,000 bbl range. Based on the decreasing volume of oil remaining in oil fields within the Southern California Planning Area, BOEM does not consider a larger catastrophic spill to be reasonably certain to occur during the 20-year time period considered in this biological opinion (BOEM 2025). While oil spills are a foreseeable effect of the action that are reasonably certain to occur, they are not a permitted activity and therefore those impacts would be addressed under the natural resource damage assessment and restoration process authorized by the Oil Pollution Act, rather than offset under this biological opinion.

The second of the four activities, approval of applications for permits to drill and permits to modify, would involve approval of drilling of new wells and well completion and workover operations. Drilling of new wells would include new wells, new sidetrack wells, bypasses or deepening of existing wells, and installation of well conductor conduits between the deck of the

platform and the sea floor. Well completion and workover operations would include well stimulation treatments including diagnostic fracture injection tests, hydraulic fracturing, acid fracturing, and matrix acidizing. BOEM (2025) describes these methods in detail on pages 17 and 18. BOEM expects to review and approve approximately one to two new wells, five to seven sidetrack wells, two to four well workovers, and up to five well stimulation treatments per year in the Southern California Planning Area. BOEM expects to only sporadically approve conductor conduit installations.

The third activity, BSEE's facility inspection helicopter flights, involves 200 to 300 platform visits per year to and from the Camarillo Airport. Helicopter flight paths are generally over water and are generally at altitudes greater than 500 feet.

The fourth activity, BSEE-initiated onshore and offshore oil spill response equipment exercises, would involve deployment of oil spill boom, mechanical skimmers, response vessels, oil storage equipment, aircraft, and marker buoys. Deployment of these types of equipment is described in detail on pages 21 to 23 of the biological assessment (BOEM 2025). Normally, BSEE conducts three oil spill response equipment exercises per year, but additional exercises may be needed for retesting or with the development of new spill response plans. Oil spill response equipment exercises generally occur for a few hours and rarely longer than a day.

BOEM and BSEE would avoid and minimize impacts to listed species by implementing avoidance and minimization measures as part of the proposed authorizations. Failure to implement any of these measures would constitute a change in the proposed authorizations. We present these avoidance and minimization measures here, summarized from the biological assessment (BOEM 2025):

1. BOEM and BSEE will suggest seasonal scheduling adjustments to applicants in order to avoid and minimize impacts to listed species to the maximum extent practicable. BOEM and BSEE will ensure that projects minimize activities in areas of the marine environment during seasons in which sensitive activities such as migration or breeding are occurring.
2. BOEM and BSEE will ensure that light on project vessels is directed inward and downward, and light from cabin windows is reduced with shades, blinds, or shields that block exiting light. BOEM and BSEE will ensure that a protected species observer will routinely inspect lighted work areas for birds. BOEM and BSEE will ensure that any injured birds discovered on a platform or vessel will be transported on the next returning work vessel to an approved wildlife care facility.
3. BOEM and BSEE will minimize the impacts of project-generated noise during conductor installation by requiring a slow ramping of intensity to give animals an opportunity to leave the area.
4. BOEM and BSEE will ensure that protected species observers have the authority to shut down operations if a listed species is observed within or adjacent to the project area and is subject to impacts from project activities.

5. BOEM and BSEE will ensure that vessels maintain a distance of 300 feet from marine wildlife.
6. BOEM and BSEE will require each Outer Continental Shelf facility to have an established comprehensive Oil Spill Response Plan in accordance with federal regulations for such plans (30 CFR 254). These plans will include an emergency response action plan, equipment inventories, a dispersant use plan, an in-situ burning plan, details on training and drills, and contractual agreements with spill response contractors. BSEE will review and approve these plans every 2 years.
7. BOEM and BSEE will ensure that projects incorporate a Marine Wildlife Contingency Plan that is implemented by a team of experienced protected species observers. These plans would include reporting on occurrence, distribution, and activities of marine wildlife. Project proponents will station Protected Species Observers on vessels throughout the duration of a project.
8. BOEM and BSEE will ensure that a biologist will present an environmental orientation for all project personnel prior to conducting work. The orientation will include material to educate project personnel on identification of wildlife in the project area, an overview of the Act and the Marine Mammal Protection Act (MMPA) and penalties associated with violations of these Acts, and reporting requirements in the event of an injurious encounter with a listed species.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species” (50 CFR 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the range-wide conditions of the California least tern, light-footed Ridgway’s rail, salt marsh bird’s-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter; the factors responsible for those conditions, and their survival and recovery needs; (2) the Environmental Baseline, which analyzes the conditions of the California least tern, light-footed Ridgway’s rail, salt marsh bird’s-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter in the action area, the factors responsible for those conditions, and the relationship of the action area to the survival and recovery of the California least tern, light-footed Ridgway’s rail, salt marsh bird’s-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter; (3) the Effects of the Action, which determines all consequences to the California least tern, light-footed Ridgway’s rail, salt marsh

bird's-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter caused by the proposed action that are reasonably certain to occur in the action area; and (4) the Cumulative Effects, which evaluates the effects of future, non-Federal activities, that are reasonably certain to occur in the action area, on the California least tern, light-footed Ridgway's rail, salt marsh bird's-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the California least tern, light-footed Ridgway's rail, salt marsh bird's-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the California least tern, light-footed Ridgway's rail, salt marsh bird's-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter in the wild by reducing the reproduction, numbers, and distribution of those species.

Adverse Modification Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to destroy or to adversely modify designated critical habitat. Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

The "destruction or adverse modification" analysis in this biological opinion relies on four components: (1) the Status of Critical Habitat, which describes the range-wide condition of the critical habitats of the tidewater goby and western snowy plover; (2) the Environmental Baseline, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the Effects of the Action, which are all consequences to critical habitat caused by the proposed action that are reasonably certain to occur in the action area; and (4) Cumulative Effects, which evaluate the effects of future non-Federal activities in the action area that are reasonably certain to occur.

For the section 7(a)(2) determination regarding destruction or adverse modification, the Service begins by evaluating the effects of the proposed Federal action and the cumulative effects. The Service then examines those effects against the condition of all critical habitat described in the listing designation to determine if the proposed action's effects are likely to appreciably diminish the value of critical habitat as a whole for the conservation of the species.

STATUS OF THE SPECIES AND THEIR CRITICAL HABITATS

California Least Tern

Legal Status

The Service listed the California least tern (*Sterna antillarum browni*) as endangered on June 2, 1970 (35 FR 8491 8498). We issued a revised recovery plan for the species in 1985 (Service 1985a) and 5-year status reviews in 2006 and 2020 (Service 2006a, 2020). The Service has not designated critical habitat for the species.

Natural History

Foraging Behavior

California least terns forage in nearshore oceans, harbors, marina channels, tidal estuarine channels, and sheltered shallow bays (Atwood and Kelly 1984, pp. 35-36). Adults forage mostly within 2 miles of breeding colonies. Approximately 90-95% of ocean feeding occurred within 1 mile of shore in water depths of 60 feet or less (Service 1985a, p. 18; Atwood and Minsky 1983, p. 62). They feed on small fish that they catch by plunging into the water from flight. In a study of fish dropped by California least tern at 10 nesting areas, researchers found 49 species of fish, all individuals less than 1 year old. Northern anchovy (*Engraulis mordax*) and silverside species (Atherinidae) represented 67 percent of the total sample (Atwood and Kelly 1984, p. 38).

Breeding

California least terns are migratory colonial nesters, usually arriving in breeding areas in the San Diego area by early April and in the greater San Francisco Bay area by late April, generally departing in August (Massey 1974, pp. 6, 43; Small 1994) and exhibit a high degree of nest site fidelity from year to year. Individuals often return to breed where they previously bred successfully or to their natal sites (i.e., where they hatched) significantly more than would be predicted if birds nested randomly (Atwood and Massey 1988, pp. 391–393). After the initial nesting period that begins on their arrival in April, a second wave of nesting may occur from mid-June to early August. These are mainly re-nests after initial failures and second-year birds nesting for the first time (Massey and Atwood 1981, p. 596).

Nesting California least terns usually occupy a sand-shell beach relatively free of plant growth (Massey 1974, p. 5). The nest is typically a shallow, round depression, constructed by a bird sitting and kicking its feet backwards while rotating its body. This may occur several times before an egg is laid (Massey 1974, pp. 10-11; Wolk 1974, p. 52). Terns may use “sideways building” after scrape construction, which consists of the sitting bird reaching out with its bill to pick up additional nest material, such as small shells and shell fragments, and depositing them into the nest (Wolk 1974, p. 53).

Early in the breeding season, California least terns display night roosting behavior. Prior to incubation, terns will sleep at night at varying distances from the nesting sites. Once incubation begins, birds roost at night on the nest. Terns use roosting sites away from breeding colonies prior to egg laying, apparently for predator avoidance. By not sleeping within the colony until eggs are laid, the terns may delay the colony being discovered by a nocturnal predator by 2 to 3 weeks (Service 1985, p. 7).

California least terns begin incubation after laying the first egg. Both parents participate in incubation, which lasts 20 to 25 days (Massey 1974, pp. 15-16). Clutch size ranges from one to three eggs, with two eggs being most common (Massey 1974, p. 13; Ehrlich et al. 1988, p. 186).

California least tern chicks are semi-precocial (capable of a high degree of independent activity from birth) and are fed small fish by parents within hours of hatching (Massey 1974, p. 17; Ehrlich et al. 1988, p. 18). Chicks will begin leaving the nest in one to two days (Massey 1974, p. 17) and fledge at approximately 20 days. Juveniles and adults will fish, loaf, preen, and roost together for several weeks after fledging; adults will continue to feed juveniles during this period (Massey 1974, p. 20).

Wintering

California least terns leave nesting areas by August to spend winter months along the west coast of Baja California, the west coast of Mexico, and further south, possibly from the Gulf of California to Guatemala (American Ornithologists' Union (AOU) 1957, p. 239; Service 1985, p. 17; Thompson et al. 1997, Distribution, Migration, and Habitat).

Range wide Status

The historical breeding range of the California least tern extends along the Pacific coast from central California (Moss Landing) to southern Baja California (San Jose del Cabo). Potentially vagrant birds have been documented further north in Alameda County, California (AOU 1957, p. 239; Grinnell and Miller 1944, p. 175). Since 1970, nesting sites have been recorded from San Francisco Bay to Bahia de San Quintin, Baja California. The nesting range in California has been discontinuous, with the majority of birds nesting in southern California from Santa Barbara County south through San Diego County (Service 1985, p. 3).

In 1969 and 1970, Craig (1971, pp. 1, 5) conducted breeding surveys in San Mateo, Orange, and San Diego Counties. Craig estimated 300 pairs at 15 sites in the three counties and made recommendations to prevent the extirpation of the California least tern in California, principally to protect existing sites from human disturbance and create new sites in areas that could be protected from disturbance and development (Craig 1971). In 1980, 1981, 1982, and 1983, the California least tern breeding population in California was approximately 890-1,215; 963-1,171; 1,015-1,245; and 1,180-1,299 pairs, respectively (Service 1985, p. 21). Fluctuations in the number of breeding pairs and productivity have been attributed to the El Niño Southern Oscillation, which results in limited food availability (Caffrey 1995, p.12; Massey et al. 1992, pp. 982-983; Robinette et al. 2015, pp. 5, 10, 21-52). The effects on California least terns after a severe El Niño event may last several years (Massey et al. 1992, pp. 976, 978, 982).

Surveys have become more standardized and frequent since the 1990s (Frost 2017, p. 5). Frost reported 3,989-4,661 breeding pairs across 42 nesting sites in California over the 2016 breeding season (Frost 2017, p. 3). The majority of breeding activity in California during the 2016 season was concentrated at a few sites: Camp Pendleton, Naval Base Coronado, Batiquitos, Point Mugu, Huntington, and Alameda Point (Frost 2017, p. 11), a trend consistently observed in previous years (Frost 2016, p. 12; 2017, p. 11). These five sites in conjunction with Hayward, Los Angeles Harbor, Huntington, Bolsa Chica, and Oceano Dunes, contributed 88 percent of California's fledgling production. The California Department of Fish and Wildlife provides annual reports of nesting California least terns in California; reports include numbers of breeding

pairs, nesting sites, and fledgling to breeding pair ratios. Table 1 compiles nesting pair and breeding site data from 1969 to 1974, and 1990 to 2016.

Table 1. Numbers of breeding pairs and nesting sites across California; data compiled from California Department of Fish and Wildlife Reports (Craig, 1971, p. 1; Bender 1974a, 1974b, p. 1; Johnson and Obst 1992, pp. 3, 6; Obst and Johnson 1992, pp. 3, 5; Caffrey 1993, 1995, 1997, 1998, p. 3, 1994, p.2; Keane 1998, 1999, p. 3, 2001, p. 5; Patton 2002, p. 3; Marschalek 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, p. 3; Frost 2017, 2016, 2015, 2013, p. 3)

Year	*Approximate Number of Breeding Pairs*	*Number of Nesting Sites*
2016	3,989-4,661	42
2015	4,202-5,295	41
2014	4,232-5,786	41
2012	4,293-6,421	41
2011	4,826-6,108	40
2010	6,437-6,699	41
2009	7,130-7,352	41
2008	8,223-8,226	36
2007	6,744-6,989	35
2006	7,006-7,293	31
2005	6,865-7,341	28
2004	6,354-6,805	32
2000	4,521-4,790	37
1999	3,451-3,674	36
1998	4,141-4,182	30
1997	4,017	38
1996	3,330-3,392	35
1995	2,585-2,611	37
1994	2,792	36
1993	2,400	35
1992	2,106	38
1991	1,830	26
1990	1,706	28
1974	582	20
1973	624	19
1969-1970	300	15

Recovery and Threats

The primary goals outlined in the 1985 recovery plan are to prevent extinction and return the California least tern population to a stable, non-endangered status. We state that reclassification to threatened status may be considered if 1,200 breeding pairs in California occur in 15 secure management areas with a 3-year mean reproduction rate of 1.0 (one fledgling per breeding pair) (Service 1985, p. 26). We also state that delisting may be considered if the population reaches 1,200 breeding pairs distributed in at least 20 of 23 coastal management areas with the following provisions:

1) Sufficient habitat to support at least one viable colony (consisting of a minimum of 20 breeding pairs with a 5-year mean reproductive rate of at least 1.0 young fledged per

year, per breeding pair) at each of the 20 coastal management areas that are managed to conserve least terns (which must include San Francisco Bay, Mission Bay, and San Diego Bay); and

2) Assured land ownership and management objectives for future habitat management for the benefit of California least terns, and the security and status of Baja California colonies are assessed for incorporation into recovery objectives (Service 1985, pp. 25-26).

The breeding population of California least terns currently exceeds Objective 1 specified in the Service's 1985 recovery plan for the species (1,200 breeding pairs; Service 1985). The estimated number of California least tern breeding pairs has increased from approximately 624 pairs in 1973 to a peak of approximately 7,100 pairs in 2009. The number of breeding pairs has dropped in the past few years from the peak to estimates of 3,989 pairs in 2016 and 4,095 pairs in 2017. In the 2006 5-year review, we acknowledged the species had far exceeded this population objective (Service 2006a, p. 3).

Objective 3 specified in the Service's 1985 recovery plan for the species, a 3-year mean reproductive rate of at least 1.0 young per breeding pairs, does not identify explicitly specific threats to be alleviated to achieve this objective but is a proxy for whether threats to reproduction and fecundity are being reduced. In the 2006 5-year review, we concluded that based on the population data at that time, the species could likely be considered recovered without meeting this goal (Service 2006a, p. 5), as the sharp growth in pairs had occurred while estimated fledgling rates were below 1.0 fledglings per pair. This definition of viability is the same for what is required for secure nesting sites in Objective 2 of the Service's 1985 recovery plan for the species, though it is unclear from the recovery criteria if this level of viability must be maintained for 3 or 5 years (Service 1985, pp. 25–26).

Overall, progress is being made toward satisfying the recovery criteria. However, as we concluded in the 2020 5-year review and based on recent data, the recovery plan should be revised and updated to provide threats-based recovery criteria and address other shortcomings of the recovery plan. Areas of the plan that need updating include inclusion of Mexico populations of California least terns, further analysis of the fledgling per pair ratio, and future impacts from a changing climate, such as seal level rise (Service 2020, p 62).

In our 2020 5-year review, we found that rising sea levels as a result of climate change (Factor A) may in the future pose a substantial threat to nesting habitat of the California least tern; predation (Factor C) continues to threaten the California least tern, (this threat is reduced, though not eliminated, by predator management conducted at the majority of active colonies, and predator management is confounded when the predator is a protected species); food availability (Factor E) poses a threat to California least terns, though its impact varies from year to year with an uncertain overall magnitude; and cumulative impacts of food availability, predation, and destruction of nesting habitat together pose a substantial threat to the persistence of the California least tern, although management at a majority of the U.S. nesting sites helps to reduce

the impact of these combined threats. Though there are few data available on nesting areas in Mexico, lack of legal protection and conservation measures result in a higher degree of threats attributable for nesting California least terns than in the United States (Service 2020, p. 69).

While the California least tern has met the population size recommended in the recovery plan for downlisting, the population has been recently declining, exhibited poor reproductive success, and multiple ongoing threats continue to impact the species. Therefore, in our 2020 5-year review, we determined that current information does not support reclassifying the California least tern at this time.

Light-Footed Ridgway's Rail

Legal Status
The Service listed the light-footed Ridgway's rail as endangered on October 13, 1970 (Service 1970), and issued a recovery plan in July 1979, which was revised on June 24, 1985 (Service 1985b), and again in 2019 (Service 2019a).

Natural History
Light-footed Ridgway's rails inhabit coastal salt marshes from the Carpinteria Marsh in Santa Barbara County, California, to Bahia de San Quintin, Baja California, Mexico (Zembal et al 1989, Zembal et al. 1998). The light-footed Ridgway's rail is normally found in estuarine habitats, particularly salt marshes with well-developed tidal channels. Dense growths of cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia* sp.) are conspicuous components of rail habitat, and nests are located most frequently in cordgrass.

Breeding
Light-footed Ridgway's rails construct loose nests of plant stems, either directly on the ground when in pickleweed or somewhat elevated when in cordgrass (Service 1979). Although nests are usually located in the higher portions of the marsh, they are buoyant and will float up with the tide. Eggs are laid from mid-March to the end of June, but most are laid from early April to early May. The incubation period is about 23 days, and young can swim soon after hatching.

Range wide status
The light-footed Ridgway's rail occurs in coastal marsh habitat in California, ranging from Ventura County in the north to the Mexican border in the south. Coastal marshes between Ventura County and the Mexican border, at one time estimated to support about 26,000 acres of salt marsh, were dredged or filled until only about 8,500 acres of salt marsh remained in the early 1970's (Service 1985b).

When annual statewide light-footed Ridgway's rail censuses began in 1980, 203 pairs of light-footed Ridgway's rails were detected within 11 coastal wetlands surveyed (Service 2009a). Since 1980, the lowest number of pairs detected was 142 in 1985 when 14 coastal wetlands were surveyed (Service 2009a). The highest number of pairs detected was 656 in 2016 when the

census surveyed 30 coastal wetlands, 18 of which were occupied by light-footed Ridgway's rail (Zembal et al. 2016). About 95 percent of the pairs counted in 2016 were found in only 11 of the 30 coastal wetlands surveyed. These coastal wetlands include, from north to south; Mugu Lagoon, Seal Beach National Wildlife Refuge, Huntington Beach Wetlands, Upper Newport Bay, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Peñasquitos Lagoon, Kendall-Frost Mission Bay Marsh Reserve, San Diego River, and Tijuana Slough National Wildlife Refuge. Light-footed Ridgway's rails have been documented in two coastal wetlands in Baja California, Mexico (Zembal and Massey 1986); however, the status of the Ridgway's rail in Mexico is not well documented and an abundance estimate is unavailable (Service 2009a).

The 2017 census results show a 22 percent decrease in overall light-footed Ridgway's rail numbers, which decreased from 656 pairs in 18 coastal wetland in 2016 to 514 pairs in 17 coastal wetlands in 2017 (Zembal et al. 2017). The largest subpopulation of light-footed Ridgway's rails in Upper Newport Bay was reduced by 31 percent between 2015 and 2017. This reduction is likely due to loss of nesting habitat as a result of inundation from sea level rise associated with the El Niño Southern Oscillation. The number of observed pairs also decreased in Tijuana Slough National Wildlife Refuge, which is usually the second largest Ridgway's rail subpopulation, from 127 in 2016 to 53 in 2017 (Zembal et al. 2017). Tijuana Estuary has experienced three river mouth closure events since 2016, the first of which produced anoxic conditions to develop in the estuary, resulting in significant negative effects on rail forage species, and presented an extended elevated water level period for rails that may have left the population vulnerable to higher predation rates (Collins 2018, pers. comm.). However, the 2017 census in Tijuana Slough may have been an underestimate due to reduced vocalizations on the day of the survey (Zembal et al. 2017). San Elijo Lagoon supported 68 pairs in 2017, making it the second largest Ridgway's rail subpopulation, followed by the Seal Beach National Wildlife Refuge, which supported 60 pairs in 2017 (Zembal et al. 2017).

Recovery and Threats

In the 5-year review, the predominant factors identified as limiting rail abundance were small population sizes, isolation, and habitat quality (Service 2009a, p. 18). Though these threats remain, predation and habitat degradation are now the most imminent threats to the rail (Casazza et al. 2016, p. 230; Zembal et al. 2017, pp. 17–18).

The 1979 recovery plan, as amended in 1985 and 2019 (Service 2019a), established criteria such that light-footed Ridgway's rail will be considered for downlisting to threatened when all of the following criteria are met:

Factor A: Coastal marsh areas where the light-footed Ridgway's rail is present are conserved and managed to maintain sufficient tidal flushing and freshwater influence to sustain rails' food and habitat resources. Occupied marsh areas maintain at least 50 percent appropriate marsh vegetation in the low littoral zone and include upper marsh habitats with sufficient cover to support rails year round. These marsh areas have buffer zones to accommodate at least a century of projected sea level rise and have adjacent and appropriate high-water refugia and foraging

habitat. At least 20 separate marsh areas of above-described suitable habitat or suitable freshwater habitats, are conserved, managed, occupied, and comprise a total of at least 4,000 ha (9,884 acres) to provide redundancy and the ability to withstand catastrophic events. Clean water is maintained within the occupied marshes such that siltation does not significantly change the vegetation community or that contaminants do not measurably affect the benthic community (forage) or health of light-footed Ridgway's rail.

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes. There are no known current threats under this factor; therefore, no criteria are necessary.

Factor C: Impacts from nonnative and/or subsidized predators (e.g., feral cats, raccoons, domestic dogs, avian predators, etc.) are sufficiently minimized or managed through ongoing predator management. Management is funded in perpetuity such that predation no longer poses a threat to the persistence of light-footed Ridgway's rail.

Factor D: Inadequacy of Existing Regulatory Mechanisms: No known threats exist under this factor; therefore, no criteria are necessary.

Factor E: Other Natural or Manmade Factors Affecting Its Continued Existence: At least 800 breeding pairs can be detected, rangewide in the United States, to increase subspecies' resilience. At least 10 of the protected marshes comprise a minimum average of 20 breeding pairs (i.e., not including newly augmented populations) over at least 5 years. Light-footed Ridgway's rail are distributed across sites in each of the U.S. counties to provide redundancy and retain representation to be able to adapt to environmental changes and ensure there is sufficient genetic diversity to avoid potential inbreeding depression. An outreach program is implemented to educate the public about the plight of, and conservation efforts for, light-footed Ridgway's rail.

The light-footed Ridgway's rail will be considered for delisting when the criteria for downlisting light-footed Ridgway's rail are met along with the following additions: Factor A: Occupied habitat is conserved and managed (including maintaining tidal influence of saltwater marshes, ensuring adequate forage in freshwater marshes, adequate and appropriate vegetation, and adjacent upland habitat refugia) to maintain and increase, where possible, the carrying capacity of marshes to ensure resiliency of the rail. Conserve and manage three freshwater systems to support three separate populations of light-footed Ridgway's rail (each with at least 30 actively breeding pairs) within the historical range; and, Factor E: Other Natural or Manmade Factors Affecting Its Continued Existence: At least 20 of the protected marshes have a minimum average of 30 breeding pairs over 15 years, with a combined minimum of 100 pairs in each of the five counties across light-footed Ridgway's rail's historical range (Santa Barbara, Ventura, Orange, LA, and San Diego). These figures provide sufficient redundancy to prevent extinction due to catastrophic events and sufficient representation to help promote adaptation to shifting environmental pressures. The overall population is self-sustaining and growing, without augmentation from captive rearing, such that monitoring detects a statistically significant upward trend in adult population numbers over the course of at least 15 years.

Progress has been made to increase the number of light-footed Ridgway's rails since listing, and regulatory mechanisms have been successful at stopping destruction and degradation of marsh lands. Conservation efforts have included habitat restoration, installing artificial nesting platforms, captive breeding and translocation, predator control, and annual range wide censuses. Since initiation of the captive propagation program in 1998, 464 captive-bred light-footed Ridgway's rails have been released into the wild at various marshes throughout the range (Zembal et al. 2017). However, in its best year since listing, the light-footed Ridgway's rail population was only 82 percent of the way to the 800 pairs suggested by the recovery plan for downlisting despite these conservation efforts. Therefore, the light-footed Ridgway's rail continues to meet the definition of endangered, and no change in listing status was made following our 5-year review (Service 2009a).

The North Coast Corridor Public Works Plan (NCC PWP)/Transportation and Resource Enhancement Program's Resource Enhancement and Mitigation Program (Dudek 2014, as amended 2016, REMP) includes significant conservation actions that will benefit the range wide population of light-footed Ridgway's rails outside of the action area for the project. Restoration of the 19.3-acre Hallmark restoration site in Agua Hedionda Lagoon has already begun, including 4.29 acres of light-footed Ridgway's rail nesting habitat. As vegetation at Hallmark matures, we anticipate that light-footed Ridgway's rails will move into the restored salt marsh from adjacent occupied habitat. The San Elijo Lagoon Restoration Project (SELRP), also part of the REMP, was initiated in Fall 2017. Though the SELRP will result in a temporary loss of breeding and foraging light-footed Ridgway's rail habitat, San Elijo Lagoon is anticipated to support the same or a higher number of Ridgway's rail following completion due to the increased tidal function of the lagoon and availability of more high-quality light-footed Ridgway's rail habitat.

The REMP also includes the Regional Lagoon Maintenance Program, which provides non-wasting endowments to maintain and improve the tidal prism at Batiquitos and Los Peñasquitos Lagoons. The endowment for Los Peñasquitos Lagoon was established in August 2016. The Batiquitos Lagoon endowment is expected to be established within the next few years. The Regional Lagoon Maintenance Program will enhance and protect light-footed Ridgway's rail habitat in both lagoons, which supported a combined total of 60 pairs in 2017 (Zembal et al. 2017). As a result of these REMP conservation actions, we anticipate light-footed Ridgway's rail populations at Agua Hedionda Lagoon, San Elijo Lagoon, Batiquitos Lagoon, and Los Peñasquitos Lagoon will remain stable or increase. In addition, in 2017, the San Diego Association of Governments initiated the Ridgway's Rail Recovery Fund as part of the San Elijo Lagoon Double Track Project. This fund will partially fund the propagation program and the range wide annual census for several years, providing valuable light-footed Ridgway's rail population monitoring and augmentation range wide.

Salt Marsh Bird's-Beak

Legal Status

Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*, previously *Cordylanthus maritumus* ssp. *maritumus*]) was listed as endangered in 1978 (43 FR 44801). Critical habitat has not been designated. A recovery plan for the taxon was finalized in 1985 (Service 1985c). The Service completed a 5-year review of the taxon in 2009 (Service 2009b). The California Department of Fish and Wildlife listed salt marsh bird's-beak as endangered in 1979. Since the time of listing, its taxonomy and classification has been revised several times. Salt marsh bird's-beak was originally listed as *Cordylanthus maritumus* ssp. *maritumus* and is now recognized as *Chloropyron maritimum* ssp. *maritimum*, placed in the Orobanchaceae (or broomrape) family. It is one of three subspecies under the current Jepson eFlora treatment (Wetherwax and Tank 2012). Information provided in the discussion below is derived from the original listing document (43 FR 44801), recovery plan (Service 1985c), 5-year review (Service 2009b), as well as Thorne et al. (2018), Noe et al. (2019), Milano et al. (2020), and the California Natural Diversity Database (CNDDB 2020).

Natural History

Salt marsh bird's-beak is an annual, hemiparasitic plant, which means that it carries out some photosynthesis and obtains additional nutrients by parasitizing other plant hosts. It frequently parasitizes several co-occurring species including: pickleweed (*Salicornia* spp.), saltgrass (*Distichlis spicata*), frankenia (*Frankenia salina*) and jaumea (*Jaumea carnosa*). However, hosts vary depending on location. It is also a halophyte, meaning it is adapted to high-salinity conditions. Salt marsh bird's-beak survives these conditions by excreting salt crystals from its environment out through its leaves.

This taxon is approximately 10 to 40 centimeters (four to 16 inches) tall and has grayish-green foliage. The stems and leaves are often purple-tinged and covered in salt crystals. It is covered in short hairs and has multiple branches with decumbent (horizontal with recurved tips) to ascending stems. The central stem generally shorter than the outer stems and the inner stem bracts are slightly notched. Salt marsh bird's-beak inflorescences are spikes. The flowers are typically white with pink or yellow tips. It flowers May through October. This taxon is pollinated by solitary bees and the capsule fruits produce as many as 15 to 20 seeds per fruit. It has only a limited ability to self-pollinate. The seed is likely dispersed by tidal action such as high currents and sheet flows. Shore and other wading birds may also disperse the seed. Seed viability is enhanced by a period of dormancy and was shown to be highest after approximately two years. Pulses of freshwater from winter rainfall, groundwater or seasonal runoff from adjacent uplands are responsible for germination.

Range wide Status

Salt marsh bird's-beak occurs in coastal salt flat and salt marsh habitats. It typically grows in upper intertidal areas of salt marshes, where tidal inundation is relatively infrequent. This taxon's range does not overlap with any of the other *C. maritimum* subspecies. Its historic range extends from northern Baja California, Mexico north throughout southern and central California. It was more abundant in salt marshes throughout its range, but is now restricted to only a few localities. From south to north, the taxon occurs in seven estuarine systems including: Tijuana Estuary, San

Diego Bay (Sweetwater Marsh), San Diego River Mouth, Upper Newport Bay, Mugu Lagoon/Ormond Beach, Carpinteria Marsh, and Morro Bay.

Annual abundance of the taxon fluctuates and largely depends on abiotic factors. Tidal range, annual precipitation during the months of November through March and maximum spring temperatures explain most of the inter-annual variation in a 26-year monitoring dataset from the Sweetwater Marsh population in San Diego County. In general, higher salinity levels resulting from wider tidal ranges and lower annual precipitation, as well as higher spring temperatures result in lower annual abundance of the taxon.

Recovery and Threats

The goal of the recovery plan for salt marsh bird's-beak (Service 1985c) is to delist the species by protecting, securing and managing sufficient salt marsh bird's-beak colonies within 12 major marshes within the historical range of the plant in the United States. The recovery plan for salt marsh bird's-beak is based on data collected in the early 1980s, before populations to the north of Santa Barbara County were considered to be part of the subspecies. As such, the criteria for downlisting and delisting require reevaluation.

The recovery plan contains detailed criteria by which salt marsh bird's-beak can be considered for downlisting and delisting. The downlisting criteria for salt marsh bird's-beak are:

1. Protection of self-sustaining salt marsh bird's-beak populations in 8 major marshes within the historical range of the species in the United States;
2. Populations must be self-maintaining for at least 5 consecutive years; and
3. Each protected area within each of the 8 secure marsh totals at least fifteen acres of high marsh habitat at appropriate elevations for salt marsh bird's-beak.

The delisting criteria for salt marsh bird's-beak are:

1. Protection of self-sustaining salt marsh bird's-beak populations in 12 major marshes within the historical range of the species in the United States;
2. Populations must be self-maintaining for at least 10 consecutive years; and
3. Each protected area within each of the 12 secure marsh totals at least twenty acres of high marsh habitat at appropriate elevations for salt marsh bird's-beak.

Coastal development was historically the most imminent threat to the taxon. Regulations enacted to protect coastal wetlands have eliminated most of the direct loss of salt marsh bird's-beak habitat to development. However, declining water quality, hydrologic alterations and displacement from non-native, invasive species, (especially sea lavender [*Limonium* spp.] and sea-fig [*Carpobrotus* spp.]) are newer threats to salt marsh bird's-beak. At some of the locations trampling, off-road recreational vehicles and dune encroachment also threaten the taxon. Future projections of sea level rise and wetland accretion (build-up of sediment) show that salt marsh bird's-beak is highly vulnerable to effects of climate change and that several of the populations will likely be lost by the end of the century.

The salt marsh bird's-beak 5-year review (Service 2009b) states that the subspecies continues to be threatened by habitat loss due to local channelization, water diversion, and freshwater inflows. Since that time, however, State and Federal regulations have greatly reduced this threat. The 5-year review states that there are seven extant coastal marsh areas that support salt marsh bird's-beak in the United States. Climate change, invasive nonnative plants, influx of water-sewage effluent, off-road vehicles, trampling, and habitat restoration projects will make it difficult to maintain suitable elevation and hydrological conditions necessary to support his taxon. Additionally, since listing, the taxon's genetics and breeding system have been identified. Based on the ongoing and newly discovered threats, the 5-year review concludes that salt marsh bird's-beak continues to meet the criteria for listing as an endangered species under the Act.

Tidewater Goby

Legal Status

The Service listed the tidewater goby as endangered on March 7, 1994 (59 FR 5494) and designated critical habitat for the tidewater goby on February 6, 2013 (78 FR 8745). We published a recovery plan for the tidewater goby on December 12, 2005 (Service 2005) and a 5-Year Review in September 2007 (Service 2007a). The Service published a proposed rule to downlist the tidewater goby on March 13, 2014 (79 FR 14339). During the public comment period, the Service received substantial comments regarding the proposed change in species status, and the tidewater goby remains listed as endangered.

Natural History

The tidewater goby is endemic to California and is one of the only species of fish to live exclusively in brackish water coastal lagoons, estuaries, and marshes in California (Swift et al. 1989, p. 14, Moyle 2002, p. 431). Tidewater goby habitat is characterized by fairly still, but not stagnant, brackish water. They can withstand a wide range of habitat conditions and have been documented in waters with salinity levels that range from 0 to 42 parts per thousand (ppt), temperatures ranging from 8 to 25 degrees Celsius (46 to 77 degrees Fahrenheit) and water depths from 25 to 200 centimeters (10 to 79 inches) (Irwin and Soltz 1984, pp. 20-21; Swift et al. 1989, p. 3, 7; Smith 1998, p. 2). Most tidewater goby collections occurred in water of approximately one-third ocean salinity; (i.e., 12 parts per thousand or less; Service 2005, p. 12). Tidewater gobies are generally found over substrate that has a high percentage of sand and gravel (Worcester 1992, p. 105) and are often clumped in areas that have sparse to medium dense cover by aquatic plants or algae (Worcester 1992, p. 71). Tidewater gobies often migrate upstream and are commonly found up to 1 kilometer (0.6 mile) up from a lagoon or estuary (Service 2005, pp. 12-13), and have been recorded as far as 5 to 8 kilometers (3 to 5 miles) upstream of tidal areas (Irwin and Soltz 1984, p. 13).

Tidewater gobies feed on small invertebrates, including amphipods, ostracods, snails, mysids, and aquatic insect larvae, particularly chironomid larvae (Swift et al. 1989, p. 6). Predators of tidewater gobies include staghorn sculpin (*Leptocottus armatus*), prickly sculpin (*Cottus asper*), starry flounder (*Platichthys stellatus*), and largemouth bass (*Micropterus salmoides*); native birds

and other predatory fish likely also prey on gobies (Swift et al. 1997, p. 23; Swift et al. 1989, pp. 7, 14).

The tidewater goby is primarily an annual species (Swift et al. 1989, pp. 4, 14), although there is some variation in life history and some individuals have lived up to 3 years in captivity (Swenson 1999, p. 105). If reproductive output during a single season fails, few (if any) tidewater gobies survive into the next year. Reproduction typically peaks from late April or May to July and can continue into November or December depending on the seasonal temperature and amount of rainfall (Swift et al. 1989, p. 8, Worcester 1992, p. 109, Goldberg 1977, p. 558). Males begin the breeding ritual by digging burrows at least 70 to 100 millimeters (3 to 4 inches) apart in clean, coarse sand of open areas. Unlike most other fish, females court the males (Swift et al. 1989, p. 11). Once chosen by a male, females will then deposit eggs into the burrows, averaging 400 eggs per spawning effort (Swift et al. 1989, p. 8; Swenson 1995, p. 1). Males remain in the burrows to guard the eggs and fan the eggs to circulate water, frequently foregoing feeding (Moyle 2002, p. 432).

Within 9 to 11 days after eggs are laid, larvae emerge and are approximately 4 to 6 mm in standard length (0.16 to 0.24 inch) (Swift et al. 1989, p. 8; Service 2005, p. 14). Larval traits (larval duration, size at settlement, and growth rate) are correlated with water temperature, which varies considerably in the seasonally closed estuaries that tidewater gobies inhabit (Spies and Steele 2016, p. 250). Larval tidewater gobies are pelagic for an average of 21 to 27 days and settle once they grow to approximately 12 to 13 mm in standard length (Spies et al. 2014, p. 172). When they reach this life stage, they become substrate-oriented, spending the majority of time on the bottom rather than in the water column. Both males and females can breed more than once in a season, with a lifetime reproductive potential of 3 to 12 spawning events (Swenson 1999, p. 106). Vegetation is critical for over-wintering tidewater gobies because it provides refuge from high water flows and tidewater goby densities are greatest among emergent and submerged vegetation (Moyle 2002, p. 432).

Because they typically live for approximately one year and inhabit a seasonally changing environment, population sizes of tidewater gobies vary greatly spatially and seasonally, with recorded numbers ranging from 0 to 198 individuals per square meter (Swenson 1995, p. 32). After the spring spawning season, there is typically an annual die-off of adults (Swift et al. 1989, p. 4; Swenson 1995, p. 98).

Range wide Status

Historically, the tidewater goby occurred in at least 150 California coastal lagoons and estuaries, from Tillas Slough near the Oregon/California border south to Agua Hedionda Lagoon in northern San Diego County (Swift et al. 1989, p. 13); the southern extent of its distribution has been reduced by several miles after the mouth of Agua Hedionda Lagoon was permanently modified to be open to the ocean and no longer supports tidewater gobies. The species is currently known to occur in 106 localities, although the number of sites fluctuates with climatic conditions and the current status is unknown in 12 localities (Service 2007a, p 14). Currently, the

most stable populations are in lagoons and estuaries of intermediate size (5 to 124 acres) that are relatively unaffected by human activities (Service 2005, p. 11).

Local populations of tidewater gobies are best characterized as metapopulations (Lafferty et al. 1999a, p. 1448), or "a network of semi-isolated populations with some level of regular or intermittent migration and gene flow among them, in which individual populations may go extinct but can then be recolonized from other populations" (Groom et al. 2006, p. 706). Therefore, the stability of a metapopulation depends on the connectivity of subpopulations. Tidewater gobies enter the marine environment when sandbars are breached during storm events. Lafferty et al. demonstrated that tidewater gobies were able to disperse at least 5.6 miles (Lafferty et al. 1999b, p. 621), and genetic analysis suggests that this species can disperse much further, with genetic assignment tests showing movement of individuals up to approximately 30 miles (Jacobs et al. 2005, figure 10 p. 52). The species' tolerance of high salinities for short periods of time enables it to withstand marine environment conditions of approximately 35 ppt salinity, thereby allowing the species to re-establish or colonize lagoons and estuaries following flood events (Swift et al. 1997, p. 32). Genetic studies indicate that the tidewater goby population is highly geographically structured, indicating that there is low geneflow (Dawson et al. 2001, p. 1176; Dawson et al. 2002, p. 1071) and thus natural recolonization events are likely rare. Swift et al. (2016, p. 1) estimates that the southernmost population of tidewater goby has been separated from other lineages for 2 to 4 million years, and it has been recognized as a distinct species (*Eucyclogobius kristinae*, the southern tidewater goby), but as of now the tidewater goby remains listed under the Endangered Species Act as one entity.

In 2014, the Service issued a 12-month finding proposing to reclassify the tidewater goby as threatened under the Act. During the public comment period, we received substantive comments regarding the proposed change in the species' status and new scientific information has been published regarding the species. The tidewater goby remains listed as endangered and its overall population and range is currently stable, but still faces ongoing and likely increasing threats of urbanization, artificial breaching, stochastic environmental conditions, and introduced predators. The southernmost population of tidewater goby remains critically endangered because this species has become extirpated from 5 of the 13 historical localities, 4 of which cannot be restored.

Recovery and Threats

The goal of the tidewater goby recovery plan (Service 2005, pp. 1-207) is to conserve and recover the tidewater goby throughout its range by managing threats and maintaining viable metapopulations within each recovery unit while retaining morphological and genetic adaptations to regional and local environmental conditions. The decline of the tidewater goby is attributed primarily to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands. The recovery plan identifies six recovery units: North Coast Unit, Greater Bay Unit, Central Coast Unit, Conception Unit, Los Angeles/Ventura Unit, and South Coast Unit.

The recovery plan specifies that the tidewater goby may be considered for downlisting when:

1. Specific threats to each metapopulation (e.g., coastal development, upstream diversion, channelization of rivers and streams, etc.) have been addressed through the development and implementation of individual management plans that cumulatively cover the full range of the species; and
2. A metapopulation viability analysis based on scientifically-credible monitoring over a 10-year period indicates that each recovery unit is viable. The target for downlisting is for individual sub-units within each recovery unit to have a 75 percent or better chance of persistence for a minimum of 100 years.

The tidewater goby may be considered for delisting when the downlisting criteria have been met and a metapopulation viability analysis projects that all recovery units are viable and have a 95 percent probability of persistence for 100 years.

The decline of the tidewater goby is attributed primarily to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands, lagoons, and estuaries (Irwin and Soltz 1984, p. 1). High flows naturally and periodically breach lagoon barriers and expose tidewater gobies to tidal conditions, but artificial breaching has been observed to cause tidewater goby stranding and mortality (Swift et al. 2018). Artificial breaching, especially during periods of low inflow, not only flushes tidewater gobies out into the ocean but also drains water from the lagoon and thus reduces the size of available habitat for this species; this can also concentrate predators within this reduced lagoon footprint. Some extirpations appear to be related to pollution, upstream water diversions, and the introduction of non-native predatory fish species, most notably centrarchid sunfish (*Lepomis* spp.) and bass (*Micropterus* spp.) (Swift et al. 1989, p. 14). These threats continue to affect some of the remaining populations of tidewater gobies. Climate change and the attendant sea level rise may further reduce suitable habitat for the tidewater goby as lagoons and estuaries are inundated with saltwater (Cayan et al. 2006, p. 34, 38) and severe storms interacting with increased sea levels may breach lagoons more frequently.

Western Snowy Plover

Legal Status

The Service listed the Pacific coast population of the western snowy plover as threatened on March 5, 1993 (58 FR 12864). We designated critical habitat in 1999 (64 FR 68508 68544) and redesignated it in 2005 (70 FR 56970 57119). In 2012, we issued a revised critical habitat designation which included a change in taxonomic nomenclature (77 FR 36727 36869). We completed a 5-year status reviews in 2006, 2019, and 2024 (Service 2006b, 2019c, 2024), and issued a recovery plan in August 2007 (Service 2007b).

Natural History

The western snowy plover is a small shorebird in the family Charadriidae, a subspecies of the snowy plover (*Charadrius nivosus*). It is pale gray-brown above and white below, with a white

collar on the hind neck and dark patches on the lateral breast, forehead, and behind the eyes. The bill and legs are black.

Foraging Behavior
Western snowy plovers are primarily visual foragers, using the run-stop-peck method of feeding typical of most plover species. They forage on invertebrates in the wet sand and amongst surf-cast kelp within the intertidal zone, in dry sand areas above the high tide, on saltpans, on spoil sites, and along the edges of salt marshes, salt ponds, and lagoons. They sometimes probe for prey in the sand and pick insects from low-growing plants (Service 2007b, pp. 17-18).

Breeding
The Pacific coast population of the western snowy plover breeds primarily on coastal beaches from southern Washington to southern Baja California, Mexico. The main coastal habitats for nesting include sand spits, dune-backed beaches, beaches at creek and river mouths, and saltpans at lagoons and estuaries (Page and Stenzel 1981, p. 12; Wilson 1980, p. 23). Western snowy plovers nest less commonly on bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and gravel river bars (Wilson 1980, p. 9; Page and Stenzel 1981, pp. 12, 26; Powell et al. 2002, pp. 156, 158, 164; Tuttle et al. 1997, pp. 1-3).

Their nests consist of a shallow scrape or depression, sometimes lined with beach debris (e.g., small pebbles, shell fragments, plant debris, and mud chips). As incubation progresses, western snowy plovers may add to and increase the nest lining. Driftwood, kelp, and dune plants provide cover for chicks that crouch near objects to hide from predators. Because invertebrates often occur near debris, driftwood and kelp are also important for harboring snowy plover food sources (Page et al. 2009, Breeding).

Along the west coast of the United States, the nesting season of the western snowy plover extends from early March through late September. Generally, the breeding season may be 2 to 4 weeks earlier in southern California than in Oregon and Washington. Fledging (reaching flying age) of late-season broods may extend into the third week of September throughout the breeding range (Service 2007b, p. 11).

The approximate periods required for snowy plover nesting events are: 3 days to more than a month for scrape construction (in conjunction with courtship and mating), usually 4 to 5 days for egg laying, and incubation averaging 28.4 days in the early season (before May 8) to 26.9 days in the late season (Warriner et al. 1986, pp. 23-24). The usual clutch size is three eggs with a range from two to six (Page et al. 2009, Breeding). Both sexes incubate the eggs, with the female tending to incubate during the day and the male at night (Warriner et al. 1986, pp. 24-25). Adult western snowy plovers frequently will attempt to lure people and predators from hatching eggs and chicks with alarm calls and distraction displays.

Western snowy plover chicks are precocial, leaving the nest with their parents within hours after hatching (Service 2007b, p. 14). They are not able to fly for approximately 1 month after hatching; fledging requires 29 to 33 days (Warriner et al. 1986, p. 26). Broods rarely remain in

the nesting area until fledging (Warriner et al. 1986, p. 28; Lauten et al. 2010, p. 10). Casler et al. (1993, p. 6) reported broods would generally remain within a 1-mile radius of their nesting area; however, in some cases would travel as far as 4 miles (pp. 11-12).

Wintering

In winter, western snowy plovers are found on many of the beaches used for nesting, as well as beaches where they do not nest. They also occur in man-made salt ponds and on estuarine sand and mud flats. In California, the majority of wintering western snowy plovers concentrate on sand spits and dune-backed beaches. Some also occur on urban and bluff-backed beaches, which they rarely use for nesting (Page et al. 1986, p. 148; Page and Stenzel 1981, p. 12). South of San Mateo County, California, wintering western snowy plovers also use pocket beaches at the mouths of creeks and rivers on otherwise rocky Page et al. 1986, p. 148). Snowy plovers forage in loose flocks. Roosting snowy plovers will sit in depressions in the sand made by footprints and vehicle tracks, or in the lee of kelp, driftwood, or low dunes in wide areas of beaches (Page et al. 2009, Behavior). Sitting behind debris or in depressions provides some shelter from the wind and may make the birds more difficult for predators to detect.

Range wide Status

Historical records indicate that nesting western snowy plovers were once more widely distributed and abundant in coastal Washington, Oregon, and California (Service 2007b, p. 21). In Washington, western snowy plovers formerly nested at five coastal locations (Washington Department of Fish and Wildlife 1995, p. 14) and at over 20 sites on the coast of Oregon (Service 2007b, p. 24). In California, by the late 1970s, nesting western snowy plovers were absent from 33 of 53 locations with breeding records prior to 1970 (Page and Stenzel 1981, p. 27).

This species was formerly found on quiet beaches the length of the state, but it has declined in abundance and become discontinuous in its distribution. Habitat degradation caused by human disturbance, urban development, introduced beachgrass (*Ammophila* spp.), and expanding predator populations have led to declines in nesting areas and the size of breeding and wintering populations (Service 2007b).

The first quantitative data on the abundance of western snowy plovers along the California coast came from window surveys conducted during the 1977 to 1980 breeding seasons by Point Reyes Bird Observatory (Page and Stenzel 1981, p.1). Observers recorded an estimated 1,593 adult western snowy plovers during these pioneering surveys. The results of the surveys suggested that the western snowy plover had disappeared from significant parts of its coastal California breeding range by 1980 (Service 2007b, p. 27).

Breeding season and winter window survey data from 2005 to 2017 includes approximately 250 sites in Washington, Oregon, and California, with the majority of the sites located in California (Table 2). In California, 1,807 western snowy plovers were counted during the 2016 breeding

window survey, and 3,802[1] western snowy plovers were counted during the 2016-2017 winter window survey (Service 2016, 2017). Across the Pacific coast range, the 2016 breeding window survey estimated 2,284 western snowy plovers, and the 2016-2017 winter window survey estimated 4,214 western snowy plovers in Washington, Oregon and California (Service 2016, 2017). These numbers demonstrate that a large percentage of all western snowy plovers in the Pacific coast range were counted in California during both winter and breeding window surveys.

Table 2. Pacific Coast WSP breeding window survey results, in descending order 2019 to 2005, for each recovery unit (RUl through RU6) and the U.S. Pacific coast (excludes the Baja California peninsula). All counts are breeding age adults and are uncorrected (raw). Recovery Units are RU1: Washington and Oregon; RU2: Northern California; RU3: San Francisco Bay; RU4: Monterey Bay area; RU5: San Luis Obispo area; RU6: San Diego area (Service 2019b, p. 3).

Year	*RU1-*	*RU2*	*RU3*	*RU4*	*RU5*	*RU-6*	*TOTAL (U.S. Pacific Coast)*
2019	479	41	190	303	807	397	2,217
2018	402	52	235	361	874	451	2,375
2017	342	56	246	369	856	464	2,333
2016	477	46	202	366	820	373	2,284
2015	340	38	195	348	963	376	2,260
2014	269	27	178	374	822	346	2,016
2013	260	23	202	261	754	326	1,826
2012	234	21	147	324	771	358	1,855
2011	202	28	249	311	796	331	1,917
2010	196	19	275	298	686	311	1,785
2009	182	15	147	279	707	257	1,587
2008	147	18	133	257	717	269	1,541
2007	175	26	207	270	676	183	1,537
2006	158	45	102	357	917	298	1,877
2005	137	41	124	337	969	209	1,817

Recovery and Threats

The primary objective of the recovery plan (Service 2007b, p. vi) is to remove the Pacific coast population of the western snowy plover from the list of endangered and threatened wildlife and plants by:

1 This number likely includes wintering inland birds that are not part of the listed Pacific coast population.

1. Increasing population numbers distributed across the range of the Pacific coast population of the western snowy plover;
2. Conducting intensive ongoing management for the species and its habitat and developing mechanisms to ensure management in perpetuity; and
3. Monitoring western snowy plover populations and threats to determine success of recovery actions and refine management actions.

Delisting criteria for the Pacific coast population of the western snowy plover are outlined below (Service 2007b, p. vii):

1. An average of 3,000 breeding adults has been maintained for 10 years, distributed among 6 recovery units as follows: Washington and Oregon, 250 breeding adults; Del Norte to Mendocino Counties, California, 150 breeding adults; San Francisco Bay, California, 500 breeding adults; Sonoma to Monterey Counties, California, 400 breeding adults; San Luis Obispo to Ventura Counties, California, 1,200 breeding adults; and Los Angeles to San Diego Counties, California, 500 breeding adults. This criterion also includes implementing monitoring of site-specific threats, incorporation of management activities into management plans to ameliorate or eliminate those threats, completion of research necessary to modify management and monitoring actions, and development of a post-delisting monitoring plan.
2. A yearly average productivity of at least one (1.0) fledged chick per male has been maintained in each recovery unit in the last 5 years prior to delisting.
3. Mechanisms have been developed and implemented to assure long-term protection and management of breeding, wintering, and migration areas to maintain the subpopulation sizes and average productivity specified in Criteria 1 and 2. These mechanisms include establishment of recovery unit working groups, development and implementation of participation plans, development and implementation of management plans for Federal and State lands, protection and management of private lands, and public outreach and education.

Our current estimate (2,217 breeding adults) remains below the population size of 3,000 birds listed as a recovery objective in the recovery plan (Service 2007b), although some local population sizes have surpassed recovery objectives for some areas (e.g., Monterey Bay, Oregon-Washington). Yearly average productivity (Criterion 2; number of fledglings/per male) are not compiled annually for the entire U.S. Pacific coast; however, the best available information indicates that the yearly average productivity has not been met (Service 2019c, p. 6).

Evidence of habitat loss and degradation remains widespread; while the degree of this threat varies by geographic location, habitat loss and degradation attributed to human disturbance, urban development, introduced beachgrass, and expanding predator populations remain the management focus in all six recovery units. New threats identified in the latest species status review include increased rocket launches from Vandenberg Air Force Base, coastal squeeze of

viable habitat due to sea level rise, highly pathogenic avian influenza, and increased operation of electric bicycles and unmanned aerial vehicles on and above sandy beach habitat (Service 2024, p. 9).

Efforts to improve habitat at current and historic breeding beaches, and efforts to reduce the impacts of human recreation and predation on nesting plovers, have improved plover numbers. Active vegetation and predator management and habitat restoration should be continued. Because of active management efforts, including increased monitoring, use of predator exclosures at some sites, predator management, and expanded beach closures, western snowy plover population numbers have increased at some locations. However, despite active vegetation and predator management, ongoing and projected changes in sea level and climate is expected affect coastal habitat suitability, nest survival, overwinter survivorship, and quality of nesting and roosting habitats (Service 2019c, p.7).

Marbled Murrelet

Legal Status

The Washington, Oregon, and California population was federally listed as a Distinct Population Segment in 1992 (Service 1992). Critical habitat was designated in 1996, consisting of approximately 3.7 million terrestrial acres throughout coastal areas of Washington, Oregon, and California (Service 1996; Service 2011).

Natural History

The marbled murrelet (*Brachyramphus marmoratus*) is a small diving seabird that nests in large conifers near marine areas and forages in near-shore coastal waters. It breeds along the Pacific coast from the Aleutian Islands and southern Alaska to central California, with small numbers of birds wintering in southern California (Service 1997, p. 12).

Marbled murrelets are found in coastal areas in the vicinity of mature conifer forests. They typically forage within 0.6-1.2 miles of shore (Service 1997, p. 29), feeding on a variety of small marine fish and invertebrate species (Service 1997, p. 22). However, marbled murrelets have been observed up to 15 miles offshore (Ainley *et al.* 1995). Marbled murrelets are known to make long flights between foraging and nesting habitat, flying an average of 33.2 miles round-trip in a study by Lorenz et al. (2017, p. 314). They nest on large branches of mature conifer trees where they lay one egg in a small cup made in moss or other debris on the limb (DeSanto and Nelson 1995 p. 38; Service 1997, p. 21). Nesting occurs between late March and late September (Hamer and Nelson 1995, pp. 55-56). Important forest characteristics for terrestrial marbled murrelet habitat include large, cohesive extents of forest, (Raphael et al. 2016, p. 101), low amounts of human disturbance (Raphael et al. 2016, p. 106), and high proportions of old-growth trees (McShane et al. 2004, p. 103).

Foraging Behavior

Marbled Murrelets forage at sea by pursuit diving in relatively shallow waters, usually between

20 and 80 meters in depth with the majority of birds found as singles or pairs in a band 300-2,000 meters from shore (Strachan et al. 1995). After the breeding season, some birds disperse and are less concentrated in nearshore coastal waters, as is the case with some other alcids (stout, streamlined ocean foraging birds). Ainley et al. (1995) conducted ship-based surveys off central California and detected most Marbled Murrelets with 7 kilometers of shore with the largest number occurring 3-5 kilometers offshore. They observed one individual 24 km offshore near the edge of the continental shelf break.

Recovery and Threats

The marbled murrelet was listed primarily due to loss of breeding habitat from logging of coastal old-growth forest and mortality from oil spills and net fisheries (Service 1997, p. 1). Loss of terrestrial habitat from logging, wildfire, and insect outbreaks remains a major threat to marbled murrelet recovery today (Service 2019b, p. 29). Current threats to marbled murrelets in marine habitat include changes in prey quantity and quality, harmful algal blooms, and impacts of climate change (Service 2019b, p. 40).

The recovery plan (Service 1997, p. 112) for the marbled murrelet states the objectives of the plan are to: (1) stabilize and then increase population size throughout the range; (2) provide conditions in the future that allow for a reasonable likelihood of continued existence of viable populations; and (3) gather the necessary information to develop specific delisting criteria. To achieve these objectives, the following steps are necessary: (1) increase the productivity of the population; (2) minimize or eliminate threats to survivorship; (3) identify and conduct the research and monitoring necessary to determine specific delisting criteria; (4) encourage cooperative research; and (5) coordinate monitoring and research efforts.

Southern Sea Otter

Legal Status

The Service listed the southern sea otter as threatened in 1977 (42 FR 2965). Critical habitat was not designated. We completed a species status assessment in 2023 (Service 2023) and a final revised recovery plan in 2003 (Service 2003). The factors leading to the listing included the southern sea otter's reduced population size and range and increased tanker traffic and the corresponding potential for oil spills. The rulemaking also acknowledged the potential degradation of habitat caused by pollution or competition with humans. The southern sea otter is considered "depleted" under the Marine Mammal Protection Act (MMPA) by virtue of its listing status under the ESA and designated as a Fully Protected Species under California State law (California Fish and Game Code §4700).

Natural History

The sea otter is the heaviest member of the family Mustelidae and the smallest marine mammal. All sea otters of the subspecies *Enhydra lutris nereis* are considered to belong to a single stock because of their recent descent from a single remnant population. Southern sea otters are geographically isolated from the other two recognized subspecies of sea otters, *E. l. lutris* and *E.*

l. kenyoni, and have been shown to be distinct from these subspecies in studies of cranial morphology (Wilson *et al.* 1991) and variation at the molecular level (Cronin *et al.* 1996; Larson *et al.* 2002).

Southern sea otters reach adult length at approximately 4-6 years of age, with females averaging 46.5 inches (in) and males averaging 50 in. Females reach adult weight at around this same age, averaging 46 pounds (lbs), whereas males continue to gain muscle mass until approximately 8 years of age, when they weigh, on average, 64 lbs (Tinker et al. 2019). Typical life spans are 12-18 years for females and 10-15 years for males (Tinker pers. comm. 2014), although one female sea otter translocated to San Nicolas Island in 1987 as a juvenile was documented in 2006 to have reached at least 19 years of age in the wild (USGS unpublished data).

Unlike most other marine mammals, sea otters have little subcutaneous fat. They depend on their clean, dense, water-resistant fur for insulation against the cold. Contamination of the fur by oily substances can destroy its insulating properties and lead to hypothermia and death (Costa and Kooyman 1982). Sea otters also maintain a high level of internal heat production to compensate for their lack of blubber. Consequently, their energetic requirements are high, and they consume an amount of food equivalent to 20–25 percent of their body mass per day (Costa and Kooyman 1982, Kenyon 1969, Morrison et al. 1974). Depending on factors such as habitat, sex, reproductive status, and per-capita prey availability, obtaining this quantity of food requires that sea otters spend, on average, 20–50 percent of the day foraging (Estes et al. 1986, Ralls and Siniff 1990, Tinker et al. 2008a, Yeates et al. 2007, Tinker et al. 2019).

Mating and pupping occur throughout the year. The gestation period lasts approximately 6 months, consisting of a phase of 2-3 months during which the embryo remains unattached to the uterine wall (delayed implantation) and an implanted phase of 4 months (Jameson and Johnson 1993). On average across the range, a peak period of pupping occurs from October to January, with a secondary peak in March and April (Tinker pers. comm. 2014). Females typically give birth to a single pup, with care provided solely by the female for the approximately 6 months until weaning (Riedman and Estes 1990, Jameson and Johnson 1993). Pup rearing and provisioning impose high energetic costs on females, requiring them to increase foraging effort during this period and leaving them highly susceptible to stressors they may encounter when they come into estrous after weaning, such as parasite infections or aggression by males (Tinker et al. 2019, Thometz et al. 2014).

Sea otters rest alone or in groups called “rafts,” which may range from 2 to 20 or more animals, with larger groups more common among males. They tend to prefer areas with surface kelp canopies but will also rest in open water (Riedman and Estes 1990). Sea otters sometimes haul out, although opportunities for hauling out vary spatially and temporally. Hauling out likely reduces thermal flux and thus overall energy requirements; as such, it may be especially important in times of nutritional stress, such as for end-lactation stage females (females that have recently weaned a pup and are entering estrous), which in areas of low per-capita prey abundance may be in poor body condition with minimal energy reserves (Tinker et al. 2019).

Sea otter habitat is typically defined by the 131 ft depth contour (Riedman and Estes 1990; Laidre et al. 2001). Depending on local bathymetry, most sea otters in California reside within 1.2 mi of shore. Southern sea otters forage in both rocky and soft-sediment communities in water depths generally 82 ft or less, although some animals utilize deeper waters. Sea otters occasionally make dives of up to 328 ft, but the vast majority of feeding dives (about 95 percent) occur in waters less than 131 ft in depth (Tinker et al. 2006a). Dive depth and dive pattern vary by sex (males tend to make dives greater than 82 ft more frequently than females), geographic location, and diet specialization (Tinker et al. 2006a, Tinker *et al*. 2007), as well as age and reproductive status (Tinker et al. 2019).

The density of southern sea otters within most of the population's range is most likely related to substrate type. Rocky habitats that are topographically heterogeneous and support kelp forests are likely to support the greatest diversity and abundance of sea otter food resources, which include abalone, rock crabs, sea urchins, kelp crabs, clams, turban snails, mussels, octopus, barnacles, scallops, sea stars, and chitons. Rocky bottom habitats support an average equilibrium density of 12.05-14.56 individuals per mi^2, whereas areas with sandy bottoms and areas of mixed habitat support average equilibrium densities of 2.18-3.42 and 1.14-3.01 individuals per square mile, respectively (Laidre et al. 2001). Based on these densities and the area consisting of these benthic habitat types, Laidre et al. (2001) estimated the carrying capacity of California as approximately 16,000 animals.

Because of their consumption of large quantities of marine invertebrates, sea otters play a significant role in nearshore marine ecosystems of the North Pacific Ocean, enhancing not only kelp forests (Estes and Palmisano 1974; Estes et al. 1978; Duggins 1980; Estes and Harrold 1988) but also seagrass beds (Hughes et al. 2013). Sea otters are generally considered to be a keystone species in these communities. Keystone species are organisms that have large-scale community effects disproportionate to their abundance (Meffe and Carroll 1997). Kelp forests provide numerous direct and indirect benefits, including improved habitat for numerous invertebrate and fish species, reductions in coastal erosion, and carbon storage that can moderate climate change (Duggins *et al.* 1990, Wilmers *et al.* 2012). Seagrasses also provide important benefits, such as habitat for many other species, shoreline protection, and carbon sequestration (Duarte et al. 2005, Waycott et al. 2009).

Range wide Status

Southern sea otters occupy nearshore waters along the mainland coastline of California from San Mateo County to Santa Barbara County. A small subpopulation of southern sea otters also exists at San Nicolas Island, Ventura County, as a result of translocation efforts initiated in 1987. Under Public Law 99-625, the San Nicolas Island colony was formerly considered to be an experimental population (52 FR 29754; August 11, 1987), but the experimental population designation was removed upon termination of the translocation program and its respective translocation and management zones (77 FR 75266; December 19, 2012). With the termination of the translocation program, the special status afforded to southern sea otters within the

management and translocation zones pursuant to Public Law 99-625 also ended. However, the National Defense Authorization Act for Fiscal Year 2016 included provisions directing the Secretary of the Navy to establish Southern Sea Otter Military Readiness Areas (Areas) at San Nicolas Island and San Clemente Island (where sea otters do not currently occur). Military readiness activities conducted within these Areas are subject to certain exemptions under the ESA and MMPA.

Historically, southern sea otters ranged from Punta Abreojos, Baja California, Mexico to Oregon (Valentine *et al.* 2008), or possibly as far north as Prince William Sound, Alaska (reviewed in Riedman and Estes 1990). The estimated historic abundance of sea otters in California alone is between 16,000 and 20,000 animals (CDFG 1976). The historic abundance of the subspecies in its entirety has not been estimated. During the 1700s and 1800s, the killing of sea otters for their pelts extirpated the subspecies throughout most of its range. A small population of southern sea otters survived near Bixby Creek in Monterey County, California, numbering a few dozen animals in 1914 (Bryant 1915). Since receiving protection under the International Fur Seal Treaty in 1911, southern sea otters have gradually expanded northward and southward along the central California coast.

Sea otter abundance varies across the range, with the highest densities occurring in the center portion (Seaside to Cayucos), where sea otters have been present for the longest. Rocky, kelp-dominated areas that are occupied primarily by females, dependent pups, and territorial males generally maintain the most stable sea otter densities from year to year, whereas sandy and soft-bottom habitats (particularly those in Monterey Bay, Estero Bay, and from Pismo Beach to Pt. Sal), which are typically occupied by non-territorial males and sub-adult animals of both sexes (and only rarely by adult females and pups), are more variable in abundance from year to year (Tinker *et al.* 2019). This variation is driven in part by the long-distance movements and seasonal redistribution of males (Tinker et al. 2008b). The variability of counts at the southern end of the range is also related to seasonal movements: many males migrate to the range peripheries during the winter and early spring, apparently to take advantage of more abundant prey resources, but then return to the range center during the period when most breeding occurs (June to November) in search of estrous females (Jameson 1989, Ralls et al. 1996, Tinker et al. 2008b).

The home ranges of southern sea otters tend to consist of several heavily used areas with travel corridors between them. Animals often remain in an area for a long period of time and then suddenly move long distances. These movements can occur at any time of the year (Riedman and Estes 1990). Sub-adult male southern sea otters have the largest home ranges, followed by adult males, sub-adult females, and adult females (Tinker et al. 2006a). Compared to males, most female southern sea otters are more sedentary, with adult females rarely dispersing more than 20 km (12 mi) within a 1-year period (Tinker et al. 2019), although occasionally females travel longer distances of 40-50 km (25-31 mi) as well (Tinker et al. 2006a). Juvenile males move further from natal groups than do juvenile females. Aggressive behavior exhibited towards the juvenile males by breeding males may be partially responsible for their more extensive travels

(Ralls et al. 1996). Jameson (1998) noted that adult male sea otters are territorial and exclude juvenile and subordinate males from their territories. However, females move freely across these territories.

Data on population size have been gathered for more than 50 years. In 1982, a standardized survey technique was adopted to ensure that subsequent counts were comparable (Estes and Jameson 1988). This survey method involves shore-based censuses of approximately 60 percent of the range, with the remainder surveyed from the air by the California Department of Fish and Wildlife. These surveys, led by the U.S. Geological Survey, are conducted each spring. As recommended in the Final Revised Recovery Plan for the Southern Sea Otter (Service 2003), 3-year running averages are used to characterize population trends to dampen the effects of anomalous counts in any given year. Because the population at San Nicolas Island is no longer considered an experimental population (77 FR 75266, December 19, 2012), beginning in 2013 the San Nicolas Island counts have been added to those for the mainland range in order to arrive at a California-wide index of abundance. The 3-year running average for 2019 is 2,962, which represents the combined 3-year running averages for the mainland population and San Nicolas Island, 2,863 and 99, respectively (USGS 2019). The 5-year trend along the mainland coastline averaged approximately –0.13 percent per year, whereas the 5-yerar trend at San Nicolas Island averaged 9.6 percent per year (USGS 2019).

Recovery and Threats

The Final Revised Recovery Plan was approved in 2003 (Service 2003). It establishes one recovery criterion: “The average population level over a 3-year period exceeds 3,090 animals. This criterion accounts for the number of southern sea otters that would be needed to ensure with reasonable certainty that an excess of 1,850 animals would survive following a major oil spill of the size of the Exxon Valdez oil spill (over 10 million gallons) and to ensure that a declining trend of 5 percent per year would be detected before the population reached the threshold level for endangered status. The threshold level for endangered status (1,850 animals) is based on the minimum number of animals needed to ensure a genetically effective population size of 500 if the ratio between effective population size and actual population size is 27 percent” (Service 2003). A five-year review recommended no change in the “threatened” status of the southern sea otter because the population size remained below the delisting criterion and because of the ongoing effects of other factors (Service 2015). In 2018, the southern sea otter population index exceeded 3,090 for the third consecutive year, meeting the threshold for delisting consideration (USGS 2018). However, a recent study found that assumptions made in the recovery plan regarding the relationship between effective population size and actual population size, which serve as the basis for the criteria, are not accurate (Gagne et al. 2018). We announced our initiation of a status review in 2019 (84 FR 36116). We completed the species status assessment in 2023 (Service 2023).

Threats leading to the listing included the southern sea otter’s reduced population size and range and increased tanker traffic and the corresponding potential for oil spills. The rulemaking also acknowledged the potential degradation of habitat caused by pollution or competition with

humans. The primary factors currently influencing the demographic trends of southern sea otters are density-dependent resource limitation in much of the central portion of the mainland range from Seaside to Cayucos (Tinker *et al.* 2006b, Tinker *et al.* 2008a, Tinker et al. 2019) and white shark attacks in the northern and southern portions of the range (Tinker et al. 2016, Tinker et al. 2016).[2] The body condition of sea otters in areas of the range with low per-capita prey availability appears to strongly influence their susceptibility to additional stressors (Tinker et al. 2019). These stressors include biotoxins produced during harmful algal or cyanobacterial blooms, disease-causing pathogens such as the protozoal parasites *Toxoplasma gondii* and *Sarcocystis neurona*, and acanthocephalan parasites (Service 2015). Other threats to southern sea otters include entrapment or entanglement in fishing gear, oil spills, and climate change (Service 2015).

Critical Habitat of the Tidewater Goby

We originally designated critical habitat for the tidewater goby on November 20, 2000 (Service 2000, entire). In 2008 and 2013, we revised the tidewater goby's critical habitat (Service 2008, entire; 2013, entire). The 2013 final rule describes 65 units, encompassing approximately 12,156 acres (Service 2013, p. 8746).

We designated 45 critical habitat units within the geographical area occupied at listing and 20 critical habitat units outside the geographical area occupied at listing that we determined essential for the conservation of the species. The 20 critical habitat units outside the geographical area occupied at the time of listing contain suitable aquatic habitat in coastal lagoons and estuaries, provide connectivity between source populations or may provide connectivity in the future, or may be more isolated but represent unique adaptations to local features (habitat variability, hydrology, microclimate). Critical habitat for the tidewater goby occurs in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties in California.

In accordance with section 3(5)(A)(i) of the Act and Federal regulations 50 CFR 424.12, in determining which areas to designate as critical habitat, we are required to identify the physical and biological features (PBFs) essential to the conservation of the tidewater goby. We consider the PBFs that, when present in the appropriate quantity and spatial arrangement to provide for a species' life-history processes, are essential to the conservation of the species.

The PBFs specific to the tidewater goby include:
PBF 1: Persistent, shallow (in the range of approximately 0.3 to 6.6 feet (0.1 to 2 meters)), still-to-slow-moving water in lagoons, estuaries, and coastal streams with salinity up to 12 ppt, which provide adequate space for normal behavior and individual and population growth that contain

[2] While an increase in sea otter numbers was observed in central portion of the range in 2015, the increase is thought to be due to increased juvenile survival and the immigration of males from the range peripheries in response to an unusually high abundance of sea urchins, presumably due to sea star wasting and a sea urchin recruitment event (Tinker and Hatfield 2015). As such, it may represent a short-term phenomenon.

one or more of the following:

- PBF 1a: Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction;
- PBF 1b: Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus*, *Ruppia maritima*, *Typha latifola*, and *Scirpus* spp., that provides protection from predators and high flow events; or
- PBF 1c: Presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

Overall, the critical habitat for this species has remained stable but is still threatened by coastal development.

Critical Habitat of the Western Snowy Plover

The current critical habitat designation (77 FR 36727) includes 60 units totaling 24,527 acres in Washington, Oregon, and California (Table 3). The PBFs (77 FR 367474) of critical habitat for the western snowy plover include sandy beaches, dune systems immediately inland of an active beach face, salt flats, mud flats, seasonally exposed gravel bars, artificial salt ponds and adjoining levees, and dredge spoil sites, with:

1. Areas that are below heavily vegetated areas or developed areas and above the daily high tides;
2. Shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low water flow and annual high tide or high water flow, subject to inundation but not constantly under water, that support small invertebrates, such as crabs, worms, flies, beetles, spiders, sand hoppers, clams, and ostracods, that are essential food sources;
3. Surf- or water-deposited organic debris, such as seaweed (including kelp and eelgrass) or driftwood located on open substrates that supports and attracts small invertebrates described in PBF 2 for food, and provides cover or shelter from predators and weather, and assists in avoidance of detection (crypsis) for nests, chicks, and incubating adults; and
4. Minimal disturbance from the presence of humans, pets, vehicles, or human-attracted predators, which provide relatively undisturbed areas for individual and population growth and or normal behavior.

Table 3. Critical habitat designations by State (77 FR 36728)

State	*Designation*
Washington	4 units, totaling 6,077 acres
Oregon	9 units, totaling 2,112 acres
California	47 units, totaling 16,337 acres

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) (50 CFR 402.02) define the environmental baseline as "the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline."

Action Area

The implementing regulations for section 7(a)(2) of the Act define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). BOEM has requested that we consider in this biological opinion the impacts on listed species of oil spills that are reasonably certain to occur during day-to-day oil production and development activities. BOEM has provided models of trajectories of such oil spill occurring from oil and gas facilities in the Southern California Planning Area. Notably, these models do not include the effect of oil spill response and containment efforts and are therefore conservative estimates. The trajectory models indicate that spills that are reasonably certain to occur during day-to-day oil production and development activities may contact nearshore and coastal areas outside the Southern California Planning Area (BOEM 2019) ranging from the City of Pismo Beach to the City of Oceanside. The action area for this biological opinion includes offshore (0 to 200 miles offshore) waters ranging from the City of Pismo Beach south to the City of Oceanside, as well as adjacent coastal areas and beaches, including the Channel Islands.

Habitat Characteristics and Existing Conditions of the Action Area

<u>Offshore Waters</u>
In general, much of the offshore waters within the action area remains undeveloped other than structures and pipelines associated with oil and gas production and development as well as maritime facilities such as piers and jetties. The offshore waters are a major cargo shipping area, and large container ships and other vessel traffic frequently use the area. The intertidal area within the action area typically contains both rocky intertidal habitat and sandy beach habitat.

<u>Coastal Areas</u>
Coastal areas within the action area range from completely undeveloped to largely developed (such as areas of Los Angeles County). The onshore area contains sandy beach habitat, rocky

areas and coastal bluffs, as well as salt marsh and coastal lagoon habitats. The onshore area contains areas of high human use (such as Oceano Dunes State Vehicular Recreation Area) as well as lower-use areas (such as near Jalama Beach Park). Development in coastal areas within the action area will likely continue to increase throughout the time period considered in this biological opinion.

Previous Consultations in the Action Area

The Service has issued multiple biological opinions analyzing effects of projects on the California least tern, light-footed Ridgway's rail, salt marsh bird's-beak, tidewater goby, western snowy plover, marbled murrelet, southern sea otter, critical habitat of the tidewater goby, and critical habitat of the western snowy plover within the action area. The most similar of these biological opinions in scale and effects was for oil and gas development for the Tranquillon Ridge and Pedernales Fields in Santa Maria Bay within the action area (2008-F-469). None of these biological opinions concluded that the proposed actions would jeopardize the continued survival and recovery of these species or adversely modify critical habitat. However, these consultations are included in the environmental baseline and the resulting impacts to listed species and critical habitats are considered in the effects analysis for this biological opinion.

Status of the Species in the Action Area

California Least Tern

The action area contains Management Areas B through N identified in the Service's 1985 recovery plan for the species (Service 1985a) ranging from Pismo Beach in San Luis Obispo County south to Santa Margarita Creek in San Diego County. The most recent breeding season survey in 2017 indicates that the species bred at approximately 13 sites within the action area. A 2016 survey of breeding sites estimated a minimum of 3,989 and a maximum of 4,661 breeding pairs in all of California, and specifically a minimum of 1,075 and a maximum of 1,246 breeding pairs in the action area in 2016 (Frost 2017). A 1983 study of Southern California colonies of the species indicate that 90 to 95 percent of foraging occurs within 1 mile of shore, and birds were never found more than 2 miles from shore (Atwood and Minsky 1983). Specific information for population trends in the action area is unavailable, however, the general reduction in abundance described above for the species as a whole is likely occurring within the action area as well. California least terns migrate and are not present in the action area in the nonbreeding season. Within the action area, agencies are continuing to monitor nesting areas, which addresses a recovery need specified by the species' 5-year reviews. However, threats to recovery by animal predation and encroachment by development in the action area remain significant and will likely increase during the duration of the proposed activities.

Light-Footed Ridgway's Rail

The light-footed Ridgway's rail was historically known to occur at 15 sites within the action

area; however, the species was detected at only 7of these sites during the most recent census conducted in 2019 (Zembal *et al.* 2020): Point Mugu in Ventura County; Seal Beach, Bolsa Chica Lagoon, the Huntington Beach wetlands, and Upper Newport Bay in Orange County; and Santa Margarita Lagoon and the San Luis Rey River in San Diego County. The population trend in each of these 15 sites has been negative over the previous 5 years including substantial declines in each of the 7 sites where the species was detected in 2019. Despite numerous recovery efforts within the action area, the species has not achieved its downlisting criterion of 800 breeding pairs in the wild and species abundance continues to decline within the action area and range wide.

Salt Marsh Bird's-Beak

The salt marsh bird's-beak is known to occur at four locations within the action area: Morro Bay, Carpinteria Salt Marsh, Point Mugu, and Upper Newport Bay. To date, some habitat protection and restoration work has occurred, and large-scale restoration planning is underway in areas such as Ormond Beach adjacent to Point Mugu; however, these actions only fulfill a small portion of the recovery goals identified for the species within the action area or range wide. Threats to the species within the action area include encroachment by invasive nonnative plants and trampling.

Tidewater Goby

The tidewater goby is known to occur within estuaries and coastal lagoons that seasonally close with sandbars throughout the action area. The species occurs either intermittently or regularly at 60 sites within the action area ranging from Arroyo del Oso near Piedras Blancas to the Santa Margarita River near Oceanside (Service 2005). The action area contains the Central Coast, Conception, LA/Ventura, and South Coast Recovery Units identified by the Service's 2005 recovery plan for the species. Recent research indicates that populations within the South Coast Recovery Unit may be a genetically distinct group from other tidewater gobies (Service 2007a, p. 13-14). Until the Service reviews the listing status of the gobies within the South Coast Recovery Unit, we are continuing to consider all tidewater gobies to be listed as threatened under the Act. Threats to the recovery of the species from habitat degradation persist in the action area and will likely increase during the duration of the proposed activities. To date, none of the downlisting criteria identified above have been achieved. However, the Service continues to work with partners in the action area to address recovery criterion 1: the implementation of management plans for the species.

Western Snowy Plover

The action area encompasses all of Recovery Unit 5 (San Luis Obispo, Santa Barbara, and Ventura Counties) and the northern portion of Recovery Unit 6 (Los Angeles, Orange, and San Diego Counties) for the western snowy plover designated by the Service's 2007 recovery plan for the species (Service 2007b). As of 2023, the Service estimated the adult population within Recovery Unit 5 to be 676 adults and Recovery Unit 6 to be 433 adults. Neither Recovery Units

5 or 6 have achieved the goals set out in Recovery Criteria 1: 1,200 breeding adults in Recovery Unit 5 and 500 breeding adults in Recovery Unit 6. Various efforts to address Recovery Criteria 3, development and implementation of mechanisms to assure long-term protection and management of habitat areas, are currently underway in both Recovery Units 5 and 6.

Marbled Murrelet

The marbled murrelet occasionally shelters and forages in offshore areas throughout the action area. The marbled murrelet does not breed within the action area, but it does disperse to the coast and offshore waters of San Luis Obispo and Santa Barbara Counties. Marantz (1986) characterized them as a rare transient and winter visitant offshore, but possibly regular in late summer in San Luis Obispo County. Lehman (1994) described the species as a very rare late-summer, fall, and winter visitor along the coast of Sa Barbara County, but somewhat regular in late summer in the Point Sal/north Vandenberg Air Force Base area. Peery et al. (2008) determined that the San Luis Obispo coast extending south to Point Sal in Santa Barbara County is an important wintering area for the species in central California. Assessing population trends of the species within the action area is difficult because the species does not have an established breeding area within the action area that would allow for recurring monitoring. However, the Service observed a substantial population decline from 2003 to 2008 in the nearest known breeding populations within Monterey and Santa Cruz Counties (i.e. Conservation Zone 6 in the Service's 1997 recovery plan) before population numbers improved from 2008 to 2016. However, the Service attributed this observation to either the implementation of predator control programs within Conservation Zone 6 or the population breeding elsewhere during the observed decline (Service 2019b).

Southern Sea Otter

The southern sea otter occupies nearshore areas of the northern portion of the action area from San Luis Obispo to Ventura Counties, with the most abundant populations within the action area in northern San Luis Obispo County and near San Nicolas Island. The most recent census data for the species in California from 2019 (USGS 2019) indicate a moderate decline in abundance, with a 5-year trend of approximately –1.6 percent per year in the coastal region between Cayucos and Gaviota, which encompasses the majority of the species' range in the action area. However, these census data also indicate a substantial positive 5-year trend in the small population near San Nicolas Island (an increase of approximately 9.6 percent per year). The observed population decline between Cayucos and Gaviota is most severe between Pismo Beach and Lompoc. USGS (2019) attributes this observation to a decline in the availability of kelp for shelter for the species which in turn leads to an increase in shark-caused sea otter mortality.

The Service's 2003 recovery plan for the species (Service 2003) lists only a single criterion for recovery of the species: a mean population of 3,090 for the entire species over 3 years. In 2018, the southern sea otter population index exceeded 3,090 for the third consecutive year, meeting the threshold for delisting consideration (USGS 2018). However, a recent study found that

assumptions made in the recovery plan regarding the relationship between effective population size and actual population size, which serve as the basis for the criterion, are not accurate (Gagne et al. 2018). The most recent census data in 2019 estimated a total population size of 2,863 with a 5-year trend of an annual decline in abundance of 0.13 percent per year. The portion of the population within the action area (excluding the San Nicolas Island population) has a negative 5-year trend as well.

Critical Habitat of the Tidewater Goby

The action area contains 34 critical habitat units designated by the Service's 2013 critical habitat rule for the species (78 FR 8745). These units range from Arroyo de la Cruz near San Simeon (Unit SLO-1) to the San Luis Rey River near Oceanside (Unit SAN-1). These units contain all three PBFs of designated critical habitat of the species and comprise 14.3 percent of all critical habitat for the species (1,732 of 12,156 total acres). The threats to critical habitat within the action area are similar to the threats to all critical habitat of the species: development, over drafting of water, channelization of habitat, and pollution.

Critical Habitat of the Western Snowy Plover

The action area contains Units CA-23 through CA-49 of designated critical habitat of the western snowy plover (77 FR 36727) ranging from San Carpiforo Creek north of San Simeon to Balboa Beach near Newport Beach. The threats to the critical habitat units within the action area are similar to the threats to critical habitat units throughout the range of the species with threats such as erosion of beaches, encroachment by development, and predation by native and non-native species. Designated critical habitat units within the action area contain all four PBFs of critical habitat for the species as defined by the Service (77 FR 36727). The critical habitat units within the action area comprise approximately 35 percent of all designated critical habitat for the species (5714 of 16,336 total acres).

EFFECTS OF THE ACTION

The implementing regulations for section 7(a)(2) define effects of the action as "all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action" (50 CFR 402.02).

In conducting this analysis, we have considered factors such as previous consultations; regulatory policies promulgated in the Federal Register; 5-year reviews; other Service documents; published scientific studies and literature; and professional expertise of Service personnel, particularly dealing with aspects directly related to the sensitive species involved, or other related scientific fields in determining whether effects are reasonably certain to occur. We

have also determined that certain consequences are not caused by the proposed action, such as the increase or spread of disease or poaching/collecting, because they are so remote in time, or geographically remote, or separated by a lengthy causal chain, so as to make those consequences not reasonably certain to occur as a result of the proposed action.

Analysis of Effects Under Programmatic Consultation

BOEM has requested that the Service analyze the effects of four specific types of activities on listed species and critical habitats: (1) approval of oil and gas development and production plans and plan revisions, (2) approval of applications for permits to drill and permits to modify, (3) BSEE's facility inspection helicopter flights, and (4) BSEE-initiated oil spill response equipment exercises. The biological assessment includes detailed projections based on historic data of the frequency, intensity, and locations of these four types of activities within the action area that would result from the proposed authorizations. These four types of activities all support day-to-day oil and gas development activities at existing platforms and BOEM does not anticipate authorization of new lease sales or new oil and gas development plans (BOEM 2025). Therefore, BOEM's projections of the frequency, intensity, and locations of these four types of activities will likely be relatively accurate. BOEM has also provided detailed information on the statuses of listed species and critical habitats within the action area. Altogether, BOEM has provided the Service sufficient information to analyze the effects of these four types of activities on listed species and critical habitats that would result from the proposed authorizations. Consequently, BOEM has provided the Service sufficient information to estimate the take of listed species that would occur incidental to the activities proposed for authorization.

Effects from Oil Spills and Spill Response Activities

The proposed authorizations may cause or contribute to oil spills within the action area. According to the biological assessment, accidental discharges of oil are reasonably foreseeable in the course of normal, day-to-day platform operations. Accordingly, BOEM has concluded that accidental discharges may be a consequence of its proposed actions because such accidental discharges are reasonably certain to occur in the course of normal, day-to-day platform operations. Consequently, we consider the effects of these accidental discharges and effects from subsequent cleanup activities on listed species and critical habitats in this biological opinion to determine whether the authorization of activities associated with the continued development and production of oil and gas reserves within the Southern California Planning Area could result in a spill that may jeopardize the continued existence of listed species or adversely modify critical habitat.

In Appendix A of the biological assessment (BOEM 2025), BOEM included an oil spill risk assessment for accidental discharges of oil reasonably foreseeable to occur in the course of normal, day-to-day platform operations as a result of BOEM's proposed actions. This oil spill risk assessment analyzed the volume and frequency of previous spills in the greater Pacific Outer Continental Shelf region. BOEM has recorded 1,451 oil spills between 1963 and 2022 within the Pacific Outer Continental Shelf region; on average, 28 spills per year. Excluding the 80,900 bbl Platform A spill, the spill sizes ranged from less than one bbl to 588 bbl (the 2021 Huntington

Beach spill from Pipeline P00547). Including the Platform A spill, the average size of these spills was approximately 57 bbl. Of the 1,451 recorded spills, 49 (3.4 percent) were larger than 1 bbl, and 8 (0.5 percent) were larger than 50 bbl. Based on these data and its experience in the Pacific Outer Continental Shelf Region, BOEM has estimated a "maximum most likely spill volume" of 1,000 bbl.

In order to estimate the chance that a "maximum most likely spill" will occur, BOEM calculated the probability of a spill between 50 to 1,000 bbls occurring as a result of ongoing activities within the Southern California Planning Area during the extraction of all remaining oil that can be economically produced. For purposes of this analysis, we will assume that this entire amount will be extracted within the 20 year period considered by this consultation. BOEM estimated that 1 is the mean number of spills of this size that would occur during the extraction of all remaining economically viable oil. The probability of one or more spills between 50 and 1,000 bbls is 63 percent. For purposes of this consultation, we analyze the effects of one to two spills of "maximum most likely spill volume" (1,000 bbl) on listed species and critical habitats to determine whether oil spills reasonably foreseeable to occur in the course of normal, day-to-day platform operations may jeopardize the continued existence of any listed species or adversely modify designated critical habitat.

The 1997 Platform Irene spill released approximately 164 bbl of oil when a transport pipeline between Platform Irene and an onshore processing facility ruptured. This spill fouled approximately 17 miles of shoreline in northern Santa Barbara County near the rupture site. While oil spill containment equipment and methodologies have improved since 1997, for the purposes of this biological opinion we expect a "maximum most likely spill volume" 1,000 bbl spill would have a proportionately larger effect on onshore habitats than the Platform Irene spill. In 2015, the onshore pipeline 901 (not under BOEM or BSEE authority) ruptured and released approximately 2,934 bbls of oil with as much as 1,262 bbls reaching the ocean causing shoreline oiling between Gaviota in Santa Barbara County and Long Beach in Los Angeles County (Refugio Beach Oil Spill Trustees 2020). In general, the impacts of a 1,000 bbl offshore release are anticipated to be less than the Refugio spill due to the lower release volume and dispersion dynamics that would spread an offshore release before reaching sensitive areas along the shoreline.

BOEM has prepared an oil spill trajectory analysis for spills occurring within the Southern California Planning Area. BOEM used two models to conduct these analyses: the BOEM's Oil Spill Risk Analysis (OSRA) model and the National Oceanic and Atmospheric Administration's (NOAA) General NOAA Operational Modeling Environment (GNOME) model. The methodology of these models is described in detail in Section A.6 of Appendix A of the biological assessment. To summarize briefly, the OSRA model calculates numerous trajectories from pre-designated launch points by varying wind and ocean current fields. The GNOME model simulates oil movement using winds, currents, tides, and spreading. Neither the OSRA nor GNOME models consider the volume of the modeled spill event within their methodologies. These models simulate the geographic spread of oil over time and can thus indicate the

likelihood of spilled oil to contact specific geographic areas, including onshore areas. BOEM chose six different launch points located at existing platforms across the breadth of the Southern California Planning Area as origin points for the modeled spills under each model.

We used the outputs of these models, summarized in Section 4.4 of the biological assessment, to examine the likelihood that oil from spill(s) reasonably certain to occur as a result of BOEM's proposed authorizations would contact listed species or designated critical habitats (Figure 1). Notably neither the OSRA nor GNOME models consider the minimizing effect of oil spill response and containment efforts. Accordingly, with the minimizing effect of oil spill response and containment efforts, an actual spill will likely affect relatively fewer areas than the number of areas estimated by the model. Nevertheless, for the purposes of this consultation, we consider every area with any likelihood of contacting oil in any iteration of these models to be potentially adversely affected by oil spill(s) reasonably certain to occur as a result of BOEM's proposed authorizations. Therefore, to evaluate the effects of these reasonably foreseeable oil spills we analyze the likelihood that spilled oil would contact listed species and critical habitats based on these trajectory models. Additionally, we evaluate the effects on listed species and critical habitats of one to two 1,000-bbl spills that would each foul approximately 20 miles of shoreline (i.e. spills that are reasonably certain to occur during day-to-day oil production and development activities).

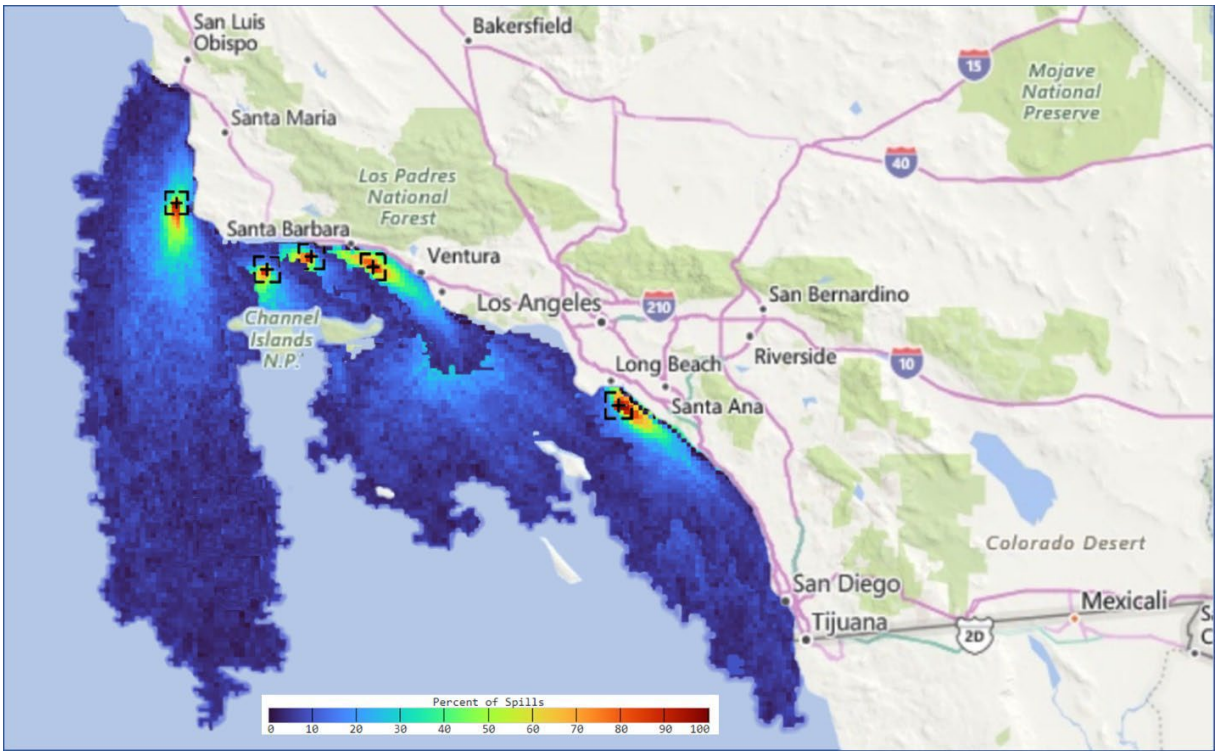

Figure 1. Combined spill trajectory model results. Areas with colors represented on the color scale had greater than approximately 10 percent of modelled spills resulting in accumulation of 5 bbl or more by 21 days since the maximum spill occurrence (200 bbl per day for 5 days). (From BOEM 2025, Appendix A, A-4, p101).

BOEM does not consider catastrophic spills similar to the 80,900 bbl Platform A spill near Santa Barbara in 1969 to be an effect of its proposed actions because it does not believe such catastrophic spills are reasonably certain to occur as a result of its proposed actions. In general, BOEM considers drilling into these mature fields a low-risk activity. The majority of reservoirs have low to no pressure remaining and require secondary or tertiary extraction methods to produce oil for the well, making a "blowout" loss of well control such as the Platform A spill unlikely to occur. The "worst case" spill scenario presented by BOEM in Appendix A of the biological assessment is of a "blowout" loss of well control of up to 5,777,620 bbl. Following the Platform A and other catastrophic spills elsewhere, BSEE has developed more stringent regulations, implemented rigorous inspections, and instituted changes in equipment and procedures to promote safety (BOEM 2025). Therefore, as specified in the consultation request, we do not consider the effects of large catastrophic spills (over 1,000 bbls) that may occur as a result of the proposed authorizations in this biological opinion. If such a spill occurs, the lead federal agency for the spill response would evaluate effects to listed species from the spill response, if any, and initiate consultation with the Service on these effects as necessary. If such a spill affects natural resources such as listed species, the responsible party would mitigate damage to these resources through the Natural Resource Damage Assessment and Restoration (NRDAR) process. This biological opinion does not analyze effects to listed species or critical habitats from large catastrophic spills nor does this biological opinion include provisions for take incidental to any spills or the effects from cleanup actions conducted in response to spills. This is discussed further in the Conclusion section below.

Produced Water and Effluent Discharges

In March 2014, the Environmental Protection Agency issued National Pollution Discharge Elimination System General Permit number CAG280000 for gaseous, liquid, and solid discharges from offshore oil and gas exploration, development, and production operations within the Southern California Planning Area. The Environmental Protection Agency considered the effects on listed species and designated critical habitats from issuance of this permit and concluded that its issuance of this permit, and therefore discharges from offshore oil and gas operations, would have no effect on listed species and designated critical habitats.

California Least Tern

The proposed authorizations may adversely affect California least terns by disturbance from or collision with boat and aircraft traffic and equipment deployment necessary for day-to-day production and development activities; drilling for new wells, well completion, and well workover operations; platform helicopter inspection flights; and oil spill response exercises. These effects would be limited to the migratory and breeding season for the species (April to August) when they are present in the action area. Activities on oil platforms are unlikely to affect foraging California least terns because all oil platforms are situated at least 3 miles offshore, and data indicate that California least terns forage primarily within 1 mile and up to 2 miles of shore within the action area (Atwood and Minsky 1983).

While utilizing onshore habitat, California least terns could be impacted by personnel and equipment that are deployed within suitable habitat during spill response exercises. During migration, it is possible that artificial lighting on platforms could interfere with migration, as has been documented in some seabird species (Podolsky 2002 as cited by BOEM 2025). Migration habits of California least terns are not well understood; however, in the 20-year operation history of the platforms at issue in this consultation, there has been no indication that platform lighting has significantly affected any seabird species or California least terns (BOEM 2025). BOEM and BSEE would avoid and minimize these effects by implementing measures 1, 2, 3, 4, 5, 6, 7, and 8. In particular, BOEM and BSEE would ensure that project vessels use protected species observers and stay a minimum of 300 feet away from marine wildlife. We conclude that the effects on sheltering, nesting, foraging, and migrating California least terns by disturbance from platform operations, boat traffic, aircraft traffic and equipment deployment would be low because BOEM and BSEE would implement suitable avoidance and minimization measures, the likelihood of California least terns encountering project-related vehicles and equipment is low, and the magnitude of effects would be limited to disturbance of California least terns as no individuals are anticipated to be killed by these activities.

Effects from Produced Water and Effluent Discharges

The proposed authorizations are not likely to affect foraging California least terns by degrading habitat quality within the action area through contamination with gaseous, liquid, and solid discharges associated with day-to-day production activities or fluids associated with well completion and workover operations. The likelihood of such discharges and fluids encountering areas used by California least terns is low because California least terns forage up to 2 miles offshore within the action area, whereas project facilities are at least 3 miles offshore. BOEM expects any discharges would only be conducted under the authority of a valid NPDES permit and would be limited to levels that do not cause toxicity. Additionally, contamination from these fluids would be rapidly diluted by mixing with ocean water (BOEM 2025).

Effects from Oil Spills and Spill Response Activities

The proposed authorizations may adversely affect California least terns by injury or mortality through contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities. The oil spill trajectory models provided by BOEM indicate that oil from spills may contact areas used by foraging and breeding California least terns. As noted above, these oil spill trajectory models do not incorporate oil spill containment efforts into their projects and thus these models likely overestimate the amount of area that may contact oil during spills. The effect of oil spills to California least terns would occur during the breeding season when California least terns are present in the action area. BOEM and BSEE would avoid and minimize these effects by implementing avoidance and minimization measures 1 and 6.

California least terns are only present during the breeding season and spills that are reasonably certain to occur would likely affect a portion of the birds from any given breeding colony during

foraging activities because oil deposition along the shoreline occurs only in the swash zone between high and low tide where terns do not nest, and oil on the surface of the ocean tends to be patchy and discontinuous and would impact only a portion of the total colony foraging area at any given time. Similarly, spills that are reasonably certain to occur may affect a portion of a limited number of breeding colonies but is unlikely to affect all birds from a single colony because breeding California least terns nest above the high tide line and thus most would likely avoid contact with oil deposited by tidal action in occupied areas. However, if any California least terns contact spilled oil, we expect any oiled birds to be injured or killed by this exposure, and all eggs or chicks of that individual may be subject to starvation or predation due to the loss of a parent. We conclude that the effects on California least terns from contact with oil following spills that are reasonably certain to occur during day-to-day oil production and development activities would impact a portion of affected breeding colonies because of the high mortality rate of oiled birds, but we expect that these effects would not cause extirpation of any breeding colonies.

The proposed authorizations may adversely affect the California least tern by degrading onshore, or nesting habitat quality within the action area through contamination with oil and effects of response activities during spills that are reasonably certain to occur during day-to-day oil production and development activities. The effect of such spills would be magnified during the breeding season. BOEM and BSEE would avoid and minimize this effect by implementing avoidance and minimization measures 1 and 6. The likelihood of spilled oil encountering California least tern nesting habitat is low because nesting habitat is located above the high tide line where oil deposition would occur from a spill. Foraging California least terns could encounter oil on the ocean surface but it would likely cover only a small portion of a colony's foraging area at any given time and while individual terns could be injured or killed by exposure to the oil it would not likely impact an entire colony. If oil does impact California least tern habitat, degradation would be expected to last for between one and three years, as documented during the Refugio Beach Oil Spill (Refugio Natural Resource Trustees 2020). We expect that any oil deposited onshore would be rapidly contained and removed by implementation of the oil spill response plans specified in avoidance and minimization measure 6. These cleanup activities could have impacts to habitat quality through removal of wrack, trampling, and equipment use. We conclude that the effect on nesting habitat quality of the California least tern from degradation by contamination with oil during spills and cleanup activities would be low because few, if any, California least tern habitat areas are likely to contact oil from spills that are reasonably certain to occur during day-to-day oil production and development activities. If spilled oil contacts a California least tern nesting habitat area, we expect a portion of the habitat within the affected area would be degraded, and that the habitat quality would improve within three years.

Recovery

The proposed authorizations would not preclude or diminish the likelihood of the recovery of the California least tern. The proposed authorizations would not contribute to encroachment by development or animal predation, primary threats identified in the recovery plan (Service

1985a). However, the proposed authorizations may contribute to overall habitat quality degradation from oil spills, also a threat to recovery identified in the Service's recovery plan for the species (Service 1985a). Nevertheless, we expect that spills that are reasonably certain to occur during day-to-day oil production and development activities would affect only a small portion of habitat for the species, if any. Oiling projected by trajectory modeling in BOEM's biological assessment would not substantially impact tern numbers, reproduction, or distribution range wide such that recovery would be precluded. The proposed authorizations may impede progress towards population abundance goals specified in the recovery plan through injury or mortality from contact with spilled oil. However, the species inhabits few locations within the action area and no colonies are anticipated to be completely extirpated from a spill.

Light-Footed Ridgway's Rail

The proposed authorizations may adversely affect light-footed Ridgway's rails by disturbance from light and noise associated with boat and aircraft traffic for day-to-day production and development activities; drilling for new wells, well completion, and well workover operations; platform helicopter inspection flights; and oil spill response exercises. These effects would be magnified during the breeding season for the species (mid-March through August). BOEM and BSEE would avoid and minimize this disturbance by implementing avoidance and minimization measures 1, 4, 6, 7, and 8. We conclude that the effects on light-footed Ridgway's rails by disturbance from light and noise from aircraft would be indistinguishable from background levels of light and noise. Spill response exercises could cause adverse effects when conducted within or adjacent to occupied habitat; however, these effects would be reduced because BOEM and BSEE would implement suitable avoidance and minimization measures. Overall, the likelihood of light-footed Ridgway's rails encountering adverse effects from project activities is low, and the magnitude of effects would be limited to disturbance of light-footed Ridgway's rails and no mortality is expected to occur.

Effects from Produced Water and Effluent Discharges

Due to the rapid dilution of any discharges from releases on or near the platforms, BOEM determined that contaminants from effluent discharges associated with activities including well stimulation-related discharges should not be measurable in the coastal waters and sediments and therefore are not anticipated to cause adverse effects to light-footed Ridgeway's rails.

Effects from Oil Spills and Spill Response Activities

The proposed authorizations may adversely affect light-footed Ridgway's rails by injury or mortality through contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities. The oil spill trajectory models provided by BOEM indicate that oil from spills that are reasonably certain to occur during day-to-day oil production and development activities may contact areas used by light-footed Ridgway's rails in Carpinteria Marsh in Santa Barbara County (which is not currently occupied by the species, but may become occupied during the period covered by this consultation) and Mugu Lagoon in Ventura County. The effect of such spills would be magnified during the breeding season. BOEM and BSEE would avoid and minimize these effects by implementing avoidance and

minimization measures 1 and 6.

The likelihood of oil encountering any light-footed Ridgway's rail habitat areas is low because the species inhabits a maximum of two locations within the action area and habitat is situated within coastal wetland complexes where oil spill protection measures have been thoroughly planned to prevent or greatly reduce oil from an offshore spill from entering and infiltrating the wetlands. The most vulnerable habitat area is Mugu Lagoon. If any light-footed Ridgway's rails contact spilled oil, we expect any oiled birds to be injured or killed by this exposure. Over the 20-year time period considered in this biological opinion, spilled oil may encounter light-footed Ridgway's rails in Mugu Lagoon or other occupied habitats. Spills that are reasonably certain to occur would affect a maximum of two populations but are extremely unlikely to affect all birds from either population. If spilled oil contacts light-footed Ridgway's rails we expect a portion of individuals in the populations to be injured or killed because of the high mortality rate of oiled birds.

The proposed authorizations may adversely affect the light-footed Ridgway's rail by degrading habitat quality within the action area through contamination with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities. The effect of such spills would be magnified during the breeding season. BOEM and BSEE would avoid and minimize this effect by implementing avoidance and minimization measures 1 and 6. The likelihood of spilled oil encountering light-footed Ridgway's rail habitat is low because light-footed Ridgway's rail habitat is sparse within the action area and is situated within coastal wetland complexes where oil spill protection measures have been thoroughly planned to prevent or greatly reduce oil from an offshore spill from entering and infiltrating the wetlands. These wetland complexes are easier to protect from oil coming ashore than the open coastline because berms and booms can be placed across the inlet to prevent or reduce oil from entering the habitat area. During the Refugio Beach Oil Spill, which impacted the coastline adjacent to several suitable habitat areas for light-footed Ridgeway's rail including Carpinteria salt marsh, Ormond Lagoon, and Mugu Lagoon, no suitable habitat was exposed to oil and no impacts to light-footed Ridgeway's rails were observed (Refugio Beach Oil Spill Trustees 2020).We expect that any oil deposited onshore in the vicinity of light-footed Ridgway's rail habitat would be rapidly contained and removed by implementation of the oil spill response plans specified in avoidance and minimization measure 6; however, these response actions could have temporary adverse effects to habitat by deployment of workers and equipment within the wetlands. Over the 20-year time period considered in this biological opinion, oil from a spill or oil spill response actions may cause adverse effects to light-footed Ridgeway's rails. We conclude that the effects on habitat quality of the light-footed Ridgway's rail from degradation by contamination with oil during spills would occur in very few areas and the effects would be temporary.

Recovery

The proposed authorizations would not preclude or diminish the likelihood of the recovery of the light-footed Ridgway's rail. The proposed authorizations would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 1985b), such as

encroachment by development or animal predation. The proposed authorizations may impede progress towards population abundance goals specified in the Service's recovery plan for the species through injury or mortality from contact with spilled oil or oil spill response operations (Service 1985b). However, likelihood of injury or mortality from contact with spilled oil is low because the species inhabits few locations within the action area. If spilled oil encounters light-footed Ridgway's rail habitat, we expect that the spill would affect only a portion of a single population. Even the most severe impacts projected by spill trajectory modeling would not substantially impact light-footed Ridgway's rail numbers, reproduction or distribution range wide.

Salt Marsh Bird's Beak

The proposed authorizations may adversely affect salt marsh bird's beak by disturbance from oil spill response exercises. Spill response exercises could cause adverse effects when conducted within or adjacent to occupied habitat; however, these effects would be reduced because BOEM and BSEE would implement suitable avoidance and minimization measures. Overall, the likelihood of salt marsh bird's beak suffering adverse effects from project activities is low, and no mortality is expected to occur.

Effects from Produced Water and Effluent Discharges
Due to the rapid dilution of any discharges from releases on or near the platforms, BOEM determined that contaminants from effluent discharges associated with activities including well stimulation-related discharges should not be measurable in the coastal waters and sediments and therefore are not anticipated to cause adverse effects to salt marsh bird's beak.

Effects from Oil Spills and Spill Response Activities
The proposed authorizations may adversely affect the salt marsh bird's-beak by injury or mortality through contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities. The oil spill trajectory models provided by BOEM indicate that oil from spills that are reasonably certain to occur during day-to-day oil production and development activities may contact areas occupied by salt marsh bird's-beak. As noted above, these oil spill trajectory models do not incorporate oil spill containment efforts into their projects and thus these models likely overestimate the amount of area that may contact oil during spills. Salt marsh bird's beak is known to occur in seven coastal salt marshes adjacent to the Southern California Planning Area. BOEM and BSEE would avoid and minimize effects of spills by implementing avoidance and minimization measure 6. The likelihood of spilled oil from any individual spill encountering salt marsh bird's-beak is low because the species occupies few locations within the action area and is situated within coastal wetlands where oil spill protection measures have been thoroughly planned to prevent or greatly reduce oil from an offshore spill from entering and infiltrating wetlands. These wetland complexes are easier to protect from oil coming ashore than the open coastline because berms and booms can be placed across the inlet to prevent or reduce oil from entering the habitat area from offshore. During the Refugio Beach Oil Spill, that impacted the coastline adjacent to several suitable habitat areas salt marsh bird's-beak

including Carpinteria salt marsh, Ormond Lagoon, and Mugu Lagoon, no suitable habitat was exposed to oil and no impacts to salt-marsh bird's-beak were observed (Refugio Beach Oil Spill Trustees 2020). However, over the 20-year time period considered in this biological opinion, oil from a spill may encounter salt marsh bird's-beak. Spills that are reasonably certain to occur during day-to-day oil production and development activities would likely affect only a portion of the population at up to two locations. We expect any salt marsh bird's-beak plant that is contacted by spilled oil to be injured or killed by this exposure. We conclude that the effects on salt marsh bird's-beak from contact with oil following spills and cleanup activities would affect a very limited number of occurrences. We do not expect a spill event would extirpate any population.

The proposed authorizations may adversely affect the salt marsh bird's-beak by degrading habitat quality within the action area through contamination with oil spills that are reasonably certain to occur or by oil spill response activities. BOEM and BSEE would avoid and minimize this effect by implementing avoidance and minimization measure 6. The likelihood of spilled oil from any individual spill encountering any individual salt marsh bird's-beak habitat area is low because salt marsh bird's-beak occurs at few locations within the action area, as described above. Additionally, we expect that any oil deposited onshore would be rapidly contained and removed by implementation of the oil spill response plans specified in avoidance and minimization measure 6. However, over the 20-year time period considered in this biological opinion, oil from a spill may encounter salt marsh bird's-beak habitat. We conclude that the effect of habitat quality degradation by contamination with oil from spills would contaminate few, if any, areas of salt marsh bird's-beak habitat over the time period considered in this biological opinion. If oil from such a spill contacts a salt marsh bird's-beak habitat area we expect moderate effects on habitat quality limited to only a portion of a up to two habitat area.

Recovery

The proposed authorizations would not preclude or diminish the likelihood of the recovery of the salt marsh bird's-beak. The proposed authorizations would not contribute to threats identified in the Service's recovery plan for the species (Service 1985c), such as encroachment by coastal development or invasive plants. The proposed authorizations may contribute to habitat degradation from oil spills that are reasonably certain to occur during day-to-day oil production and development activities. Nevertheless, we expect that spills that are reasonably certain to occur during day-to-day oil production and development activities would affect only a small portion of habitat for the species, if any. Even severe impacts to a small habitat area would not substantially impact salt marsh bird's-beak numbers, reproduction or distribution range wide. The proposed authorizations may impede progress towards population abundance goals specified in the Service's recovery plan for the species through injury or mortality from contact with spilled oil (Service 1985c). However, injury or mortality from contact with spilled oil is unlikely because the species inhabits few locations within the action area.

Tidewater Goby

The proposed authorizations may adversely affect the tidewater goby by disturbance from light, noise, and equipment deployment associated with boat and aircraft traffic for day-to-day production and development activities; platform inspection helicopter flights; and oil spill response exercises. BOEM and BSEE would avoid and minimize this disturbance by implementing avoidance and minimization measures 4, 5, 7, and 8. Aircraft traffic may travel over occupied habitat when traveling to and from platforms; however, any effect on tidewater gobies is likely minimal and indistinguishable from other sources of light and noise that affect these populations as part of the baseline conditions. Spill response equipment deployment exercises have the potential to impact tidewater gobies and their habitat, particularly if equipment such as boom anchors are deployed in estuarine sediments where tidewater goby burrows may occur. We conclude that the effects on the tidewater goby by disturbance from light, noise, and equipment deployment would be low because BOEM and BSEE would implement suitable avoidance and minimization measures, and the nature of effects would be predominantly through disturbance of tidewater gobies, with some potential for mortality if spill response exercises require the disturbance of sediments occupied by tidewater goby burrows.

Effects from Produced Water and Effluent Discharges

The proposed authorizations are not likely to affect the tidewater goby by degrading habitat quality within the action area through contamination with gaseous, liquid, and solid discharges associated with day-to-day production activities or fluids associated with well completion and workover operations. The likelihood of such discharges and fluids encountering areas used by tidewater gobies is extremely unlikely to occur because tidewater gobies inhabit coastal areas, whereas project facilities are at least 3 miles offshore. BOEM expects any contamination from fluids to be rapidly diluted by mixing with ocean water (BOEM 2025).

Effects from Oil Spills and Spill Response Activities

The proposed authorizations may adversely affect the tidewater goby by injury or mortality through contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities. The oil spill trajectory models provided by BOEM indicate that oil from spills that are reasonably certain to occur may contact areas used by tidewater gobies. As noted above, these oil spill trajectory models do not incorporate oil spill containment efforts into their projects and thus these models likely overestimate the amount of area that may contact oil during spills. BOEM and BSEE's trajectory models indicate that a hypothetical "maximum most likely spill" from Platform Irene displayed the highest probability of oil contacting land (50 to 60 percent) and that three occupied tidewater goby critical habitat units occur in the modeled area (BOEM 2025). All other scenarios presented a lower probability of oil contacting the mainland and are detailed in the biological assessment.

It is unlikely that substantial quantities of spilled oil from any individual release event would impact occupied tidewater goby habitat because sand berms are present during much of the year separating estuarine habitats from the open ocean. During conditions when estuary berms are absent, booming strategies identified in oil spill response plans would be implemented for all occupied habitat within the action area and would prevent or reduce oil from entering from

offshore. We expect that any tidewater gobies encountering spilled oil to be injured or killed by this exposure. Based on the oil spill trajectory analysis presented in the BA, the natural protection of estuaries provided by berms, and oil spill response measures designed to prevent offshore oil from entering estuaries, we expect that oil from spills that are reasonably certain to occur would affect only a portion of up to three populations and would not extirpate all tidewater gobies from any affected estuary.

For comparison, the 1997 Platform Irene spill affected 17 miles of shoreline including the estuaries at San Antonio Creek, Honda Creek, and the Santa Ynez River. No mortality of tidewater gobies was documented during the spill; however, some impacts may have occurred but gone undetected. Survey observations in these creeks detected the presence of tidewater gobies during survey efforts in 1998 and 2001, indicating that tidewater gobies continued to occupy these habitat units following the spill (Spies 2019). Additionally, no oil entered tidewater goby habitat during the May 2015 Refugio Beach Oil Spill, which occurred from an onshore pipeline rupture (much closer to tidewater goby habitat than a spill originating offshore) and resulted in shoreline oiling between Santa Barbara and Los Angeles Counties. During the Refugio spill, sand berms were in place and boom was installed as secondary protection against oiling and successfully prevented any oil from entering all estuary habitats. No adverse effects to tidewater gobies or their habitats were documented during the spill or cleanup (Refugio Beach Oil Spill Trustees 2020).We conclude the likelihood of spilled oil entering occupied habitat is low. If spilled oil does enter occupied tidewater goby habitat, we expect that a portion of the adults, juveniles and eggs of affected estuaries could be killed by exposure to oil or by spill response activities; however, this affect is anticipated to be limited to three estuaries at most and would not be so severe as to cause extirpation in any estuary.

The proposed authorizations may adversely affect the tidewater goby by degrading habitat quality within the action area through contamination with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities. BOEM and BSEE would avoid and minimize this effect by implementing avoidance and minimization measure 6. The likelihood of spilled oil encountering tidewater goby habitat area is low for the reasons described above. However, over the 20-year time period considered in this biological opinion, oil from a spill may encounter tidewater goby habitat. We conclude that the effect of habitat quality degradation by contamination with oil during oil spills occur in only a very limited number of occupied areas and effects would be temporary.

Recovery

The proposed authorizations would not preclude or diminish the likelihood of the recovery of the tidewater goby. The proposed authorizations would not contribute to threats to recovery identified in the recovery plan for the species (Service 2005), such as coastal development or over drafting of water. The proposed authorizations may contribute to habitat degradation from oil spills that are reasonably certain to occur during day-to-day oil production and development activities. However, we expect oil from oil spills that are reasonably certain to occur during day-to-day oil production and development activities to contact few, if any, tidewater goby habitat

areas during the 20-year period considered in this biological opinion. Spill trajectory analysis results and effects of past spills support the conclusion that very few occupied areas may be impacted by a "maximum worst case spill" and that tidewater gobies are not likely to be extirpated from any affected habitat area. The proposed authorizations may impede progress towards population abundance goals specified in the Service's recovery plan for the species (Service 2005) through injury or mortality from contact with spilled oil. However, injury or mortality from contact with spilled oil would likely affect only a portion of the populations in up to three estuaries and would not cause effects that substantially reduce overall numbers, reproduction, or distribution of tidewater gobies range wide.

Western Snowy Plover

The proposed authorizations may adversely affect the western snowy plover by disturbance from light and noise associated with daily boat and helicopter trips associated with day-to-day production and development activities, platform inspection helicopter flights, and occasional boat or aircraft traffic during oil spill response exercises. These effects would be magnified during the breeding season (March through September). Western snowy plovers may be affected by light and noise from aircraft traveling to and from platforms over occupied habitat. The resulting effects are anticipated to be minor and indistinguishable from other sources of light and noise that are part of baseline conditions for western snowy plovers in the area. Breeding western snowy plovers may be impacted by spill response training exercises if conducted in occupied habitat during the breeding season. BOEM and BSEE would avoid and minimize this disturbance by implementing avoidance and minimization measures 1, 4, 6, 7, and 8. Western snowy plovers would experience only transitory disturbance because the species inhabits coastal areas that are subject to aircraft fly-overs and spill response exercises, whereas project facilities are at least 3 miles offshore and no effects from platform operations are anticipated to impact western snowy plovers. We conclude that the effects on the western snowy plover by disturbance from light and noise and spill response exercises would be low because BOEM and BSEE would implement suitable avoidance and minimization measures, the likelihood of western snowy plovers encountering project-related light and noise is low, and the magnitude of effects would be limited to disturbance of western snowy plovers.

<u>Effects from Produced Water and Effluent Discharges</u>
The proposed authorizations are not likely to affect the western snowy plover by degrading nearshore water quality within the action area through contamination with gaseous, liquid, and solid discharges associated with day-to-day production activities or fluids associated with well completion and workover operations. The likelihood of such discharges and fluids encountering areas used by western snowy plovers is extremely unlikely to occur because western snowy plovers inhabit coastal areas, whereas project facilities are at least 3 miles offshore. BOEM expects any contamination from fluids to be rapidly diluted by mixing with ocean water (BOEM 2019).

<u>Effects from Oil Spills and Spill Response Activities</u>

The proposed authorizations may adversely affect western snowy plovers by injury or mortality through contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities and from spill response activities. The effect of such spills would be magnified during the breeding season, although western snowy plovers are present in the area year-round. The oil spill trajectory models provided by BOEM indicate that there are 21 recent breeding localities, 47 wintering localities, and 21 designated critical habitat units that are in or directly adjacent to areas modeled as being vulnerable to oil spills that originate from the various spill scenarios modeled (BOEM 2025). A spill from Platform Irene displayed the highest probability (50-60%) of oil contacting land at Point Arguello and a 10-20% chance of contact at San Miguel Island. As noted above, these oil spill trajectory models do not incorporate oil spill containment efforts into their projects and thus these models likely overestimate the amount of area that may contact oil during spills. BOEM and BSEE would avoid and minimize these effects by implementing avoidance and minimization measures 1 and 6.

Over the 20-year time period considered in this biological opinion, oil from spills may contact western snowy plovers. We expect any western snowy plovers that contact spilled oil could be injured or killed. Previous oil spills within the action area indicate that shoreline protection measures and cleaning can be effective in reducing exposure of oil from an offshore spill to western snowy plovers. The Refugio Beach Oil Spill caused as much as 1,262 bbl of crude oil from a ruptured onshore pipeline to reach the ocean in close proximity to a nesting population of western snowy plovers at Coal Oil Point Reserve. No western snowy plovers were documented to be killed during this large spill event, but many individuals experienced oiling and the population experienced reproductive effects the year following the spill (Refugio Beach Oil Spill Trustees 2020). We conclude that the effects on western snowy plovers from contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities would be rare, and effective shoreline protection techniques can be implemented by spill responders to minimize exposure of oil to western snowy plovers, as demonstrated through the Refugio Beach Oil Spill. Nevertheless, if spilled oil contacts western snowy plovers, we expect a portion of birds in each affected population could be killed due to the high mortality rate of oiled birds. Oil exposure may also cause decreased reproductive output the following year. Spill response activities can cause further disruption to western snowy plovers, possibly resulting in injury or mortality to a low number of birds during the cleanup. This loss of individuals from western snowy plover populations affected by spills and cleanup activities is anticipated to recover over time and we do not expect a spill to cause extirpation of any plover breeding populations.

The proposed authorizations may adversely affect the western snowy plover by degrading habitat quality within the action area through contamination with oil during spills that are reasonably certain to occur. This effect would be magnified during the breeding season, but would affect wintering birds as well. Estimates of sandy beach recovery times used in the Refugio Beach Oil Spill Natural Resource Damage Assessment identify a recovery period of between one and three years depending on the severity of oiling and other stressors affecting the habitat (Refugio Beach Oil Spill Trustees 2020). During the 2015 spill and cleanup operations, western snowy plovers

successfully fledged an average number of chicks, indicating that the severity of the habitat degradation was not so great as to no longer support western snowy plovers. BOEM and BSEE would avoid and minimize this effect by implementing avoidance and minimization measures 1 and 6. Over the 20-year time period considered in this biological opinion, it is reasonably certain that oil from such a spill could encounter western snowy plover habitat. We expect these effects would be temporary because BOEM and BSEE would require rapid implementation of the oil spill response plans required by avoidance and minimization measure 6. We conclude that the effect of habitat quality degradation by contamination with oil during oil spills may cause degradation that affects up to several populations of breeding or wintering plovers. This degradation could last for approximately three years and is not expected to be so severe as to make the habitat unsuitable for habitation by western snowy plovers.

Recovery

The proposed authorizations would not preclude or diminish the likelihood of the recovery of the western snowy plover. The proposed authorizations would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 2007b), such as trampling by off highway vehicles, encroachment by development, or animal predation. The proposed authorizations may contribute to habitat degradation by oiling from oil spills that are reasonably certain to occur and from oil spill response activities. However, we expect spilled oil to affect western snowy plover habitat areas during the 20-year time period considered in this biological opinion. The proposed authorizations may impede progress towards population abundance goals specified in the Service's recovery plan for the species (Service 2007b) through injury, mortality, or reproductive effects from contact with spilled oil. However, we expect that effects from contact with spilled oil would be temporary and affect a small portion of the population within a low number of breeding sites within Recovery Unit 5 or a portion of Recovery Unit 6.

Marbled Murrelet

Marbled murrelets spend much of their time at sea and are vulnerable to impacts in the offshore environment. While they spend a majority of their time close to shore (0.6 to 1.2 miles) they can travel up to 15 miles offshore, putting them in possible conflict with the platforms and support traffic necessary for operations. The proposed authorizations may adversely affect foraging marbled murrelets by disturbance from light and noise associated with boat and aircraft traffic for day-to-day production and development activities; drilling for new wells, well completion, and well workover operations; platform inspection helicopter flights; and oil spill response exercises. The proposed authorizations may also adversely affect foraging marbled murrelets by injury or mortality from collisions with project vessels or equipment. BOEM and BSEE would avoid and minimize this disturbance by implementing avoidance and minimization measures 1, 2, 4, 5, 6, 7, and 8. In particular, BOEM and BSEE would ensure that project vessels use protected species observers and stay a minimum of 300 feet away from marine wildlife. The action area overlaps with the southern end of the species range. Due to the extensive foraging area used by marbled murrelets and relatively small amount of platform infrastructure within that foraging area, the effect of light and noise from project activities is likely to be small. We

anticipate that effects from light and noise would be limited to disturbance and would not cause mortality. We further conclude that the effect on the marbled murrelet from collisions with project vessels or equipment would be low because BOEM and BSEE would implement suitable avoidance and minimization measures and project vessels are unlikely to encounter marbled murrelets.

Effects from Produced Water and Effluent Discharges

The proposed authorizations are not likely to affect foraging marbled murrelets by degrading habitat quality within the action area through contamination with gaseous, liquid, or solid discharges associated with day-to-day production activities or fluids associated with well completion and workover operations. BOEM identifies in the biological assessment that well stimulation treatments are not expected to cause either an acute or a chronic effect on benthic organisms, fish species, or marine birds and mammals due to limits imposed by the NPDES General Permit (which would be in place prior to any discharges occurring) and additionally expects any contamination from fluids to be rapidly diluted by mixing with ocean water (BOEM 2025). The likelihood of marbled murrelets being directly affected by toxic exposure to produced water and effluent discharges or indirectly affected by impacts to prey species is extremely low.

Effects from Oil Spills and Spill Response Activities

Marbled murrelets are exceedingly vulnerable to oil spills due to their predominately at-sea existence. The proposed authorizations may adversely affect foraging marbled murrelets by injury or mortality through contact with oil from spills that are reasonably certain to occur during day-to-day oil production and development activities, and to a lesser extent, from oil spill response activities. The oil spill trajectory models provided by BOEM indicate that oil from spills that are reasonably certain to occur may contact areas used by foraging marbled murrelets, especially if it was from a platform north of Point Conception. Low numbers of marbled murrelets occur within the Southern California Planning Area. A portion of individuals present in the vicinity of an oil spill are likely to become oiled. Any bird exposed to oil is likely to be killed from hypothermia or starvation, and any eggs or chicks of those individuals may also die. BOEM and BSEE would avoid and minimize these effects by implementing avoidance and minimization measures 1 and 6. The likelihood of spilled oil encountering marbled murrelets is low because marbled murrelets occur intermittently at few areas within the action area. However, over the 20-year time period considered in this biological opinion spilled oil may encounter marbled murrelets. We conclude that effects on the marbled murrelet from oil spills that are reasonably certain to occur during day-to-day oil production and development activities would be low because the marbled murrelet occurs intermittently at few areas within the action area. If spilled oil contacts marbled murrelets, we anticipate all oiled individuals may be killed. These effects would impact a small portion of the overall population.

The proposed authorizations may adversely affect the marbled murrelet by degrading foraging habitat quality within the action area through contamination with oil from spills that are reasonably certain to occur during day-to-day oil production and development activities. BOEM and BSEE would avoid and minimize this effect by implementing avoidance and minimization

measures 1 and 6. Although a "maximum most likely spill" would cover a large area, oiling would not be continuous throughout the affected habitat and the total amount of available foraging habitat is very large. We conclude that the effect of habitat quality degradation by contamination with oil during oil spills would affect a small portion of foraging habitat relative to the foraging habitat available range-wide. Additionally, these effects would be temporary as BOEM and BSEE would require rapid implementation of the oil spill response plans required by avoidance and minimization measure 6, and uncollected oil would weather and disperse posing a decreasing level of habitat degradation over time.

Recovery

The proposed authorizations would not preclude or diminish the likelihood of the recovery of the marbled murrelet. The proposed authorizations would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 1997), such as logging of coastal old-growth forest. However, the proposed authorizations may contribute to threats to recovery from habitat degradation from oil spills that are reasonably certain to occur during day-to-day oil production and development activities. Habitat degradation from oil spills that are reasonably certain to occur during day-to-day oil production and development activities would likely affect only a relatively small portion of available foraging area. Additionally, habitat degradation would likely be rapidly ameliorated as oil weathers or drifts out of the foraging area. The proposed authorizations may impede progress towards population abundance goals specified in the Service's recovery plan for the species (Service 1997) through injury or mortality from contact with spilled oil. However, injury or mortality from contact with spilled oil are unlikely because marbled murrelets intermittently use relatively few areas within the action area. We expect oil from a spill to affect only a very small portion of the population overall.

Southern Sea Otter

The proposed authorizations may affect, but are not likely to adversely affect, the southern sea otter by disturbance from light and noise associated with boat and aircraft traffic for day-to-day production and development activities; drilling for new wells, well completion, and well workover operations; installation of conductors; platform helicopter inspection flights; and oil spill response exercises. Most southern sea otters reside within 1.2 miles of shore, whereas project facilities are located a minimum of 3 miles from shore. Additionally, a study conducted from 2012–2014 found no evidence that any tagged or untagged sea otters visited oil platforms and concluded that sea otters in the Santa Barbara Channel rarely if ever use these structures (Tinker et al. 2017). Thus, any such effects are extremely unlikely to occur. Nevertheless, BOEM and BSEE would avoid and minimize any potential for disturbance by implementing avoidance and minimization measures 1, 2, 3, 4, 5, 6, 7, and 8. BOEM and BSEE would minimize effects from underwater noise during well conductor installation by requiring a ramping protocol to gradually increase noise intensity. We conclude that the effects on southern sea otters by disturbance from light and noise would be discountable because few or no sea otters would be exposed to it and insignificant because BOEM and BSEE would implement suitable avoidance and minimization measures to ensure that the magnitude of any effects that did occur

would be minor and transitory.

The proposed authorizations may affect, but are not likely to adversely affect, southern sea otters by injury or mortality from collisions with project vessels or equipment. Most southern sea otters reside within 1.2 miles of shore, whereas project facilities are located a minimum of 3 miles from shore. Additionally, a study conducted from 2012–2014 found no evidence that any tagged or untagged sea otters visited oil platforms and concluded that sea otters in the Santa Barbara Channel rarely if ever use these structures (Tinker et al. 2017). Thus, any effects on southern sea otters are limited to the portion of a vessel's transit through nearshore areas. BOEM and BSEE would avoid and minimize any such effects by implementing avoidance and minimization measures 1, 4, 5, 6, 7, and 8. In particular, BOEM and BSEE would ensure that project vessels use protected species observers and stay a minimum of 300 feet away from marine wildlife. Therefore, we conclude that the effect on the southern sea otter from collisions with vessels or equipment would be discountable because BOEM and BSEE would implement suitable avoidance and minimization measures to minimize the chance of contact with southern sea otters.

Effects from Produced Water and Effluent Discharges

The proposed authorizations are not likely to affect the southern sea otter by degrading habitat quality within the action area through contamination with gaseous, liquid, and solid discharges associated with day-to-day production activities or fluids associated with well completion and workover operations. The likelihood of such discharges and fluids encountering habitat areas used by southern sea otters is low because southern sea otters typically reside within 1.2 miles of shore, whereas project facilities are at least 3 miles offshore. Additionally, BOEM expects any contamination from fluids to be rapidly diluted by mixing with ocean water (BOEM 2025).

Effects from Oil Spills and Spill Response Activities

The proposed authorizations may adversely affect southern sea otters by injury or mortality through contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities if the oil spreads to areas occupied by southern sea otters. In such a case, the effect of such spills would be magnified during the peak pupping seasons. Southern sea otters are particularly vulnerable to injury or mortality from contact with oil, as discussed above. BOEM and BSEE would avoid and minimize these effects by implementing avoidance and minimization measures 1 and 6. We expect spills that are reasonably certain to occur during day-to-day oil production and development activities would affect only a small portion of habitat available to southern sea otters, and only a small portion of the population that occurs within the action area. We expect any southern sea otters exposed to spilled oil could be injured or killed. We nevertheless conclude that the effects on southern sea otters from contact with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities would be low because the maximum number of individuals that might come into contact with oil from such spills is low in comparison to the population range wide.

The proposed authorizations may adversely affect the southern sea otter by degrading habitat

quality within the action area through contamination with oil during spills that are reasonably certain to occur during day-to-day oil production and development activities if the oil spreads to areas occupied by southern sea otters. The effect of such spills would be magnified during the peak pupping seasons. BOEM and BSEE would avoid and minimize this effect by implementing avoidance and minimization measures 1 and 6. Over the 20-year time period considered in this biological opinion, oil from a spill is likely to encounter southern sea otter habitat. We expect effects on habitat quality from oil from spills that are reasonably certain to occur during day-to-day oil production and development activities to be temporary because oil would weather or drift out of the habitat area. We conclude that the effect of habitat quality degradation by contamination with oil during oil spills would be low because the amount of habitat impacted by oil from spills that are reasonably certain to occur during day-to-day oil production and development activities would be small in comparison to the amount of habitat available range wide.

Recovery

The proposed authorizations are unlikely to preclude or diminish the likelihood of the recovery of the southern sea otter. The proposed authorizations may contribute to threats to recovery identified in the Service's recovery plan for the species (Service 2003) from injury or mortality and habitat degradation from oil spills that are reasonably certain to occur during day-to-day oil production and development activities. Consequently, the proposed authorizations may impede progress towards population abundance goals specified in the Service's recovery plan for the species (Service 2003). However, BOEM and BSEE would implement suitable avoidance and minimization measures as described above and we expect injury or mortality and habitat degradation from such spills will be low relative to the overall population and habitat area of the species.

Critical Habitat of the Tidewater Goby

The proposed authorizations may reduce the availability of PBFs 1a and 1b of tidewater goby critical habitat within the action area by contaminating habitat with oil as a result of spills that are reasonably certain to occur during day-to-day oil production and development activities and may reduce the conservation function of designated critical habitat units. Over the 20-year time period considered in this biological opinion, oil from such a spill may contact tidewater goby designated critical habitat and reduce the availability of PBFs 1a and 1b within the action area. The oil spill trajectory models provided by BOEM indicate that oil from spills that are reasonably certain to occur during day-to-day oil production and development activities may contact tidewater goby critical habitat in up to three units. As noted above, these oil spill trajectory models do not incorporate oil spill containment efforts into their projects and thus these models likely overestimate the amount of area that may contact oil during spills. We expect effects on the availability of PBFs 1a and 1b would be temporary because oil would be removed through cleanup operations, and uncollected oil would weather and disperse. We conclude that the effect of the proposed authorizations on the availability of PBFs 1a and 1b within the action area would be low because oil from such spills would contact few, if any, areas of designated

critical habitat relative to available critical habitat range-wide and effects would be temporary. Local effects on the availability of PBFs 1a and 1b may affect a portion of individual critical habitat units; however, we do not expect that PBFs 1a and 1b would be completely degraded or removed from any critical habitat unit.

Critical Habitat of the Western Snowy Plover

The proposed authorizations may reduce the availability of PBFs 1, 2, and 3 of critical habitat of the western snowy plover within the action area by contaminating habitat with oil as a result of spills that are reasonably certain to occur during day-to-day oil production and development activities and may reduce the conservation function of designated critical habitat units. Over the 20-year time period considered in this biological opinion, oil from spills that are reasonably certain to occur during day-to-day oil production and development activities may contact designated critical habitat of the western snowy plover. The oil spill trajectory models provided by BOEM indicate that oil from spills that are reasonably certain to occur during day-to-day oil production and development activities may contact designated critical habitat of the western snowy plover. Oil from these spills may reduce availability of PBFs 1, 2, and 3 within the action area. We expect effects on the availability of PBFs 1, 2, and 3 would be temporary because oil spill response efforts would contain and remove oil. We expect that oil from spills that are reasonably certain to occur during day-to-day oil production and development activities would affect few areas of designated critical habitat compared to the amount of critical habitat designated range-wide. We anticipate that a portion of affected critical habitat units could be affected for between one and three years as seen during the Refugio Beach Oil Spill (Refugio Natural Resource Trustees 2020). We conclude that oil spills may affect the availability of PBFs 1, 2, and 3 within the action area , but that the amount of critical habitat affected would be small compared to all critical habitat designated range-wide. We further conclude that the magnitude of the degradation of affected critical habitat units would not rise to the level of compromising the ability of the habitat to continue supporting western snowy plovers and would be temporary.

Summary of Effects

We expect the proposed authorizations to have, at most, local effects on the California least tern, light-footed Ridgway's rail, salt marsh bird's-beak, tidewater goby, western snowy plover, marbled murrelet, and southern sea otter through disturbance from project boat and aircraft traffic, spill response exercises, injury or mortality following contact with oil from oil spills that are reasonably certain to occur as a result of these proposed authorizations, and habitat degradation from such spills. We expect these locally moderate effects, in total, to have at most minor effects on each listed species and its habitat when analyzed in the context of the species as a whole or its habitat range wide.

We expect the proposed authorizations to have low effects on the availability of the PBFs of designated critical habitat of the tidewater goby and western snowy plover within the action area and the conservation function of designated critical habitat of these species within the action area. The conclusions on the effects of spills that are reasonably certain to occur as a result of

these proposed authorizations on these species and critical habitats are primarily dependent on BOEM and BSEE's requirements for project facilities to have an approved oil spill response plan in place and the relatively small amount of individuals or habitat, relative to the total population or species habitat area, that would be affected by spills that are reasonably certain to occur during day-to-day oil production and development activities. We expect these low effects, in total, to have at most minor effects on designated critical habitat of the tidewater goby and western snowy plover when analyzed in the context of entire designated critical habitat areas of these species.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. We do not consider future Federal actions that are unrelated to the proposed action in this section because they require separate consultation pursuant to section 7 of the Act. The action area is large with a high rate of development in the coastal region. Therefore, it is reasonably certain that many other State, tribal, local, or private actions will occur within the action area during the 20-year time period considered in this biological opinion. Many of these State, tribal, local, or private actions within the coastal portion of the action area may adversely affect listed species or their designated critical habitats and are cumulative to the proposed authorizations. These cumulative effects would include habitat degradation and fragmentation resulting from coastal development, habitat degradation from recreational and commercial use, increased abundance of invasive competitor and predator species as a result of coastal development, alterations to beach and lagoon topography for beach management, and injury or mortality of listed species from trampling, vehicle strikes, or purposeful capture. These effects would vary in magnitude by species or critical habitat. The California least tern and western snowy plover are the species most vulnerable to these effects given their habitat areas' proximity to areas of active and growing human use. Nevertheless, current land use permitting practices by local governments within the action area encourage implementation of appropriate avoidance, minimization, and mitigation measures for actions' effects on listed species and critical habitats. Therefore, the cumulative effects on species and critical habitats considered in this biological opinion from future State, tribal, local or private actions within the action area will likely be low over the 20-year time period considered in this biological opinion.

CONCLUSION

The regulatory definition of "to jeopardize the continued existence of the species" focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of the statuses of the California least tern, light-footed Ridgway's rail, salt marsh bird's-beak, tidewater goby, marbled murrelet, and southern sea otter as the basis to assess the overall effect of the proposed action on these species.

The analysis of effects to listed species contained in this biological opinion included extensive analysis related to the effects of a spill that is reasonably certain to occur during day-to-day oil production and development activities. We performed this analysis to determine whether the magnitude of effects from a spill that is reasonably certain to occur during the 20-year period would rise to the level of jeopardy of a species or adverse modification of critical habitat. Based on the oil spill volume records and its experience in the Pacific Outer Continental Shelf Region, BOEM determined that the volume of the spill that is reasonably certain to occur is 1,000 bbl or less. As acknowledged by BOEM in their biological assessment, larger, catastrophic spills have happened during other Outer Continental Shelf drilling operations. Operators in the POCS region are required to submit oil spill response plans which quantify the worst case volume of oil that could be spilled associated with their offshore operation and describe how they will be prepared to mount a response to that volume of spill. The largest worst-case discharge estimate for any of the POCS platforms within the project area is 5,777,620 bbls, which is almost 30,000 times the size of the spill analyzed in the effects analysis and the following jeopardy determinations of this biological opinion. The regulations governing interagency consultation define "effects of the action" as the consequences to listed species or critical habitat caused by the proposed action, including consequences from other activities caused by the action (50 CFR 402.02). A consequence is considered an effect of the action if it would not occur but for the proposed action, and it is reasonably certain to occur. A worst-case discharge is not reasonably certain to occur and so is not an effect that is analyzed in this biological opinion. Nonetheless, the lead agency has acknowledged the possibility of catastrophic spills and works with permitees to plan for such an event and to be prepared to control the release and reduce the effects as much as practicable if it happens.

California Least Tern

Reproduction

The proposed authorizations would not appreciably reduce the reproductive capacity of the California least tern within the action area or range wide. If an oil spill were to occur, response efforts would likely rapidly respond to spills considered in this biological opinion to minimize effects on nesting individuals and habitat areas. A spill may temporarily affect a portion of the individuals at a limited number of breeding sites within the range of the species. Effects of the spill may reduce reproduction within those sites however we do not anticipate that such a spill would preclude all reproduction at any individual breeding site. We expect that decreased reproduction at those sites as a result of the proposed authorizations would be temporary.

Numbers

The proposed authorizations would not appreciably reduce the numbers of the California least tern within the action area or range wide. Any reduction in numbers of the California least tern from injury or mortality from contact with spilled oil or collisions with project equipment would likely be low compared to the range wide population.

Distribution

The proposed authorizations would not affect the distribution of the California least tern. An oil spill may impact individual breeding colonies, but those effects are not anticipated to rise to the level of extirpation. The species would retain the ability to use all habitat areas within its current distribution.

Recovery
The proposed authorizations would not appreciably reduce the likelihood of recovery of the California least tern within the action area or range wide. The proposed authorizations would not preclude agencies' ability to address recovery needs by monitoring nesting areas and would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 1985a) such as animal predation on California least terns or encroachment by development on California least tern habitat areas.

After reviewing the current status of the California least tern, the environmental baseline for the action area, the effects of the proposed authorizations and the cumulative effects, it is the Service's biological opinion that the proposed authorizations are not likely to jeopardize the continued existence of the California least tern. The effects considered in this biological opinion would not appreciably reduce the likelihood of survival and recovery of the species.

Light-Footed Ridgway's Rail

Reproduction
The proposed authorizations would not appreciably reduce the reproductive capacity of the light-footed Ridgway's rail within the action area or range wide. If an oil spill were to occur, response efforts would rapidly deploy shoreline protection measures targeted at reducing the spread of oil into marsh habitats occupied by the species. It is possible that a low number of light-footed Ridgway's rails could be exposed to oil from a spill, and that reproduction could be decreased in those individuals. We expect that effects of the proposed authorizations would affect only a small portion of individuals within any population and we expect that any reduction in reproductive capacity would be temporary.

Numbers
The proposed authorizations would not appreciably reduce the numbers of the light-footed Ridgway's rail within the action area or range wide. Any reduction in numbers of the light-footed Ridgway's rail from injury or mortality from contact with spilled oil would likely be low compared to the range wide population.

Distribution
The proposed authorizations would not affect the distribution of the light-footed Ridgway's rail. An oil spill may impact individual breeding areas, but those effects are not anticipated to rise to the level of extirpation. The species would retain its ability to use all habitat areas within its current distribution.

Recovery
The proposed authorizations would not appreciably reduce the likelihood of recovery of the light-footed Ridgway's rail within the action area or range wide. The proposed authorizations would not preclude agencies' ability to address recovery needs by conducting captive breeding and monitoring efforts and would likely not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 1985b) such as habitat degradation of marsh habitat areas.

After reviewing the current status of the light-footed Ridgway's rail, the environmental baseline for the action area, the effects of the proposed authorizations and the cumulative effects, it is the Service's biological opinion that the proposed authorizations are not likely to jeopardize the continued existence of the light-footed Ridgway's rail**.** The effects considered in this biological opinion would not appreciably reduce the likelihood of survival and recovery of the species.

Salt Marsh Bird's-Beak

Reproduction
The proposed authorizations would not appreciably reduce the reproductive capacity of the salt marsh bird's-beak within the action area or range wide. If an oil spill were to occur, response efforts would rapidly deploy shoreline protection measures targeted at reducing the spread of oil into marsh habitats occupied by the species. It is possible that a low number of salt marsh bird's-beak could be exposed to oil from a spill, and that reproduction could be decreased in those individuals. We expect that effects of the proposed authorizations would affect only a small portion of plants within any individual population and we expect that any reduction in reproductive capacity would be temporary.

Numbers
The proposed authorizations would not appreciably reduce the numbers of the salt marsh bird's-beak within the action area or range wide. Any reduction in numbers of the salt marsh bird's-beak from injury or mortality from contact with spilled oil would likely be low compared to the range-wide population and are anticipated to be temporary. Habitat restoration of any areas impacted by oil spills could bring numbers back to pre-spill levels.

Distribution
The proposed authorizations would not affect the distribution of the salt marsh bird's-beak. At most, some habitat areas may be temporarily affected following an oil spill. Effects of an oil spill are not anticipated to cause extirpation or permanent loss of habitat at any occurrence, and the species would retain its ability to use all habitat areas within its current distribution.

Recovery
The proposed authorizations would not appreciably reduce the likelihood of recovery of the salt marsh bird's-beak within the action area or range wide. The proposed authorizations would not preclude agencies' ability to address recovery needs by protecting and managing habitat and

would likely not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 1985c) such as coastal development.

After reviewing the current status of the salt marsh bird's-beak, the environmental baseline for the action area, the effects of the proposed authorizations and the cumulative effects, it is the Service's biological opinion that the proposed authorizations are not likely to jeopardize the continued existence of the salt marsh bird's-beak**.** The effects considered in this biological opinion would not appreciably reduce the likelihood of survival and recovery of the species.

Tidewater Goby

Reproduction
The proposed authorizations would not appreciably reduce the reproductive capacity of the tidewater goby within the action area or range wide. If an oil spill were to occur, response efforts would rapidly deploy estuary protection measures that are targeted at preventing or reducing the spread of oil into habitats occupied by tidewater gobies. Reproduction may be reduced within portions of occupied estuaries through exposure to oil or by implementation of oil spill response activities, but these effects are not anticipated to occur throughout any entire habitat unit and are estimated to affect only a small number of occupied localities; reproduction is anticipated to remain viable in all impacted habitats, although at a reduced rate. We anticipate that any such effect on reproductive capacity would be temporary.

Numbers
The proposed authorizations would not appreciably reduce the numbers of the tidewater goby within the action area or range wide. As tidewater goby numbers within each individual population fluctuate throughout the year, the number of individuals in any population is less important than the persistence of that population through time. We anticipate that an oil spill may impact only a limited number of occupied habitat areas and that the effects would be limited to only a portion of the population at those areas and would not rise to the level of extirpation.

Distribution
The proposed authorizations would not affect the distribution of the tidewater goby. At most, some habitat areas may be temporarily affected following an oil spill. Effects of an oil spill are not anticipated to cause extirpation or permanent loss of habitat at any occurrence and the species would retain its ability to use all habitat areas within its current distribution.

Recovery
The proposed authorizations would not appreciably reduce the likelihood of recovery of the tidewater goby within the action area or range wide. The proposed authorizations would not preclude agencies' ability to address recovery needs by protecting and managing habitat and would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 2005) such as coastal development or over drafting of water.

After reviewing the current status of the tidewater goby, the environmental baseline for the action area, the effects of the proposed authorizations and the cumulative effects, it is the Service's biological opinion that the proposed authorizations are not likely to jeopardize the continued existence of the tidewater goby**.** The effects considered in this biological opinion would not appreciably reduce the likelihood of survival and recovery of the species.

Western Snowy Plover

Reproduction
The proposed authorizations would not appreciably reduce the reproductive capacity of the western snowy plover within the action area or range wide. If an oil spill were to occur, response efforts would likely rapidly respond to spills considered in this biological opinion to minimize effects on nesting individuals and habitat areas. A spill may affect a portion of the individuals at a limited number of breeding sites within the range of the species. Effects of the spill may reduce reproduction within those sites; however, we do not anticipate that such a spill would preclude all reproduction at any individual breeding site, and decreased reproduction at those sites would be temporary.

Numbers
The proposed authorizations would not appreciably reduce the numbers of the western snowy plover within the action area or range wide. Any reduction in numbers of the western snowy plover from injury or mortality from contact with spilled oil would likely be low compared to the range wide population.

Distribution
The proposed authorizations would not affect the distribution of the western snowy plover. An oil spill may impact individual breeding areas, but those effects are not anticipated to rise to the level of extirpation. The species would retain its ability to use all habitat areas within its current distribution.

Recovery
The proposed authorizations would not appreciably reduce the likelihood of recovery of the western snowy plover within the action area or range wide. The proposed authorizations would not preclude agencies' ability to address recovery needs by protecting and managing habitat and would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 2007b) such as coastal development, animal predation, or recreation.

After reviewing the current status of the western snowy plover, the environmental baseline for the action area, the effects of the proposed authorizations and the cumulative effects, it is the Service's biological opinion that the proposed authorizations are not likely to jeopardize the continued existence of the western snowy plover**.** The effects considered in this biological opinion would not appreciably reduce the likelihood of survival and recovery of the species.

Marbled Murrelet

Reproduction
The proposed authorizations would not appreciably reduce the reproductive capacity of the marbled murrelet within the action area or range wide. If an oil spill were to occur, response efforts would likely rapidly respond to spills considered in this biological opinion to minimize effects on individuals. A spill may affect a portion of the individuals within the range of the species in their foraging habitat only. Effects of the spill may reduce reproductive capacity for those individuals; however, we do not anticipate that such a spill would have a substantive effect on reproduction of marbled murrelets, as breeding areas are not located within the action area.

Numbers
The proposed authorizations would not appreciably reduce the numbers of the marbled murrelet within the action area or range wide. Any reduction in numbers of the marbled murrelet from injury or mortality from contact with spilled oil would likely be low compared to the range wide population.

Distribution
The proposed authorizations would not affect the distribution of the marbled murrelet. An oil spill may impact some individuals within their foraging habitat, but those effects are not anticipated to rise to the level of extirpation. The species would retain its ability to use all habitat areas within its current distribution.

Recovery
The proposed authorizations would not appreciably reduce the likelihood of recovery of the marbled murrelet within the action area or range wide. The proposed authorizations would not preclude agencies' ability to address recovery needs by protecting and managing habitat and would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 1997) such as coastal development and logging.

After reviewing the current status of the marbled murrelet, the environmental baseline for the action area, the effects of the proposed authorizations and the cumulative effects, it is the Service's biological opinion that the proposed authorizations are not likely to jeopardize the continued existence of the marbled murrelet**.** The effects considered in this biological opinion would not appreciably reduce the likelihood of survival and recovery of the species.

Southern Sea Otter

Reproduction
The proposed authorizations would not appreciably reduce the reproductive capacity of the southern sea otter within the action area or range wide. If an oil spill were to occur, response efforts would likely rapidly respond to spills considered in this biological opinion to minimize

effects on individuals and habitat areas. A spill may affect a portion of the individuals within the range of the species. We expect that effects of the proposed authorizations would affect only a limited portion of individuals within the population and we expect that any reduction in reproductive capacity would be temporary.

Numbers
The proposed authorizations would not appreciably reduce the numbers of the southern sea otter within the action area or range wide. Any reduction in numbers of the southern sea otter from injury or mortality from contact with spilled oil would likely be low compared to the range wide population.

Distribution
The proposed authorizations would not affect the distribution of the southern sea otter. An oil spill may impact some individuals, but those effects are not anticipated to rise to the level of extirpation of any local population. The species would retain its ability to use all habitat areas within its current distribution.

Recovery
The proposed authorizations would not appreciably reduce the likelihood of recovery of the southern sea otter within the action area or range wide. The proposed authorizations would not contribute to threats to recovery identified in the Service's recovery plan for the species (Service 2003) such as prey resource limitation and great white shark predation. The proposed authorization would contribute to a threat to recovery identified in the Service's recovery plan for the species (Service 2003) from oil spills; however, the oil spills considered in this biological opinion would likely be rapidly contained before reaching southern sea otter habitat.

After reviewing the current status of the southern sea otter, the environmental baseline for the action area, the effects of the proposed authorizations and the cumulative effects, it is the Service's biological opinion that the proposed authorizations are not likely to jeopardize the continued existence of the southern sea otter**.** The effects considered in this biological opinion would not appreciably reduce the likelihood of survival and recovery of the species.

Critical Habitat of the Tidewater Goby
After reviewing the current status of the critical habitat of the tidewater goby, the environmental baseline of critical habitat for the action area, the effects of the proposed authorizations on critical habitat, and the cumulative effects, it is the Service's biological opinion that the authorizations, as proposed, are not likely to result in the destruction or adverse modification of critical habitat of the tidewater goby because

1. The effects on the availability of PBFs 1a and 1b of designated critical habitat would be low;
2. The effects of oil spills would be temporary; and
3. The effects on the conservation value and function of critical habitat would be low.

Critical Habitat of the Western Snowy Plover

After reviewing the current status of the critical habitat of the western snowy plover, the environmental baseline of critical habitat for the action area, the effects of the proposed authorizations on critical habitat, and the cumulative effects, it is the Service's biological opinion that the authorizations, as proposed, are not likely to result in the destruction or adverse modification of critical habitat of the western snowy plover because

1. The effects on the availability of PBFs 1, 2 and 3 of designated critical habitat would be low;
2. The effects from oil spills would be temporary; and
3. The effects on the conservation value and function of critical habitat would be low.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and certain threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

This incidental take statement is based upon the proposed action occurring as described in the accompanying biological opinion. Take of listed species in accordance with this incidental take statement is exempted under section 7(o)(2) of the Act. BOEM must implement, or ensure the applicant implements the proposed action as described in this biological opinion and undertake the non-discretionary measures described below; otherwise, the exemption provided under section 7(o)(2) of the Act may lapse. BOEM has a continuing duty to regulate the activity covered by this incidental take statement. If BOEM: (1) fails to assume and implement the terms and conditions, or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, lease, or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, BOEM or the applicant must report the progress of its action and the impact on the species to the Service as specified in this incidental take statement (50 CFR 402.14(i)(3)).”

AMOUNT OR EXTENT OF TAKE

Because any oil spill is not authorized and not anticipated by BOEM, no incidental take from oil spills is covered by this incidental take statement. If an oil spill were to occur, BOEM or the U.S. Coast Guard, the lead spill response agency, would initiate emergency consultation with the Service to ensure that the spill response incorporates measures to reduce impacts on listed species and critical habitat. Any incidental take that occurs from the implementation of spill

response activities would be covered under an incidental take statement issued in association with the emergency consultation. There are no exemptions for take of any federally-listed species from oil spills because oil spills are not a lawful activity under the Clean Water Act[3].

There is a general prohibition on take of marine mammals (Marine Mammal Protection Act, 16 U.S.C. 1371, as amended); while incidental take may be allowed under certain circumstances, authorization must be authorized under Section 101(a)(5) of the Marine Mammal Protection Act. Accordingly, we are not exempting any take of the southern sea otter at this time. We expect that some southern sea otters may be injured or killed by contact with spilled oil if an oil spill occurs and spreads into occupied sea otter habitat, but oil spills are not an authorized activity.

We anticipate that some California least terns, light-footed Ridgway's rails, tidewater gobies, western snowy plovers, and marbled murrelets may be taken as a result of the proposed authorizations. We expect the incidental take to be in the form of, injure, kill, harm from the potential degradation of suitable habitat.

We cannot quantify the precise number of individuals of these species that may be taken as a result of the authorizations that BOEM has proposed because these species move over time. In addition, finding a dead or injured individual of these species is unlikely. California least terns and western snowy plovers are monitored intensively on shore; however, any injured or killed birds on shore may go undetected because of their small size, cryptic coloration, or scavenging. Light-footed Ridgway's rails are secretive and small-bodied and thus injuries or mortalities may also go undetected. Foraging California least terns and marbled murrelets injured or killed by collisions with project vehicles would likely go undetected because such incidents would occur in an open water environment where injured or killed birds would rapidly sink or be scavenged. Tidewater gobies injured or killed by spill response equipment deployment in occupied habitat during exercises would likely go undetected because of their small body size. Nevertheless, the protective measures proposed by BOEM are likely to prevent mortality or injury of most individuals.

Consequently, we are unable to reasonably anticipate the actual number of individuals of these species that would be taken by the proposed project; however, we must provide a level at which formal consultation would have to be reinitiated. The Environmental Baseline and Effects Analysis sections of this biological opinion indicate that adverse effects to these species would likely be low given the nature of the proposed activities, and we, therefore, anticipate that take of these species would also be low. We also recognize that for every individual of these species found dead or injured, other individuals may be killed or injured that are not detected, so when we determine an appropriate take level we are anticipating that the actual take would be higher and we set the number below that level.

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3 The Clean Water Act (33 U.S.C. 1251, et seq.) as amended by the Oil Pollution Act of 1990 (33 U.S.C. 2701, et seq.) prohibits discharges of harmful quantities of oil, as defined at 40 C.F.R. 110.3, into waters of the United States.

Therefore, if two (2) California least terns, two (2) light-footed Ridgway's rails, twenty (20) tidewater gobies, two (2) western snowy plovers, or two (2) marbled murrelets are found dead or wounded, BOEM must contact our office immediately to reinitiate formal consultation.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species; however, limited protection of listed plants is provided at section 9(a)(2) to the extent that the Act prohibits the removal and reduction to possession of federally listed plants from areas under Federal jurisdiction, the malicious damage or destruction of such plants on areas under Federal jurisdiction, and the destruction of listed plants on non-Federal areas in violation of State law or regulation or in the course of a violation of a State criminal trespass law.

REASONABLE AND PRUDENT MEASURES

The measures described below are non-discretionary and must be undertaken by BOEM or BSEE or made binding conditions of any authorization issued to applicants, as appropriate, for the exemption in section 7(o)(2) to apply. BOEM or BSEE has a continuing duty to regulate the activity covered by this incidental take statement. If BOEM or BSEE (1) fails to assume and implement the terms and conditions or (2) fails to require applicants to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, BOEM or BSEE must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the incidental take of these species:

1. BOEM and BSEE must ensure that Oil Spill Response Plans and Marine Wildlife Contingency Plans associated with either (1) BOEM and BSEE's approval of oil and gas development and production plans and plan revisions or (2) approval of applications for permits to drill or modify minimize take of listed wildlife species to the extent practicable.
2. BOEM and BSEE must ensure that BOEM or BSEE-initiated oil spill response exercises consider the presence of listed species within the exercise area and minimize take of listed wildlife species to the extent practicable.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, BOEM must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions implement reasonable and prudent measure 1:

1. BOEM or BSEE must submit project facilities' Oil Spill Response Plans and Marine Wildlife Contingency Plans to the Service.

The following term and condition implements reasonable and prudent measure 2:

2. BOEM or BSEE must notify the Service prior to planned BOEM or BSEE-initiated oil spill response exercises for comment on the presence of listed species within the exercise area and appropriate measures to protect listed species within the exercise area.

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), BOEM must report the progress of the action and its impact on the species to the Service as specified in this incidental take statement. Within one week of any observation of a species protected under the Act by project personnel, BOEM must inform the Service. If the observation was of an injured or killed individual, BOEM must provide the location, date, time, and oiling status of the individual to the Service as well. BOEM must also submit an annual report by March 31 of the following year to the Service compiling these observations.

The Service will not provide Reporting Requirements for the southern sea otter until processes under the Marine Mammal Protection Act are complete and a valid Incidental Harassment Authorization is issued.

DISPOSITION OF DEAD OR INJURED SPECIMENS

As part of this incidental take statement and pursuant to 50 CFR 402.14(i)(1)(v), upon locating a dead or injured California least tern, light-footed Ridgway's rail, tidewater goby, western snowy plover, or marbled murrelet initial notification within 3 working days of its finding must be made by telephone and in writing to the Ventura Fish and Wildlife Office (805-644-1766). The report must include the date, time, location of the carcass, a photograph, cause of death or injury, if known, and any other pertinent information.

BOEM, BSEE, and project personnel must take care in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. BOEM, BSEE, or project personnel must transport injured animals to a qualified veterinarian. Should any treated individual survive, BOEM or BSEE must contact the Service regarding the final disposition of the animal(s).

The remains of any dead California least terns, light-footed Ridgway's rail, Western snowy plover, or marbled murrelet must be placed with educational or research institutions holding the appropriate State and Federal permits such as the Western Foundation of Vertebrate Zoology (Contact: Western Foundation of Vertebrate Zoology, 439 Calle San Pablo, Camarillo, California, telephone 805-388-9944).

The remains of any dead tidewater gobies must be placed with educational or research institutions holding the appropriate State and Federal permits, such as the Santa Barbara Natural History Museum (Contact: Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93105, telephone 805-682-4711).

Upon locating a dead or injured southern sea otter BOEM, BSEE, or project personnel must call the Monterey Bay Aquarium's sea otter 24-hour emergency line (831-648-4840) immediately and notify the Service's Southern Sea Otter Recovery Coordinator by email (lilian_carswell@fws.gov) within 24 hours. BOEM or BSEE must submit a written report to the Ventura Fish and Wildlife Office within 3 working days. The report must include the date, time, and location of the animal as well as the cause of injury or death, if known, and photographs and any other pertinent information. The Service will determine the disposition of the remains of any dead southern sea otters in coordination with the California Department of Fish and Wildlife.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that BOEM and BSEE continue their research on the effects of oil and gas development activities on wildlife and plant species such as further studies on the effects of platform lighting on marine birds.
2. The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) may have lapsed and any further take could be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions about this biological opinion, please contact us at (805) 677-3313 or by electronic mail at fw8venturasection7@fws.gov.

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