

Marine Mammals and Sea Turtles: Affected Environment

Marine Mammals and Sea Turtles—Species and Descriptions

Marine Mammals

Approximately 30 species of marine mammals occur in the Proposed Action Area: 8 baleen whale species, more than 15 toothed whale and dolphin species, and six species of seals and sea lions (Table 1). Federally listed sea otters (*Enhydra lutris*) could occur in the Proposed Action Area but fall under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS). Although beaked whales are rarely sighted in the region, advances in acoustic monitoring have improved species detection and identification using echolocation pulse features (McDonald et al. 2009; Zimmer et al. 2008). Recent studies have detected some beaked whale species in and around the Proposed Action Area (Simonis et al. 2020).

Detailed species descriptions, including state, habitat ranges, population trends, predator/prey interactions, and species-specific threats are in Argonne (2019), H.T. Harvey and Associates (2020), U.S. Navy (2022), and are summarized below.

Sea Turtles

Several ESA-listed species of sea turtles could occur in waters offshore Oregon (Table 1). Two of these are federally endangered and likely to occur in the Proposed Action Area: the leatherback sea turtle (*Dermochelys coriacea*) and loggerhead sea turtle (*Caretta caretta*; North Pacific Ocean Distinct Population Segment [DPS]). No known nesting habitat for sea turtles occurs in the Proposed Action Area. The green sea turtle (East Pacific DPS) is listed as threatened and occurs year-round in coastal Southern California; individuals rarely travel north of California due to colder water temperatures (NMFS 2016a; Van Houtan et al. 2015). Similar to green sea turtles, olive ridley sea turtles (*Lepidochelys olivacea*) are unlikely to travel as far north as the Proposed Action Area.

Marine Mammals Likely to Occur in the Proposed Action Area

Blue whale (*Balaenoptera musculus*)

Blue whale populations were greatly reduced by commercial whaling in the early 1900s, and the species was federally listed as endangered in 1970 (35 *Federal Register* [FR] 18319). Two blue whale stocks are recognized in the North Pacific Ocean; one is the Eastern North Pacific (ENP) stock, and the other is in the Central North Pacific (CNP) stock (Carretta et al. 2020). Existing data shows that the ENP stock blue whales range from the Costa Rica Dome to the Gulf of Alaska (Bailey et al. 2009; Calambokidis 2009).

Table 1: Marine mammal and sea turtle species (MMPA stock or DPS) that could occur in the Proposed Action Area, ESA and MMPA status, occurrence (or seasonality), and critical habitat designation

a. Baleen whales

Common Name	Scientific Name	Stock	ESA/MMPA Status	Occurrence	Citations for ESA Listing	Critical Habitat
Blue whale	<i>Balaenoptera musculus</i>	Eastern North Pacific	Endangered/ Depleted	Late summer and fall	35 FR 18319; December 2, 1970. 2020 Recovery plan	N/A
Fin whale	<i>Balaenoptera physalis</i>	California, Oregon, Washington	Endangered/ Depleted	Year-round	35 FR 8491; June 2, 1970. 2010 Recovery plan	N/A
Bryde's whale	<i>Balaenoptera edeni</i>	Eastern Tropical Pacific	N/A	Occasional	N/A	N/A
Sei whale	<i>Balaenoptera borealis</i>	Eastern North Pacific	Endangered/ Depleted	Uncommon	35 FR 12024; December 2, 1970. 2011 Recovery plan	N/A
Minke whale	<i>Balaenoptera acutorostrata</i>	California, Oregon, Washington	N/A	Occasional	N/A	N/A
Humpback whale	<i>Megaptera novaeangliae</i>	Central America DPS	Endangered/ Depleted	Spring to fall	81 FR 62260; September 8, 2016. 1991 Recovery plan	86 FR 21082, April 21, 2021
Humpback whale	<i>Megaptera novaeangliae</i>	Mexico DPS	Threatened/ Depleted	Spring to fall	81 FR 62260; September 8, 2016. 1991 Recovery plan	86 FR 21082, April 21, 2021
Gray Whale	<i>Eschrichtius robustus</i>	Eastern North Pacific DPS	N/A	Oct-Jan; March-May	N/A	N/A
Gray Whale	<i>Eschrichtius robustus</i>	Western North Pacific DPS	Endangered/ Depleted	Unclear	59 FR 31094, June 16, 1994	N/A
North Pacific right whale	<i>Eubalaena japonica</i>	Eastern North Pacific	Endangered/ Depleted	Uncommon	73 FR 12024; April 7, 2008. 2013 Recovery plan	73 FR 9000

b. Toothed and beaked whales

Common Name	Scientific Name	Stock	ESA/MMPA Status	Occurrence	Citations for ESA Listing	Critical Habitat
Sperm whale	<i>Physeter macrocephalus</i>	California, Oregon, Washington	Endangered/ Depleted	Year-round, except for winter	35 FR 18319; December 2, 1970. 2010 Recovery plan; NMFS. 2023. <i>Guidelines for Preparing Stock Assessment Reports Pursuant to the Marine Mammal Protection Act</i> . Protected Resources Policy Directive 02-204-01	N/A
Killer whale	<i>Orcinus orca</i>	West Coast Transient Stock	Not listed	Limited data	N/A	N/A
Killer whale	<i>Orcinus orca</i>	Eastern North Pacific Offshore	N/A	Sporadic	N/A	N/A
Killer whale	<i>Orcinus orca</i>	Eastern North Pacific Southern Resident	Endangered/ Depleted	April-Oct; limited sightings	79 FR 20802; April 14, 2014. 2008 Recovery Plan	86 FR 14668, August 2, 2021
Dwarf sperm whale	<i>Kogia sima</i>	California, Oregon, Washington	N/A	Uncommon	N/A	N/A
Pygmy sperm whale	<i>Kogia breviceps</i>	California, Oregon, Washington	N/A	Uncommon	N/A	N/A
Baird's beaked whale	<i>Berardius bairdii</i>	California, Oregon, Washington	N/A	Summer/Fall	N/A	N/A
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	California, Oregon, Washington	N/A	Uncommon	N/A	N/A
Mesoplodont beaked whales	<i>Mesoplodon spp.</i>	California, Oregon, Washington	N/A	Uncommon	N/A	N/A
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	California/Oregon/Washington Stock	Not listed	Year-round, low numbers	N/A	N/A
Risso's dolphin	<i>Grampus griseus</i>	California, Oregon, Washington	N/A	Year-round	N/A	N/A
Northern right whale dolphin	<i>Lissodelphis borealis</i>	California, Oregon, Washington	N/A	Year-round	N/A	N/A

Common Name	Scientific Name	Stock	ESA/MMPA Status	Occurrence	Citations for ESA Listing	Critical Habitat
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	California, Oregon, Washington	N/A	Year-round	N/A	N/A
Common bottlenose dolphin	<i>Tursiops truncatus truncatus</i>	California/Oregon/Washington offshore stock	N/A	Year-round	N/A	N/A
Short-beaked common dolphin	<i>Delphinus delphis</i>	California, Oregon, Washington	N/A	Year-round	N/A	N/A
Dall's porpoise	<i>Phocoenoides dalli</i>	California, Oregon, Washington	N/A	Year-round	N/A	N/A
Harbor porpoise	<i>Phocoena phocoena</i>	Northern Oregon/Washington Coast Stock	N/A	Year-round	N/A	N/A
Harbor porpoise	<i>Phocoena phocoena</i>	Northern California-Southern Oregon stock	N/A	Inshore Year-round	N/A	N/A
Striped dolphin	<i>Stenella coeruleoalba</i>	California/Oregon/Washington Stock	Not listed	Few sightings off Oregon	N/A	N/A

c. Sea lions and seals

Common Name	Scientific Name	Stock	ESA/MMPA Status	Occurrence	Citations for ESA Listing	Critical Habitat
Steller sea lion	<i>Eumetopias jubatus</i>	Eastern DPS	De-listed (critical habitat still in effect)	Year-round	N/A	59 FR 0715; 58 FR 45269
California sea lion	<i>Zalophus californianus</i>	U.S. stock	N/A	Year-round	N/A	N/A
Northern fur seal	<i>Callorhinus ursinus</i>	California	N/A	Year-round	N/A	N/A
Northern elephant seal	<i>Mirounga angustirostris</i>	California	N/A	Year-round	N/A	N/A
Harbor seal	<i>Phoca vitulina richardsi</i>	California	N/A	Year-round	N/A	N/A

Common Name	Scientific Name	Stock	ESA/MMPA Status	Occurrence	Citations for ESA Listing	Critical Habitat
Harbor seal	<i>Phoca vitulina richardii</i>	Oregon/Washington coast stock	N/A	Year-round	N/A	N/A
Guadalupe fur seal	<i>Arctocephalus townsendi</i>	Throughout its range	Threatened/ depleted	Spring/ Summer, seasonal low numbers	N/A	

d. Sea turtles

Common Name	Scientific Name	Stock	ESA/MMPA Status	Occurrence	Citations for ESA Listing	Critical Habitat
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Throughout range	Endangered	June-Nov; limited sightings; gillnet restriction until Nov. 15 in central CA/southern OR	35 FR 8491; June 3, 1970. 1998 Recovery Plan	77 FR 4169, January 26, 2012
Loggerhead sea turtle	<i>Caretta caretta</i>	North Pacific Ocean DPS	Endangered	Uncommon	76 FR 58868; October 24, 2011. 1997 Recovery Plan	N/A
Green sea turtle	<i>Chelonia mydas</i>	East Pacific DPS	Threatened	Extralimital	81 FR 20057; May 6, 2016. Recovery Plan	Proposed 88 FR 46572, July 19, 2023
Olive ridley sea turtle	<i>Lepidochelys olivacea</i>	Mexico’s Pacific Coast breeding population	Endangered	Extralimital	43 FR 32800; August 27, 1978. 1998 Recovery Plan	N/A
Olive ridley sea turtle	<i>Lepidochelys olivacea</i>	All other populations	Threatened	Extralimital	43 FR 32800; August 27, 1978. 1998 Recovery Plan	N/A

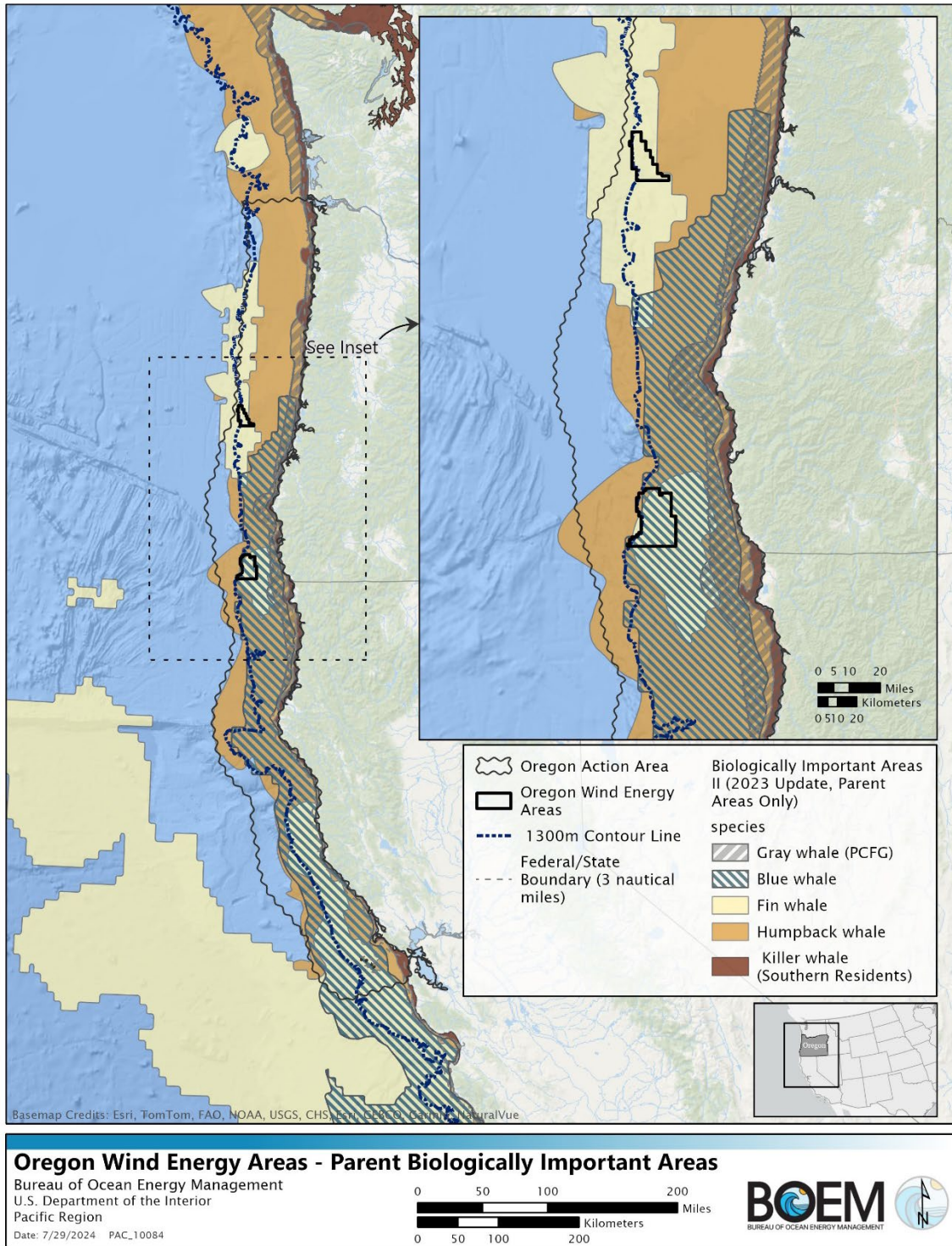
Key: DPS = distinct population segment; ESA = Endangered Species Act; FR = *Federal Register*; MMPA = Marine Mammal Protection Act

The seasonal migration of the ENP population has been confirmed by long-term acoustic monitoring (Burtenshaw et al. 2004) and by movements of photo-identified individuals between Southern California and the Gulf of Alaska (Calambokidis 2009). Blue whales travel northward as summer progresses in response to the northward-progressing spring transition and subsequent increases in primary productivity (Burtenshaw et al. 2004; Calambokidis 2009). Blue whale biologically important areas (BIAs) are described in Calambokidis et al. 2015 and updated in Calambokidis et al. 2024. Based on these updates, blue whale feeding parent BIAs overlap with the Brookings Wind Energy Area (WEA), but not the Coos Bay WEA (Figure 1; Carlton et al. 2024, Fig. 3.45; Calambokidis et al. 2024, Figure 2 BC). Both the blue whale feeding core and parent BIAs overlap with the Proposed Action Area (Figure 1, Figure 2). Blue whales identified in the area off Northern California are re-sighted most frequently off Point St. George (Calambokidis et al. 2004; Calambokidis 2007). They are most sighted along the continental shelf break but also occur farther inshore, in transit or feeding on surface swarms of krill. Satellite-tagged blue whales provided information on “core areas of use”, indicating a high area of overlap for individuals at the western part of the Channel Islands, near the Gulf of the Farallones, and the northern part of Cape Mendocino (Irvine et al. 2014). Irvine et al. (2014) found that, although the satellite tracks were widely distributed, these whales tend to occupy the area off Northern California during the latter part of the feeding season in late October–November. Based on a series of 1991–2018 aerial and summer/fall shipboard surveys off California, Oregon, and Washington from blue whale sightings occurred in inshore and offshore waters off California in summer and fall (Becker 2020a).

The Eastern North Pacific population could have recently recovered from commercial whaling, which ended in 1971, despite the impacts of ship strikes, fishing gear interactions, and increased ambient sound levels in the Pacific Ocean (Barlow 1997, 2003, 2016; Calambokidis and Barlow 2013; Campbell et al. 2015; Carretta et al. 2020; International Whaling Commission 2016; Monnahan et al. 2015; Rockwood et al. 2017; Širović et al. 2015; Valdivia et al. 2019). The population appears near carrying capacity, and thus the rate of change of the population size has declined (Carretta et al. 2020; International Whaling Commission 2016; Monnahan et al. 2015). Based on the National Marine Fisheries Service (NMFS) systematic ship surveys from 1991 to 2014, the number of blue whales in the area (the combined Oregon/Washington stratum and the Northern California stratum) is estimated at 1,496 whales (Barlow 2016). The annual entanglement rate of blue whales (observed) during 2013–2017 is the sum of observed annual entanglements (1.35/yr), plus species probability assignments from unidentified whales (0.09/yr), totaling 1.44 blue whales annually (Carretta et al. 2020). Most observed blue whale ship strikes have been in Southern California or off San Francisco, where the seasonal distribution of blue whales is near shipping ports (Berman-Kowalewski et al. 2010). Using the moderate level of avoidance model from Rockwood et al. (2017), estimated ship strike deaths of blue whales are 18 annually. A comparison of average annual ship strikes observed during 2013–2017 (0.4/yr) versus estimated ship strikes (18/yr) indicates that the rate of detection for blue whale vessel strikes is approximately 2%. The observed and assigned annual incidental mortality and injury rate from ship strikes (0.4/yr) and commercial fisheries (≥ 1.44 /yr) totals 1.84 whales annually from 2013–2017. This exceeds the calculated potential biological removal of 1.23 for this stock of blue whales (Carretta et al. 2020).

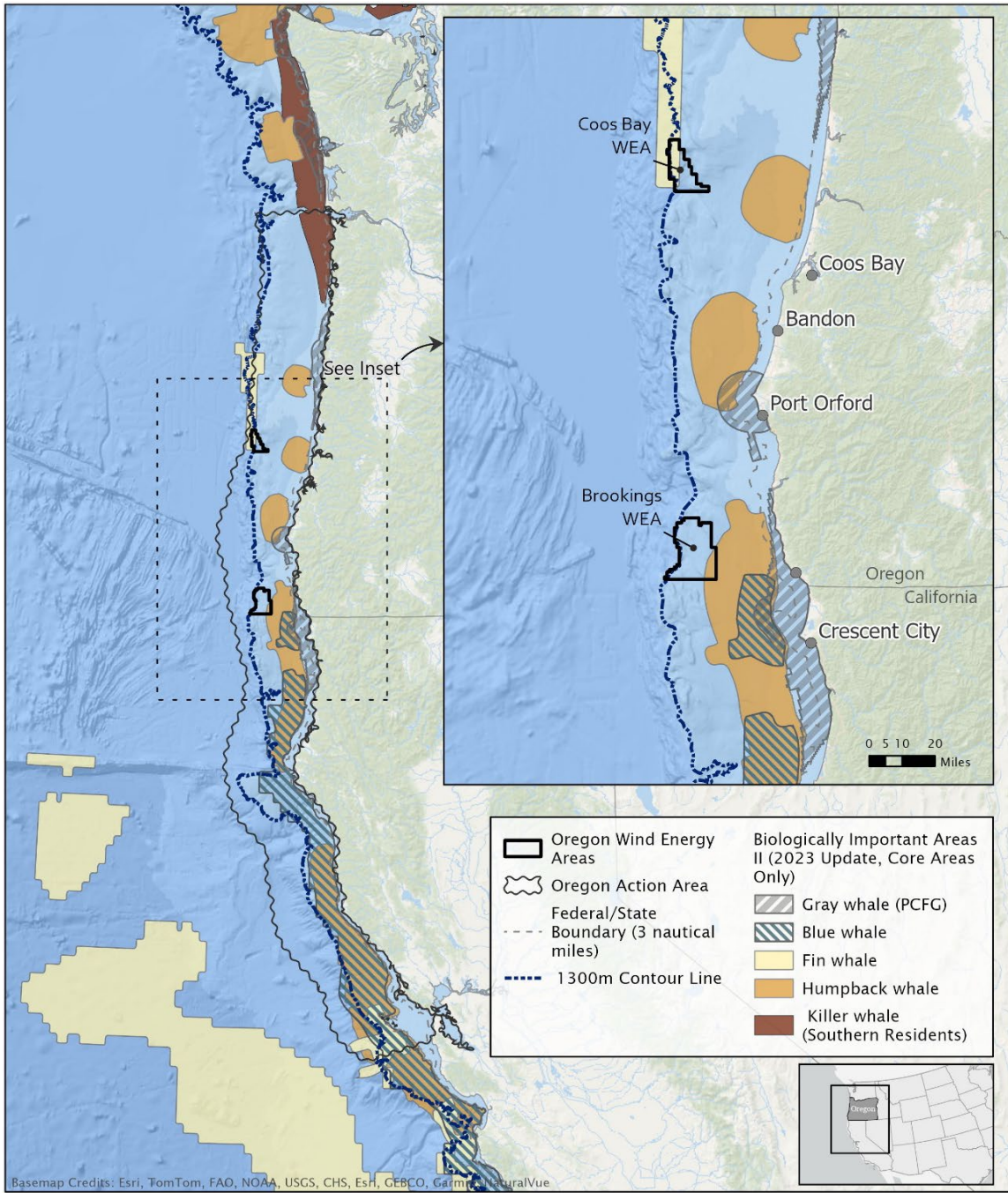
No critical habitat is designated for blue whales in the North Pacific.

Figure 1: Parent biologically important areas for four species of baleen whales and for killer whales relative to the Proposed Action Area and Coos Bay and Brookings WEAs



Source: Calambokidis et al. 2024

Figure 2: Core biologically important areas for four species of baleen whales and for killer whales relative to the Proposed Action Area and Coos Bay and Brookings WEAs



Oregon Wind Energy Areas - Core Biologically Important Areas
 Bureau of Ocean Energy Management
 U.S. Department of the Interior
 Pacific Region
 Date: 7/29/2024 PAC_10084

0 50 100 200 Miles
 0 50 100 200 Kilometers

BOEM
 BUREAU OF OCEAN ENERGY MANAGEMENT

Source: Calambokidis et al. 2024

Fin whale (*Balaenoptera physalus*)

Fin whales prefer temperate and polar waters (Jefferson et al. 2015; Reeves et al. 2002). This species has been documented from 60° N in Alaska waters to tropical waters off Hawaii, in Canadian waters both offshore and inland including some fjords, and they have frequently been recorded in waters within the Southern California Bight (Campbell et al. 2015; Jefferson et al. 2014; Mate et al. 2016; 2017; Širović et al. 2016). As demonstrated by satellite tags and discovery tags, fin whales make long-range movements along the entire U.S. West Coast (Falcone et al. 2011; Mate et al. 2015b; 2016; 2017; 2018; Mate et al. 2009). Locations of breeding and calving grounds are largely unknown. The species is highly adaptable, following prey typically off the continental shelf (Azzellino et al. 2008; Panigada et al. 2008). Survey and acoustic data indicate that fin whale distributions shift both seasonally as well as annually (Burnham et al. 2019; Calambokidis et al. 2015; Douglas et al. 2014; Jefferson et al. 2014).

During aerial surveys conducted within the 2,000 m isobath off southern Washington, Oregon, and Northern California in the spring, summer, and fall of 2011 and 2012, there were six sightings of 13 fin whales during winter and summer 2012 only in offshore waters over the continental slope (Adams et al. 2014). Habitat-based density models built with data from sightings from systematic ship surveys out to 300 nautical miles (nmi) off the U.S. West Coast and satellite tag data, indicate that fin whales are more likely to be present seaward of the continental shelf in the offshore portion of the Proposed Action Area in late June to early December (Becker et al. 2020b). Because fin whale abundance appears lower in winter/spring in California (Dohl et al. 1983; Forney et al. 1995) and in Oregon (Green et al. 1992), it is likely that the distribution of this stock extends seasonally outside these coastal waters.

The fin whale is listed as endangered under the Endangered Species Act (ESA), but there is no designated critical habitat for this species. Fin whale population structure in the Pacific Ocean is not well known. During the 20th century, more fin whales were taken by industrialized whaling than any other species (Rocha et al. 2014). NMFS recognizes three fin whale stocks: (1) the Northeast Pacific stock (Alaska); (2) the California, Oregon, and Washington stock; and (3) the Hawaii stock. All stocks are depleted under the Marine Mammal Protection Act (MMPA) and endangered under the ESA (Carretta et al. 2020). Analysis of genetic and acoustic data suggests that fin whales in the North Pacific interbreed and are a single population (Archer et al. 2019).

There has been a roughly 5-fold abundance increase between 1991 and 2014 due largely to increases off Northern California, Oregon, and Washington since 2005, while numbers off Central and Southern California have been stable (Nadeem et al. 2016). The best estimate of fin whale abundance in California, Oregon, and Washington waters out to 300 nmi is 9,029 (CV = 0.12) whales, based on a trend analysis of 1991–2014 line-transect data (Nadeem et al. 2016).

Total mean annual fishery-related serious injury and mortality was 0.67 fin whales during 2014–2018 (Carretta et al. 2020). Average observed annual mortality and serious injury due to ship strikes was 1.6 fin whales per year during 2014–2018. Documented ship strike deaths and serious injuries are derived from direct counts of whale carcasses and represent minimum impacts (Carretta et al. 2020). The most conservative estimate of ship strike deaths from Rockwood et al. (2017) is 43 whales annually. The ratio of documented ship strike deaths (1.8/yr) to estimated annual deaths (43) implies a carcass recovery/documentation rate of 4.1%. There is uncertainty regarding the estimated number of ship strike deaths; however, it is apparent that carcass recovery rates of fin whales are quite low.

Although no fin whale entanglements were observed 1990–2016 (Carretta et al. 2018), some gillnet mortality could go unobserved because whales swim away with a portion of the net (Carretta et al. 2020).

BIAs for fin whales, including parent and core areas (Figure 1, Figure 2), were recently delineated due to the availability of additional data (Calambokidis et al. 2024, Figure 6; Carlton et al. 2024, Fig. 3.44). Both the fin whale parent and core feeding BIAs overlap with the Coos Bay WEA and the fin whale parent feeding BIA overlaps with the Brookings WEA. Both the fin whale parent and core feeding BIAs overlap with the Proposed Action Area (Figure 1, Figure 2).

Sei whale (*Balaenoptera borealis*)

Sei whales have a worldwide distribution and are found primarily in cold temperate to subpolar latitudes across the North Pacific where there is steep bathymetric relief, such as the continental shelf break, canyons, or basins between banks and ledges (Best and Lockyer 2002; Burnham et al. 2019; Gregr and Trites 2001; Horwood 1987; Horwood 2009). Sei whales are migratory, spending the summer months feeding in the subpolar higher latitudes and returning to the lower latitudes to calve in the winter (Rone et al. 2017; Smultea 2014; Fulling et al. 2011; Olesen et al. 2009). In the winter in the Pacific, sei whales have been detected as far south as the Mariana Islands, Hawaii, and Southern California (Fulling et al. 2011; Smultea 2014). Analysis of sei whale genetic samples from around the Pacific suggests a single stock present in the Pacific (Baker et al. 2006; Huijser et al. 2018). For the MMPA stock assessment reports, sei whales within the Pacific U.S. Economic Exclusive Zone (EEZ) are divided into two discrete areas: (1) California, Oregon, and Washington waters; and (2) waters around Hawaii. The Eastern North Pacific stock includes animals found within the U.S. West Coast EEZ and in adjacent high-seas waters; however, because comprehensive data on abundance, distribution, and human-caused impacts are lacking for high-seas regions, the status of this stock is evaluated based on data from U.S. EEZ waters of the California Current (NMFS 2005).

Sei whales are rare in the California Current (Dohl et al. 1983; Barlow 2016; Forney et al. 1995; Green et al. 1992) but were the fourth most common whale taken by California coastal whalers in the 1950s–1960s (Rice 1974). Shipboard surveys off California, Oregon, and Washington from 1991–2014 sighted approximately 17 sei whales from 35° N to 45° N (Barlow 2016).

The sei whale is listed as endangered under the ESA, but there is no designated critical habitat for this species (Carretta et al. 2020). A single Eastern North Pacific stock is recognized in the U.S. EEZ and that stock is considered depleted under the MMPA (Carretta et al. 2020). No data on trends in sei whale abundance exist for the Eastern North Pacific. Although the population in the North Pacific is expected to have grown since granted protected status in 1976, the possible effects of continued unauthorized takes (Yablokov 1994), vessel strikes, and gillnet mortality make this uncertain. Barlow (2016) noted that an increase in sei whale abundance observed in 2014 in the California Current is partly due to recovery of the population from commercial whaling but could also involve distributional shifts in the population. The best estimate of abundance for California, Oregon, and Washington waters is the unweighted geometric mean of the 2008 and 2014 estimates, or 519 (CV = 0.40) sei whales (Barlow 2016).

The California swordfish drift gillnet fishery is the most likely U.S. fishery to interact with sei whales from this stock, but no entanglements have been observed from 8,845 monitored fishing sets during 1990–2016 (Carretta et al. 2018). The average observed annual mortality due to ship strikes is 0.2 sei

whales per year for the period 2012–2016. Additional ship strike mortality probably goes unreported, because the whales may not have stranded or had obvious signs of trauma (Carretta et al. 2018). Increasing levels of anthropogenic sound in the world's oceans is a habitat concern for whales, particularly for baleen whales that could communicate using low-frequency sound (Croll et al. 2002).

Humpback whale (*Megaptera novaeangliae*)

Humpback whales occur throughout the North Pacific, with multiple populations recognized based on low latitude winter breeding areas (Calambokidis et al. 2001; 2008; Barlow et al. 2011). Exchange of animals between breeding areas occurs rarely, based on photo-identification data of individual whales (Calambokidis et al. 2001; 2008). Photo-identification evidence also suggests strong site fidelity to feeding areas, but animals from multiple feeding areas converge on common winter breeding areas (Calambokidis et al. 2008).

Along the U.S. West Coast, NMFS currently recognizes one humpback whale stock that includes two separate feeding groups: (1) a California and Oregon feeding group of whales that includes whales from the endangered Central American and threatened Mexican DPSs defined under the ESA; and (2) a northern Washington and southern British Columbia feeding group that primarily includes whales from the threatened Mexican DPS, but also small numbers of whales from the unlisted Hawaii and endangered Central American DPSs (Calambokidis et al. 2008; Barlow et al. 2011; Wade et al. 2016; Wade 2017; 2021). Very few photographic matches between these feeding groups are documented (Calambokidis et al. 2008).

Both core and parent BIAs for humpback whale feeding areas were identified off the U.S. West Coast by Calambokidis et al. (2015) and updated by Calambokidis et al. (2024). The Brookings WEA overlaps with the humpback parent and core BIA feeding areas (Carlton et al. 2024, Fig. 3.46) and both the core and parent humpback whale feeding BIAs overlap with the Proposed Action Area (Figure 1, Figure 2). Effective May 21, 2021, NMFS issued an updated final rule to designate critical habitat for the endangered Central America DPS and the threatened Mexico DPS of humpback whales (*Megaptera novaeangliae*) (86 FR 21082). Critical habitat for these DPSs serve as feeding habitat and contain the essential biological feature of humpback whale prey. Critical habitat for the Central America DPS of humpback whales contains approximately 48,521 nmi² of marine habitat in the North Pacific Ocean within the portions of the California Current Ecosystem off the coasts of Washington, Oregon, and California. Specific areas designated as critical habitat for the Mexico DPS of humpback whales contain approximately 116,098 nmi² of marine habitat in the North Pacific Ocean, including areas within portions of the eastern Bering Sea, Gulf of Alaska, and California Current Ecosystem.

For the MMPA stock assessment reports, the California/Oregon/Washington Stock is defined to include humpback whales that feed off the West Coast of the United States, including animals from both the California-Oregon and Washington-southern British Columbia feeding groups (Barlow et al. 2011; Calambokidis et al. 2008). Three other stocks are recognized in the Pacific region stock assessment reports: (1) CNP stock (with feeding areas from southeastern Alaska to the Alaska Peninsula); (2) Western North Pacific Stock (with feeding areas from the Aleutian Islands, the Bering Sea, and Russia); and (3) American Samoa stock in the South Pacific (with largely undocumented feeding areas as far south as the Antarctic Peninsula) (Carretta et al. 2020). The relationship of MMPA stocks to ESA DPSs is complex. Whales from three different DPSs (Central America, Mexico, and Hawaii) are included in the

MMPA stock identified in this report as the “California/Oregon/Washington stock” (COW). Nearly all Central American whales migrate to California and Oregon to feed, but the California/Oregon feeding area represents a mix of whales from Mexico and Central America (Wade 2021). Humpback whales expected to be present in the Proposed Action Area are expected to be part of the COW stock.

The COW stock is estimated to be increasing at 6–7% per year. Combining abundance estimates from both the California/Oregon and Washington/southern British Columbia feeding groups (2,374 + 526) yields an estimate of 2,900 animals (CV = 0.048) for the COW stock (Carretta et al. 2020).

From 2013–2017, mortality due to interactions with fisheries averaged 17.3 whales per year (Carretta et al. 2020). Fourteen humpback whales (totaling an average of eight deaths, 2.8 serious injuries, and two non-serious injuries) were reported struck by vessels between 2013 and 2017 (Carretta et al. 2019a). An encounter-theory model estimated the number of annual ship strike deaths to be 22 humpback whales, although this includes only the period from July to November when whales are most likely to be present in the U.S. West Coast EEZ and the time of year that overlaps with cetacean habitat models generated from line-transect surveys (Becker et al. 2016; Rockwood et al. 2017). A humpback whale was entangled in a research marine mooring buoy in 2014. The whale is estimated to have been entangled for three weeks and had substantial necrotic tissue around the caudal peduncle. Although the whale was fully disentangled, this animal was categorized as a serious injury because of the necrotic condition of the caudal peduncle and the possibility that the whale would lose its flukes due to the severity of the entanglement (Carretta et al. 2019a). Increasing levels of anthropogenic sound in the world’s oceans (Andrew et al. 2002) has also been identified as a threat to humpback whales.

Gray whale (*Eschrichtius robustus*)

There are two North Pacific stocks of gray whales: the Western stock (WNP) and the ENP stock designated in the Pacific stock assessment report (SAR) (Carretta et al. 2020). Gray whales of the WNP stock primarily occur in shallow waters over the U.S. West Coast, Russian, and Asian continental shelves, while the ENP stock whales primarily occur in shallow waters over the continental shelf of the U.S. West Coast and Mexico. This species is one of the most coastal of the great whales (Jefferson et al. 2015; Jones and Swartz 2009). The WNP stock primarily feed in the Okhotsk Sea off Sakhalin Island, Russia, and in the southeastern Kamchatka Peninsula in the southwestern Bering Sea in nearshore waters generally less than 68.6 m (225 ft) deep (Jones and Swartz 2009; Weller and Brownell 2012). The breeding grounds consist of subtropical lagoons in Baja California, Mexico, and suspected wintering areas in southeastern Asia (Alter et al. 2009; Jones and Swartz 2009; Mate et al. 2015a; Urban-Ramirez et al. 2003; Weller et al. 2013). The ENP stock also feeds in nearshore waters in the Chukchi Sea, Bering Sea, Gulf of Alaska, the Pacific Northwest, and Northern California (Calambokidis et al. 2017; Lagerquist et al. 2018; Mate et al. 2010; 2013; 2015a; Weller et al. 2013). The main breeding grounds consist of subtropical lagoons in Baja California, Mexico (Alter et al. 2009; Jones and Swartz 2009; Urban-Ramirez et al. 2003).

Some gray whales make the longest annual migration of any mammal (15,000–20,000 km [9,321–12,427 mi] roundtrip; Guazzo et al. 2019). Gray whales migrate along the Pacific Coast twice a year between October and July (Calambokidis et al. 2015). Although they generally remain mostly over the shelf during migration, some gray whales could be found in more offshore waters to the west of San Clemente Island and the Channel Islands (Calambokidis et al. 2015; Guazzo et al. 2019; Mate and Urban-Ramirez 2003; Schorr et al. 2019; Smultea 2014; Sumich and Show 2011). Recordings from a hydrophone

array deployed offshore of central California (near Monterey) show that gray whales are acoustically active while migrating and that this acoustic behavior and their swimming behavior during migration changes on daily and seasonal time scales (Guazzo et al. 2017).

Information from tagging, photo-identification, and genetic studies show that some whales identified in the western North Pacific off Russia have been observed in the Eastern North Pacific, including coastal waters of Canada, the U.S., and Mexico (Lang et al. 2014; Weller et al. 2012; Mate et al. 2015a, Urbán et al. 2019). The number of whales documented moving between the Western and Eastern North Pacific represents 14% of gray whales identified off Sakhalin Island and Kamchatka according to Urban et al. (2019). Some whales that feed off Sakhalin Island in summer migrate east across the Pacific to the west coast of North America in winter, while others migrate south to waters off Japan and China (Weller et al. 2016). The current stock structure for gray whales in the Pacific has been in the process of being re-examined for several years and remains uncertain as of the most recent Pacific SAR (Carretta et al. 2023). Genetic data reveal mixed stock aggregations of gray whales in the northern Pacific Ocean and indicate that current population structure is not reflected by the current eastern and western stock or DPS designations based on geography (Brüniche-Olsen et al. 2018; Carretta et al. 2020).

The WNP is endangered, with an estimated population size from photo-identification data for Sakhalin Island and Kamchatka in 2016 of 290 whales (90% percentile interval = 271–311) (Cooke et al. 2017; Cooke et al. 2018). Their main wintering areas are in waters off Russia and Asia (Mate et al. 2015a; Moore and Weller 2013; Weller et al. 2012; 2013). Recent analysis of the data available for 2005 through 2016 estimates the combined Sakhalin Island and Kamchatka populations are increasing (Cooke 2019).

The ENP has recovered from whaling exploitation, is not considered depleted, and was de-listed under the ESA in 1994 (Carretta et al. 2020; Swartz et al. 2006). The most recent estimate of abundance for the ENP population is from the 2015/2016 southbound survey and is 26,960 (CV=0.05) whales (Durban et al. 2017).

A few hundred gray whales that feed along the Pacific Coast between southeastern Alaska and Northern California throughout the summer and fall are known as the Pacific Coast Feeding Group (PCFG) (Calambokidis et al. 2017; Carretta et al. 2017; Mate et al. 2013; Weller et al. 2013). The group has been identified as far north as Kodiak Island, Alaska (Gosho et al. 2011), and generated uncertainty regarding the stock structure of the ENP (Carretta et al. 2017; Weller et al. 2012; 2013). Photo-identification, telemetry, and genetic studies suggest that the PCFG is demographically distinct from the ENP (Calambokidis et al. 2017; Frasier et al. 2011; Lagerquist et al. 2018; Mate et al. 2010). In 2012–2013, the Navy funded a satellite tracking study of PCFG gray whales (Mate 2013). Tags were attached to 11 gray whales near Crescent City, California, in Fall 2012. Good track histories were received from nine of the 11 tags, which confirmed an exclusive nearshore (< 19 km [< 11.8 mi]) distribution and movement along the Northern California, Oregon, and Washington coasts (Mate 2013). Although the duration of the tags was limited, none of the PCFG whales moved south beyond Northern California.

Both stocks could be present in the Proposed Action Area during their northward and southward migration (Calambokidis et al. 2015; Carretta et al. 2020; Cooke et al. 2015; Moore and Weller 2013; Sumich and Show 2011; Weller et al. 2012; 2013). During surveys of the northern feeding grounds, the largest number of WNP gray whales was observed in late August and early September (Meier et al. 2007), suggesting those few gray whales that could migrate down the U.S. West Coast will not be in California waters in general during those months.

Gray whale BIAs, including parent and child migratory BIAs and parent and core feeding BIAs, were identified along the U.S. West Coast (Calambokidis et al. 2015; Calambokidis et al. 2024 Figs. 7-10; Carlton et al. 2024, Figs. 3.39-3.42). Vessels transiting from Coos Bay, Crescent City, San Francisco Bay, and Morro Bay are likely to intersect with gray whale migratory BIAs. Vessels surveying potential cable routes are also likely to intersect with small portions of the migratory BIAs. The gray whale BIAs do not overlap with the Oregon WEAs, but they do overlap with the Proposed Action Area (Figure 1, Figure 2). There has been no critical habitat designated for this species.

Sperm whale (*Physeter macrocephalus*)

Sperm whales consume a variety of squid and fish; females feed mostly on deep-living species of squid, whereas males often forage for bottom-dwelling fish (Whitehead 2003; Whitehead et al. 2008). Based on habitat models derived from line-transect survey data collected between 1991 and 2008 off the U.S. West Coast, sperm whales show an apparent preference for deep waters (Barlow et al. 2009; Becker et al. 2012; Becker et al. 2010; Forney et al. 2012). Sperm whales are distributed across the entire North Pacific and into the southern Bering Sea in summer, but the majority are thought to be south of 40°N in winter (Rice 1974; 1989; Miyashita et al. 1995). Sperm whales are found year-round in California waters (Dohl et al. 1983; Barlow 1995; Forney et al. 1995), but they reach peak abundance from April through mid-June and from the end of August through mid-November (Rice 1974). Sperm whales are seen off Washington and Oregon in every season except winter (Green et al. 1992). Of the 176 sperm whales marked with discovery tags off Southern California in winter between 1962 and 1970, only three were recovered by whalers: one off Northern California in June, one off Washington in June, and another far off British Columbia in April (Rice 1974).

Since 1978, there have been accounts of at least three other stranded sperm whales, including two in 2008 recorded by the Humboldt State University Vertebrate Museum. No sperm whales were reported from 30 surveys conducted off Eureka, Oregon, in Fall 1991–2007 (Calambokidis 2009). Only two sperm whales were observed in low-elevation aerial surveys, both at depths of 200–2,000 m (656–6,561 ft) (Adams et al. 2014); satellite tracking has indicated their migration occurs along the continental shelf break, and passive acoustic monitoring has detected them in the Eel River Canyon.

The sperm whale has been listed as endangered since 1970 under the precursor to the ESA (NMFS 2009), but there is no designated critical habitat for this species in the North Pacific. Sperm whales within the Pacific U.S. EEZ are divided into three discrete, non-contiguous areas: COW waters, waters around Hawaii, and Alaska waters (Carretta et al. 2020). Sperm whales in the California Current have been identified as demographically independent from animals in Hawaii and the eastern tropical Pacific (Mesnick et al. 2011). The best estimate of sperm whale abundance in the California Current is the trend-based estimate corresponding to the most recent 2014 survey, or 1,997 (CV= 0.57) whales (Moore and Barlow 2014).

The fishery most likely to injure or kill sperm whales from this stock is the California thresher shark/swordfish drift gillnet fishery (Julian and Beeson 1998; Carretta et al. 2018; 2019a; 2019b), although sablefish hook and line fishery, entanglements in unknown fisheries, ingestion of marine debris, and vessel strikes are also threats to this species (Carretta et al. 2020). Conclusions about population increases or decreases are uncertain for the 1991–2014 study period (Moore and Barlow 2017).

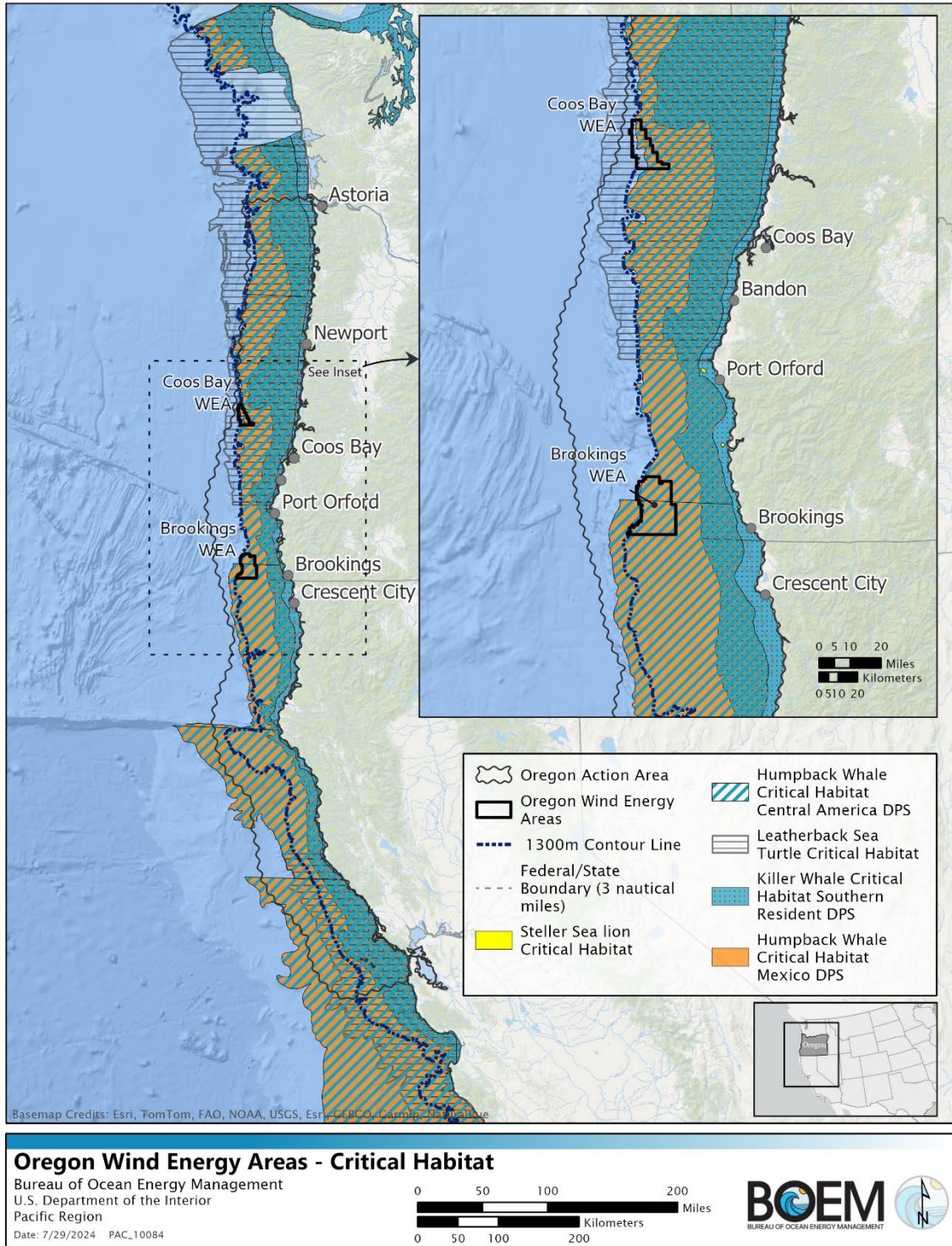
Southern resident killer whale (*Orcinus orca*)

The Eastern North Pacific Southern Resident stock of killer whales is composed of three matrilineal pods named J, K, and L (Bigg et al. 1990) and occur in the inland waterways of Puget Sound, Strait of Juan de Fuca, and the southern Georgia Strait in spring, summer, and fall. Little is known about their fall, winter, and spring movements, but they have been reported in coastal waters off Oregon and Washington, especially in the area between Grays Harbor and the Columbia River (Ford et al. 2000, Hanson et al. 2017), and travel as far south as central California and as far north as southeastern Alaska. Although less is known about the whales' movements in outer coastal waters, satellite tagging, opportunistic sighting, and acoustic recording data suggest that Southern Residents spend most of their time on the continental shelf, within 34 km (21.1 mi) of shore in water less than 200 m (656.2 ft) deep (Hanson et al. 2017). Details of their winter range from satellite tagging reveal whales use the entire Salish Sea (northern end of the Strait of Georgia and Puget Sound) in addition to coastal waters from the central west coast of Vancouver Island, British Columbia to Point Reyes, California (Carretta et al. 2020). The J pod from this stock is commonly sighted in inshore waters in winter, while the other two pods, K and L, apparently spend more time offshore (Ford et al. 2000). Sample pollutant ratios from K and L pod whales are consistent with a hypothesis of time spent foraging in California waters (Krahn et al. 2009), which is consistent with sightings of K and L pods as far south as Monterey Bay. Based on available information, it is likely that pods K and L travel by, and perhaps through, the nearshore portions of the Proposed Action Area (e.g., to depths of 200 m [656 ft] at infrequent intervals in winter or spring). They could forage for migrating Chinook salmon at the Klamath River mouth because of the abundance of prey. The two rivers closest to the Humboldt WEA, the Mad and Eel, have very few Chinook salmon in comparison, although Chinook salmon from the Sacramento River are regularly caught in nearshore fisheries in the Proposed Action Area (Bellinger et al. 2015).

Following the peak census count of 99 animals in 1995, the population size has declined approximately 1% annually and currently stands at 73 animals as of the 2019 census (Ford et al. 2000; Center for Whale Research 2019; 2020). A population viability analysis identified several risk factors to this population, including limitation of preferred Chinook salmon prey, anthropogenic noise and disturbance resulting in decreased foraging efficiency, vessel strikes, and high levels of contaminants, including polychlorinated biphenyls and insecticide dichloro-diphenyl-trichloroethane (Erbe 2002, Clark et al. 2009, Krahn et al. 2007; 2009, Lacy et al. 2017; Carretta et al. 2020).

The Southern Resident DPS was federally listed as endangered in 2005 (70 FR 69903). Critical habitat for this DPS (Figure 3; Figure 3-6 from the [Final Environmental Assessment: Commercial Wind Lease Issuance on the Pacific Outer Continental Shelf, Offshore Oregon](#) [EA]) was designated in the summer core area in Haro Strait and waters around the San Juan Islands, Puget Sound, and the Strait of Juan de Fuca (79 FR 69054). In August 2021, additional critical habitat was designated along the U.S. West Coast from the Canadian border to Point Sur, California, including offshore of Humboldt County between depths of 6.1–200 m (20–656 ft) (86 FR 41668). BIA parent and core areas were delineated for Southern Resident killer whales (Calambokidis et al. 2024; Figure 11). The BIAs overlap with the Proposed Action Area (Figure 1 [Figure 3-5 from the EA], Figure 2 [Figure 3-4 from the EA]).

Figure 3: Critical habitat for the leatherback sea turtle, Steller sea lion, humpback whale, and south resident killer whale relative to the Proposed Action Area and WEAs



Sources: Calambokidis et al. 2024, Carlton et al. 2024, Carretta et al. 2023

Steller sea lion (*Eumetopias jubatus*)

Steller sea lions' range along the North Pacific from northern Japan to California (Perrin et al. 2009), with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands (Muto et al. 2020). The Steller sea lion is a colonial breeder. They feed on a variety of fishes, bivalves, cephalopods, and gastropods. They can disperse long distances to find prey but are not known to migrate. Haul-outs and rookeries usually consist of beaches, ledges, and rocky reefs (NMFS 2019b). Steller sea lions do not dive deep, and they forage over the continental shelf at night, usually within 12 miles of the colony (Loughlin 2008). Individuals rarely come ashore on the mainland but haul-out on islands and offshore rocks and even remain at-sea during stormy weather (Kenyon and Rice 1961). Steller sea lions breed along the Humboldt County coast and their presence in the marine and coastal portions of the Proposed Action Area varies throughout the year. Two of the three largest breeding colonies in the region are on Sugarloaf Island off Cape Mendocino and on St. George Reef off Crescent City.

The Steller sea lion was federally listed as threatened in 1990 (NMFS 1990). In 1997, the eastern population (i.e., east of 144° W longitude) was listed as threatened, and the western population (i.e., west of 144° W longitude) was listed as endangered (NMFS 1997). The eastern DPS has since recovered and is no longer listed (78 FR 66139, 11/04/2013), increasing at the maximum theoretical net productivity rate for pinnipeds of 12% (Wade and Angliss 1997). The western DPS remains endangered. There is an exchange of sea lions across the stock boundary (144°W), especially due to the wide-ranging seasonal movements of juveniles and adult males (Baker et al. 2005; Jemison et al. 2013; 2018). The total count estimate of pups and non-pups for the U.S. portion of the eastern stock of Steller sea lions (excluding Canada) in 2017 is 43,201 and is a minimum population estimate (Johnson and Fritz 2014).

Critical habitat was designated in 1993, and includes Sugarloaf Island, Cape Mendocino, Southeast Farallon Island, and Año Nuevo Island in California (NMFS 1993). The Proposed Action Area overlaps with Stellar sea lion critical habitat (Figure 3). The Stellar sea lion critical habitat does not overlap with the Oregon WEAs; however, the eastern DPS includes sea lions originating from rookeries in southeastern Alaska, British Columbia, Washington, Oregon, and California, and therefore the range of the Eastern DPS of Stellar sea lions does overlap with the Oregon WEAs (<https://www.fisheries.noaa.gov/species/steller-sea-lion#population>). Mortality and serious injuries from commercial and recreational fisheries, marine debris, vessel strike, illegal shooting, explosives, disturbance at rookeries, Native subsistence harvest, and incidental mortality currently impact Eastern U.S. Steller sea lions (Muto et al. 2020). A changing ocean environment, particularly warmer temperatures, could be resulting in increased California sea lions over Steller sea lions in the southern portion of the Steller sea lion's range (NMFS 2008).

Guadalupe fur seal (*Arctocephalus townsendii*)

The Guadalupe fur seal is a pelagic species for most of the year, occurring in the subtropical waters of Southern California and Mexico. Breeding occurs almost entirely on Isla de Guadalupe, Mexico, from May to July (CMLPAI 2009; NMFS 2019a). In recent years, several Guadalupe fur seals have been consistently observed at San Miguel Island. In 1997, a pup was observed there but no other pups were observed until 2008. Breeding colonies may occur on San Miguel and San Nicolas Islands (Seal Conservation Society 2011). Guadalupe fur seals are solitary, non-social animals, but males could mate with up to 12 females during the breeding season (NMFS 2019a). They feed in deep waters on krill, squid, and small schooling fish (CMLPAI 2009). Unusual mortality events, in the form of increased strandings of Guadalupe fur seals, have occurred along the entire coast of California, beginning in

January 2015 at eight times higher than the historical average. Strandings have continued since 2015 at well-above average rates in California. Additionally, Guadalupe fur seal strandings in Oregon and Washington became elevated in 2019. Along the U.S. West Coast, strandings occur almost annually in California waters, and animals are increasingly observed in Oregon and Washington waters (Carretta et al. 2020). Most stranded animals were less than two years old and malnourished with secondary bacterial and parasitic infections (NMFS 2019a; Carretta et al. 2020). Guadalupe fur seals that stranded in central California and were treated at rehabilitation centers were fitted with satellite tags and documented to travel as far north as Graham Island and Vancouver Island, British Columbia, Canada (Norris et al. 2015). Some satellite-tagged animals traveled far offshore outside the U.S. EEZ to areas 700 nmi west of the California/Oregon border. The population is considered to be a single stock because all are recent descendants from one breeding colony at Isla Guadalupe, Mexico (Carretta et al. 2020).

Current threats include incidental mortality and serious injury in commercial and unidentified fisheries, entanglement in marine debris, and shootings (Carretta et al. 2020).

The Guadalupe fur seal was federally listed as endangered in 1967 and then re-listed as threatened in 1985 (NOAA 1985). The main reason for listing was a severe population decline due to hunting. No critical habitat has been designated for the Guadalupe fur seal. Since their listing, Guadalupe fur seals have significantly increased in numbers with an estimated annual rate of increase of 5.9% (ranging from 4.1–7.7%) (García-Aguilar et al. 2018). The minimum population size of 31,019 animals is taken as the lower bound of the estimate provided by García-Aguilar et al. (2018) in Muto et al. (2020).

Marine Mammals Unlikely to Occur in the Proposed Action Area

North Pacific right whale (*Balaena japonica*)

The likelihood of a North Pacific right whale being present in the Proposed Action Area is low, as in recent years this species has only been routinely observed or acoustically detected in the Bering Sea (Brownell et al. 2001; Filatova et al. 2019; NMFS 2017; Sheldon et al. 2005; Wade et al. 2011; 2010; Wright et al. 2019; 2018; Zerbini et al. 2015; 2010), with occasional sightings of individuals in the Gulf of Alaska (Matsuoka et al. 2014; Širović et al. 2014; Wade et al. 2011), waters off British Columbia and the border with Washington State (Ford et al 2016; Širović et al 2015; U.S. Department of the Navy 2015), and Southern California (Muto et al. 2018; CBS8.com 2017). Occasional sightings of right whales have been made off California and off Baja California, Mexico; this includes two recent records from California in 2017, off La Jolla and in the Channel Islands (both of which were single whales) (Muto et al. 2021). The most recent estimated population for the Eastern North Pacific right whale is between 26 and 31 individuals (Muto et al. 2022; Wade et al. 2011). Although this estimate could be reflective of a Bering Sea subpopulation, the total eastern North Pacific population is unlikely to be much larger (Wade et al. 2010). There have been only four sightings in approximately the past 30 years, each of a single right whale, in Southern California waters (in 1988, 1990, 1992, and 2017) (Brownell et al. 2001; Carretta et al. 1994; NMFS 2017; WorldNow 2017). Sightings off California are rare (Brownell et al. 2001; NMFS 2017; Scammon 1874). Historically, during the period of U.S. West Coast whaling through the 1800s, right whales were considered uncommon to rare off California (Muto et al. 2020; Scammon 1874). However, right whales could have been severely depleted in their feeding grounds prior to 1854, when the first coastal whaling station was established in California. It remains possible that California and Mexico, and possibly offshore waters of Hawaii, were once the principal calving grounds

for right whales from the Gulf of Alaska and Bering Sea (Muto et al. 2020). For the reasons presented above, the presence of North Pacific right whales is unlikely or rare in the Proposed Action Area. However, it is important to monitor for North Pacific right whales, in addition to other protected species, so recommendations for mitigation can be updated if North Pacific right whales are detected in the Proposed Action Area.

Sea Turtles Likely to Occur in the Proposed Action Area

Leatherback sea turtle (*Dermochelys coriacea*)

The leatherback sea turtle is listed as a single, endangered population under the ESA (35 FR 8491). However, USFWS and NMFS identified seven leatherback DPSs based on nesting locations and foraging distribution: Northwest Atlantic, Southwest Atlantic, Southeast Atlantic, Southwest Indian, Northeast Indian, West Pacific, and East Pacific (NMFS and USFWS 2020a). Only leatherback turtles from the West Pacific DPS could occur in the Proposed Action Area, and none of the DPSs have been listed under the ESA. Their diet is primarily jellyfish, but they also consume other invertebrates, small fish, and plant material (NMFS 2016b; Nafis 2018).

Leatherback turtles are mostly pelagic but occasionally enter shallower waters of bays and estuaries (NOAA 2016). For fall aerial transects from Point Conception, California, to the Oregon border over waters less than 92 m (302 ft) deep and within 34 km (21 mi) of shore, two to 28 leatherback sea turtles per year were reported during 1990–2003 (Benson et al. 2007). None of the individuals reported from the northern coast were north of Cape Mendocino in Mendocino County. However, tagged leatherback sea turtles have been observed offshore of the Northern California coast (Benson et al. 2011; TOPP 2019).

Leatherback turtle nesting populations in the Pacific Ocean have declined by more than 80% since the 1980s. The International Union for Conservation of Nature predicted a decline of 96% for the western Pacific subpopulation and a decline of nearly 100% for the eastern Pacific subpopulation by 2040 (NMFS 2016b; Sarti-Martinez et al. 1996). The number of leatherback turtles foraging off the U.S. West Coast declined 6% annually from 1990 to 2017, representing an 80% decline in the foraging population over that period (Benson et al. 2020).

A total index of nesting female abundance of the West Pacific population was estimated to be 1,277 females. Leatherback turtles of the West Pacific DPS nest in tropical and subtropical latitudes primarily in Indonesia, Papua New Guinea, and the Solomon Islands, and to a lesser extent in Vanuatu (Dutton et al. 2007; Benson et al. 2007; Benson et al. 2011). Oceanic currents help to structure the spatial and temporal distribution of juveniles, which lead them to foraging and developmental habitats (e.g., the North Pacific Transition Zone); they undertake seasonal migrations seeking favorable oceanic habitats/temperatures and abundant foraging resources (Gaspar et al. 2012).

Critical habitat (Figure 3) has been designated to include the waters from Cape Flattery, Washington, to Winchester Bay, Oregon, out to the 2,000 m isobath (NMFS 2012). In California, critical habitat extends from Point Arena to Point Arguello, inshore of the 1,000 m depth contour (NMFS 2012).

Loggerhead sea turtle (*Caretta caretta*)

In the eastern Pacific, loggerhead sea turtles are reported from Chile to Alaska. They are occasionally sighted from the coasts of Washington and Oregon, but most records are of juveniles off the California coast. Important eastern Pacific habitats for juveniles are the west coast of Mexico and the Baja Peninsula. Loggerhead sea turtles have been observed at scattered locations from Point Conception to the U.S./Mexico border (NMFS and USFWS 2020b). Sightings in California tend to occur from July to September but can occur most of the year during El Niño years when ocean temperatures rise.

The only known nesting areas in the North Pacific are found in southern Japan (NMFS 2017b). Despite long-term declines at nesting beaches in Japan, nesting populations in Japan appear to be gradually increasing or remaining stable (Chapman and Seminoff 2016; NMFS and USFWS 2007). Loggerhead turtles do not nest within the Proposed Action Area.

The loggerhead sea turtle is primarily pelagic but occasionally enters bays, lagoons, salt marshes, estuaries, creeks, and rivers (NMFS and USFWS 2020b). Loggerhead sea turtles consume whelks and conches, but also sponges, crustaceans, jellyfish, worms, squid, barnacles, fish, and plants (NMFS 2017b; NMFS and USFWS 2020b).

Loggerhead sea turtles in the North Pacific occur in areas where sea surface temperature ranges between 10 and 28.7°C and mean sea surface temperature ranges between 16.3 and 24°C (Eguchi et al. 2018). Below 15°C, loggerhead turtles become lethargic and inactive. When temperatures fall to 10°C, they become cold-stunned (Mrosovsky 1980). Sea surface temperatures in the Proposed Action Area are generally cooler than temperatures preferred by loggerhead sea turtles. Occurrence of loggerhead turtles would only be expected during summer and fall when water temperatures are more likely to be within their preferred range.

A 2015 aerial survey from Point Conception to south of the U.S.-Mexico border recorded more than 200 loggerhead turtles, when sea surface temperatures were high and there was a strong El Niño climate pattern. El Niño conditions in the Eastern North Pacific, coupled with other large-scale ocean-atmosphere circulations in the western tropical Pacific, resulted in anomalously warm sea surface temperatures in the region and affected the ranges of numerous marine species (Bond et al. 2015). A 2011 survey in the same region during a cold La Niña climate pattern encountered no loggerhead turtles.

Most records of loggerhead turtle sightings, stranding events, and incidental bycatch on the U.S. West Coast have been juveniles in nearshore waters (Eguchi et al. 2018). In general, sea turtle sightings increase during the summer, peaking from July to September off Southern California and southwestern Baja California, with fewer loggerhead turtles expected farther north (Eguchi et al. 2018).

In 2009, a status review conducted for the loggerhead turtle identified nine DPSs within the global population (Conant et al. 2009). In 2011, NMFS and USFWS listed five of these DPSs as endangered (North Pacific Ocean, South Pacific Ocean, North Indian Ocean, Northeast Atlantic Ocean, and Mediterranean Sea DPSs) and four as threatened (Southeast Indo-Pacific Ocean, Southwest Indian Ocean, Northwest Atlantic Ocean, and South Atlantic Ocean DPSs) (76 FR 58868). Only the North Pacific Ocean DPS occurs within the Proposed Action Area; however, mixing occurs between other populations in the Pacific and Indian Oceans, enabling a limited amount of gene flow with other DPSs (Gaos 2011). A 5-year review was conducted on the North Pacific DPS, and no changes were made to the listing status (NMFS and USFWS 2020b)

There is no critical habitat designated for loggerhead sea turtles within the Proposed Action Area.

Sea Turtles Unlikely to Occur in the Proposed Action Area

Green sea turtle (*Chelonia mydas*)

The green sea turtle occurs worldwide in surface waters above 22°C (Van Houtan et al. 2015) and prefers shallow, protected waters (NMFS 2016a). It was first listed under the ESA in 1978, and the National Oceanic and Atmospheric Administration (NOAA) has identified 11 DPSs of green sea turtles globally, one of which is the threatened East Pacific DPS (Seminoff et al. 2015). Green sea turtles have been sighted as far north as Alaska, but most commonly occur from Southern California to northwestern Mexico (NMFS 2016a). Thus, while individuals from the East Pacific Ocean DPS could range into the Proposed Action Area, such movements are extralimital and unlikely.

NOAA has proposed marine critical habitat for the East Pacific DPS from the Santa Monica Bay south to San Diego (88 FR 46572). However, there is no critical habitat designated or proposed for the green sea turtle in the Proposed Action Area.

Olive Ridley Sea Turtle (*Lepidochelys olivacea*)

The olive ridley sea turtle has a global tropical distribution (NMFS and USFWS 2014). While they are uncommon in U.S. territorial waters (NMFS and USFWS 1998; 2014), the olive ridley sea turtle is one of the most abundant species of sea turtles in the world. In the Pacific, large nesting populations occur in Mexico and Costa Rica, but the breeding populations in Mexico are listed as endangered, due to historic declines and threats from loss of nesting habitat and over-harvesting (NMFS and USFWS 2014). California appears to be at the extreme northern range for the species, but individuals have been documented as far north as Alaska.

There is no critical habitat designated for olive ridley sea turtles in the Proposed Action Area.

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