

**Seabirds and Marine Mammals on the NMFS
Rockfish Recruitment and Ecosystem Assessment Survey: 2024 Data Report**

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Cover photo: Short-beaked common dolphins; photo by John Garrett.

Introduction

Seabird and marine mammal observations are an integral part of the NMFS Rockfish Recruitment and Ecosystem Assessment Survey (RREAS). These data are valuable for several reasons: (1) measurements provide an upper trophic level perspective to complement the oceanographic and mid-trophic level data collected by NMFS, (2) estimates of seabird and marine mammal abundance, diversity and distribution may contribute to various aspects of ecosystem and fisheries management, and (3) by extending our existing time series, measuring annual variation in the top predator community contributes to understanding the effects of climate variability and change on the California Current Ecosystem (CCE). This data report summarizes the at-sea survey observations made during the 2024 cruise, and presents basic distribution and abundance estimates for seabirds and mammals.

Methods

Oceanographic conditions. We present sea surface temperature (SST; C°) and wind averages for the periods of 30 April to 15 May 2024 (survey Leg 1) and 30 May to 16 June 2024 (survey Leg 2) along the West Coast of the USA corresponding with the RREAS survey area. SST data were downloaded from the Multi-scale Ultra-high Resolution SST (MURSST) dataset (<https://podaac.jpl.nasa.gov/dataset/MUR-JPL-L4-GLOB-v4.1>), and wind (speed and direction) data were downloaded for NOAA/NDBC buoys (<https://www.ndbc.noaa.gov/>). Sea surface temperature anomalies (SSTa) averages for the same period are presented, with a baseline calculation period of 1991–2020. SSTa data were downloaded from the Optimal Interpolated SST (OISST) dataset (<https://psl.noaa.gov/data/gridded/data.noaa.oisst.v2.highres.html>). Additionally, daily SST and wind averages for the study period are shown specifically for NOAA/NDBC buoy 46011 (https://www.ndbc.noaa.gov/station_page.php?station=46011).

Seabird observations. Observations of seabirds and marine mammals are made continuously during daylight ship transits between oceanographic and fish sampling stations. The observer, located on the flying bridge approximately 15 meters above sea level, uses hand-held binoculars to assist in the identification and enumeration of birds and mammals. For seabirds, the observer records all individuals seen within a 300-meter strip transect to one side and front of the vessel while the ship is underway at speeds greater than 5 knots. For mammals, the observer records all individuals out to the horizon while the ship is underway. Observations are entered into a portable computer using the dedicated application “Dlog”; the ship’s position is automatically recorded periodically from an external GPS. Each observation includes the species, the number of individuals observed, and their behavior (mostly “flying” or “sitting on the water” for birds). At-sea observation data are post-processed using standardized species codes, validation of positioning data, and binning of observations into along-track sections of 3 km in length. The data are then integrated into a survey database that contains data from May 1996 to the present. These data are used to derive summary statistics on density. Species data are presented for both the core region and the full (core + extended) region surveyed since 2004 (see Sakuma et al. 2006 for delineations).

Calculation of seabird densities. Taxa excluded from this summary were fish, terrestrial birds, and most shorebirds except phalaropes, which are largely pelagic. For seabirds, density is calculated as the total number of individuals observed per species divided by the area (km²) surveyed. For mammals, an “encounter rate” is defined as the total number of individuals observed per species divided by the linear amount of habitat (km) sampled. Density/encounter rate over time is shown for select seabird and mammal species in the core survey area 1996–2024 (Figures 5–8). Seabirds highlighted in this report include species with warm-water affinities: black-footed albatross (*Phoebastria nigripes*), Brandt’s cormorant (*Phalacrocorax penicillatus*), brown pelican (*Pelecanus occidentalis*), and pink-footed shearwater (*Puffinus creatopus*). Species with cold-water affinities include: Cassin’s auklet (*Ptychoramphus aleuticus*), common murre (*Uria aalge*), northern fulmar (*Fulmarus glacialis*), rhinoceros auklet (*Cerorhinca monocerata*), and sooty shearwater (*Ardenna griseus*). Marine mammals included are blue whale (*Balaenoptera musculus*), humpback whale (*Megaptera novaeangliae*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and Risso’s dolphin (*Grampus griseus*).

Results

Oceanographic conditions. The 2024 RREAS survey transited a wide range of water temperatures, with more cool temperatures along the coast during the first leg and reflective of a typical upwelling signature (Figure 1a). Conditions were still diverse for the second leg but there was more warm water in Southern California (Figure 1b). During the survey, ocean conditions were much cooler than average in the nearshore area during both legs (Figure 2), however, during Leg 2 the nearshore region of central California region from Monterey to San Francisco was anomalously warm (Figure 2b). This coincides with a warming event that happened on 18–19 May (Figure 3). Strong upwelling winds were detected throughout the survey (Figure 3) and are also indicated by the cool waters along the coast (Figures 1, 2).

Surveying effort. A summary of survey effort is shown in Table 1; transects surveyed are shown in Figure 4. Summarized species observations for all species in the core and total survey area are shown in Tables 2 and 3 (see Appendix 1 for exclusions). A total of 32 days of survey effort covering 3,107 km (932 km²) of ocean habitat is summarized; 15 days were spent covering 1,247 km (374 km²) in the core survey area between Cypress Point and Bodega Bay. Leg 1 of the survey ended early since the ship was damaged at sea and needed repairs, and Leg 2 departed two weeks later once repairs were completed. Surveying happened on Leg 1 from 30 April to 15 May (16 days) and in Leg 2 from 30 May to 16 June. During Leg 2, Brian Hoover observed until 6 June, and Jarrod Santora surveyed 9 June to 16 June (16 days of data).

Seabirds. Density/encounter rates over time in the core area for the selected species are shown in Figures 5–8. Notable results from the 2024 survey include very high density of brown pelican with the highest density of their time series (Figure 5). Two other species, Brandt’s cormorant and common murre, also had very high observed density this year (Figures 5, 6). Cassin’s auklet and rhinoceros auklet, both cold-water affinity species, were observed this year at the lowest density of the time series (Figure 6). Northern fulmar was also present at below average density at just below 1 standard deviation of the long-term mean density (Figure 6). Within 1 standard deviation of the long-term mean, pink-footed shearwater and sooty shearwater were present at average densities while black-footed albatross were below average density (Figures 5 and 6). Density for the nine species combined was near average (Figure 8).

Marine mammals. Our focal marine mammals were abundant in 2024 (Figure 7). Risso's dolphins were observed at the highest density of the time series, and humpback whales had the third-highest density in the time series. Humpback whales were primarily observed diving offshore during the survey, with very few observations of surface lunge feeding. Blue whales also had higher than average density, and Pacific white-sided dolphins were higher than average but within 1 s.d. of the mean. Our focal marine mammals, combined, had higher than average density (Figure 8).

Figure 1. Sea surface temperature (SST; $^{\circ}\text{C}$) and wind averages (speed and direction). The direction the wind is blowing is shown at NOAA/NDBC buoys (purple dots and orange star). Data were averaged for A) Leg 1 (30 April to 15 May 2024), and B) Leg 2 of the RREAS survey (30 May to 16 June 2024).

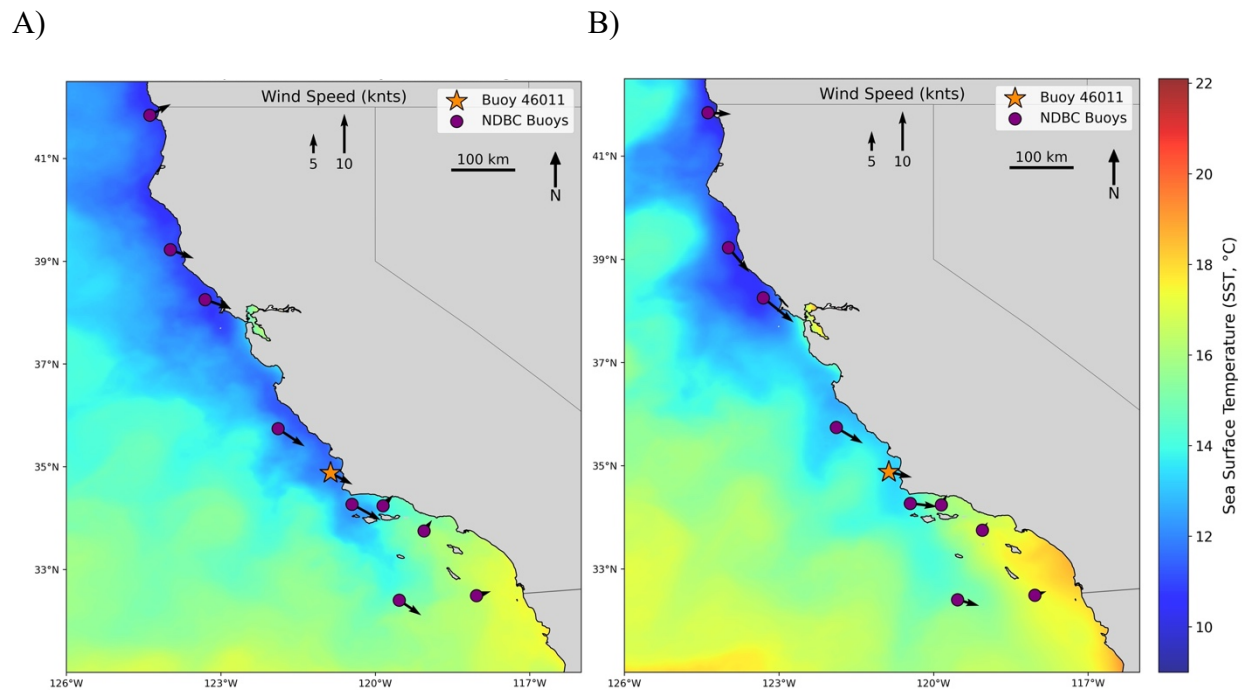
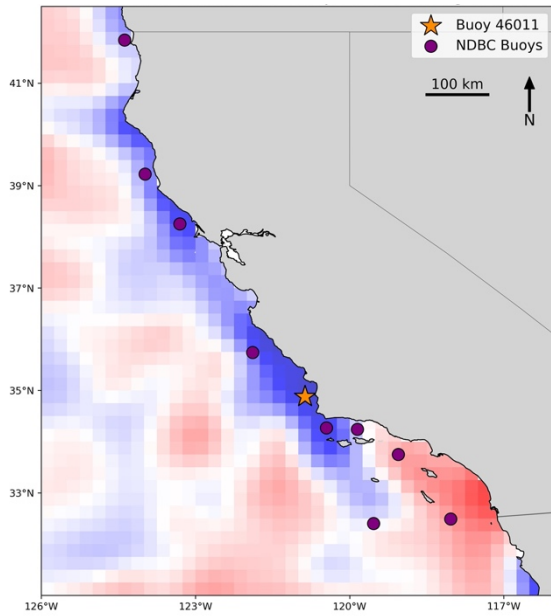


Figure 2. Sea surface temperature anomalies (SSTa; C°) averages for both legs of the RREAS survey. Baseline period: 1991–2020. NOAA/NDBC buoys shown in Figure 6 are shown again here. Data were averaged for A) Leg 1 (30 April to 15 May 2024) and B) Leg 2 of the RREAS survey (30 May to 16 June 2024).

A)



B)

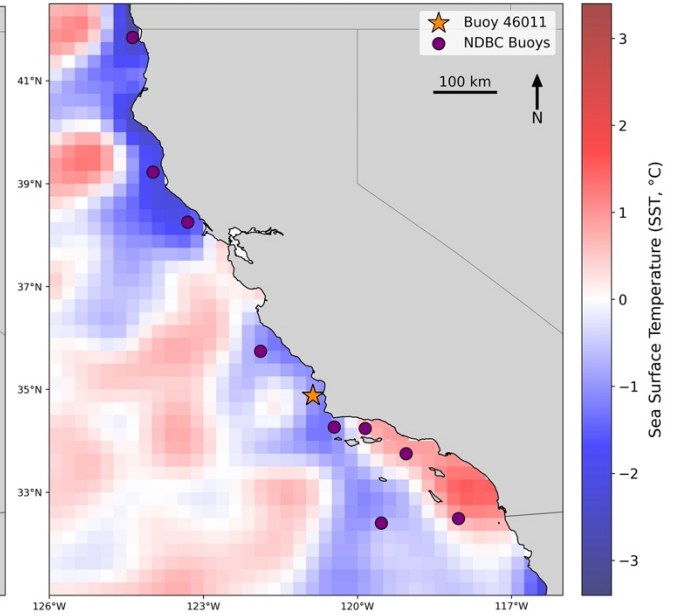


Figure 3. Daily SST (C°) and wind averages for the period of 30 April to 16 June 2024 at NOAA/NDBC buoy 46011; location is marked in Figures 6 and 7 with an orange star. The beginning of each cruise leg is shown with a dashed vertical line. Bottom panel: arrow direction indicates the direction the wind is blowing (up = north) and the y-axis indicates wind speed scale in knots. Upwelling-favorable winds are strong winds to the southeast.

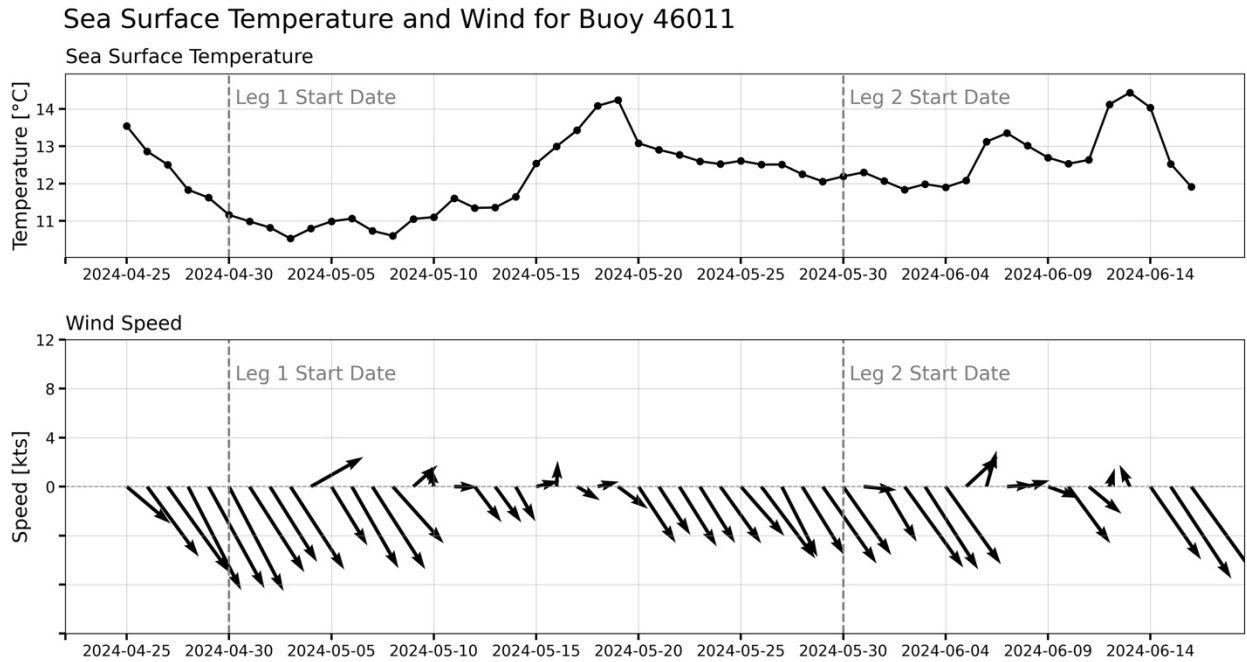


Table 1. Summary of survey effort and seabird and mammal community statistics.

2024	Core Area	Full Area
Survey vessel		<i>R/V Reuben Lasker</i>
Start date		4/30/2024
End date		6/16/2024
Number of survey days	15	32
Distance surveyed (km)	1,247	3,107
Area surveyed (km ²)	374	932
Number of bird species	38	52
Overall bird density (per km ²)	41.355	31.563
Total birds observed	15,473	29,421
Number of mammal species	11	19
Overall mammal encounter rate (per 100 km)	100.5	168.6
Total mammals observed	1,254	5,238

Figure 4. 2024 survey transects for the full (left) and core (right) regions. Gaps usually reflect nighttime.

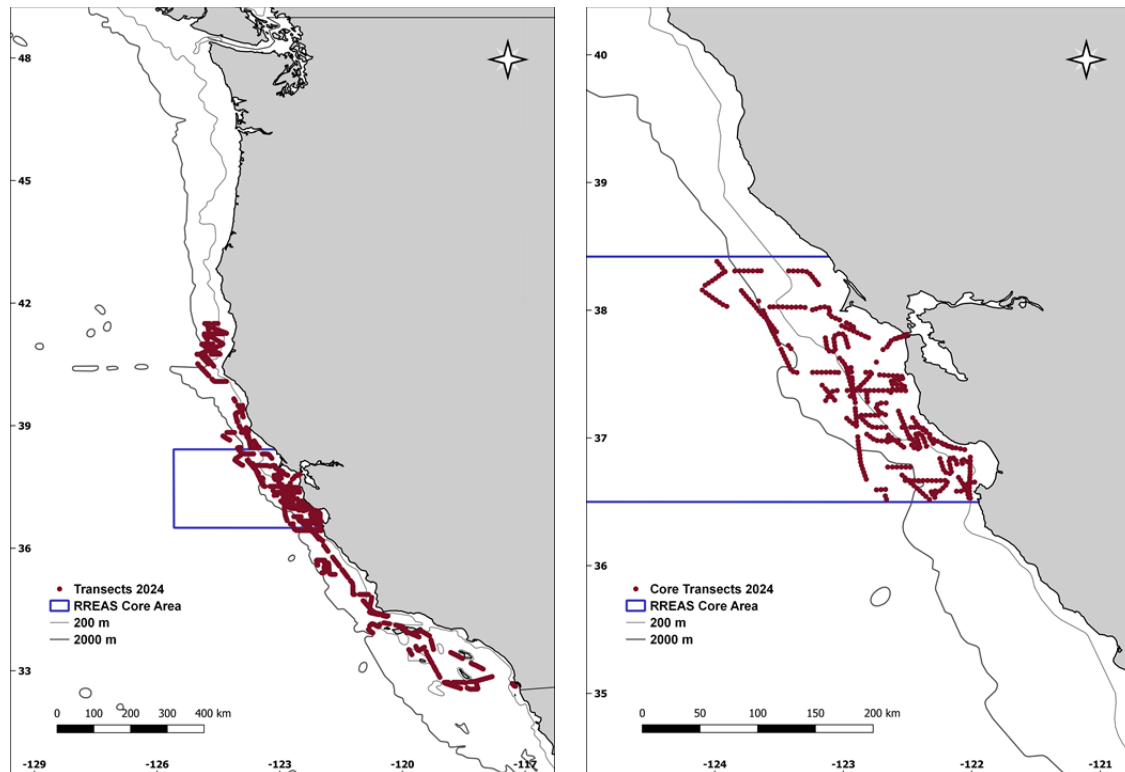


Table 2. Bird survey observations, stratified by area and species. Cell values represent: total number of individuals seen / number of species sightings / average density (birds/km²).

Common Name	Scientific Name	Core Area	Full Area
American White Pelican	<i>Pelecanus erythrorhynchos</i>		
Ancient Murrelet	<i>Synthliboramphus antiquus</i>		
Arctic Loon	<i>Gavia arctica</i>		
Arctic Tern	<i>Sterna paradisaea</i>		
Ashy Storm-Petrel	<i>Oceanodroma homochroa</i>	2 / 2 / 0.01	2 / 2 / 0
Black guillemot	<i>Cephus grylle</i>		
Black Scoter	<i>Melanitta nigra</i>		
Black Storm-Petrel	<i>Oceanodroma melania</i>		2405 / 6 / 2.58
Black-Footed Albatross	<i>Phoebastria nigripes</i>	94 / 87 / 0.25	227 / 208 / 0.24
Black-Legged Kittiwake	<i>Rissa tridactyla</i>	2 / 2 / 0.01	2 / 2 / 0
Black-Vented Shearwater	<i>Puffinus opisthomelas</i>		
Bonaparte's Gull	<i>Larus philadelphia</i>	2 / 1 / 0.01	119 / 13 / 0.13
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>	497 / 154 / 1.33	867 / 187 / 0.93
Brant	<i>Branta bernicla</i>		
Brown Booby	<i>Sula leucogaster</i>		
Brown Noddy	<i>Anous stolidus</i>		
Brown Pelican	<i>Pelecanus occidentalis</i>	162 / 73 / 0.43	205 / 97 / 0.22
Buller's Shearwater	<i>Puffinus bulleri</i>		
California Gull	<i>Larus californicus</i>	45 / 35 / 0.12	79 / 61 / 0.08
Caspian Tern	<i>Sterna caspia</i>	2 / 2 / 0.01	2 / 2 / 0
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	8 / 7 / 0.02	26 / 17 / 0.03
Clark's Grebe	<i>Aechmophorus clarkii</i>	10 / 2 / 0.03	10 / 2 / 0.01
Common Loon	<i>Gavia immer</i>	4 / 4 / 0.01	10 / 7 / 0.01
Common Murre	<i>Uria aalge</i>	7062 / 1388 / 18.87	8566 / 2005 / 9.19
Common Tern	<i>Sterna hirundo</i>	1 / 1 / 0	3 / 3 / 0
Cook's Petrel	<i>Pterodroma cookii</i>		
Craveri's Murrelet	<i>Synthliboramphus craveri</i>		2 / 1 / 0
Dark Shearwater	(species group)		
Dark-Rumped Petrel	<i>Pterodroma phaeopygia sandwichensis</i>		
Double-Crested Cormorant	<i>Phalacrocorax auritus</i>		1 / 1 / 0
Eared Grebe	<i>Podiceps nigricollis</i>		
Elegant Tern	<i>Sterna elegans</i>	72 / 21 / 0.19	268 / 64 / 0.29
Flesh-Footed Shearwater	<i>Puffinus carneipes</i>		
Fork-Tailed Storm-Petrel	<i>Oceanodroma furcata</i>		296 / 231 / 0.32
Forster's Tern	<i>Sterna forsteri</i>		
Franklin's Gull	<i>Larus pipixcan</i>		
Glaucous Gull	<i>Larus hyperboreus</i>		
Glaucous-Winged Gull	<i>Larus glaucescens</i>	5 / 5 / 0.01	13 / 13 / 0.01
Glaucous-winged / Western Hybrid Gull			
Guadalupe Murrelet	<i>Synthliboramphus hypoleucus</i>		
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>		

Heermann's Gull	<i>Larus heermanni</i>	4 / 4 / 0.01	10 / 10 / 0.01
Herring Gull	<i>Larus argentatus</i>		1 / 1 / 0
Horned Puffin	<i>Fratercula corniculata</i>		
Hybrid Gull	(species group)		
Juan Fernandez Petrel	<i>Pterodroma externa</i>		
Kelp Gull	<i>Larus dominicanus</i>		
Kermadec Petrel	<i>Pterodroma neglecta</i>		
Laughing Gull	<i>Larus atricilla</i>		
Laysan Albatross	<i>Phoebastria immutabilis</i>		4 / 4 / 0
Leach's Storm-Petrel	<i>Oceanodroma leucorhoa</i>	1 / 1 / 0	32 / 30 / 0.03
Least Storm-Petrel	<i>Oceanodroma microsoma</i>		
Least Tern	<i>Sterna antillarum</i>		
Long-Tailed Jaeger	<i>Stercorarius longicaudus</i>		
Manx Shearwater	<i>Puffinus puffinus</i>		1 / 1 / 0
Marbled Murrelet	<i>Brachyramphus marmoratus</i>		
Masked Booby	<i>Sula dactylatra</i>		1 / 1 / 0
Mew Gull	<i>Larus canus</i>		
Mottled Petrel	<i>Pterodroma inexpectata</i>		1 / 1 / 0
Murphy's Petrel	<i>Pterodroma ultima</i>		
Nazca Booby	<i>Sula granti</i>		
Northern Fulmar	<i>Fulmarus glacialis</i>	7 / 7 / 0.02	60 / 54 / 0.06
Osprey	<i>Pandion haliaetus</i>		
Pacific Loon	<i>Gavia pacifica</i>	59 / 24 / 0.16	91 / 45 / 0.1
Parakeet Auklet	<i>Aethia psittacula</i>	1 / 1 / 0	1 / 1 / 0
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	4 / 4 / 0.01	9 / 9 / 0.01
Parkinson's Petrel	<i>Procellaria parkinsoni</i>		
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>	3 / 3 / 0.01	8 / 8 / 0.01
Peregrine Falcon	<i>Falco peregrinus</i>		
Pigeon Guillemot	<i>Cephus columba</i>	8 / 6 / 0.02	10 / 7 / 0.01
Pink-Footed Shearwater	<i>Puffinus creatopus</i>	113 / 81 / 0.3	415 / 240 / 0.45
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	1 / 1 / 0	5 / 5 / 0.01
Red Phalarope	<i>Phalaropus fulicaria</i>	152 / 16 / 0.41	243 / 30 / 0.26
Red-Billed Tropicbird	<i>Phaethon aethereus</i>		
Red-Footed Booby	<i>Sula sula</i>		
Red-Necked Grebe	<i>Podiceps grisegena</i>		
Red-Necked Phalarope	<i>Phalaropus lobatus</i>	1643 / 161 / 4.39	2088 / 202 / 2.24
Red-Tailed Tropicbird	<i>Pheathon rubricauda</i>		
Red-Throated Loon	<i>Gavia stellata</i>		
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	14 / 11 / 0.04	34 / 24 / 0.04
Ring-Billed Gull	<i>Larus delawarensis</i>	1 / 1 / 0	1 / 1 / 0
Royal Tern	<i>Sterna maxima</i>		
Ruddy Turnstone	<i>Arenaria interpres</i>		
Sabine's Gull	<i>Larus sabini</i>	81 / 34 / 0.22	189 / 62 / 0.2
Scripps's murrelet	<i>Synthliboramphus scrippsi</i>		19 / 8 / 0.02
Short-Tailed / Slender-Billed Shearwater	<i>Puffinus tenuirostris</i>		
Short-Tailed Albatross	<i>Phoebastria albatrus</i>		1 / 1 / 0
Solander's Petrel	<i>Pterodroma solandri</i>		

Sooty Shearwater	<i>Puffinus griseus</i>	4942 / 1126 / 13.21	12290 / 2074 / 13.18
South Polar Skua	<i>Stercorarius maccormicki</i>		
Stejneger's Petrel	<i>Pterodroma longirostris</i>		
Surf Scoter	<i>Melanitta perspicillata</i>	3 / 2 / 0.01	6 / 4 / 0.01
Thayer's Gull	<i>Larus thayeri</i>		
Townsend's Storm-Petrel	<i>Oceanodroma socorroensis</i>		
Tufted Puffin	<i>Fratercula cirrhata</i>	3 / 2 / 0.01	5 / 4 / 0.01
Unidentified Albatross	(species group)		
Unidentified Auklet	(species group)		
Unidentified Booby	(species group)		
Unidentified Cormorant	(species group)		
Unidentified Duck	(species group)		
Unidentified Grebe	(species group)		
Unidentified Gull	(species group)	78 / 71 / 0.21	126 / 115 / 0.14
Unidentified Jaeger	(species group)		
Unidentified Large Alcid	(species group)		
Unidentified Leach's Storm-Petrel	(species group)		
Unidentified Loon	(species group)	4 / 3 / 0.01	8 / 6 / 0.01
Unidentified Murre	(species group)		8 / 5 / 0.01
Unidentified Murrelet	(species group)		
Unidentified Petrel	(species group)		
Unidentified Phalarope	(species group)	14 / 4 / 0.04	15 / 5 / 0.02
Unidentified Procellarid	(species group)		
Unidentified Shearwater	(species group)		1 / 1 / 0
Unidentified Skua	(species group)		
Unidentified Small Alcid	(species group)		3 / 1 / 0
Unidentified Storm-Petrel	(species group)		
Unidentified Tern	(species group)	1 / 1 / 0	3 / 2 / 0
Unidentified Tropicbird	(species group)		
Wedge-Rumped Storm-Petrel	<i>Oceanodroma tethys</i>		
Wedge-Tailed Shearwater	<i>Puffinus pacificus</i>		
Western Grebe	<i>Aechmophorus occidentalis</i>		
Western Gull	<i>Larus occidentalis</i>	368 / 335 / 0.98	629 / 502 / 0.67
Wilson's Storm-Petrel	<i>Oceanites oceanicus</i>		
Xantus's / Craveri's Murrelet	(species group)		
Xantus's Murrelet	<i>Synthliboramphus hypoleucus</i>		

Table 3. Mammal survey observation summary, broken down by survey area and species. Cell values represent: total number of species individuals / number of species sightings / average species encounter rate (individuals per 100 km).

Common Name	Scientific Name	Core Area	Full Area
Baird's Beaked Whale	<i>Berardius bairdii</i>		
Blue Whale	<i>Balaenoptera musculus</i>	11 / 6 / 0.9	25 / 17 / 0.8
Bottlenose Dolphin	<i>Tursiops truncatus</i>		51 / 2 / 1.6
California Sea Lion	<i>Zalophus californianus</i>	388 / 66 / 31.1	557 / 98 / 17.9
Common Dolphin	<i>Delphinus delphis</i>		2930 / 6 / 94.3
Cuvier's Beaked Whale	<i>Ziphius cavirostris</i>		
Dall's Porpoise	<i>Phocoenoides dalli</i>	35 / 3 / 2.8	35 / 3 / 1.1
False Killer Whale	<i>Pseudorca crassidens</i>		
Fin Whale	<i>Balaenoptera physalus</i>		27 / 18 / 0.9
Gray Whale	<i>Eschrichtius robustus</i>		
Green Sea Turtle	<i>Chelonia mydas</i>		
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>		1 / 1 / 0
Harbor Porpoise	<i>Phocoena phocoena</i>		
Harbor Seal	<i>Phoca vitulina</i>	1 / 1 / 0.1	3 / 3 / 0.1
Humpback Whale	<i>Megaptera novaeangliae</i>	183 / 112 / 14.7	296 / 190 / 9.5
Killer Whale	<i>Orcinus orca</i>	6 / 1 / 0.5	6 / 1 / 0.2
Long-beaked Common Dolphin	<i>Delphinus capensis</i>		
Minke Whale	<i>Balaenoptera acutorostrata</i>		1 / 1 / 0
Northern Elephant Seal	<i>Mirounga angustirostris</i>		2 / 2 / 0.1
Northern Fur Seal	<i>Callorhinus ursinus</i>	1 / 1 / 0.1	5 / 5 / 0.2
Northern Right Whale Dolphin	<i>Lissodelphis borealis</i>	190 / 9 / 15.2	190 / 9 / 6.1
Pacific White-Sided Dolphin	<i>Lagenorhynchus obliquidens</i>	275 / 28 / 22	390 / 43 / 12.6
Pilot Whale	<i>Globicephala spp.</i>		
Pygmy Sperm Whale	<i>Kogia breviceps</i>		
Ridley Sea Turtle	<i>Lepidochelys olivacea</i>		
Right whale dolphin	<i>Lissodelphis spp</i>		
Risso's Dolphin	<i>Grampus griseus</i>	150 / 5 / 12	150 / 5 / 4.8
Sea Otter	<i>Enhydra lutris</i>		
Sei Whale	<i>Balaenoptera borealis</i>		
Short-Beaked Common Dolphin	<i>Delphinus delphis</i>		502 / 15 / 16.2
Short-Finned Pilot Whale	<i>Globicephala macrorhynchus</i>		
Sperm Whale	<i>Physeter macrocephalus</i>		
Steller Sea Lion	<i>Eumetopias jubatus</i>		
Striped Dolphin	<i>Stenella coeruleoalba</i>		
Unidentified Balaenoptera	(species group)		
Unidentified Beaked Whale	(species group)		
Unidentified Cetacean	(species group)		
Unidentified Dolphin	(species group)		42 / 3 / 1.4
Unidentified Large Whale	(species group)		
Unidentified Pinniped	(species group)		
Unidentified Sea Lion	(species group)		
Unidentified Seal	(species group)		
Unidentified Whale	(species group)	14 / 9 / 1.1	25 / 16 / 0.8

Figure 5. Log₁₀ density anomalies over time from core area surveys for species with warmer-water habitat affinities, 1996–2024. A) black-footed albatross, B) Brandt’s cormorant, C) brown pelican, and D) pink-footed shearwater. The dashed lines indicate ± 1 s.d. of the long-term mean, and ‘x’ indicates years when no survey was conducted. A constant of 0.01 was added to each density prior to log₁₀ transformation and the anomaly calculation.

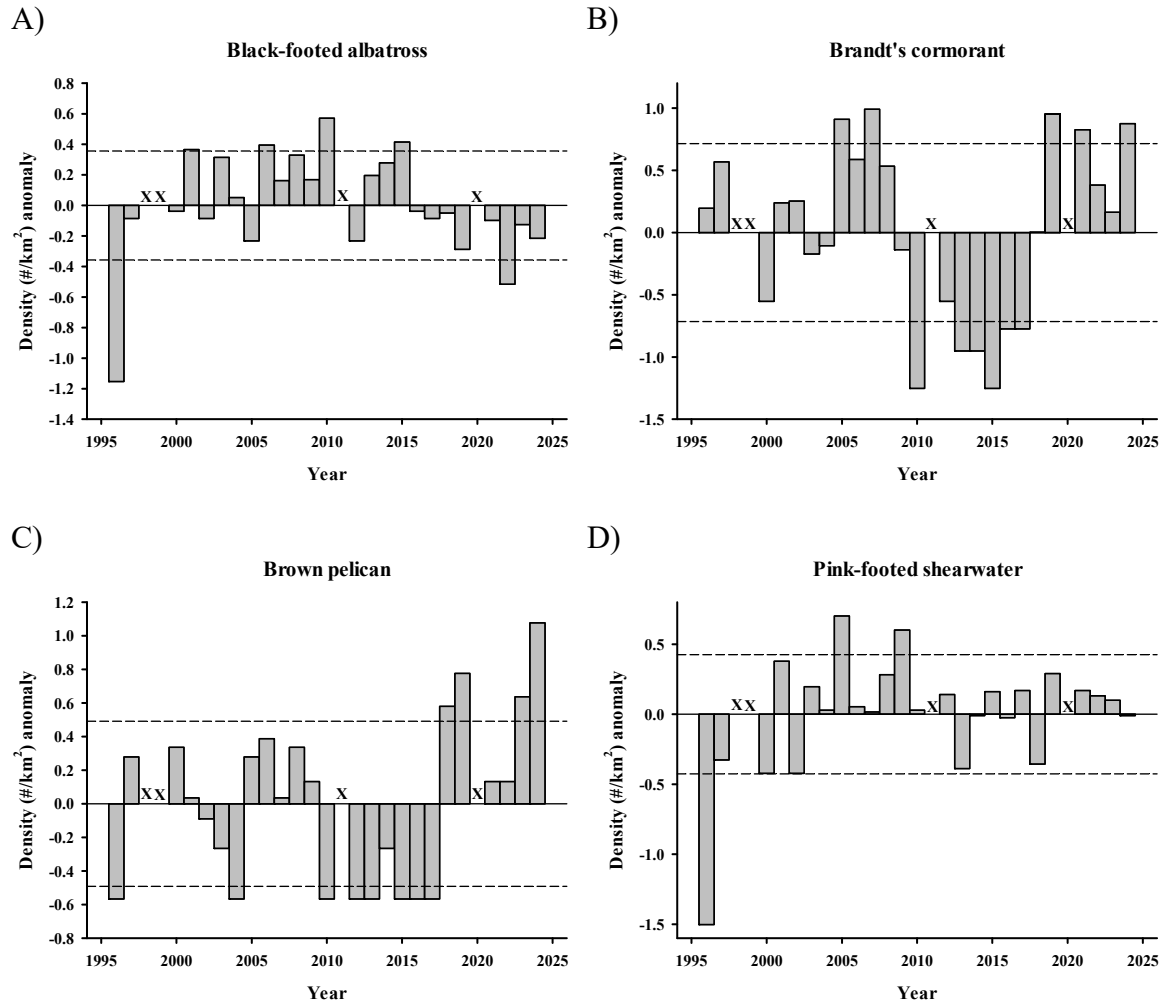


Figure 6. Log₁₀ density anomalies over time from the core area surveys for species with cold-water habitat affinities, 1996–2024. A) Cassin’s auklet, B) common murre, C) northern fulmar, D) rhinoceros auklet, and E) sooty shearwater. The dashed lines indicate ± 1 s.d. of the long-term mean, and ‘x’ indicates years when no survey was conducted. A constant of 0.01 was added to each density prior to log₁₀ transformation and the anomaly calculation.

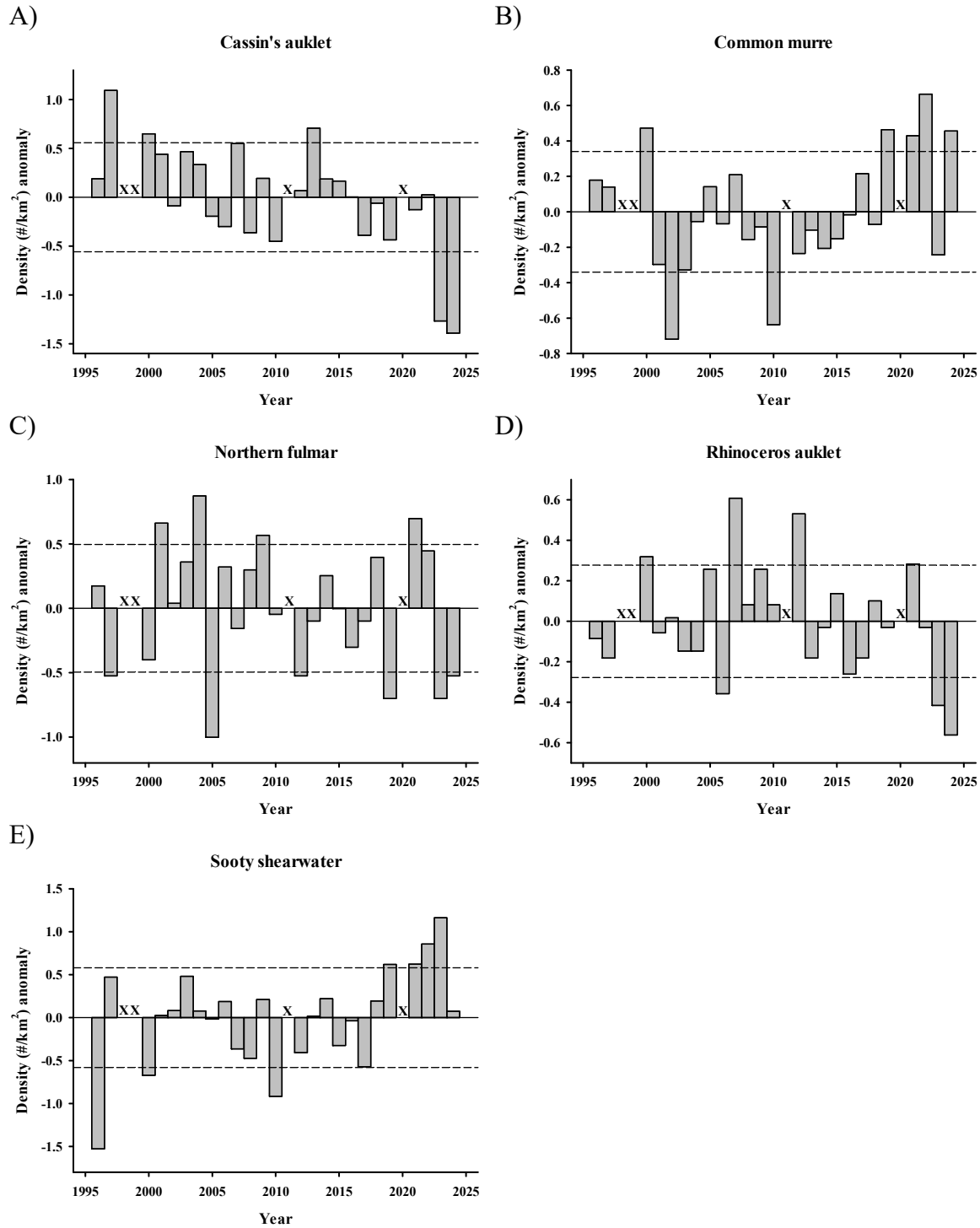


Figure 7. Log₁₀ encounter rate anomalies (#/100 km) over time from core area surveys, 1996–2024. A) blue whale, B) humpback whale, C) Pacific white-sided dolphin, D) and Risso’s dolphin. The dashed lines indicate ± 1 s.d. of the long-term mean, and ‘x’ indicates years when no survey was conducted. A constant of 0.01 was added to each density prior to log₁₀ transformation and the anomaly calculation.

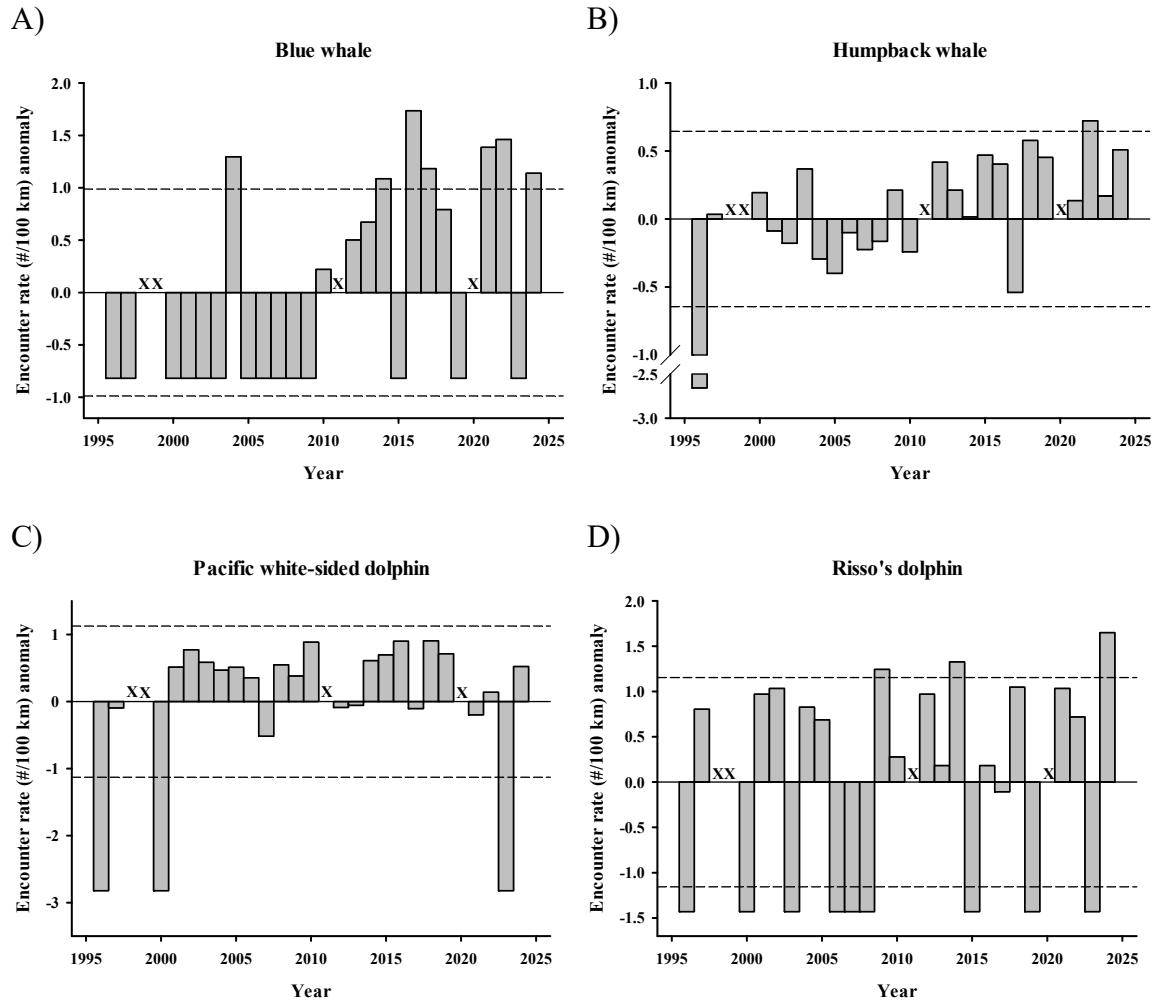
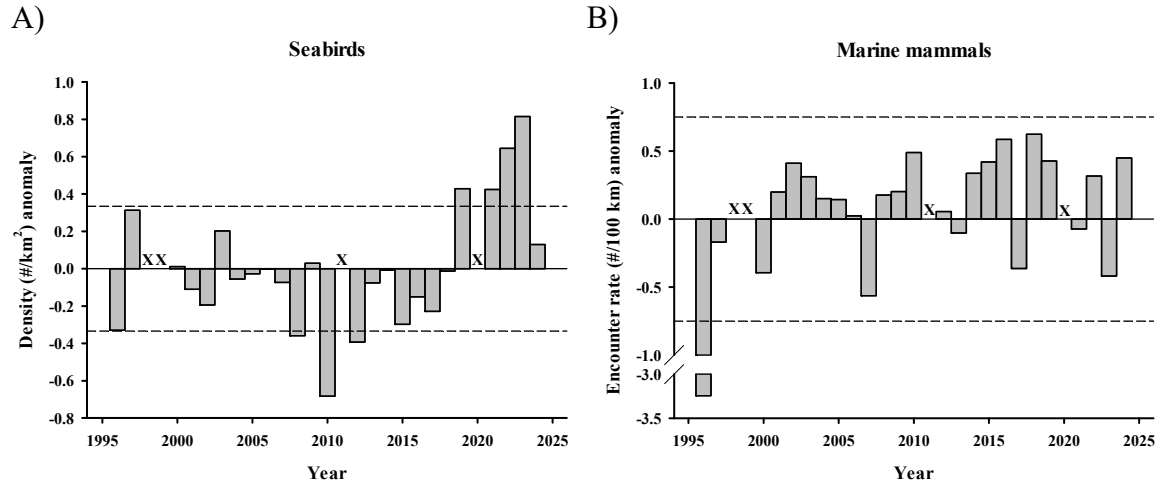


Figure 8. A) Log_{10} density anomalies over time from core area surveys, 1996–2024, for the nine seabird species combined. B) Log_{10} encounter rate anomalies over time from core area surveys for the four marine mammal species combined (note that not all four species were seen every year and none of these focal species were observed in 1996). The dashed lines indicate ± 1 s.d. of the long-term mean, and ‘x’ indicates years when no survey was conducted. A constant of 0.01 was added to each density prior to log_{10} transformation and the anomaly calculation.



Reference

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Appendix. List of bird species excluded from this summary. These species may or may not have been observed during the survey.

Common Name	Scientific Name
American coot	<i>Fulica americana</i>
Black oystercatcher	<i>Haematopus bachmani</i>
Black skimmer	<i>Rynchops niger</i>
Black tern	<i>Chlidonias niger</i>
Black turnstone	<i>Arenaria melanocephala</i>
Black-throated gray warbler	<i>Setophaga nigrescens</i>
Brewer's sparrow	<i>Spizella breweri</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Bufflehead	<i>Bucephala albeola</i>
Chaplan's storm-petrel	<i>Oceanodroma leucorhoa chapmani</i>
Eurasian collared dove	<i>Streptopelia decaocto</i>
European starling	<i>Sturnus vulgaris</i>
Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Ardea alba</i>
Green heron	<i>Butorides virescens</i>
Least sandpiper	<i>Calidris minutilla</i>
Long-billed curlew	<i>Numenius americanus</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
Mallard duck	<i>Anas platyrhynchos</i>
Marbled godwit	<i>Limosa fedoa</i>
Mourning dove	<i>Zenaida macroura</i>
Nazca booby	<i>Sula granti</i>
Red-breasted merganser	<i>Mergus serrator</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
Sanderling	<i>Calidris alba</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Snow goose	<i>Chen caerulescens</i>
Snowy egret	<i>Egretta thula</i>
Townsend's warbler	<i>Setophaga townsendi</i>
Unidentified bird	(species group)
Unidentified dowitcher	(species group)
Unidentified goose	(species group)
Unidentified hummingbird	(species group)
Unidentified passerine	(species group)
Unidentified raptor	(species group)
Unidentified shorebird	(species group)
Wandering tattler	<i>Tringa incana</i>
Western sandpiper	<i>Calidris mauri</i>
Whimbrel	<i>Numenius phaeopus</i>
White-winged scoter	<i>Melanitta fusca</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Wilson's warbler	<i>Cardellina pusilla</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>