
Offshore Information for Area Contingency Planning

Arctic and Western Alaska

Offshore Environmental Sensitivity Index (ESI) Atlas for Cook Inlet

Technical Document #6B

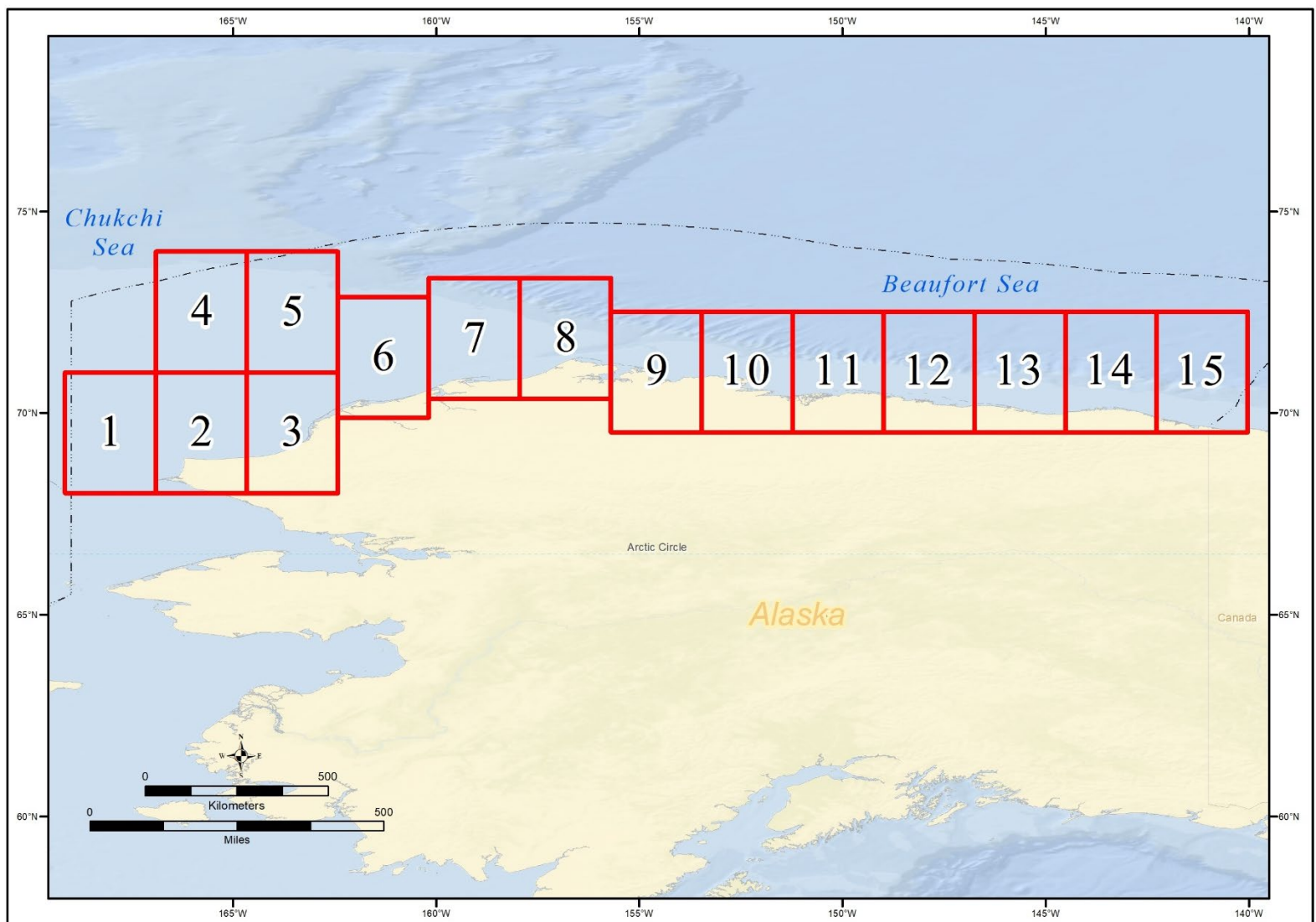
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Arctic Alaska Chukchi and Beaufort Seas Offshore Environmental Sensitivity Index Maps

A Guide to Marine Resources at Risk to Spilled Oil



**Bureau of Safety and
Environmental Enforcement**

15 December 2023

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Starting from left to right:

Bowhead Whales - National Oceanic and Atmospheric Association (NOAA) website

(Source: <https://www.fisheries.noaa.gov/alaska/marine-mammal-protection/bowhead-whale-research-alaska>)

Spectacled Eider - photograph taken by Laura L. Whitehouse/USFWS

(Source: [https://commons.wikimedia.org/wiki/File:Threatened_spectacled_eider_male_\(Somateria_fischeri\),_Alaska_SeaLife_Center,_Seward,_Alaska_\(6750347735\).jpg](https://commons.wikimedia.org/wiki/File:Threatened_spectacled_eider_male_(Somateria_fischeri),_Alaska_SeaLife_Center,_Seward,_Alaska_(6750347735).jpg))

Beluga Mother and Calf - NOAA Fisheries

(Source: <https://www.fisheries.noaa.gov/feature-story/new-model-predicts-potential-effects-prey-availability-and-human-activities-pregnant>)

King Eider - photograph taken by Alan Schmierer

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Arctic Alaska Chukchi and Beaufort Seas Offshore Environmental Sensitivity Index Maps

A Guide to Marine Resources at Risk to Spilled Oil

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Arctic Alaska Chukchi and Beaufort Seas Offshore Environmental Sensitivity Index Maps

A Guide to Marine Resources at Risk to Spilled Oil

INTRODUCTION

Environmental Sensitivity Index (ESI) maps have been developed for federal waters of the Arctic Alaska - Chukchi and Beaufort Seas.

The ESI atlas is a compilation of information on sensitive biological resources. Though the data will be useful for many natural resource applications, the goal of the ESI data is to present a concise summary of resources that may be particularly vulnerable to spilled oil. The intent of the data should caveat other uses. As an example, the ESI is not intended to present a catalog or comprehensive listing of species present in an area, rather the focus is on species and/or life stages particularly sensitive to oiling.

SENSITIVE BIOLOGICAL RESOURCES

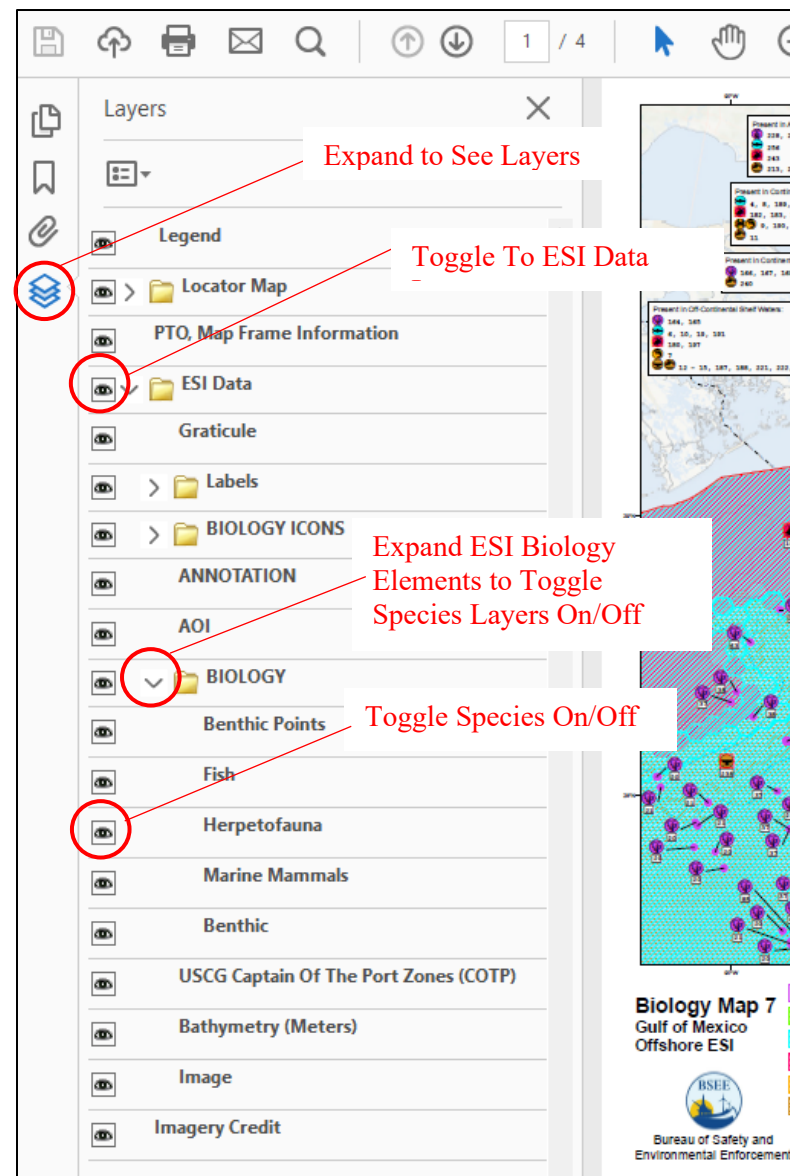
Biological information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource managers from the following agencies:

- Alaska Ocean Observing System (AOOS)
- Audubon Alaska
- Duke University, Marine Geospatial Ecology Lab
- Duke University, Nicholas School of the Environment
- NOAA Deep Sea Coral Research and Technology Program (DSCRTP)
- NOAA Fisheries (National Marine Fisheries Service (NMFS))
- NOAA Fisheries, Alaska Fisheries Science Center, Marine Mammal Laboratory, Cetacean Assessment and Ecology Program
- NOAA NMFS Alaska Regional Office
- Sea Duck Joint Venture
- United States Fish and Wildlife Service (USFWS)
- USFWS, Marine Mammals Management, Region 7
- United States Geological Survey (USGS) Alaska Science Center
- University of Texas
- University of Washington, Cooperative Institute for Climate, Ocean, and Ecosystem Studies (CICOES)
- University of Washington, School of Fisheries and Aquatic Sciences

The above organizations provided much of the biological information included in the atlas. Other participating organizations are featured in the sources table and cited in the metadata accompanying the digital product.

The biological resources shown in this atlas were extracted from the ESI GIS data compiled for this region. The biological resources shown on these maps are “layered” in the PDF maps. This allows the user to turn on or off the biological features to create thematic maps or to see more clearly overlapping polygons. Narrative species/taxa profiles that include range maps made from the ESI data accompany this atlas. The range maps in the profiles are layered PDF files, which allow the user to turn on or off selected data layers.

General Instructions on Using Layered PDF



Key Features On ESI Maps

- 1) Animal and plant species that are at risk during oil spills and/or spill response are represented in the database by polygons and points.
- 2) Species have been divided into groups and subgroups based on their behavior, morphology, taxonomic classification, and spill vulnerability and sensitivity. The icons below reflect this grouping scheme.
- 3) There is a Resources at Risk number (RAR#) associated with each polygonal or point feature. The RAR# references a table in the database that contains species names (common and scientific) associated with the feature.

BIRD	FISH
Diving Bird	Fish
Gull/Tern/Bird	INVERTEBRATE
Pelagic	Crab/Invertebrate
Shorebird	Gastropod
Waterfowl	BENTHIC
MARINE MAMMALS	Algae/Coral/Reef
Pinniped	Kelp
Polar Bear	
Whale	

- 4) Also associated with each species in the table is the federal (F) protected status as threatened (T) or endangered (E) under the Endangered Species Act (ESA) represented on the maps as a red box around the subelement icon shown above, as well as concentration, seasonality, and life-history information. Federal listings were provided by NMFS and USFWS.
- 5) The table includes a Mapping Qualifier with each species record (see table of mapping qualifiers and guidelines below). The mapping qualifier should help users understand vulnerabilities associated with the map data.
- 6) Feature-level source information is included for each species within each RAR#, meaning there is a link to a table containing Geographic (G) and Seasonality (S) sources. Full bibliographic information is included for each source in the sources table.

Additionally, feature information is included in the GIS database used to create these maps. The GIS data also provide the extent polygons or points for all mapped features; it can be queried, filtered, and used with other GIS datasets.

- 7) The text in the Present Throughout Box (PTO) describes how the general geographic location is determined for the PTO boxes displayed on the ESI maps. The individual species status (threatened/endangered) is the primary filtering criteria for determining what is displayed on the maps versus what is put in the PTO box. Not every species with a status will be shown on the map and may be shown in the PTO box. Additional filtering for PTO includes the spatial extent of the species or species assemblage polygons relative to the area displayed on each map. The purpose of the PTO box is to declutter the map and increase readability.

Mapping Qualifiers and Guidelines

Element	Qualifier	Guidelines
Benthic	Concentration Area	Areas where concentrations are considerably higher than other records of the same species in the AOI. Completion of the concentration field is mandatory for records with this qualifier.
Bird	Concentration Area	Areas where concentrations are considerably higher than other records of the same species in the AOI. Completion of the concentration field is mandatory for records with this qualifier. May be used when other qualifiers do not apply. May indicate concentrations for foraging or other activities not covered by other qualifiers.
Invert	Concentration Area	Areas where concentrations are considerably higher than other records of the same species in the AOI. Completion of the concentration field is mandatory for records with this qualifier.
M_Mammal	Concentration Area	Areas where concentrations are considerably higher than other records of the same species in the AOI. Completion of the concentration field is mandatory for records with this qualifier.
Bird	General Distribution	Used for broad, general distributions of species that are often mapped to landscape- or habitat-scale features (e.g., bays or marshes); may or may not include specific life history information.
Fish	General Distribution	Used for broad, general distributions of species that are often mapped to landscape- or habitat-scale features (e.g., bays or marshes). May or may not include specific life history information.
Invert	General Distribution	Used for broad, general distributions of species that are often mapped to landscape- or habitat-scale features (e.g., bays or marshes); may or may not include specific life history information.
M_Mammal	General Distribution	Used for broad, general distributions of species that are often mapped to landscape- or habitat-scale features (e.g., bays or marshes); may or may not include specific life history information.
M_Mammal	Migration	Potential or known mammal migration corridors in the marine environment.

Element	Qualifier	Guidelines
Bird	Rafting	Similar to 'Concentration Area' qualifier, but specific to large, on-water concentrations.
Benthic	Vulnerable Occurrence	Intended for records of rare species with discrete occurrences, where the conservation value of the species should be highlighted for spill response. Can also be used for T/E records that are not mapped as a general distribution of the species.
M_Mammal	Vulnerable Occurrence	Intended for records of rare species with discrete occurrences, where the conservation value of the species should be highlighted for spill response. Can also be used for T/E records that lack discrete life history information or for T/E records that are not mapped as a general distribution of the species.

Present Throughout Box (PTO)

PTO Designation	Description
Present In All Water	Species or species assemblage polygons that cover most if not all water in the AOI for a map.

Birds

Birds displayed in this atlas include alcids, diving birds, gulls, terns, pelagic birds, shorebirds, and waterfowl. Species that are conservation priority are specifically emphasized, including two ESA-listed species: spectacled eider (FT) and Steller's eider (FT). Bird occurrence information displayed in this atlas is based on information gathered via phone/email correspondence with resource experts, and hardcopy and digital sources; key data sets are listed below and included in the metadata. This atlas represents offshore waters, so while no birds are technically nesting within the AOI, several species are nesting on land and on islands in proximity to the AOI. Therefore, some nesting seasonalities are included to highlight this critical life-history stage where appropriate.

North Pacific Pelagic Seabird Database (NPPSD): For general distribution coverage of seabirds in the AOI, data from the NPPSD were used. The NPPSD is a USGS-maintained database that contains point locations of survey transect data that censused seabirds at sea. NPPSD records were clipped to the Arctic AOI, and species frequencies from 2000 to present within the AOI were computed. Seabird species with frequencies in the 10s or greater were included in the ESI, with concentration values listed by order of magnitude of record frequency (e.g., "10s", "100s", "1000s", or "10,000s").

Sea Duck Key Habitats Atlas: This atlas describes sites throughout North America that constitute important sea duck habitats. Criteria for inclusion in this atlas were strict, to highlight those habitats most critical to sea ducks during at least one season. Two sites fell within the Arctic Alaska - Chukchi and Beaufort Seas AOI: the Ledyard Bay site and offshore portions of the Beaufort Sea Coastal Lagoons site (most of which falls inshore of the AOI). Ledyard Bay includes near- and offshore coastal waters between Cape Lisburne and Icy Cape on the Arctic coast of Alaska. This remote marine site on the eastern edge of the Chukchi Sea provides shallow (<30 m) water staging and molting habitat for a variety of sea duck species. The coastal waters of Ledyard Bay provide critical staging habitat for all four eider species, including important staging and molting habitat for spectacled eiders (FT) breeding on the Arctic coastal plain of Alaska. The Beaufort Sea Coastal Lagoons habitat site encompasses a narrow strip of Alaska's Arctic coastline from Icy Cape on the Chukchi Sea eastward along the Beaufort Sea to the Canadian border. This site provides important habitat for molting sea ducks, particularly long-tailed ducks.

Audubon Important Bird Areas: The Important Bird Area (IBA) Program is a global effort to identify and conserve areas that are essential habitat for birds at global, continental, and state scales. Alaska IBAs are relied on for breeding, nesting, foraging, molting, resting, staging, and/or migration. Alaska IBAs that fell within the Arctic Alaska - Chukchi and Beaufort Seas AOI include: Lisburne Peninsula Marine, Ledyard Bay to Icy Cape, Chukchi Sea Nearshore, Barrow Canyon and Smith Bay, Beaufort Sea Shelf Edge, and Beaufort Sea Nearshore.

Note that species composition within polygons and particularly concentration values are based on model or other results using observations made over multi-year periods and are not meant to accurately reflect 'current' conditions in the case of an event. Survey and modelling limitations, weather, and other ecological factors contribute to bird concentrations at any given time. Also, note that bird concentrations vary throughout the periods listed in the seasonality table. Please contact resource experts in the event of a spill or if data are to be used for any reason other than spill planning or response.

Expert contacts for Arctic (Chukchi and Beaufort Seas) birds* are:

Name	Agency	City	Phone/ Email	Species
Mayumi Arimitsu	USGS	Juneau, AK	marimitsu@usgs.gov; (907) 364-1593	Seabirds
Julian Fischer	USFWS	Anchorage, AK	julian_fischer@fws.gov; (907) 786-3644	Marine birds
Liz Labunski	USFWS	Anchorage, AK	elizabeth_labunski@fws.gov; (907) 786-3865	Seabirds
Kate Martin	USFWS	Anchorage, AK	kate_martin@fws.gov; (907) 786-3459	Sea ducks

***Note: this list is not meant to represent all bird experts for the region.**

Major Data Sources Used: Birds

Audubon Alaska. 2007. Alaska Important Bird Areas, vector digital data.

Bowman, T.D., J.L. Churchill, C. Lepage, S.S. Badzinski, S.G. Gilliland, N. McLellan, and E. Silverman. 2022. Atlas of sea duck key habitat sites in North America. Sea Duck Joint Venture March 2022. <https://seaduckjv.org/science-resources/sea-duck-key-habitat-sites-atlas/>.

Drew, G.S., S.K. Schoen, M.D. Hood, M.L. Arimitsu, and J.F. Piatt. 2005. North Pacific Pelagic Seabird Database (NPPSD) (ver 4.1, May 2023): U.S. Geological Survey data release, <https://doi.org/10.5066/F7WQ01T3>.

Sea Duck Joint Venture. 2022. Atlas of Sea Duck Key Habitat Sites in North America, vector digital data.

Fish

Fish species depicted in this atlas include species of conservation interest, and species of commercial, recreational, or ecological importance. Fish polygons were created based on digital data, publications, and expert opinion provided by resource experts at NOAA Fisheries and others.

Commercially important species were mapped based on Essential Fish Habitat (EFH) descriptions and supplemented with information from fish surveys and reports. Forage species were mapped using spatial data generated for the Ecological Atlas of the Bering Chukchi, and Beaufort Seas (Audubon Alaska, 2017).

Expert Contacts for Arctic (Chukchi and Beaufort Seas) fish* are:

Name	Agency	City	Phone/ Email	Species
Libby Logerwell	NOAA Fisheries	Seattle, WA	Libby.logerwell@noaa.gov	Fish
Kimberly Rand	NOAA Fisheries	N/A	Kimberly.rand@noaa.gov	Fish

***Note: this list is not meant to represent all fish experts for the region.**

Major Data Sources Used: Fish

Audubon Alaska. 2017. Ecological Atlas of the Bering Chukchi, and Beaufort Seas, 2nd Edition, vector digital data.

Logerwell, E., M. Busby, C. Carothers et. al. 2015. Fish communities across a spectrum of habitats in the western Beaufort and Chukchi Sea. *Progress in Oceanography*. 136: 115-132.

Marsh, J.M. and F.J. Mueter. 2023. AOOS Chukchi Sea Fish Survey Database, tabular digital data.

NOAA. 2018. Alaska Essential Fish Habitat Species Shapefiles, vector digital data.

Invertebrates

Invertebrates depicted in this atlas include species of conservation interest, or species of commercial, recreational, or ecological importance. Snow crab is the only commercially harvested species

present in the AOI and was mapped to its EFH. Areas identified as concentration areas for crustaceans were included in the atlas, due to their importance as prey for marine mammals and birds. Invertebrate taxa present in the Boulder Patch community were also mapped to the spatial extent of the Boulder Patch provided by the University of Texas (also see Benthic Habitats section).

Expert Contacts for Arctic (Chukchi and Beaufort Seas) invertebrates* are:

Name	Agency	City	Phone/ Email	Species/ Program
Libby Logerwell	NOAA Fisheries	Seattle, WA	Libby.logerwell@noaa.gov	Inverts
Kimberly Rand	NOAA Fisheries	N/A	Kimberly.rand@noaa.gov	Inverts
Ken Dunton	Univ. of Texas	Port Aransas, TX	ken.dunton@utexas.edu	Boulder Patch community

***Note: this list is not meant to represent all invertebrate experts for the region.**

Major Data Sources Used: Invertebrates

Bonsell, C. and K.H. Dunton. 2021. Slow community development enhances abiotic limitation of benthic community structure in a high Arctic kelp bed. *Front. Mar. Sci.* 8:592295.

Moore, S.E., J.T. Clarke, S.R. Okkonen, J.M. Grebmeier, C.L. Berchok, and K.M. Stafford. 2022. Changes in gray whale phenology and distribution related to prey variability and ocean biophysics in the northern Bering and eastern Chukchi seas. *PLoS One* 17(4): e0265934.

NOAA. 2018. Alaska Essential Fish Habitat Species Shapefiles, vector digital data.

Marine Mammals

Marine mammals mapped in the atlas include cetaceans, pinnipeds, and polar bear that are ESA-listed and/or MMPA-listed. Marine mammal occurrence information displayed in this atlas is based on information gathered via phone/email correspondence with resource experts, hardcopy, and digital sources; key data sets are listed below and included in the metadata.

Polar bear: Polar bears (FT) occur throughout the circumpolar Arctic, primarily above the Arctic Circle. Polar bear distribution shifts in association with the Arctic ice pack, contracting and moving north in the summer and expanding to the south in the winter. Polar bear distribution was mapped using the USFWS 'proposed designated no disturbance zone' which is part of the barrier island critical habitat for the Southern Beaufort Sea and the Chukchi/Bering Sea polar bear populations in Alaska, which encompasses most of the project AOI.

Pinnipeds: Species mapped in this atlas include Arctic ringed seal (FT), bearded seal (FT), and Pacific walrus.

Pacific Walrus: Pacific walrus range across the continental shelf waters of the Bering and Chukchi seas. Distributions and habitat use patterns vary markedly in response to seasonal and annual variations in sea-ice cover. In April and May, most adult females and juveniles migrate northward to summer feeding areas in the Chukchi Sea. In June through August, walrus occupy broken sea-ice habitats along the northwestern coast of Alaska. Walrus typically migrate from the Chukchi Sea to the Bering Sea from October to December. USFWS provided walrus seasonal range maps shapefiles that represent the 'summer' (May – October) range for walrus. The summer range extends along the coast of Alaska from Unimak Island to Point Barrow. The northern extent of the summer range is the 100-meter (m) depth contour. Most walrus travel <70 km from land and sea ice to forage, and most walrus forage at depths <100 m. The seasonal range shapefiles were verified with datasets containing recent walrus observations to ensure the shapefiles accurately represented the current seasonal ranges. Also mapped in this atlas is the Hanna Shoal Walrus Use Area; polygonal data were provided by USFWS. On Hanna Shoal, warm water diverts around a 10 m hill on the seafloor, allowing the sea ice to persist into September and attract walrus.

Arctic ringed seal (FT) and bearded seal (FT): NMFS provided polygonal data for the bearded seal Beringia distinct population segment and arctic ringed seal distribution. Bearded seals are closely associated with sea ice and their seasonal movements are generally related to sea ice advance and retreat. During winter and spring, bearded seals in Alaska are widely distributed in the broken, drifting pack ice ranging from the Chukchi Sea south to the ice front in the Bering Sea. As the ice retreats in mid-April through June, most adults are thought to move into the Chukchi and Beaufort seas where they spend the summer and early fall near the wide, fragmented margin of multiyear ice. Throughout their range, ringed seals have an affinity for ice-covered waters and are well adapted to both shorefast and pack ice throughout the fall, winter, and spring. Critical Habitat

designated for the Arctic ringed seal includes an area of marine habitat in the northern Bering, Chukchi, and Beaufort seas.

Whales: Species mapped in this atlas include beluga whale, bowhead whale (FE), fin whale (FE), gray whale, humpback whale, and minke whale. Biologically Important Areas (BIAs) data were provided by NOAA and Duke University for the Arctic Region and the Aleutian Islands and Bering Sea Region, both of which partially fell within the AOI for this atlas. The following text has been adapted from Brower et al. (2022) and Clarke et al. (2023). BIAs are compilations of the best available science and have no inherent regulatory authority. They have been used by NOAA, other federal agencies, and the public to support marine spatial planning and marine mammal impact assessments, and to inform the development of conservation measures for cetaceans. Supporting evidence for Arctic BIA II came from data derived from aerial-, land-, and vessel-based surveys; satellite telemetry; passive acoustic monitoring; Indigenous knowledge; photo-identification; aboriginal subsistence harvests, including catch and sighting locations and stomach contents; and prey studies. BIAs were identified for bowhead, gray, humpback, fin, beluga, and minke whales.

Bowhead whale: Bering-Chukchi-Beaufort (BCB) bowhead whales are migratory, ranging from subarctic to Arctic waters. Most of the stock migrates annually in spring (April-May) past the western side of St. Lawrence Island, through the Bering Strait and northeast through the eastern Chukchi Sea, traveling through nearshore leads that develop each year. The migration route turns east near Point Barrow, where it crosses the Beaufort Sea in continental slope and Canadian basin waters. Bowhead whales migrate west annually in fall (August-September) in the western Beaufort Sea. Bowhead whale polygons with concentration values of MIGRATORY indicate the spatial extent of the migratory route of this species that falls within the atlas AOI. Bowhead whales calve primarily between the beginning of April and the end of May (in the Bering Sea/outside of the atlas AOI) although calving may occur as late as August. Important areas for newborn calves have been described near Wainwright and Utqiagvik from Indigenous knowledge. The most extensive dataset of bowhead whale calf observations was from Aerial Surveys of Arctic Marine Mammals (ASAMM) for the periods July-August 2012-2019 and September-October 2000-2019 in the western Beaufort Sea. Bowhead whale polygons with concentration values of REPRODUCTIVE indicate the spatial extent of the whale calf observations of this species that fall within the atlas AOI. Temporally, bowhead whales are present in 'feeding' BIAs in the Arctic region from May-December. Feeding behavior in the western Beaufort Sea is ephemeral and can differ dramatically between years. Most bowhead whales observed in any given year in the western Beaufort Sea were not feeding, however, and were likely migrating.

Gray whale: Gray whales of the Eastern North Pacific (ENP) stock migrate each spring from Baja California, Mexico, along the west coast of the U.S. and Canada, across the Gulf of Alaska and into the Bering, Chukchi, and extreme western Beaufort seas. Gray whales remain in the U.S. Arctic throughout summer and early autumn before making a return migration south. The predominant behavior of gray whales in Arctic waters is feeding. The ASAMM project documented gray whale feeding in the eastern Chukchi Sea from summer through autumn (May-November) with moderate variability in feeding locations within these seasons. The main area for gray whale feeding within the AOI was in the northeastern Chukchi Sea within about 120 km of shore from Icy Cape to Point Barrow. Gray whales from the ENP stock calve mainly in the protected lagoons of Baja California from early January through mid-February. Calves migrate north with their mothers the following spring. Gray whale 'reproductive' BIAs were designated for July-October; polygons with concentration values of REPRODUCTIVE indicate the spatial extent of the whale calf observations of this species that fall within the AOI.

Beluga whale: The 'feeding' BIA designated for Beaufort Sea belugas in September extends from Canada to Russia. Satellite telemetry data within the core area indicated that foraging was the principal behavior. Movement data were augmented by aerial line transect survey data collected during ASAMM in September 2009-2019 in the western Beaufort and eastern Chukchi seas.

Humpback and Minke whales: Humpback whale BIAs in the Arctic are in the southcentral Chukchi Sea. Temporally, humpback whales feed in the Arctic from July-October. A minke whale feeding 'watch list area' BIA occurs in the Chukchi Sea portion of the atlas AOI. "Watch list areas" are areas that experts believe may be BIAs, but currently lack sufficient information to reliably delineate and score.

Expert contacts for Arctic (Chukchi and Beaufort Seas) marine mammals * are:

Name	Agency	City	Phone/Email	Species
Todd Atwood	USGS	Anchorage, AK	907-786-7093; tatwood@usgs.gov	Polar bears

Name	Agency	City	Phone/Email	Species
David Gustine	USFWS	Anchorage, AK	907-786-3621; david_gustine@usfws.gov	Polar bears
Ryan Wilson	USFWS	Anchorage, AK	907-786-3830; ryan_r_wilson@usfws.gov	Polar bears
Sarah DeLand	Duke Univ.	Beaufort, NC	sarah.deland@duke.edu	BIAs
Bonnie Easley-Appleyard	NOAA	Anchorage, AK	bonnie.easley-appleyard@noaa.gov	Whales
Joel Garlich-Miller	USFWS	Anchorage, AK	907-244-2964; joel_garlichmiller@usfws.gov	Pacific walrus

***Note: this list is not meant to represent all marine mammal experts for the region.**

**** Please refer to these publications for author contact information for additional regional marine mammal experts**

Major Data Sources Used: Marine Mammals

- **Brower, A., M. Ferguson, J. Clarke, E. Fujioka and S. DeLand. 2022. Biologically Important Areas II for cetaceans within U.S. and adjacent waters – Aleutian Islands and Bering Sea Region. *Front. Mar. Sci.* 9:1055398. doi: 10.3389/fmars.2022.1055398.
- **Clarke, J.T., M.C. Ferguson, A.A. Brower, E. Fujioka and S. DeLand. 2023. Biologically important areas II for cetaceans in U.S. and adjacent waters- Arctic region. *Front. Mar. Sci.* 10:1040123. doi: 10.3389/fmars.2023.1040123.
- **Harrison J, Ferguson MC, New L, Cleary J, Curtice C, DeLand S, Fujioka E, Halpin PN, Tyson Moore RB and Van Parijs SM (2023) Biologically Important Areas II for cetaceans within U.S. and adjacent waters - Updates and the application of a new scoring system. *Front. Mar. Sci.* 10:1081893. doi: 10.3389/fmars.2023.1081893
- NOAA National Marine Fisheries Service, Alaska Region. 2022. Beringia distinct population segment (DPS), bearded seal, critical habitat, vector digital data.
- Smith, M.A., M.S. Goldman, E.J. Knight, and J.J. Warrenchuk. 2017. *Ecological Atlas of the Bering, Chukchi, and Beaufort Seas*. 2nd edition. Audubon Alaska, Anchorage, AK.
- U.S. Fish and Wildlife Service. 2012. Hanna Shoal Walrus Use Area, vector digital data.
- U.S. Fish and Wildlife Service, Marine Mammals Management. 2010. FCH *Ursus maritimus*, vector digital data.
- U.S. Fish and Wildlife Service, Marine Mammals Management. 2017. Pacific walrus range map, vector digital data.

Benthic Habitats

Benthic habitats mapped in the ESI atlas include shallow corals, kelp, red algae, and sponges in the Stefansson Sound Boulder Patch kelp beds, and mesophotic and deep-sea corals and sponges.

Boulder Patch community: The Stefansson Sound Boulder Patch kelp beds were mapped using spatial extents provided by the University of Texas. This shallow (4-7 m depth) community contains boulder and cobble substrates that host a diverse epibenthic assemblage of taxa. General names of habitat-forming taxa present were mapped in the Benthic layer (corals, kelp, red algae, and sponges), and general invertebrate taxa present were mapped to the Boulder Patch polygons in the Invertebrates layer.

Mesophotic and deep-sea corals and sponges: Deep-sea corals and sponges were mapped using a presence point dataset. NOAA DSCRTP provided the National Database for Deep-Sea Corals and Sponges, a point database that showed known presence of these taxa throughout the Arctic AOI. All records were mapped in the ESI, regardless of age, because these are long-lived organisms that may still be present decades after data collection. Names of coral and sponge taxa in the database were generalized to response-relevant categories (e.g., soft coral, deep sea sponge, sea pens) that were used as the ESI common names. Also, the structural group of each taxon was included in the ESI concentration field as either 'Structure-forming' or 'Solitary'. This designation was made using a crosswalk between taxon name and structural group provided by DSCRTP.

Expert contacts for Arctic (Chukchi and Beaufort Seas) benthic habitats* are:

Name	Agency	City	Phone/Email	Species/Program
Ken Dunton	Univ. of Texas	Port Aransas, TX	ken.dunton@utexas.edu	Boulder Patch community

Name	Agency	City	Phone/ Email	Species/ Program
Robert McGuinn	NOAA DSCRTP	Charleston, SC	843-631-7202	Deep-sea corals and sponges
Tom Hourigan	NOAA DSCRTP	Silver Spring, MD	tom.hourigan@noaa.gov	Deep-sea corals and sponges

***Note: this list is not meant to represent all benthic habitat experts for the region.**

Major Data Sources Used: Benthic Habitats

NOAA DSCRTP. 2023. National database for deep-sea corals and sponges (version 20221213-0), tabular digital data.

Bonsell, C. and K.H. Dunton. 2021. Slow community development enhances abiotic limitation of benthic community structure in a high Arctic kelp bed. *Front. Mar. Sci.* 8:592295.

GEOGRAPHIC INFORMATION SYSTEM

The entire atlas product is stored in digital form in a Geographic Information System (GIS) as spatial data layers and associated databases. The format for the data varies depending on the type of information or features for which the data are being stored.

Under separate cover is a metadata document that details the data dictionary, processing techniques, data lineage, and other descriptive information for the digital datasets and maps that were used to create this atlas. Below is a brief synopsis of the information contained in the digital version. Refer to the metadata embedded in each feature class in the BSEE Arctic Alaska (Chukchi and Beaufort Seas) ESI geodatabase for a full explanation of the data and its structure.

Biological resources are stored as points and polygons. Associated with each feature is a unique identification number that is linked to a series of data tables that further identify the resources. The main biological resource table consists of a list of species identification numbers for each site, the concentration of each species at each site, a mapping qualifier, and identification codes for seasonality and source information. This data table is linked to other tables that describe the seasonality and life-history time periods for each species (at month resolution) for the specified map feature. Other data tables linked to the first table include: the species identification table, which includes common and scientific names; the species status table, which gives information for federal threatened or endangered listings; and the source database, which provides source metadata at the feature-species level (specific sources are listed for each species occurring at each mapped feature in the biology feature classes).

ACKNOWLEDGMENTS

This project was funded by the Bureau of Safety and Environmental Enforcement (BSEE), U.S. Department of the Interior. We want to acknowledge the great support by Bryan Rogers and Steven Pearson (BSEE), Gabrielle McGrath (RPS), and all who assisted greatly in all aspects of the project's completion.

The biological data included on the maps were provided by numerous individuals and agencies. The individuals and agencies are listed in detail throughout the introductory pages of the ESI atlas. Staff at these organizations contributed a vast amount of information to this effort, including first-hand expertise, publications, maps, and digital data.

At Research Planning, Inc. in Columbia, South Carolina, numerous scientific, GIS, and graphic staff were involved with different phases of the project. Mark White, GIS Director, and Christine Boring, Biology Dept. Manager, were co-Project Managers. The biological data were collected and compiled onto base maps by Lauren Szathmary, Christine Boring, and Jennifer Weaver. Lee Diveley, Katy Beckham, Mark White, and Jeff Dahlin processed and produced the GIS data and metadata. Mark White, Katy Beckham, Jacqueline Michel, Christine Boring, Lauren Szathmary, and Jen Weaver prepared the species profiles. Wendy Early produced the final documents.

APPROPRIATE USE OF ATLAS AND DATA

This atlas and the associated database were developed to provide summary information on sensitive natural resources for the purposes of oil and chemical spill planning and response. Although the atlas and database should be very useful for other environmental and natural resource planning purposes, it should not be used in place of data held by any contributing agencies. Likewise, information contained in the atlas and database cannot be used in place of consultations with natural resource agencies, or in place of field surveys. Also, this atlas should not be used for navigation.

SPECIES LIST

Common Name	Scientific Name
BENTHIC	
ALGAE	
Red algae	
CORAL	
Corals	
Sea pens	<i>Pennatulacea</i>
Soft coral	
KELP	
Kelp	
REEF	
Deep sea sponge	
Sponges	
BIRDS	
ALCID	
Ancient murrelet	<i>Synthliboramphus antiquus</i>
Black guillemot	<i>Cephus grylle</i>
Common murre	<i>Uria aalge</i>
Crested auklet	<i>Aethia cristatella</i>
Horned puffin	<i>Fratercula corniculata</i>
Kittlitz's murrelet	<i>Brachyramphus brevirostris</i>
Least auklet	<i>Aethia pusilla</i>
Parakeet auklet	<i>Aethia psittacula</i>
Thick-billed murre	<i>Uria lomvia</i>
Tufted puffin	<i>Fratercula cirrhata</i>
DIVING	
Loons	<i>Gavia spp.</i>
Pacific loon	<i>Gavia pacifica</i>
Red-throated loon	<i>Gavia stellata</i>
GULL_TERN	
Arctic tern	<i>Sterna paradisaea</i>
Glaucous gull	<i>Larus hyperboreus</i>
Glaucous-winged gull	<i>Larus glaucescens</i>
Ivory gull	<i>Pagophila eburnea</i>
Ross's gull	<i>Rhodostethia rosea</i>
Sabine's gull	<i>Xema sabini</i>
PELAGIC	
Black-legged kittiwake	<i>Rissa tridactyla</i>
Long-tailed jaeger	<i>Stercorarius longicaudus</i>
Northern fulmar	<i>Fulmarus glacialis</i>
Parasitic jaeger	<i>Stercorarius parasiticus</i>
Pomarine jaeger	<i>Stercorarius pomarinus</i>
Shearwaters	
Short-tailed shearwater	<i>Puffinus tenuirostris</i>
SHOREBIRD	
Red phalarope	<i>Phalaropus fulicarius</i>
Red-necked phalarope	<i>Phalaropus lobatus</i>
WATERFOWL	
Black scoter	<i>Melanitta americana</i>
Common eider	<i>Somateria mollissima</i>
Greater scaup	<i>Aythya marila</i>
King eider	<i>Somateria spectabilis</i>
Long-tailed duck	<i>Clangula hyemalis</i>
Northern pintail	<i>Anas acuta</i>
Red-breasted merganser	<i>Mergus serrator</i>
<u>Spectacled eider</u>	<u><i>Somateria fischeri</i></u>
<u>Steller's eider</u>	<u><i>Polysticta stelleri</i></u>
Surf scoter	<i>Melanitta perspicillata</i>
White-winged scoter	<i>Melanitta fusca</i>

Common Name	Scientific Name
FISH	
Arctic cod	<i>Boreogadus saida</i>
Bering flounder	<i>Hippoglossoides robustus</i>
Capelin	<i>Mallotus villosus</i>
Chum salmon	<i>Oncorhynchus keta</i>
Greenland halibut (turbot)	<i>Reinhardtius hippoglossoides</i>
Pacific cod	<i>Gadus macrocephalus</i>
Pacific herring	<i>Clupea pallasii pallasii</i>
Pacific sand lance	<i>Ammodytes hexapterus</i>
Pink salmon	<i>Oncorhynchus gorbuscha</i>
Saffron cod	<i>Eleqinus gracilis</i>
Walleye pollock	<i>Theragra chalcogramma</i>
Yellowfin sole	<i>Limanda aspera</i>

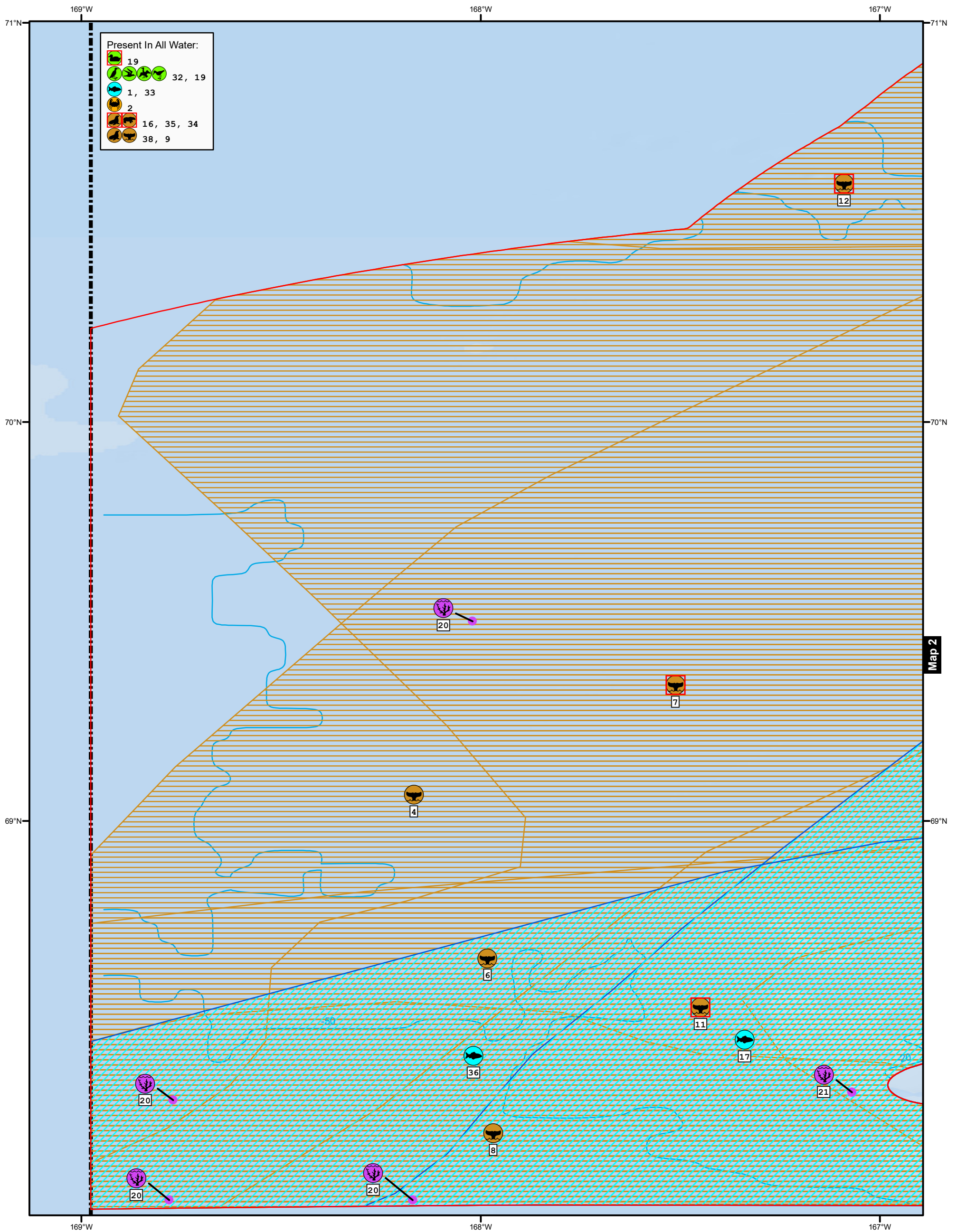
Common Name	Scientific Name
INVERTEBRATES	
CRAB	
Snow crab	<i>Chionoecetes opilio</i>
GASTROPOD	
Molluscs	
INVERT	
Anemones	
Bryozoans	
Crustaceans	
Sea squirts	
MARINE MAMMALS	
PINNIPED	
Bearded seal	<i>Erignathus barbatus</i>
Pacific walrus	<i>Odobenus rosmarus divergens</i>
Ringed seal	<i>Pusa hispida</i>
POLAR BEAR	
Polar bear	<i>Ursus maritimus</i>
WHALE	
Beluga whale	<i>Delphinapterus leucas</i>
Bowhead whale	<i>Balaena mysticetus</i>
Fin whale	<i>Balaenoptera physalus</i>
Gray whale	<i>Eschrichtius robustus</i>
Humpback whale	<i>Megaptera novaeangliae</i>
Minke whale	<i>Balaenoptera acutorostrata</i>

* Threatened and endangered species are designated by underlining

BSEE
ARCTIC ALASKA
CHUKCHI AND BEAUFORT SEAS
OFFSHORE
ENVIRONMENTAL SENSITIVITY
INDEX MAPS



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Present In All Water:

- 19
- 32, 19
- 1, 33
- 2
- 16, 35, 34
- 38, 9

Biology Map 1

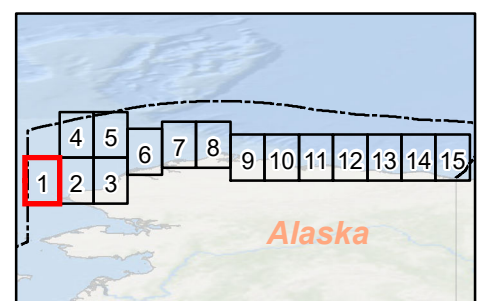
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas



Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023

0 Not for Navigation 20 Miles
0 25 Kilometers

N
1:1,000,000

Arctic Alaska Offshore ESI: Biology Map 1

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)
20	Soft coral			Solitary	Vulnerable Occurrence	J F M A M J J A S O N D
21	Deep sea sponge			Structure-Forming	Vulnerable Occurrence	J F M A M J J A S O N D
	Soft coral			Solitary	Vulnerable Occurrence	J F M A M J J A S O N D

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Nesting	Migrating	Molting
19	Arctic tern			100S	General Distribution	M J J A S O	-	-	-
	Black-legged kittiwake			10,000S	General Distribution	M J J A S O N	-	-	-
	Common eider			10S	General Distribution	A M J J A S O N	-	Apr-Jun	Oct-Nov
	Common murre			1,000S	General Distribution	J J A S O	-	-	Sep-Oct
	Glaucous-winged gull			100S	General Distribution	M J J A S O	-	-	-
	Glaucous gull			1,000S	General Distribution	A M J J A S O N	-	-	-
	King eider			100S	General Distribution	A M J J A S O N	-	Apr-Jul	Oct-Nov
	Long-tailed duck			100S	General Distribution	J J A S	-	-	Jun-Sep
	Pacific loon			100S	General Distribution	M J J A S O	-	Jun-Sep	-
	Parasitic jaeger			100S	General Distribution	M J J A S O	-	-	-
	Pomarine jaeger			100S	General Distribution	M J J A S O	-	-	-
	Red-necked phalarope			100S	General Distribution	M J J A S O	-	-	-
	Red phalarope			100S	General Distribution	M J J A S O N	-	May-Nov	Aug-Sep
	Sabine's gull			100S	General Distribution	M J J A S O	-	-	-
	Spectacled eider	T		100S	General Distribution	M J J A S O N	-	May-Jun	Oct-Nov
	Steller's eider	T		10S	General Distribution	M J J A S O	-	May-Oct	Jun-Oct
	Thick-billed murre			1,000S	General Distribution	M J J A S O N	-	Jul-Sep	Aug-Nov
	White-winged scoter			10S	General Distribution	M J J A S O	-	-	-
32	Ancient murrelet			100S	General Distribution	J A S O	-	-	-
	Black guillemot			100S	General Distribution	A M J J A S O N	-	-	-
	Crested auklet			1,000S	General Distribution	J J A S O	-	Aug-Oct	Jun-Oct
	Horned puffin			100S	General Distribution	J J A S O	-	Jun-Jun	Sep-Oct
	Ivory gull			10S	General Distribution	A M J J A S O N	-	Apr-May	Sep-Nov
	Kittlitz's murrelet			100S	General Distribution	J J A S O N	-	-	-
	Least auklet			1,000S	General Distribution	M A M J J A S O N	-	Mar-Nov	Jun-Oct
	Long-tailed jaeger			100S	General Distribution	M J J A S O	-	-	-
	Loons			100S	General Distribution	A M J J A S O N	-	-	-
	Northern fulmar			1,000S	General Distribution	J J A S O N	-	-	-
	Parakeet auklet			100S	General Distribution	M A M J J A S O N	-	Mar-May	Aug-Nov
	Ross's gull			100S	General Distribution	J J A S O N	-	Jun-Jun	Sep-Nov
	Short-tailed shearwater			1,000S	General Distribution	A M J J A S O	-	Apr-May	Sep-Oct
	Tufted puffin			100S	General Distribution	F M A M J J A S O N D	-	Feb-May	Sep-Dec

FISH:

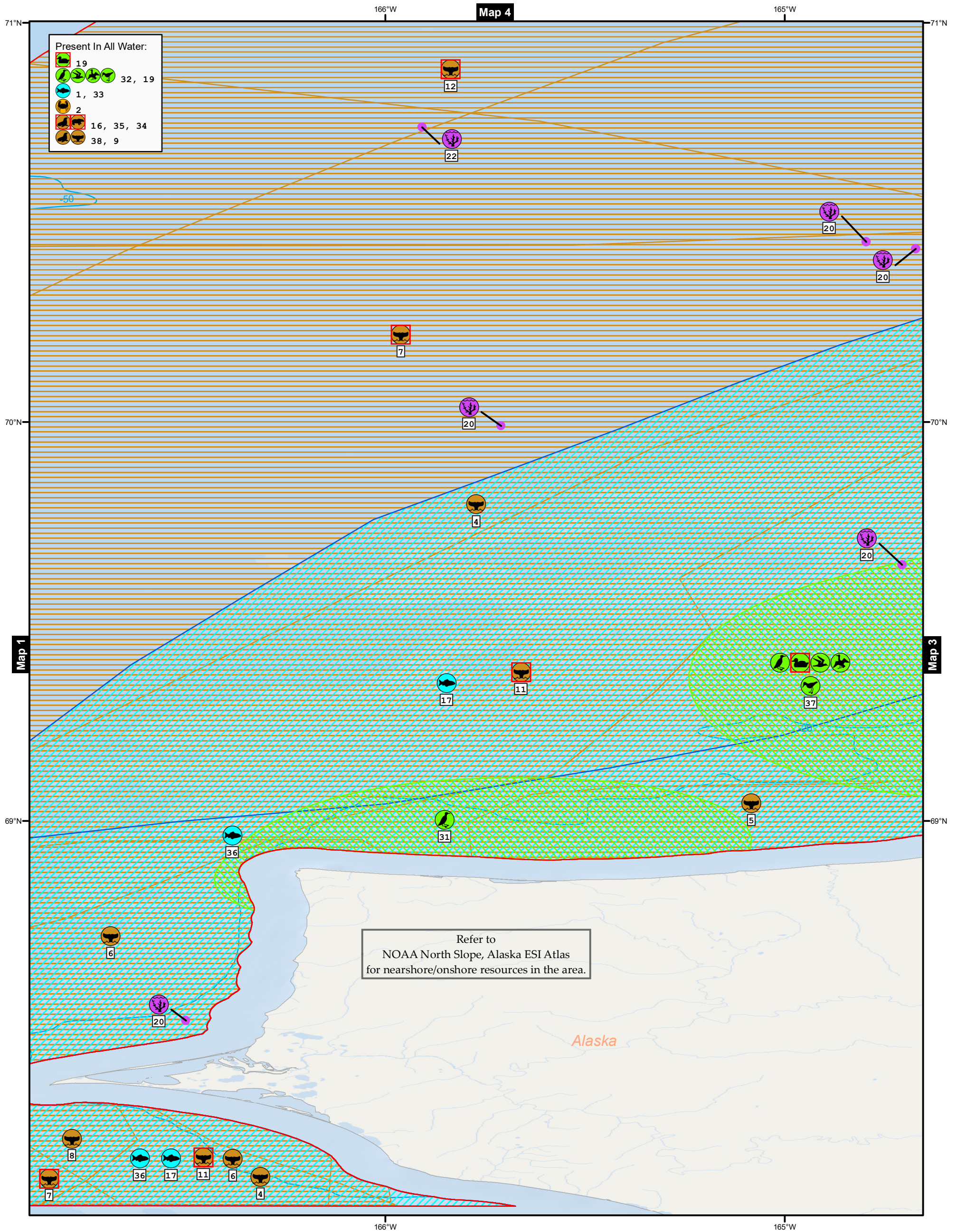
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
1	Arctic cod			-	General Distribution	J F M A M J J A S O N D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec
	Bering flounder			-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Aug	Aug-Aug	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Sep-Sep	Jan-Dec
17	Capelin			-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J F M A M J J A S O N D	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
2	Snow crab			-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Mating	Calving	Pupping	Molting
4	Beluga whale			Migratory Route	Migration	A M J J A S O N	-	-	-	-
6	Gray whale			Reproductive/Feeding	Concentration Area	J J A S O	-	-	-	-
7	Fin whale	E		Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
8	Humpback whale			Feeding	Vulnerable Occurrence	J A S	-	-	-	-
9	Minke whale			Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
11	Bowhead whale	E		Migratory Route	Migration	A M	-	-	-	-
12	Bowhead whale	E		Migratory Route	Migration	A S O	-	-	-	-
16	Bearded seal	T		-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear	T		-	General Distribution	J F M A M J J O N D	-	-	-	-
35	Ringed seal	T		-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-Jun	May-Jul
38	Pacific walrus			-	General Distribution	J J A S O N	-	-	-	-



- Present In All Water:
- 19
 - 32, 19
 - 1, 33
 - 2
 - 16, 35, 34
 - 38, 9

Refer to
NOAA North Slope, Alaska ESI Atlas
for nearshore/onshore resources in the area.

Biology Map 2

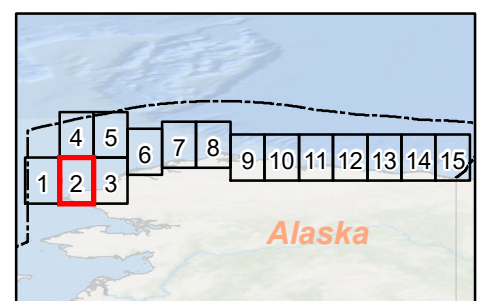
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas



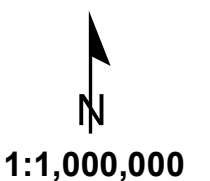
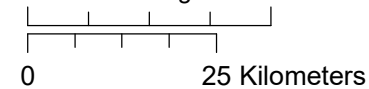
Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
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- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
for Status, Seasonality, and Breed
information about mapped species.
Published: December 2023

0 Not for Navigation 20 Miles



Arctic Alaska Offshore ESI: Biology Map 2

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)											
20	Soft coral			Solitary	Vulnerable Occurrence	J	F	M	A	M	J	J	A	S	O	N	D
22	Deep sea sponge			Structure-Forming	Vulnerable Occurrence	J	F	M	A	M	J	J	A	S	O	N	D

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating	Molting		
19	Arctic tern			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Black-legged kittiwake			10,000S	General Distribution					M	J	J	A	S	O	N	-	-	-	-		
	Common eider			10S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-Jun	Oct-Nov	Jun-Jul		
	Common murre			1,000S	General Distribution					J	J	A	S	O			-	-	-	Sep-Oct		
	Glaucous-winged gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Glaucous gull			1,000S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	-		
	King eider			100S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep		
	Long-tailed duck			100S	General Distribution					J	J	A	S				-	-	-	Jun-Sep		
	Pacific loon			100S	General Distribution					M	J	J	A	S	O		-	Jun-Sep	-	-		
	Parasitic jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Pomarine jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Red-necked phalarope			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Red phalarope			100S	General Distribution					M	J	J	A	S	O	N	-	May-Nov	-	Aug-Sep		
	Sabine's gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Spectacled eider		T	100S	General Distribution					M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	Jun-Sep		
	Steller's eider		T	10S	General Distribution					M	J	J	A	S	O		-	May-Oct	-	Jun-Oct		
	Thick-billed murre			1,000S	General Distribution					M	J	J	A	S	O	N	-	Jul-Sep	-	Aug-Nov		
	White-winged scoter			10S	General Distribution					M	J	J	A	S	O		-	-	-	-		
31	Black-legged kittiwake			Up To 37,540 Birds	Concentration Area					M	J	J	A	S	O	N	May-Aug	-	-	-		
32	Ancient murrelet			100S	General Distribution							J	A	S	O		-	-	-	-		
	Black guillemot			100S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	-		
	Crested auklet			1,000S	General Distribution							J	J	A	S	O	-	Aug-Oct	-	Jun-Oct		
	Horned puffin			100S	General Distribution							J	J	A	S	O	-	Jun-Jun	Sep-Oct	-		
	Ivory gull			10S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-May	Sep-Nov	-		
	Kittlitz's murrelet			100S	General Distribution							J	J	A	S	O	-	-	-	-		
	Least auklet			1,000S	General Distribution				M	A	M	J	J	A	S	O	N	-	Mar-Nov	-	Jun-Oct	
	Long-tailed jaeger			100S	General Distribution							M	J	J	A	S	O	-	-	-	-	
	Loons			100S	General Distribution							A	M	J	J	A	S	O	-	-	-	
	Northern fulmar			1,000S	General Distribution							J	J	A	S	O	N	-	-	-	-	
	Parakeet auklet			100S	General Distribution				M	A	M	J	J	A	S	O	N	-	Mar-May	Aug-Nov	Jun-Nov	
	Ross's gull			100S	General Distribution							J			S	O	N	-	Jun-Jun	Sep-Nov	-	
	Short-tailed shearwater			1,000S	General Distribution					A	M	J	J	A	S	O	-	Apr-May	Sep-Oct	May-Sep		
	Tufted puffin			100S	General Distribution				F	M	A	M			S	O	N	D	-	Feb-May	Sep-Dec	-
37	Black-legged kittiwake			Up To 10,000 Birds	Concentration Area							M	J	J	A	S	O	N	May-Aug	-	-	
	Common eider			Up To 1,000 Birds	Rafting					A	M	J	J	A	S	O	N	-	Apr-Jun	Oct-Nov	Jun-Jul	
	Common murre			Up To 100,000 Birds	Concentration Area							J	J	A	S	O	-	Jun-Sep	-	-	Sep-Oct	
	Glaucous gull			Up To 86,836 Birds	Concentration Area					A	M	J	J	A	S	O	N	-	-	-	-	
	Greater scaup			Up To 100 Birds	Concentration Area							M	J	J	A	S	O	-	May-Oct	-	-	
	King eider			10,000S	Rafting				A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep		
	Long-tailed duck			10,000S	Rafting				A	M	J	J	A	S	O	N	-	Apr-May	Oct-Nov	Jun-Aug		
	Northern pintail			100S	Concentration Area							M	J	J	A	S	O	-	-	-	-	
	Pacific loon			1,000S	Concentration Area							M	J	J	A	S	O	-	Jun-Sep	-	-	
	Parasitic jaeger			100S	Concentration Area							M	J	J	A	S	O	-	-	-	-	
	Pomarine jaeger			Up To 2,816 Birds	Concentration Area							M	J	J	A	S	O	-	Jun-Jul	-	-	
	Red-breasted merganser			High	Rafting							M	J	J	A	S	O	-	-	-	-	
	Red-necked phalarope			1,000S	Concentration Area							M	J	J	A	S	O	-	-	-	-	
	Red-throated loon			100S	Concentration Area				A	M	J	J	A	S	O	-	-	Apr-Oct	-	-		
	Red phalarope			1,000S	Concentration Area					M	J	J	A	S	O	N	-	May-Nov	-	Aug-Sep		
	Shearwaters			100S	Concentration Area							J	J	A	S	O	N	-	Aug-Sep	-	-	
	Spectacled eider		T	Up To 33,000 Birds	Rafting					M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	Jun-Sep		
	Steller's eider		T	High	Rafting							J	J	A	S	O	-	Jun-Aug	Jun-Oct	-	Jun-Oct	
	Surf scoter			Up To 100 Birds	Concentration Area							M	J	J	A	S	O	-	-	-	Jul-Aug	
	Thick-billed murre			Up To 100,000 Birds	Concentration Area					M	J	J	A	S	O	N	-	May-Jul	May-May	Jul-Sep	Aug-Nov	
	White-winged scoter			High	Rafting							M	J	J	A	S	O	-	-	-	-	

FISH:

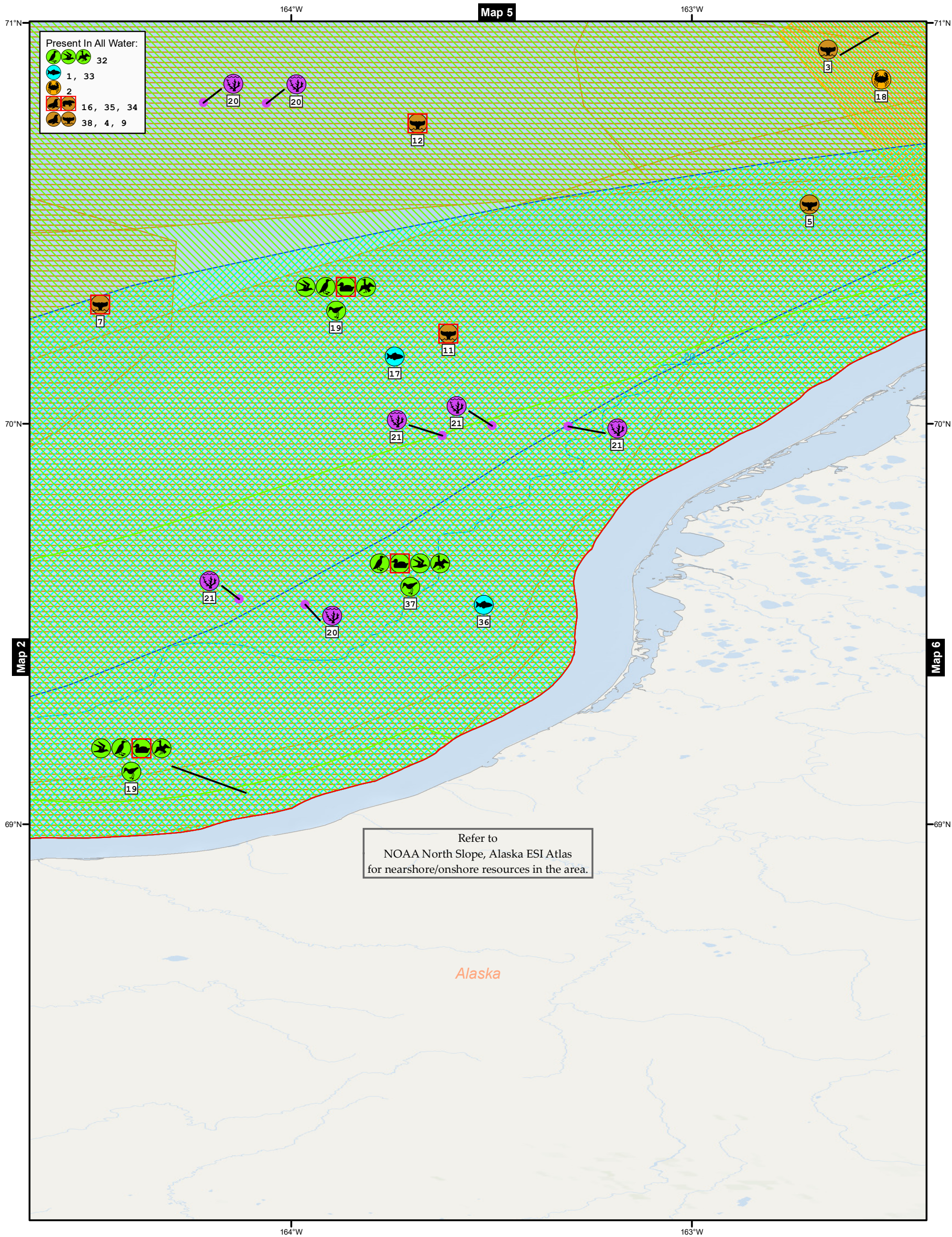
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting
4	Beluga whale			Migratory Route	Migration					A	M					N	-	-	-	-	
5	Gray whale			Reproductive/Feeding	Concentration Area							J	A	S	O		-	-	-	-	
6	Gray whale			Reproductive/Feeding	Concentration Area							J	J	A	S	O	-	-	-	-	
7	Fin whale		E	Feeding	Vulnerable Occurrence							J	A	S	O		-	-	-	-	
8	Humpback whale			Feeding	Vulnerable Occurrence							J	A	S			-	-	-	-	
9	Minke whale			Feeding	Vulnerable Occurrence							J	A	S	O		-	-	-	-	
11	Bowhead whale		E	Migratory Route	Migration					A	M						-	-	-	-	
12	Bowhead whale		E	Migratory Route	Migration								A	S	O		-	-	-	-	
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul
38	Pacific walrus			-	General Distribution							J	J	A	S	O	N	-	-	-	-



Biology Map 3

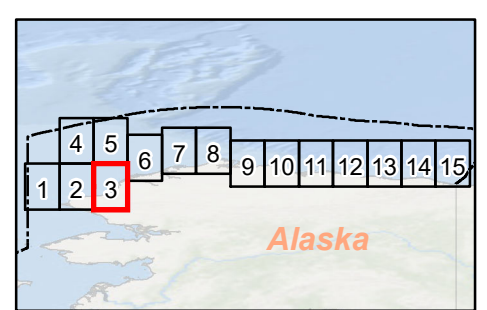
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

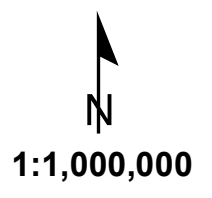
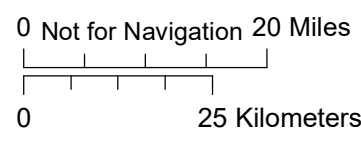


Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 3

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)
20	Soft coral		Solitary	Vulnerable Occurrence	J F M A M J J A S O N D
21	Deep sea sponge		Structure-Forming	Vulnerable Occurrence	J F M A M J J A S O N D
	Soft coral		Solitary	Vulnerable Occurrence	J F M A M J J A S O N D

BIRD:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Nesting	Migrating	Molting
19	Arctic tern		100S	General Distribution	M J J A S O	-	-	-
	Black-legged kittiwake		10,000S	General Distribution	M J J A S O N	-	-	-
	Common eider		10S	General Distribution	A M J J A S O N	-	Apr-Jun	Oct-Nov
	Common murre		1,000S	General Distribution	J J A S O	-	-	Jun-Jul
	Glaucous-winged gull		100S	General Distribution	M J J A S O	-	-	Sep-Oct
	Glaucous gull		1,000S	General Distribution	A M J J A S O N	-	-	-
	King eider		100S	General Distribution	A M J J A S O N	-	Apr-Jul	Oct-Nov
	Long-tailed duck		100S	General Distribution	J J A S	-	-	Jun-Sep
	Pacific loon		100S	General Distribution	M J J A S O	-	Jun-Sep	-
	Parasitic jaeger		100S	General Distribution	M J J A S O	-	-	-
	Pomarine jaeger		100S	General Distribution	M J J A S O	-	-	-
	Red-necked phalarope		100S	General Distribution	M J J A S O	-	-	-
	Red phalarope		100S	General Distribution	M J J A S O N	-	May-Nov	Aug-Sep
	Sabine's gull		100S	General Distribution	M J J A S O	-	-	-
	Spectacled eider	T	100S	General Distribution	M J J A S O N	-	May-Jun	Oct-Nov
	Steller's eider	T	10S	General Distribution	M J J A S O	-	May-Oct	Jun-Oct
	Thick-billed murre		1,000S	General Distribution	M J J A S O N	-	Jul-Sep	Aug-Nov
	White-winged scoter		10S	General Distribution	M J J A S O	-	-	-
32	Ancient murrelet		100S	General Distribution	J J A S O	-	-	-
	Black guillemot		100S	General Distribution	A M J J A S O N	-	-	-
	Crested auklet		1,000S	General Distribution	J J A S O	-	Aug-Oct	Jun-Oct
	Horned puffin		100S	General Distribution	J J A S O	-	Jun-Jun	Sep-Oct
	Ivory gull		10S	General Distribution	A M J J A S O N	-	Apr-May	Sep-Nov
	Kittlitz's murrelet		100S	General Distribution	J J A S O N	-	-	-
	Least auklet		1,000S	General Distribution	M A M J J A S O N	-	Mar-Nov	Jun-Oct
	Long-tailed jaeger		100S	General Distribution	M J J A S O	-	-	-
	Loons		100S	General Distribution	A M J J A S O N	-	-	-
	Northern fulmar		1,000S	General Distribution	J J A S O N	-	-	-
	Parakeet auklet		100S	General Distribution	M A M J J A S O N	-	Mar-May	Aug-Nov
	Ross's gull		100S	General Distribution	J J A S O N	-	Jun-Jun	Sep-Nov
	Short-tailed shearwater		1,000S	General Distribution	A M J J A S O	-	Apr-May	Sep-Oct
	Tufted puffin		100S	General Distribution	F M A M J J A S O N D	-	Feb-May	Sep-Dec
37	Black-legged kittiwake		Up To 10,000 Birds	Concentration Area	M J J A S O N	May-Aug	-	-
	Common eider		Up To 1,000 Birds	Rafting	A M J J A S O N	-	Apr-Jun	Oct-Nov
	Common murre		Up To 100,000 Birds	Concentration Area	J J A S O	Jun-Sep	-	Sep-Oct
	Glaucous gull		Up To 86,836 Birds	Concentration Area	A M J J A S O N	-	-	-
	Greater scaup		Up To 100 Birds	Concentration Area	M J J A S O	-	May-Oct	-
	King eider		10,000S	Rafting	A M J J A S O N	-	Apr-Jul	Oct-Nov
	Long-tailed duck		10,000S	Rafting	A M J J A S O N	-	Apr-May	Oct-Nov
	Northern pintail		100S	Concentration Area	M J J A S O	-	-	-
	Pacific loon		1,000S	Concentration Area	M J J A S O	-	Jun-Sep	-
	Parasitic jaeger		100S	Concentration Area	M J J A S O	-	-	-
	Pomarine jaeger		Up To 2,816 Birds	Concentration Area	M J J A S O	Jun-Jul	-	-
	Red-breasted merganser		High	Rafting	M J J A S O	-	-	-
	Red-necked phalarope		1,000S	Concentration Area	M J J A S O	-	-	-
	Red-throated loon		100S	Concentration Area	A M J J A S O	-	Apr-Oct	-
	Red phalarope		1,000S	Concentration Area	M J J A S O N	-	May-Nov	Aug-Sep
	Shearwaters		100S	Concentration Area	J J A S O N	-	Aug-Sep	-
	Spectacled eider	T	Up To 33,000 Birds	Rafting	M J J A S O N	-	May-Jun	Oct-Nov
	Steller's eider	T	High	Rafting	J J A S O	Jun-Aug	Jun-Oct	Jun-Oct
	Surf scoter		Up To 100 Birds	Concentration Area	M J J A S O N	-	-	Jul-Aug
	Thick-billed murre		Up To 100,000 Birds	Concentration Area	M J J A S O N	May-Jul	May-May	Jul-Sep
	White-winged scoter		High	Rafting	M J J A S O	-	-	-

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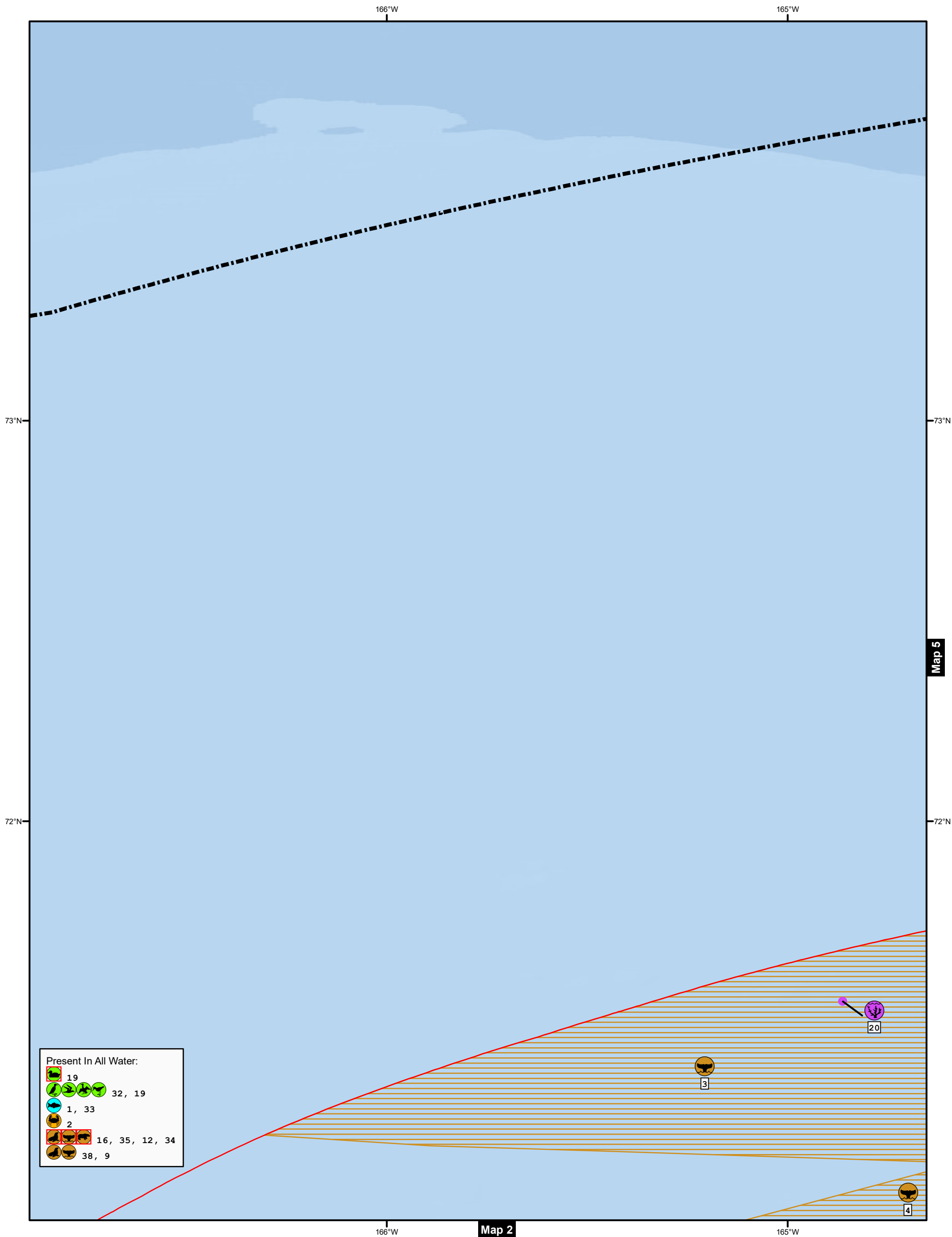
RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
1	Arctic cod		-	General Distribution	J F M A M J J A S O N D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec
	Bering flounder		-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Aug	Aug-Aug	Jan-Dec
	Greenland halibut (turbot)		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod		-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-
	Pacific sand lance		-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock		-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Sep-Sep	Jan-Dec
17	Capelin		-	General Distribution	J F M A M J J A S O N D	-	-	-	Sep-Sep	Jan-Dec
	Yellowfin sole		-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
2	Snow crab		-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-
18	Crustaceans		High	Concentration Area	J F M A M J J A S O N D	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Mating	Calving	Pupping	Molting
3	Beluga whale		Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
4	Beluga whale		Migratory Route	Migration	A M	-	-	-	-
5	Gray whale		Reproductive/Feeding	Concentration Area	J A S O	-	-	-	-
7	Fin whale	E	Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
9	Minke whale		Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
11	Bowhead whale	E	Migratory Route	Migration	A M	-	-	-	-
12	Bowhead whale	E	Migratory Route	Migration	A S O	-	-	-	-
16	Bearded seal	T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear	T	-	General Distribution	J F M A M J J A S O N D	-	-	-	-
35	Ringed seal	T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-Jun	May-Jul
38	Pacific walrus		-	General Distribution	J J A S O N	-	-	-	-



Biology Map 4

Arctic Alaska Offshore ESI

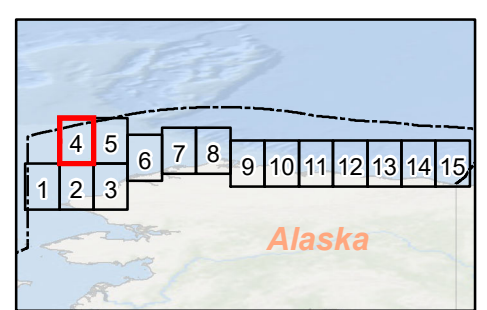
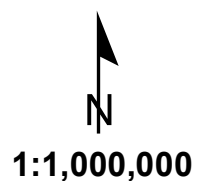
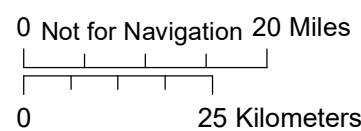
Chukchi and Beaufort Seas



Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI

SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 4

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)
20	Soft coral			Solitary	Vulnerable Occurrence	J F M A M J J A S O N D

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Nesting	Migrating	Molting
19	Arctic tern			100S	General Distribution	M J J A S O	-	-	-
	Black-legged kittiwake			10,000S	General Distribution	M J J A S O N	-	-	-
	Common eider			10S	General Distribution	A M J J A S O N	-	Apr-Jun	Oct-Nov
	Common murre			1,000S	General Distribution	J J A S O	-	-	Sep-Oct
	Glaucous-winged gull			100S	General Distribution	M J J A S O	-	-	-
	Glaucous gull			1,000S	General Distribution	A M J J A S O N	-	-	-
	King eider			100S	General Distribution	A M J J A S O N	-	Apr-Jul	Oct-Nov
	Long-tailed duck			100S	General Distribution	J J A S	-	-	Jun-Sep
	Pacific loon			100S	General Distribution	M J J A S O	-	Jun-Sep	-
	Parasitic jaeger			100S	General Distribution	M J J A S O	-	-	-
	Pomarine jaeger			100S	General Distribution	M J J A S O	-	-	-
	Red-necked phalarope			100S	General Distribution	M J J A S O	-	-	-
	Red phalarope			100S	General Distribution	M J J A S O N	-	May-Nov	Aug-Sep
	Sabine's gull			100S	General Distribution	M J J A S O	-	-	-
	Spectacled eider		T	100S	General Distribution	M J J A S O N	-	May-Jun	Oct-Nov
	Steller's eider		T	10S	General Distribution	M J J A S O	-	May-Oct	Jun-Oct
	Thick-billed murre			1,000S	General Distribution	M J J A S O N	-	Jul-Sep	Aug-Nov
	White-winged scoter			10S	General Distribution	M J J A S O	-	-	-
32	Ancient murrelet			100S	General Distribution	J J A S O	-	-	-
	Black guillemot			100S	General Distribution	A M J J A S O N	-	-	-
	Crested auklet			1,000S	General Distribution	J J A S O	-	Aug-Oct	Jun-Oct
	Horned puffin			100S	General Distribution	J J A S O	-	Jun-Jun	Sep-Oct
	Ivory gull			10S	General Distribution	A M J J A S O N	-	Apr-May	Sep-Nov
	Kittlitz's murrelet			100S	General Distribution	J J A S O N	-	-	-
	Least auklet			1,000S	General Distribution	M A M J J A S O N	-	Mar-Nov	Jun-Oct
	Long-tailed jaeger			100S	General Distribution	M J J A S O	-	-	-
	Loons			100S	General Distribution	A M J J A S O N	-	-	-
	Northern fulmar			1,000S	General Distribution	J J A S O N	-	-	-
	Parakeet auklet			100S	General Distribution	M A M J J A S O N	-	Mar-May	Aug-Nov
	Ross's gull			100S	General Distribution	J J A S O N	-	Jun-Jun	Sep-Nov
	Short-tailed shearwater			1,000S	General Distribution	A M J J A S O	-	Apr-May	Sep-Oct
	Tufted puffin			100S	General Distribution	F M A M J J A S O N D	-	Feb-May	Sep-Dec

FISH:

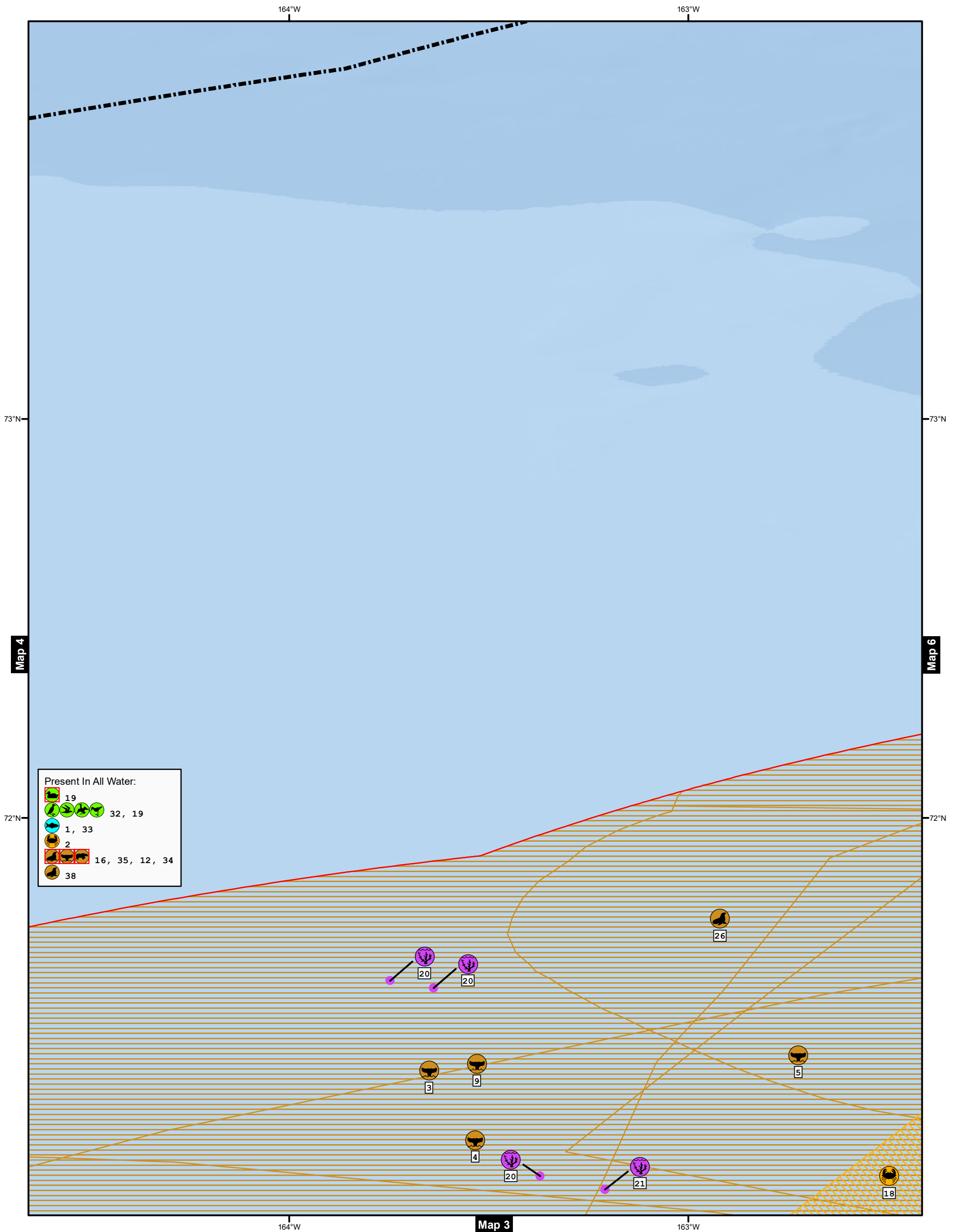
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
1	Arctic cod			-	General Distribution	J F M A M J J A S O N D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec
	Bering flounder			-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Aug	Aug-Aug	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J F M A M J J A S O N D	-	-	-	-	Jan-Dec
	Pacific cod			-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Sep-Sep	Jan-Dec
33	Pacific herring			-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
2	Snow crab			-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Mating	Calving	Pupping	Molting
3	Beluga whale			Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
4	Beluga whale			Migratory Route	Migration	A M	-	-	-	-
9	Minke whale			Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
12	Bowhead whale		E	Migratory Route	Migration	A S O	-	-	-	-
16	Bearded seal		T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear		T	-	General Distribution	J F M A M J J A S O N D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-Jun	May-Jul
38	Pacific walrus			-	General Distribution	J J A S O N	-	-	-	-



Biology Map 5

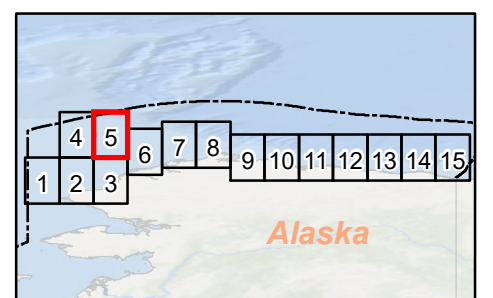
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas



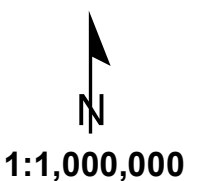
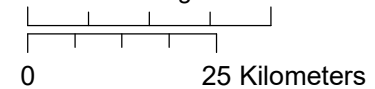
Bureau of Safety and Environmental Enforcement

- Benthic
- Benthic Points
- Birds
- Fish
- Bathymetry (Meters)
- US Exclusive Economic Zone
- Invertebrates
- AOI
- Marine Mammals



SEE MAP DATA TABLE
for Status, Seasonality, and Breed
information about mapped species.
Published: December 2023

0 Not for Navigation 20 Miles



Arctic Alaska Offshore ESI: Biology Map 5

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)
20	Soft coral		Solitary	Vulnerable Occurrence	J F M A M J J A S O N D
21	Deep sea sponge		Structure-Forming	Vulnerable Occurrence	J F M A M J J A S O N D
	Soft coral		Solitary	Vulnerable Occurrence	J F M A M J J A S O N D

BIRD:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Nesting	Migrating	Molting
19	Arctic tern		100S	General Distribution	M J J A S O	-	-	-
	Black-legged kittiwake		10,000S	General Distribution	M J J A S O N	-	-	-
	Common eider		10S	General Distribution	A M J J A S O N	-	Apr-Jun	Oct-Nov
	Common murre		1,000S	General Distribution	J J A S O	-	-	Sep-Oct
	Glaucous-winged gull		100S	General Distribution	M J J A S O	-	-	-
	Glaucous gull		1,000S	General Distribution	A M J J A S O N	-	-	-
	King eider		100S	General Distribution	A M J J A S O N	-	Apr-Jul	Oct-Nov
	Long-tailed duck		100S	General Distribution	J J A S	-	-	Jun-Sep
	Pacific loon		100S	General Distribution	M J J A S O	-	Jun-Sep	-
	Parasitic jaeger		100S	General Distribution	M J J A S O	-	-	-
	Pomarine jaeger		100S	General Distribution	M J J A S O	-	-	-
	Red-necked phalarope		100S	General Distribution	M J J A S O	-	-	-
	Red phalarope		100S	General Distribution	M J J A S O N	-	May-Nov	Aug-Sep
	Sabine's gull		100S	General Distribution	M J J A S O	-	-	-
	Spectacled eider	T	100S	General Distribution	M J J A S O N	-	May-Jun	Oct-Nov
	Steller's eider	T	10S	General Distribution	M J J A S O	-	May-Oct	Jun-Oct
	Thick-billed murre		1,000S	General Distribution	M J J A S O N	-	Jul-Sep	Aug-Nov
	White-winged scoter		10S	General Distribution	M J J A S O	-	-	-
32	Ancient murrelet		100S	General Distribution	J J A S O	-	-	-
	Black guillemot		100S	General Distribution	A M J J A S O N	-	-	-
	Crested auklet		1,000S	General Distribution	J J A S O	-	Aug-Oct	Jun-Oct
	Horned puffin		100S	General Distribution	J J A S O	-	Jun-Jun	Sep-Oct
	Ivory gull		10S	General Distribution	A M J J A S O N	-	Apr-May	Sep-Nov
	Kittlitz's murrelet		100S	General Distribution	J J A S O N	-	-	-
	Least auklet		1,000S	General Distribution	M A M J J A S O N	-	Mar-Nov	Jun-Oct
	Long-tailed jaeger		100S	General Distribution	M J J A S O	-	-	-
	Loons		100S	General Distribution	A M J J A S O N	-	-	-
	Northern fulmar		1,000S	General Distribution	J J A S O N	-	-	-
	Parakeet auklet		100S	General Distribution	M A M J J A S O N	-	Mar-May	Aug-Nov
	Ross's gull		100S	General Distribution	J J A S O N	-	Jun-Jun	Sep-Nov
	Short-tailed shearwater		1,000S	General Distribution	A M J J A S O	-	Apr-May	Sep-Oct
	Tufted puffin		100S	General Distribution	F M A M J J A S O N D	-	Feb-May	Sep-Dec

FISH:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
1	Arctic cod		-	General Distribution	J F M A M J J A S O N D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec
	Bering flounder		-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Aug	Aug-Aug	Jan-Dec
	Greenland halibut (turbot)		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod		-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-
	Pacific sand lance		-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock		-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Sep-Sep	Jan-Dec
33	Pacific herring		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

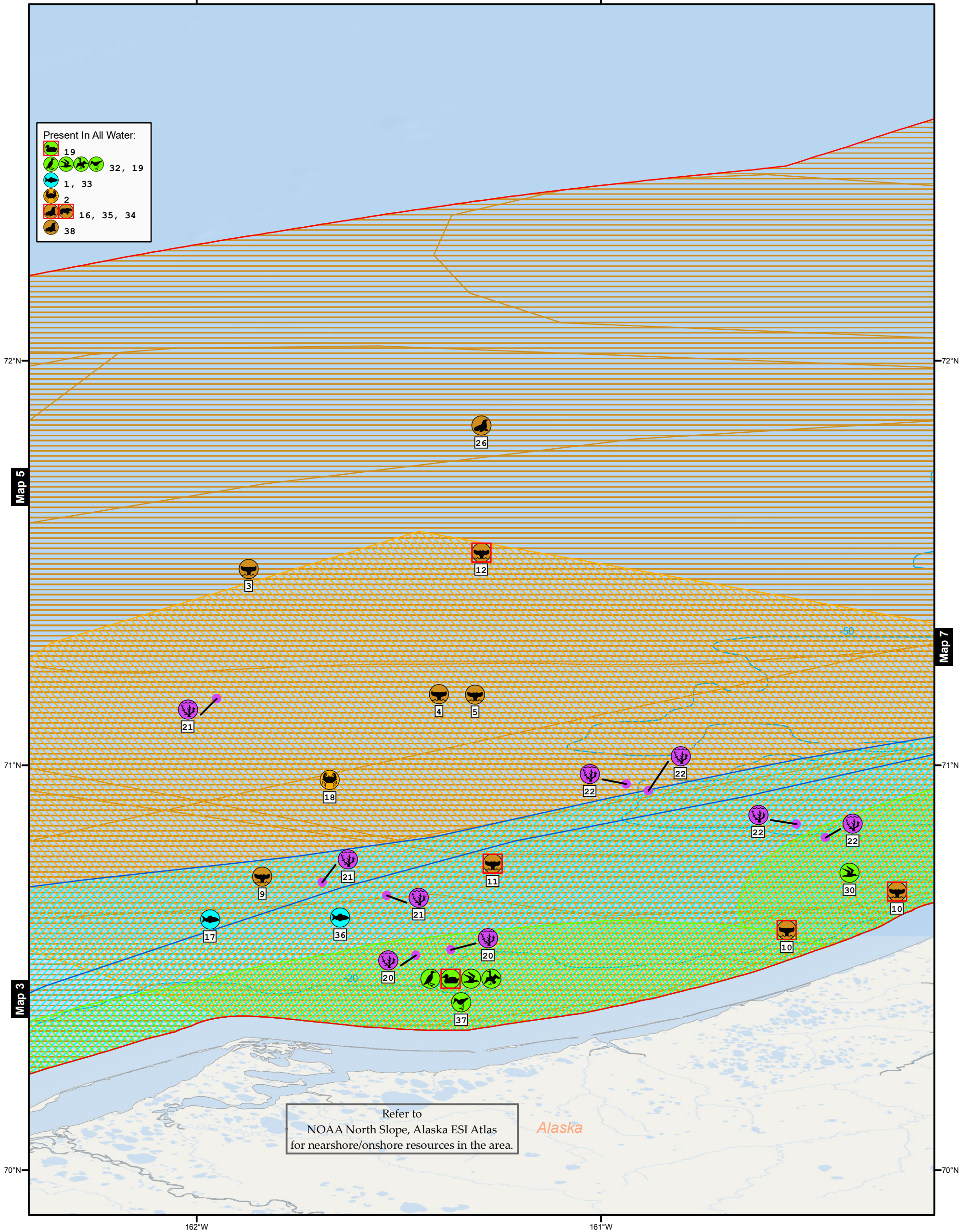
RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
2	Snow crab		-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-
18	Crustaceans		High	Concentration Area	J F M A M J J A S O N D	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Mating	Calving	Pupping	Molting
3	Beluga whale		Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
4	Beluga whale		Migratory Route	Migration	A M	-	-	-	-
5	Gray whale		Reproductive/Feeding	Concentration Area	J A S O	-	-	-	-
9	Minke whale		Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
12	Bowhead whale	E	Migratory Route	Migration	A S O	-	-	-	-
16	Bearded seal	T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-May	Apr-Jul
26	Pacific walrus		High	Concentration Area	J J A S	-	-	-	-
34	Polar bear	T	-	General Distribution	J F M A M J J O N D	-	-	-	-
35	Ringed seal	T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-Jun	May-Jul
38	Pacific walrus		-	General Distribution	J J A S O N	-	-	-	-

162°W

161°W



- Present In All Water:
- 19
 - 32, 19
 - 1, 33
 - 2
 - 16, 35, 34
 - 38

Refer to
NOAA North Slope, Alaska ESI Atlas
for nearshore/onshore resources in the area.

Biology Map 6

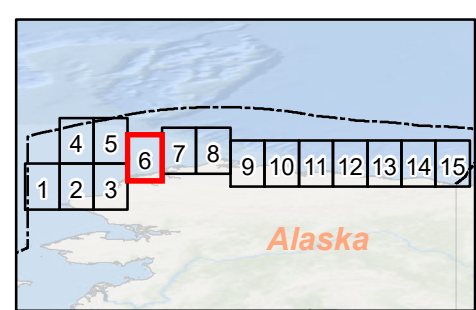
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

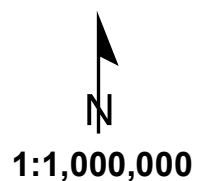
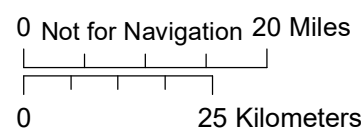


Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
for Status, Seasonality, and Breed
information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 6

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)											
20	Soft coral			Solitary	Vulnerable Occurrence	J	F	M	A	M	J	J	A	S	O	N	D
21	Deep sea sponge			Structure-Forming	Vulnerable Occurrence	J	F	M	A	M	J	J	A	S	O	N	D
	Soft coral			Solitary	Vulnerable Occurrence	J	F	M	A	M	J	J	A	S	O	N	D
22	Deep sea sponge			Structure-Forming	Vulnerable Occurrence	J	F	M	A	M	J	J	A	S	O	N	D

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating	Molting		
19	Arctic tern			100S	General Distribution					M	J	J	A	S	O			-	-	-	-	
	Black-legged kittiwake			10,000S	General Distribution					M	J	J	A	S	O	N		-	-	-	-	
	Common eider			10S	General Distribution				A	M	J	J	A	S	O	N		-	Apr-Jun	Oct-Nov	Jun-Jul	
	Common murre			1,000S	General Distribution					J	J	A	S	O			-	-	-	Sep-Oct		
	Glaucous-winged gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Glaucous gull			1,000S	General Distribution				A	M	J	J	A	S	O	N		-	-	-	-	
	King eider			100S	General Distribution				A	M	J	J	A	S	O	N		-	Apr-Jul	Oct-Nov	Jun-Sep	
	Long-tailed duck			100S	General Distribution					J	J	A	S				-	-	-	Jun-Sep		
	Pacific loon			100S	General Distribution					M	J	J	A	S	O		-	Jun-Sep	-	-		
	Parasitic jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Pomarine jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Red-necked phalarope			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Red phalarope			100S	General Distribution					M	J	J	A	S	O	N		-	May-Nov	-	Aug-Sep	
	Sabine's gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Spectacled eider		T	100S	General Distribution					M	J	J	A	S	O	N		-	May-Jun	Oct-Nov	Jun-Sep	
	Steller's eider		T	10S	General Distribution					M	J	J	A	S	O		-	May-Oct	-	Jun-Oct		
	Thick-billed murre			1,000S	General Distribution					M	J	J	A	S	O	N		-	Jul-Sep	-	Aug-Nov	
	White-winged scoter			10S	General Distribution					M	J	J	A	S	O		-	-	-	-		
30	Glaucous gull			Up To 83,836 Birds	Concentration Area				A	M	J	J	A	S	O	N		Jul-Aug	-	-	-	
	Sabine's gull			Up To 11,355 Birds	Concentration Area					M	J	J	A	S	O		Jul-Aug	-	-	-		
32	Ancient murrelet			100S	General Distribution						J	J	A	S	O		-	-	-	-		
	Black guillemot			100S	General Distribution				A	M	J	J	A	S	O	N		-	-	-	-	
	Crested auklet			1,000S	General Distribution						J	J	A	S	O		-	Aug-Oct	-	Jun-Oct		
	Horned puffin			100S	General Distribution						J	J	A	S	O		-	Jun-Jun	Sep-Oct	-		
	Ivory gull			10S	General Distribution				A	M	J	J	A	S	O	N		-	Apr-May	Sep-Nov	-	
	Kittlitz's murrelet			100S	General Distribution						J	J	A	S	O	N		-	-	-	-	
	Least auklet			1,000S	General Distribution				M	A	M	J	J	A	S	O	N		-	Mar-Nov	-	Jun-Oct
	Long-tailed jaeger			100S	General Distribution						M	J	J	A	S	O		-	-	-	-	
	Loons			100S	General Distribution				A	M	J	J	A	S	O	N		-	-	-	-	
	Northern fulmar			1,000S	General Distribution						J	J	A	S	O	N		-	-	-	-	
	Parakeet auklet			100S	General Distribution				M	A	M	J	J	A	S	O	N		-	Mar-May	Aug-Nov	Jun-Nov
	Ross's gull			100S	General Distribution						J			S	O	N		-	Jun-Jun	Sep-Nov	-	
	Short-tailed shearwater			1,000S	General Distribution				A	M	J	J	A	S	O		-	Apr-May	Sep-Oct	May-Sep		
	Tufted puffin			100S	General Distribution				F	M	A	M			S	O	N	D	-	Feb-May	Sep-Dec	-
37	Black-legged kittiwake			Up To 10,000 Birds	Concentration Area						M	J	J	A	S	O	N	May-Aug	-	-	-	
	Common eider			Up To 1,000 Birds	Rafting				A	M	J	J	A	S	O	N		-	Apr-Jun	Oct-Nov	Jun-Jul	
	Common murre			Up To 100,000 Birds	Concentration Area						J	J	A	S	O		Jun-Sep	-	-	Sep-Oct		
	Glaucous gull			Up To 86,836 Birds	Concentration Area				A	M	J	J	A	S	O	N		-	-	-	-	
	Greater scaup			Up To 100 Birds	Concentration Area						M	J	J	A	S	O		-	May-Oct	-	-	
	King eider			10,000S	Rafting				A	M	J	J	A	S	O	N		-	Apr-Jul	Oct-Nov	Jun-Sep	
	Long-tailed duck			10,000S	Rafting				A	M	J	J	A	S	O	N		-	Apr-May	Oct-Nov	Jun-Aug	
	Northern pintail			100S	Concentration Area						M	J	J	A	S	O		-	-	-	-	
	Pacific loon			1,000S	Concentration Area						M	J	J	A	S	O		-	Jun-Sep	-	-	
	Parasitic jaeger			100S	Concentration Area						M	J	J	A	S	O		-	-	-	-	
	Pomarine jaeger			Up To 2,816 Birds	Concentration Area						M	J	J	A	S	O	Jun-Jul	-	-	-	-	
	Red-breasted merganser			High	Rafting						M	J	J	A	S	O		-	-	-	-	
	Red-necked phalarope			1,000S	Concentration Area						M	J	J	A	S	O		-	-	-	-	
	Red-throated loon			100S	Concentration Area				A	M	J	J	A	S	O		-	Apr-Oct	-	-		
	Red phalarope			1,000S	Concentration Area						M	J	J	A	S	O	N	-	May-Nov	-	Aug-Sep	
	Shearwaters			100S	Concentration Area						J	J	A	S	O	N		-	Aug-Sep	-	-	
	Spectacled eider		T	Up To 33,000 Birds	Rafting						M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	Jun-Sep	
	Steller's eider		T	High	Rafting						J	J	A	S	O		Jun-Aug	Jun-Oct	-	Jun-Oct		
	Surf scoter			Up To 100 Birds	Concentration Area						M	J	J	A	S	O	N	-	-	-	Jul-Aug	
	Thick-billed murre			Up To 100,000 Birds	Concentration Area						M	J	J	A	S	O	N	May-Jul	May-May	Jul-Sep	Aug-Nov	
	White-winged scoter			High	Rafting						M	J	J	A	S	O		-	-	-	-	

FISH:

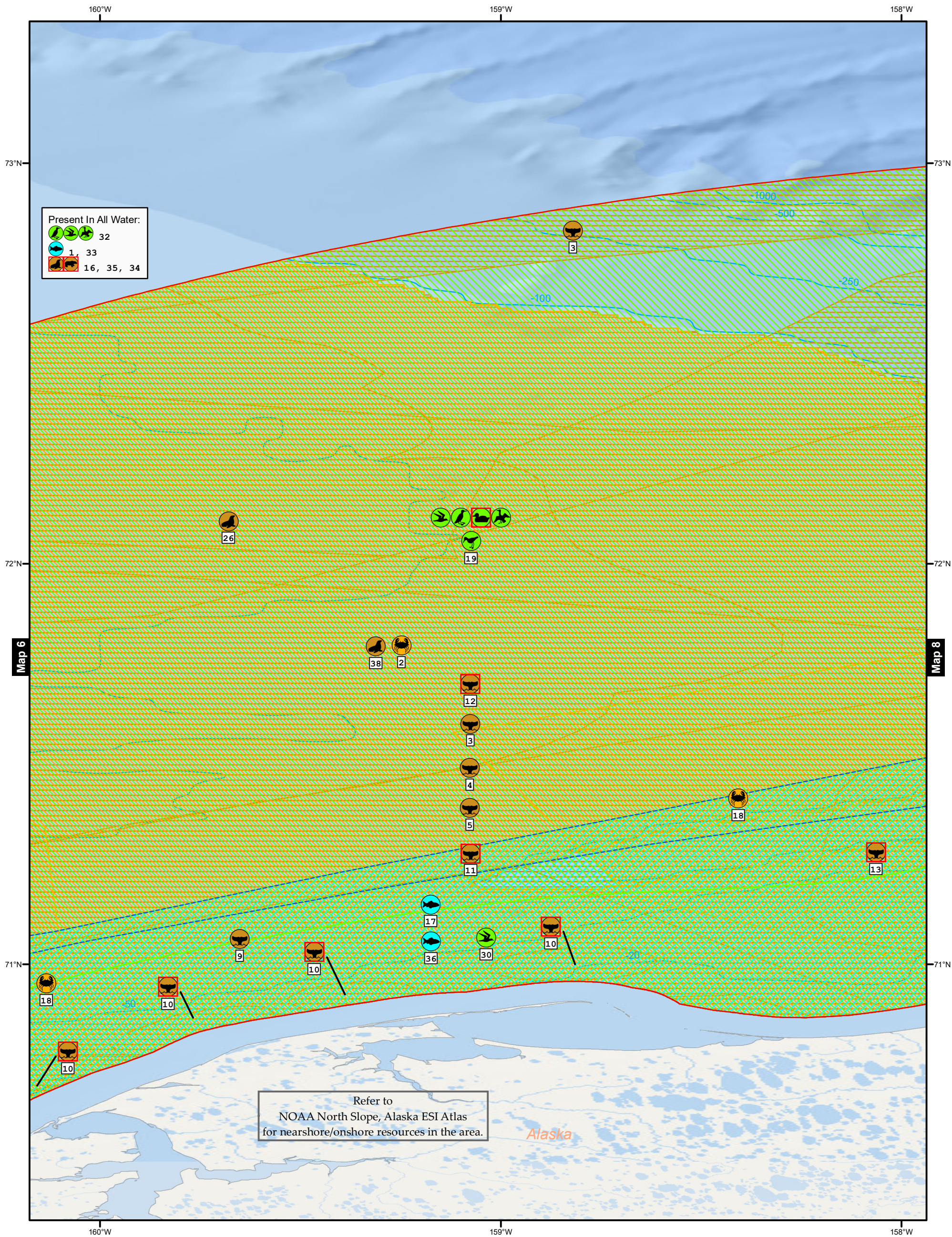
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
18	Crustaceans			High	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting	
3	Beluga whale			Feeding	Vulnerable Occurrence								J	A	S	O		-	-	-	-	
4	Beluga whale			Migratory Route	Migration				A	M						N		-	-	-	-	
5	Gray whale			Reproductive/Feeding	Concentration Area								J	A	S	O		-	-	-	-	
9	Minke whale			Feeding	Vulnerable Occurrence								J	A	S	O		-	-	-	-	
10	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence						M	J						-	-	-	-	
11	Bowhead whale		E	Migratory Route	Migration				A	M								-	-	-	-	
12	Bowhead whale		E	Migratory Route	Migration									A	S	O		-	-	-	-	
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul	
26	Pacific walrus			High	Concentration Area								J	J	A	S		-	-	-	-	
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J				O	N	D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul	
38	Pacific walrus			-	General Distribution								J	J	A	S	O	N	-	-	-	



Biology Map 7

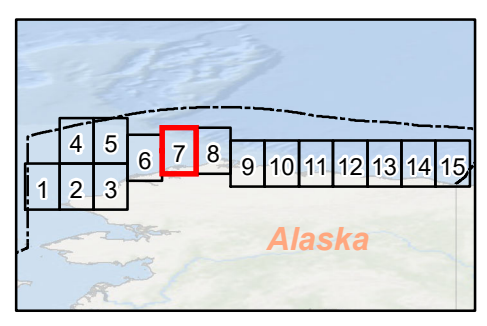
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

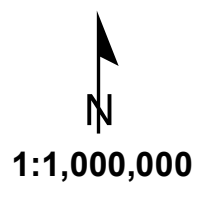
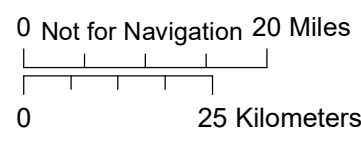


Bureau of Safety and Environmental Enforcement

- Benthic
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- Marine Mammals
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SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 7

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating		molting		
19	Arctic tern			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Black-legged kittiwake			10,000S	General Distribution					M	J	J	A	S	O	N		-	-	-	-		
	Common eider			10S	General Distribution					A	M	J	J	A	S	O	N		Apr-Jun	Oct-Nov	Jun-Jul		
	Common murre			1,000S	General Distribution					J	J	A	S	O				-	-	-	Sep-Oct		
	Glaucous-winged gull			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Glaucous gull			1,000S	General Distribution					A	M	J	J	A	S	O	N		-	-	-	-	
	King eider			100S	General Distribution					A	M	J	J	A	S	O	N		Apr-Jul	Oct-Nov	Jun-Sep		
	Long-tailed duck			100S	General Distribution					J	J	A	S					-	-	-	Jun-Sep		
	Pacific loon			100S	General Distribution					M	J	J	A	S	O			-	Jun-Sep	-	-		
	Parasitic jaeger			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Pomarine jaeger			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Red-necked phalarope			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Red phalarope			100S	General Distribution					M	J	J	A	S	O	N		May-Nov	-	-	Aug-Sep		
	Sabine's gull			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Spectacled eider		T	100S	General Distribution					M	J	J	A	S	O	N		May-Jun	Oct-Nov	Jun-Sep			
	Steller's eider		T	10S	General Distribution					M	J	J	A	S	O			May-Oct	-	-	Jun-Oct		
	Thick-billed murre			1,000S	General Distribution					M	J	J	A	S	O	N		Jul-Sep	-	-	Aug-Nov		
	White-winged scoter			10S	General Distribution					M	J	J	A	S	O			-	-	-	-		
30	Glaucous gull			Up To 83,836 Birds	Concentration Area					A	M	J	J	A	S	O	N	Jul-Aug	-	-	-	-	
	Sabine's gull			Up To 11,355 Birds	Concentration Area					M	J	J	A	S	O			Jul-Aug	-	-	-	-	
32	Ancient murrelet			100S	General Distribution					J	A	S	O					-	-	-	-		
	Black guillemot			100S	General Distribution					A	M	J	J	A	S	O	N		-	-	-	-	
	Crested auklet			1,000S	General Distribution					J	J	A	S	O				Aug-Oct	-	-	Jun-Oct		
	Horned puffin			100S	General Distribution					J	J	A	S	O				Jun-Jun	Sep-Oct	-	-		
	Ivory gull			10S	General Distribution					A	M	J	J	A	S	O	N		Apr-May	Sep-Nov	-	-	
	Kittlitz's murrelet			100S	General Distribution					J	J	A	S	O	N			-	-	-	-		
	Least auklet			1,000S	General Distribution					M	A	M	J	J	A	S	O	N	Mar-Nov	-	-	Jun-Oct	
	Long-tailed jaeger			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Loons			100S	General Distribution					A	M	J	J	A	S	O	N		-	-	-	-	
	Northern fulmar			1,000S	General Distribution					J	J	A	S	O	N			-	-	-	-		
	Parakeet auklet			100S	General Distribution					M	A	M	J	J	A	S	O	N	Mar-May	Aug-Nov	Jun-Nov	-	
	Ross's gull			100S	General Distribution					J	J	A	S	O	N			Jun-Jun	Sep-Nov	-	-		
	Short-tailed shearwater			1,000S	General Distribution					A	M	J	J	A	S	O			Apr-May	Sep-Oct	May-Sep	-	
	Tufted puffin			100S	General Distribution					F	M	A	M			S	O	N	D	Feb-May	Sep-Dec	-	-

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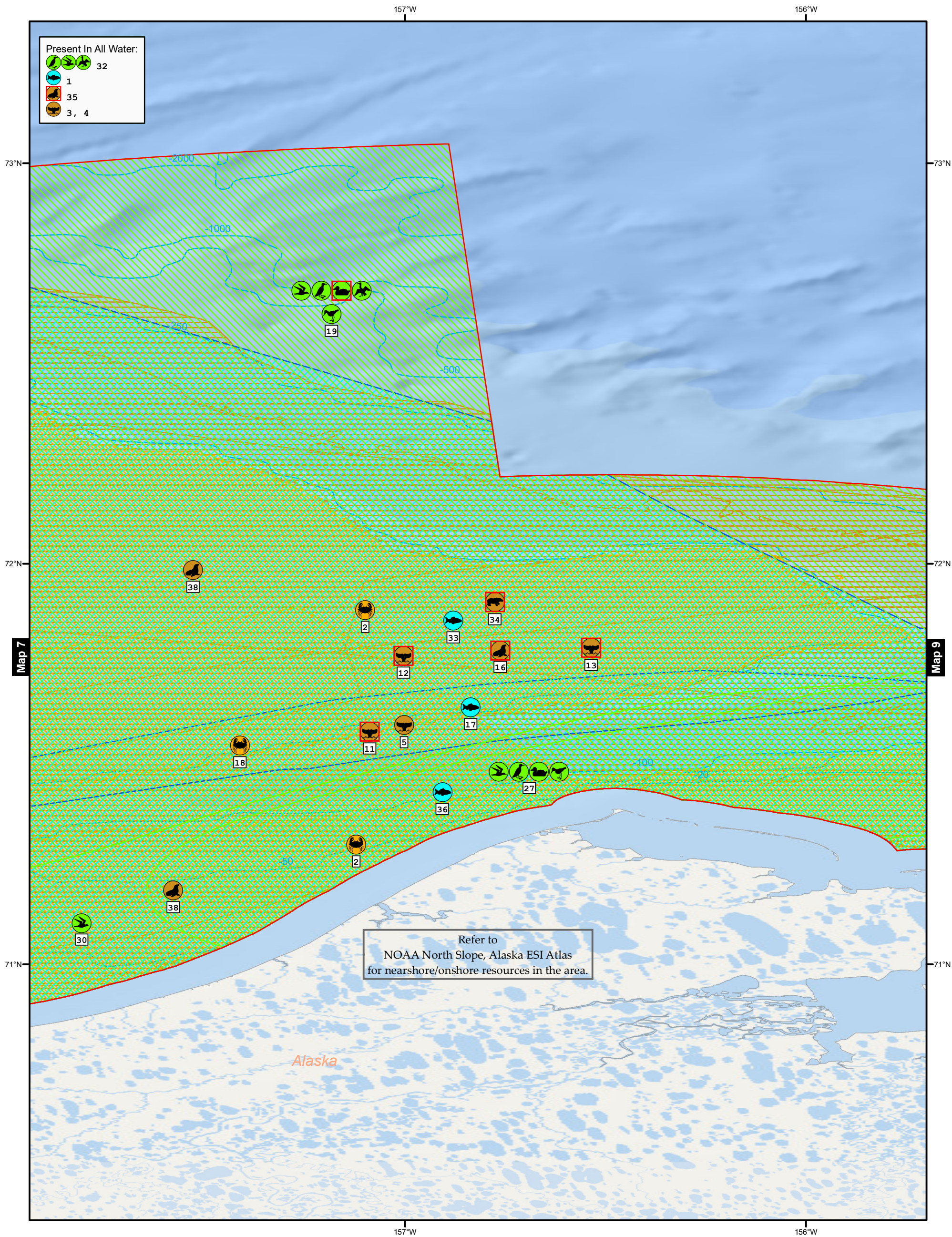
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
18	Crustaceans			High	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting	
3	Beluga whale			Feeding	Vulnerable Occurrence					J	A	S	O					-	-	-	-	
4	Beluga whale			Migratory Route	Migration					A	M					N		-	-	-	-	
5	Gray whale			Reproductive/Feeding	Concentration Area					J	A	S	O					-	-	-	-	
9	Minke whale			Feeding	Vulnerable Occurrence					J	A	S	O					-	-	-	-	
10	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence					M	J							-	-	-	-	
11	Bowhead whale		E	Migratory Route	Migration					A	M							-	-	-	-	
12	Bowhead whale		E	Migratory Route	Migration								A	S	O			-	-	-	-	
13	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence					J	A	S	O					-	-	-	-	
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul	-
26	Pacific walrus			High	Concentration Area					J	J	A	S					-	-	-	-	
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J			O	N	D	-	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul	-
38	Pacific walrus			-	General Distribution					J	J	A	S	O	N			-	-	-	-	



Biology Map 8

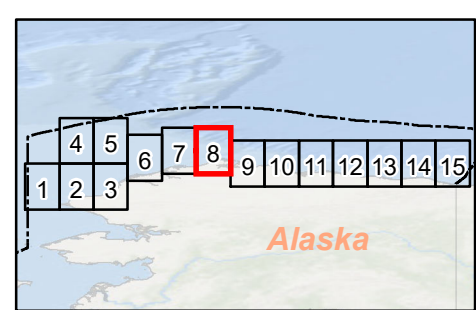
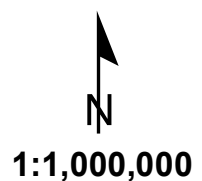
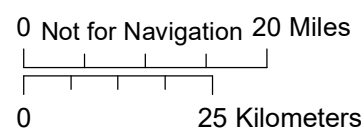
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas



Bureau of Safety and Environmental Enforcement

SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 8

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating			Molting
19	Arctic tern			100S	General Distribution				M	J	J	A	S	O			-	-	-	-		
	Black-legged kittiwake			10,000S	General Distribution				M	J	J	A	S	O	N	-	-	-	-			
	Common eider			10S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-Jun	Oct-Nov	Jun-Jul		
	Common murre			1,000S	General Distribution				J	J	A	S	O			-	-	-	Sep-Oct			
	Glaucous-winged gull			100S	General Distribution				M	J	J	A	S	O		-	-	-	-			
	Glaucous gull			1,000S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	-		
	King eider			100S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep		
	Long-tailed duck			100S	General Distribution				J	J	A	S				-	-	-	Jun-Sep			
	Pacific loon			100S	General Distribution				M	J	J	A	S	O		-	Jun-Sep	-	-			
	Parasitic jaeger			100S	General Distribution				M	J	J	A	S	O		-	-	-	-			
	Pomarine jaeger			100S	General Distribution				M	J	J	A	S	O		-	-	-	-			
	Red-necked phalarope			100S	General Distribution				M	J	J	A	S	O		-	-	-	-			
	Red phalarope			100S	General Distribution				M	J	J	A	S	O	N	-	May-Nov	-	Aug-Sep			
	Sabine's gull			100S	General Distribution				M	J	J	A	S	O		-	-	-	-			
	Spectacled eider		T	100S	General Distribution				M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	Jun-Sep			
	Steller's eider		T	10S	General Distribution				M	J	J	A	S	O		-	May-Oct	-	Jun-Oct			
	Thick-billed murre			1,000S	General Distribution				M	J	J	A	S	O	N	-	Jul-Sep	-	Aug-Nov			
	White-winged scoter			10S	General Distribution				M	J	J	A	S	O		-	-	-	-			
27	Arctic tern			Up To 42,123 Birds	Concentration Area				M	J	J	A	S	O		Jul-Aug	-	-	-			
	Black-legged kittiwake			Up To 124,877 Birds	Concentration Area				M	J	J	A	S	O	N	May-Aug	-	-	-			
	King eider			Up To 102,000 Birds	Concentration Area				A	M	J	J	A	S	O	N	Jun-Sep	Apr-Jul	Oct-Nov	Jun-Sep		
	Long-tailed duck			Up To 227,259 Birds	Concentration Area				A	M	J	J	A	S	O	N	May-Aug	Apr-May	Oct-Nov	Jun-Aug		
	Red phalarope			Up To 41,445 Birds	Concentration Area				M	J	J	A	S	O	N	Jun-Aug	May-Nov	-	Aug-Sep			
30	Glaucous gull			Up To 83,836 Birds	Concentration Area				A	M	J	J	A	S	O	N	Jul-Aug	-	-	-		
	Sabine's gull			Up To 11,355 Birds	Concentration Area				M	J	J	A	S	O		Jul-Aug	-	-	-			
32	Ancient murrelet			100S	General Distribution				J	A	S	O				-	-	-	-			
	Black guillemot			100S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	-		
	Crested auklet			1,000S	General Distribution				J	J	A	S	O			-	Aug-Oct	-	Jun-Oct			
	Horned puffin			100S	General Distribution				J	J	A	S	O			-	Jun-Jun	Sep-Oct	-			
	Ivory gull			10S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-May	Sep-Nov	-		
	Kittlitz's murrelet			100S	General Distribution				J	J	A	S	O	N	-	-	-	-				
	Least auklet			1,000S	General Distribution				M	A	M	J	J	A	S	O	N	-	Mar-Nov	-	Jun-Oct	
	Long-tailed jaeger			100S	General Distribution				M	J	J	A	S	O		-	-	-	-			
	Loons			100S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	-		
	Northern fulmar			1,000S	General Distribution				J	J	A	S	O	N	-	-	-	-				
	Parakeet auklet			100S	General Distribution				M	A	M	J	J	A	S	O	N	-	Mar-May	Aug-Nov	Jun-Nov	
	Ross's gull			100S	General Distribution				J	J	A	S	O	N	-	Jun-Jun	Sep-Nov	-				
	Short-tailed shearwater			1,000S	General Distribution				A	M	J	J	A	S	O		-	Apr-May	Sep-Oct	May-Sep		
	Tufted puffin			100S	General Distribution				F	M	A	M			S	O	N	D	-	Feb-May	Sep-Dec	-

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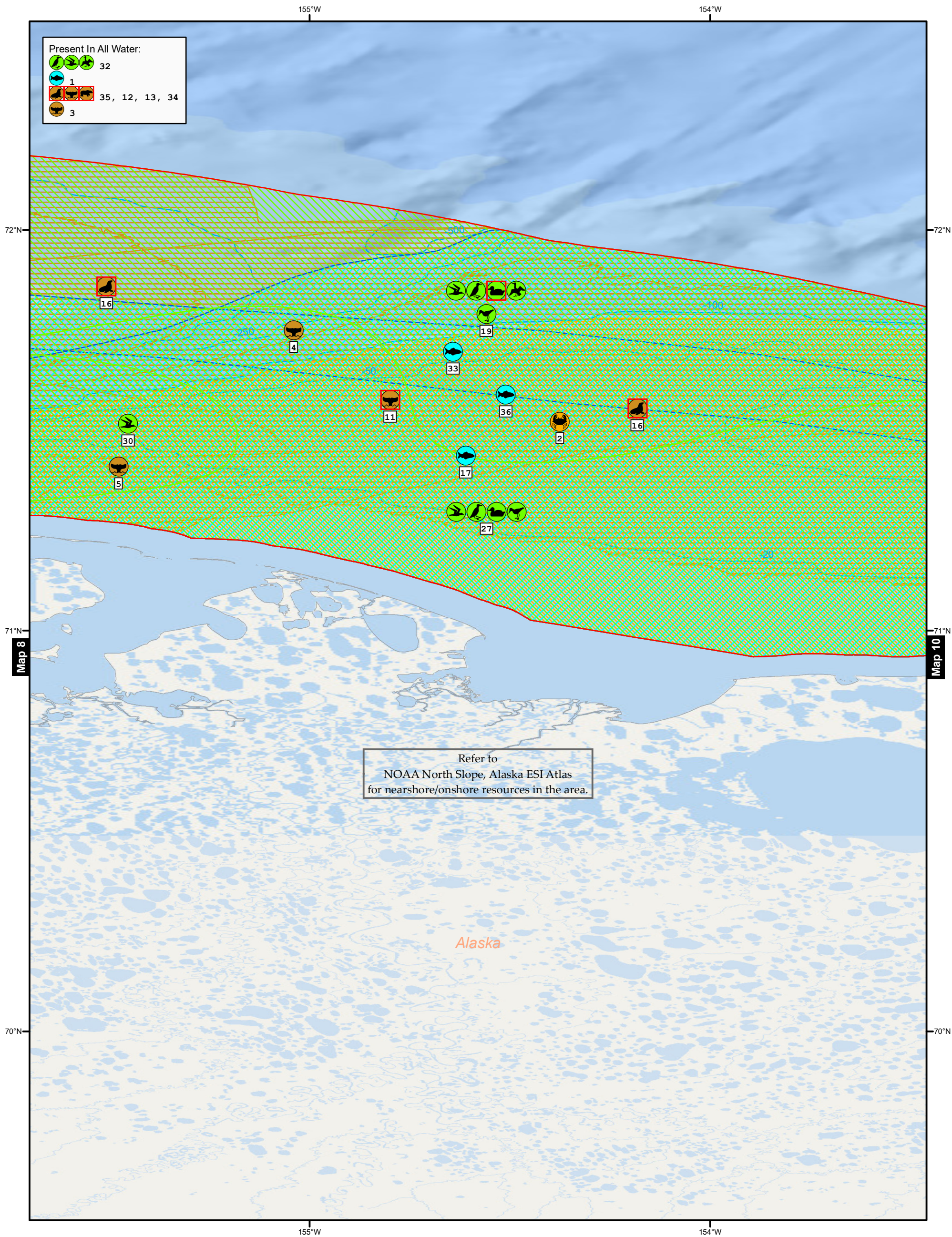
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
18	Crustaceans			High	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting	
3	Beluga whale			Feeding	Vulnerable Occurrence							J	A	S	O		-	-	-	-		
4	Beluga whale			Migratory Route	Migration				A	M					N		-	-	-	-		
5	Gray whale			Reproductive/Feeding	Concentration Area							J	A	S	O		-	-	-	-		
11	Bowhead whale		E	Migratory Route	Migration				A	M							-	-	-	-		
12	Bowhead whale		E	Migratory Route	Migration							A	S	O			-	-	-	-		
13	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence							J	A	S	O		-	-	-	-		
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul	
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul	
38	Pacific walrus			-	General Distribution							J	J	A	S	O	N	D	-	-	-	-



Refer to
NOAA North Slope, Alaska ESI Atlas
for nearshore/onshore resources in the area.

Alaska

Biology Map 9

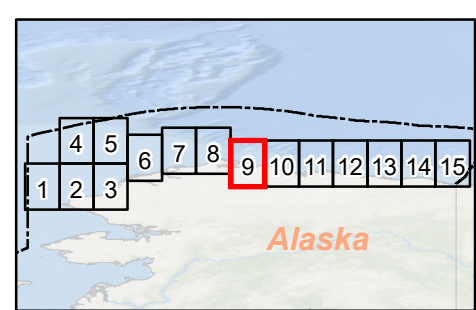
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

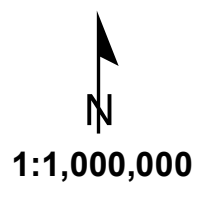
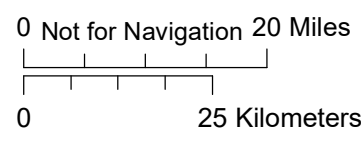


Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
for Status, Seasonality, and Breed
information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 9

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating			Molting	
19	Arctic tern			100S	General Distribution					M	J	J	A	S	O			-	-	-	-		
	Black-legged kittiwake			10,000S	General Distribution					M	J	J	A	S	O	N	-	-	-	-			
	Common eider			10S	General Distribution					A	M	J	J	A	S	O	N	-	Apr-Jun	Oct-Nov	Jun-Jul		
	Common murre			1,000S	General Distribution					J	J	A	S	O			-	-	-	Sep-Oct			
	Glaucous-winged gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-			
	Glaucous gull			1,000S	General Distribution					A	M	J	J	A	S	O	N	-	-	-	-		
	King eider			100S	General Distribution					A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep		
	Long-tailed duck			100S	General Distribution					J	J	A	S				-	-	-	Jun-Sep			
	Pacific loon			100S	General Distribution					M	J	J	A	S	O		-	Jun-Sep	-	-			
	Parasitic jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-			
	Pomarine jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-			
	Red-necked phalarope			100S	General Distribution					M	J	J	A	S	O		-	-	-	-			
	Red phalarope			100S	General Distribution					M	J	J	A	S	O	N	-	May-Nov	-	Aug-Sep			
	Sabine's gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-			
	Spectacled eider		T	100S	General Distribution					M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	Jun-Sep			
	Steller's eider		T	10S	General Distribution					M	J	J	A	S	O		-	May-Oct	-	Jun-Oct			
	Thick-billed murre			1,000S	General Distribution					M	J	J	A	S	O	N	-	Jul-Sep	-	Aug-Nov			
	White-winged scoter			10S	General Distribution					M	J	J	A	S	O		-	-	-	-			
27	Arctic tern			Up To 42,123 Birds	Concentration Area					M	J	J	A	S	O		Jul-Aug	-	-	-			
	Black-legged kittiwake			Up To 124,877 Birds	Concentration Area					M	J	J	A	S	O	N	May-Aug	-	-	-			
	King eider			Up To 102,000 Birds	Concentration Area					A	M	J	J	A	S	O	N	Jun-Sep	Apr-Jul	Oct-Nov	Jun-Sep		
	Long-tailed duck			Up To 227,259 Birds	Concentration Area					A	M	J	J	A	S	O	N	May-Aug	Apr-May	Oct-Nov	Jun-Aug		
	Red phalarope			Up To 41,445 Birds	Concentration Area					M	J	J	A	S	O	N	Jun-Aug	May-Nov	-	Aug-Sep			
30	Glaucous gull			Up To 83,836 Birds	Concentration Area					A	M	J	J	A	S	O	N	Jul-Aug	-	-	-		
	Sabine's gull			Up To 11,355 Birds	Concentration Area					M	J	J	A	S	O		Jul-Aug	-	-	-			
32	Ancient murrelet			100S	General Distribution					J	A	S	O				-	-	-	-			
	Black guillemot			100S	General Distribution					A	M	J	J	A	S	O	N	-	-	-	-		
	Crested auklet			1,000S	General Distribution					J	J	A	S	O			-	Aug-Oct	-	Jun-Oct			
	Horned puffin			100S	General Distribution					J	J	A	S	O			-	Jun-Jun	Sep-Oct	-			
	Ivory gull			10S	General Distribution					A	M	J	J	A	S	O	N	-	Apr-May	Sep-Nov	-		
	Kittlitz's murrelet			100S	General Distribution					J	J	A	S	O	N		-	-	-	-			
	Least auklet			1,000S	General Distribution					M	A	M	J	J	A	S	O	N	-	Mar-Nov	-	Jun-Oct	
	Long-tailed jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-			
	Loons			100S	General Distribution					A	M	J	J	A	S	O	N	-	-	-	-		
	Northern fulmar			1,000S	General Distribution					J	J	A	S	O	N		-	-	-	-			
	Parakeet auklet			100S	General Distribution					M	A	M	J	J	A	S	O	N	-	Mar-May	Aug-Nov	Jun-Nov	
	Ross's gull			100S	General Distribution					J	J	A	S	O	N		-	Jun-Jun	Sep-Nov	-			
	Short-tailed shearwater			1,000S	General Distribution					A	M	J	J	A	S	O		-	Apr-May	Sep-Oct	May-Sep		
	Tufted puffin			100S	General Distribution					F	M	A	M			S	O	N	D	-	Feb-May	Sep-Dec	-

FISH:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

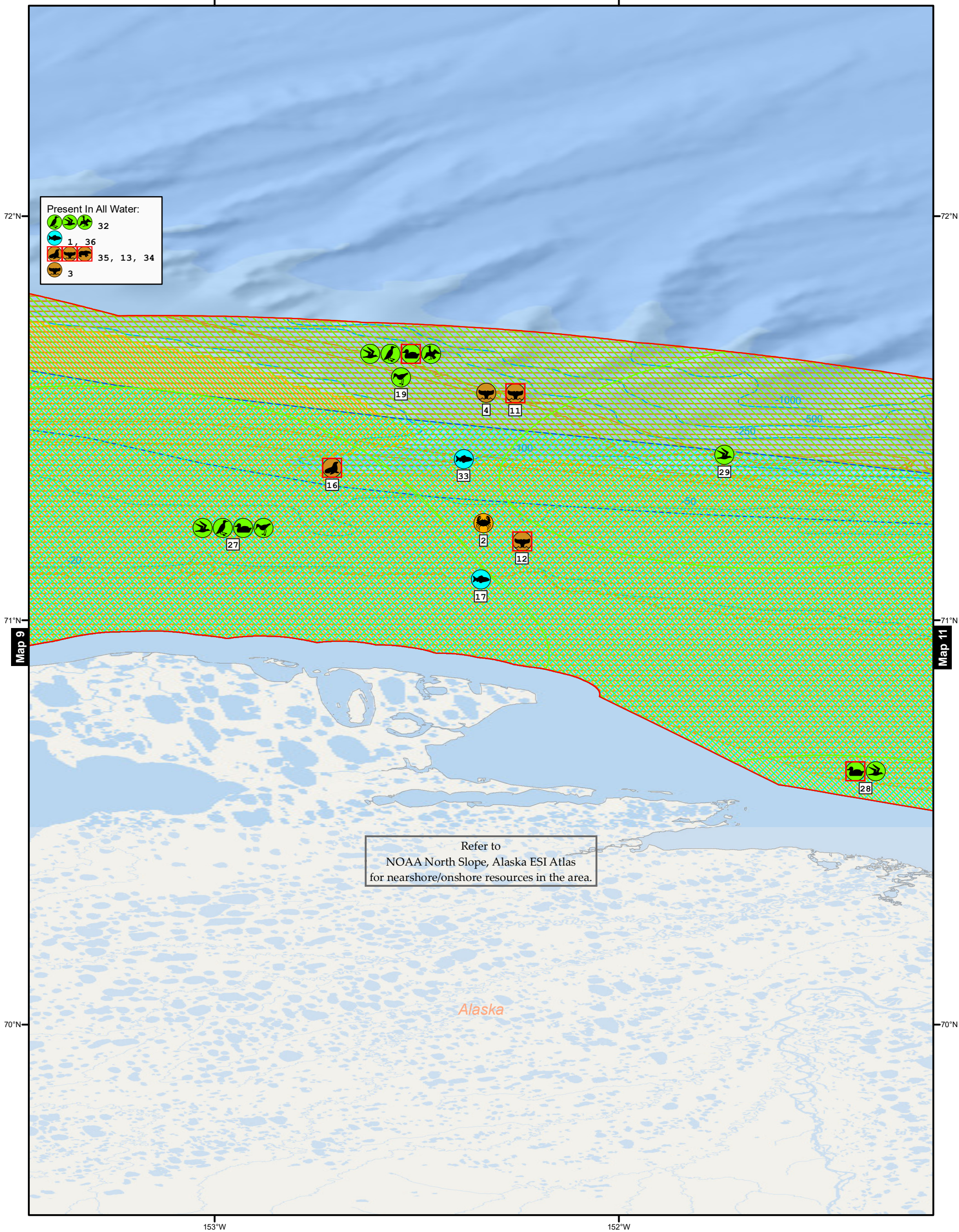
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting
3	Beluga whale			Feeding	Vulnerable Occurrence								J	A	S	O		-	-	-	-
4	Beluga whale			Migratory Route	Migration					A	M					N		-	-	-	-
5	Gray whale			Reproductive/Feeding	Concentration Area								J	A	S	O		-	-	-	-
11	Bowhead whale		E	Migratory Route	Migration					A	M							-	-	-	-
12	Bowhead whale		E	Migratory Route	Migration								A	S	O			-	-	-	-
13	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence								J	A	S	O		-	-	-	-
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J			O	N	D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul

153°W

152°W

Present In All Water:

- 32
- 1, 36
- 35, 13, 34
- 3



Refer to
NOAA North Slope, Alaska ESI Atlas
for nearshore/onshore resources in the area.

Biology Map 10

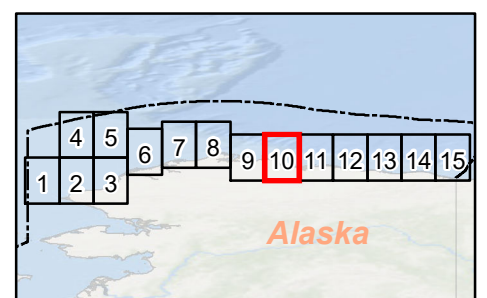
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas



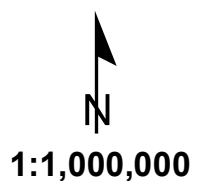
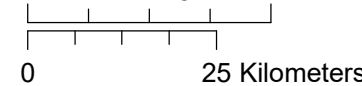
Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
for Status, Seasonality, and Breed
information about mapped species.
Published: December 2023

0 Not for Navigation 20 Miles



Arctic Alaska Offshore ESI: Biology Map 10

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating	Molting						
19	Arctic tern			100S	General Distribution					M	J	J	A	S	O		-	-	-							
	Black-legged kittiwake			10,000S	General Distribution					M	J	J	A	S	O	N		-	-	-						
	Common eider			10S	General Distribution					A	M	J	J	A	S	O	N		-	Apr-Jun	Oct-Nov	Jun-Jul				
	Common murre			1,000S	General Distribution					J	J	A	S	O		-	-	-	Sep-Oct							
	Glaucous-winged gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-						
	Glaucous gull			1,000S	General Distribution					A	M	J	J	A	S	O	N		-	-	-	-				
	King eider			100S	General Distribution					A	M	J	J	A	S	O	N		-	Apr-Jul	Oct-Nov	Jun-Sep				
	Long-tailed duck			100S	General Distribution					J	J	A	S		-	-	-	Jun-Sep								
	Pacific loon			100S	General Distribution					M	J	J	A	S	O		-	Jun-Sep	-	-						
	Parasitic jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-						
	Pomarine jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-						
	Red-necked phalarope			100S	General Distribution					M	J	J	A	S	O		-	-	-	-						
	Red phalarope			100S	General Distribution					M	J	J	A	S	O	N		-	May-Nov	-	Aug-Sep					
	Sabine's gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-						
	Spectacled eider		T	100S	General Distribution					M	J	J	A	S	O	N		-	May-Jun	Oct-Nov	Jun-Sep					
	Steller's eider		T	10S	General Distribution					M	J	J	A	S	O		-	May-Oct	-	Jun-Oct						
	Thick-billed murre			1,000S	General Distribution					M	J	J	A	S	O	N		-	Jul-Sep	-	Aug-Nov					
	White-winged scoter			10S	General Distribution					M	J	J	A	S	O		-	-	-	-						
27	Arctic tern			Up To 42,123 Birds	Concentration Area					M	J	J	A	S	O		Jul-Aug	-	-	-						
	Black-legged kittiwake			Up To 124,877 Birds	Concentration Area					M	J	J	A	S	O	N		May-Aug	-	-	-					
	King eider			Up To 102,000 Birds	Concentration Area					A	M	J	J	A	S	O	N		Jun-Sep	Apr-Jul	Oct-Nov	Jun-Sep				
	Long-tailed duck			Up To 227,259 Birds	Concentration Area					A	M	J	J	A	S	O	N		May-Aug	Apr-May	Oct-Nov	Jun-Aug				
	Red phalarope			Up To 41,445 Birds	Concentration Area					M	J	J	A	S	O	N		Jun-Aug	May-Nov	-	Aug-Sep					
28	Black scoter			Up To 100 Birds	Concentration Area					J	J	A	S	O		-	-	-	Jul-Sep							
	Common eider			Up To 4,500 Birds	Concentration Area					A	M	J	J	A	S	O	N		Jun-Oct	Apr-Jun	Oct-Nov	Jun-Jul				
	Glaucous gull			Up To 29,696 Birds	Concentration Area					A	M	J	J	A	S	O	N		Jul-Aug	-	-	-				
	King eider			Up To 2,500 Birds	Concentration Area					A	M	J	J	A	S	O	N		-	Apr-Jul	Oct-Nov	Jun-Sep				
	Long-tailed duck			Up To 70,000 Birds	Concentration Area					A	M	J	J	A	S	O	N		May-Aug	Apr-May	Oct-Nov	Jun-Aug				
	Spectacled eider		T	100S	Concentration Area					M	J	J	A	S	O	N		May-Aug	May-Jun	Oct-Nov	Jun-Sep					
	Steller's eider		T	10S	Concentration Area					J	J	A	S	O		Jun-Aug	Jun-Oct	-	Jun-Oct							
	Surf scoter			Up To 4,000 Birds	Concentration Area					M	J	J	A	S	O	N		-	-	-	Jul-Aug					
	White-winged scoter			100S	Concentration Area					M	J	J	A	S	O		-	-	-	-						
29	Glaucous gull			Up To 21,671 Birds	Concentration Area					A	M	J	J	A	S	O	N		Jul-Aug	-	-	-				
32	Ancient murrelet			100S	General Distribution					J	J	A	S	O		-	-	-	-							
	Black guillemot			100S	General Distribution					A	M	J	J	A	S	O	N		-	-	-	-				
	Crested auklet			1,000S	General Distribution					J	J	A	S	O		-	Aug-Oct	-	Jun-Oct							
	Horned puffin			100S	General Distribution					J	J	A	S	O		-	Jun-Jun	Sep-Oct	-							
	Ivory gull			10S	General Distribution					A	M	J	J	A	S	O	N		-	Apr-May	Sep-Nov	-				
	Kittlitz's murrelet			100S	General Distribution					J	J	A	S	O	N		-	-	-	-						
	Least auklet			1,000S	General Distribution					M	A	M	J	J	A	S	O	N		-	Mar-Nov	-	Jun-Oct			
	Long-tailed jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-						
	Loons			100S	General Distribution					A	M	J	J	A	S	O	N		-	-	-	-				
	Northern fulmar			1,000S	General Distribution					J	J	A	S	O	N		-	-	-	-						
	Parakeet auklet			100S	General Distribution					M	A	M	J	J	A	S	O	N		-	Mar-May	Aug-Nov	Jun-Nov			
	Ross's gull			100S	General Distribution					J				S	O	N		-	Jun-Jun	Sep-Nov	-					
	Short-tailed shearwater			1,000S	General Distribution					A	M	J	J	A	S	O		-	Apr-May	Sep-Oct	May-Sep					
	Tufted puffin			100S	General Distribution					F	M	A	M					S	O	N	D		-	Feb-May	Sep-Dec	-

FISH:

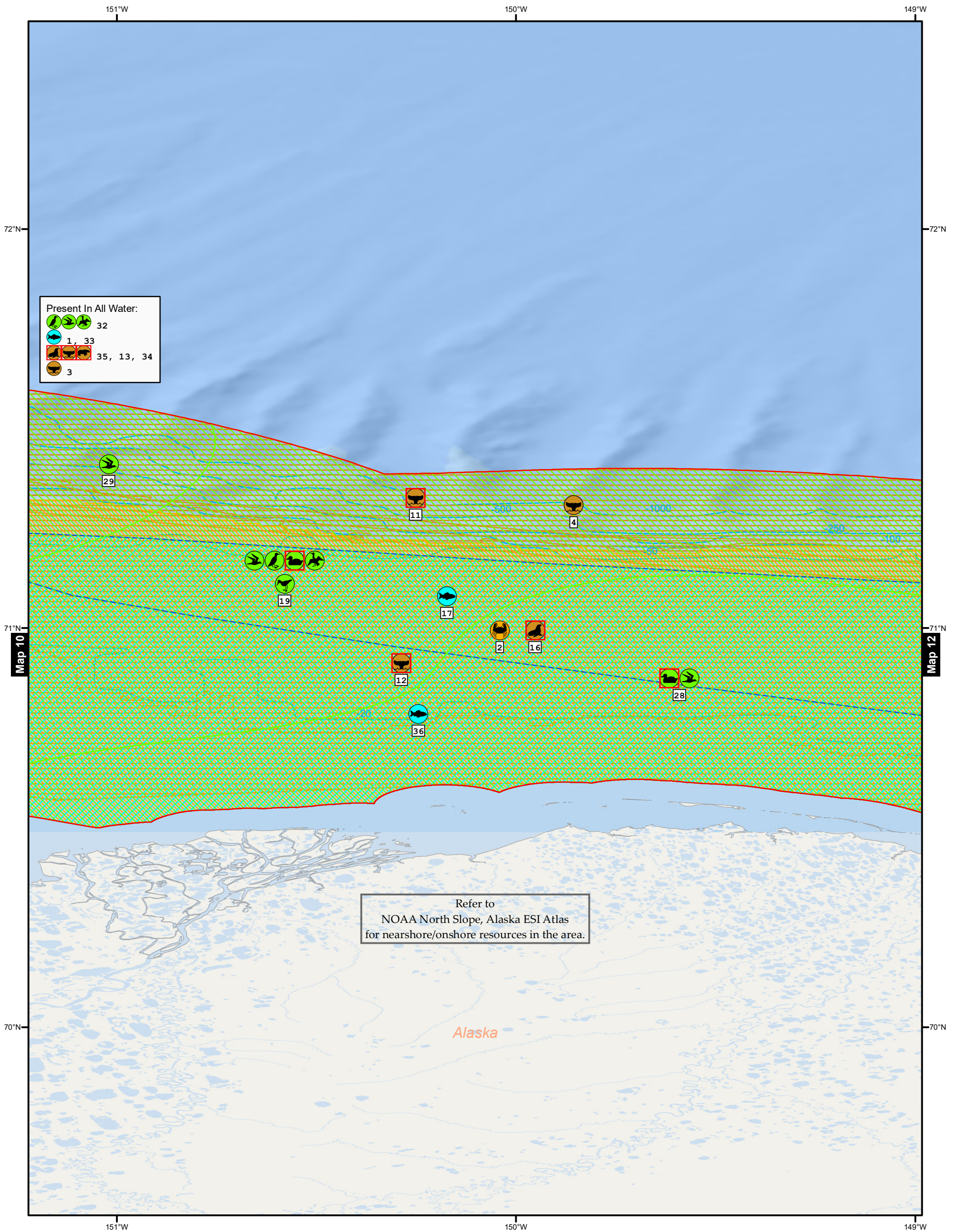
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting
3	Beluga whale			Feeding	Vulnerable Occurrence					J	A	S	O		-	-	-	-			
4	Beluga whale			Migratory Route	Migration					A	M										
11	Bowhead whale		E	Migratory Route	Migration					A	M										
12	Bowhead whale		E	Migratory Route	Migration					A	S	O									
13	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence					J	A	S	O								
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul



Biology Map 11

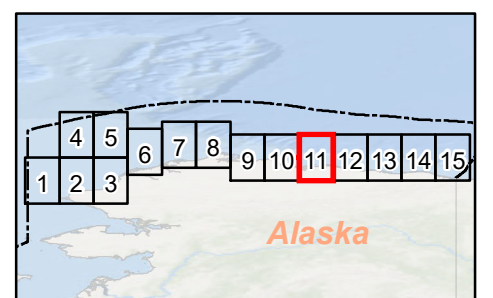
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

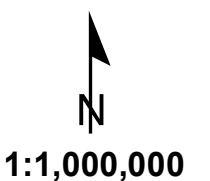
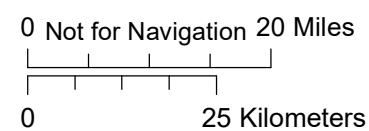


Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI

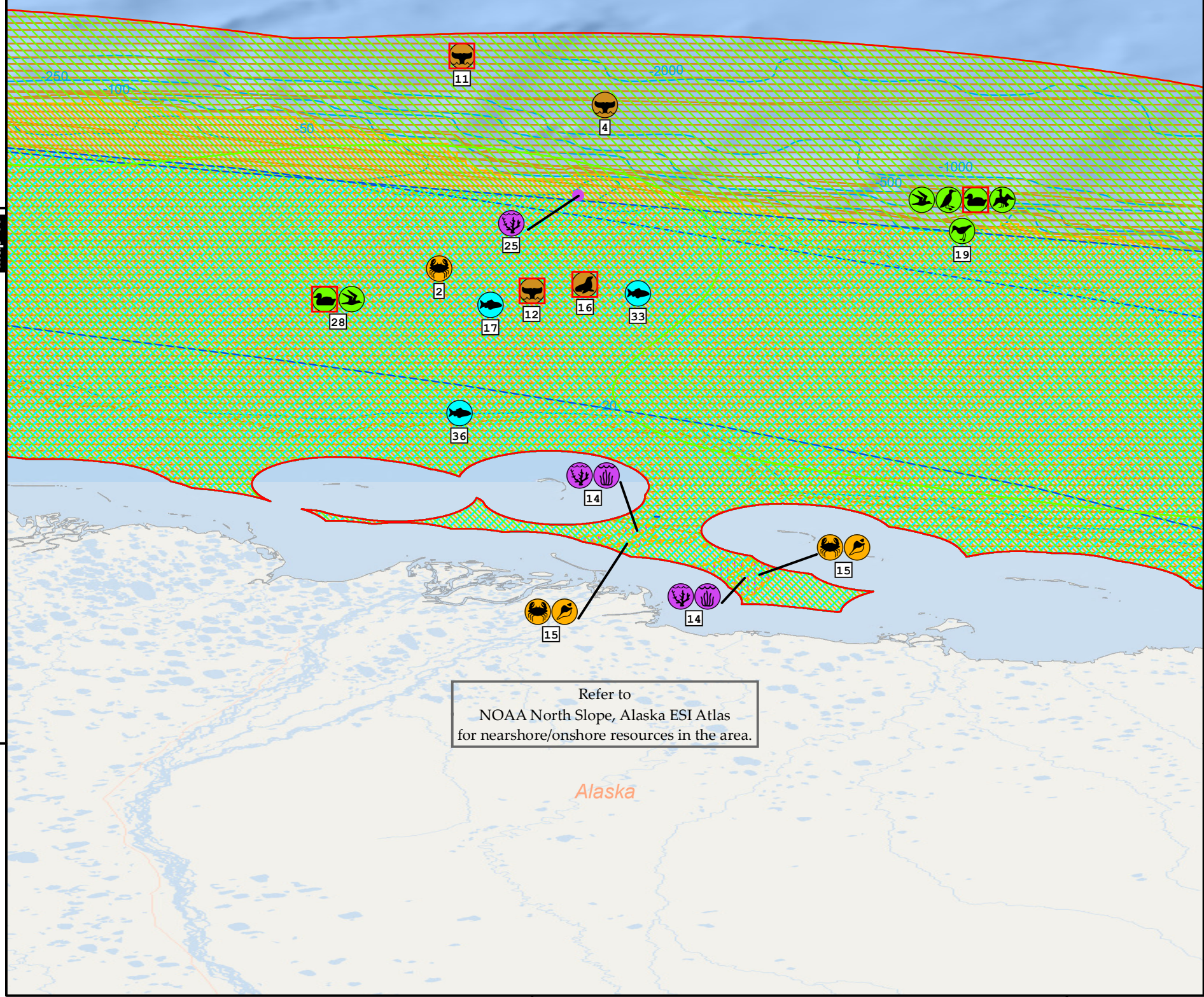


SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023



Present In All Water:

- 32
- 1
- 35, 13, 34
- 3



Biology Map 12

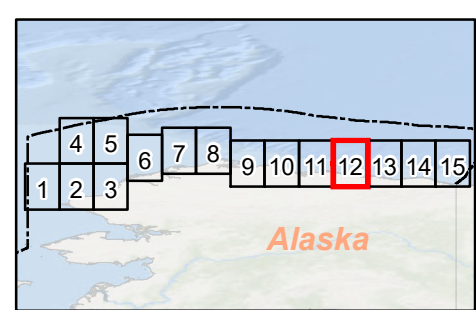
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

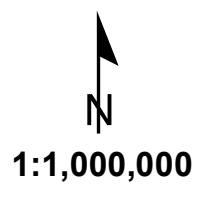
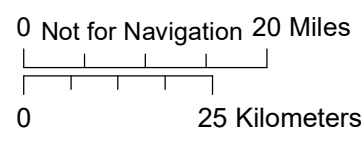


Bureau of Safety and Environmental Enforcement

	Benthic		Benthic Points
	Birds		Bathymetry (Meters)
	Fish		US Exclusive Economic Zone
	Invertebrates		AOI
	Marine Mammals		



SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 12

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)											
14	Corals			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D
	Kelp			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D
	Red algae			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D
	Sponges			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D
25	Deep sea sponge			Structure-Forming	Vulnerable Occurrence	J	F	M	A	M	J	J	A	S	O	N	D

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating	Molting
19	Arctic tern			100S	General Distribution					M	J	J	A	S	O		-	-	-	
	Black-legged kittiwake			10,000S	General Distribution					M	J	J	A	S	O	N	-	-	-	
	Common eider			10S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-Jun	Oct-Nov	
	Common murre			1,000S	General Distribution					J	J	A	S	O			-	-	Sep-Oct	
	Glaucous-winged gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	
	Glaucous gull			1,000S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	
	King eider			100S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	
	Long-tailed duck			100S	General Distribution					J	J	A	S				-	-	Jun-Sep	
	Pacific loon			100S	General Distribution					M	J	J	A	S	O		-	Jun-Sep	-	
	Parasitic jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	
	Pomarine jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	
	Red-necked phalarope			100S	General Distribution					M	J	J	A	S	O		-	-	-	
	Red phalarope			100S	General Distribution					M	J	J	A	S	O	N	-	May-Nov	-	
	Sabine's gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	
	Spectacled eider		T	100S	General Distribution					M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	
	Steller's eider		T	10S	General Distribution					M	J	J	A	S	O		-	May-Oct	-	
	Thick-billed murre			1,000S	General Distribution					M	J	J	A	S	O	N	-	Jul-Sep	-	
	White-winged scoter			10S	General Distribution					M	J	J	A	S	O		-	-	-	
28	Black scoter			Up To 100 Birds	Concentration Area					J	J	A	S	O			-	-	Jul-Sep	
	Common eider			Up To 4,500 Birds	Concentration Area				A	M	J	J	A	S	O	N	Jun-Oct	Apr-Jun	Oct-Nov	
	Glaucous gull			Up To 29,696 Birds	Concentration Area				A	M	J	J	A	S	O	N	Jul-Aug	-	-	
	King eider			Up To 2,500 Birds	Concentration Area				A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	
	Long-tailed duck			Up To 70,000 Birds	Concentration Area				A	M	J	J	A	S	O	N	May-Aug	Apr-May	Oct-Nov	
	Spectacled eider		T	100S	Concentration Area					M	J	J	A	S	O	N	May-Aug	May-Jun	Oct-Nov	
	Steller's eider		T	10S	Concentration Area					J	J	A	S	O			Jun-Aug	Jun-Oct	-	
	Surf scoter			Up To 4,000 Birds	Concentration Area					M	J	J	A	S	O	N	-	-	-	
	White-winged scoter			100S	Concentration Area					M	J	J	A	S	O		-	-	-	
32	Ancient murrelet			100S	General Distribution							J	A	S	O		-	-	-	
	Black guillemot			100S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	
	Crested auklet			1,000S	General Distribution						J	J	A	S	O		-	Aug-Oct	Jun-Oct	
	Horned puffin			100S	General Distribution						J	J	A	S	O		-	Jun-Jun	Sep-Oct	
	Ivory gull			10S	General Distribution				A	M	J	J	A	S	O	N	-	Apr-May	Sep-Nov	
	Kittlitz's murrelet			100S	General Distribution						J	J	A	S	O	N	-	-	-	
	Least auklet			1,000S	General Distribution				M	A	M	J	J	A	S	O	N	-	Mar-Nov	-
	Long-tailed jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	
	Loons			100S	General Distribution				A	M	J	J	A	S	O	N	-	-	-	
	Northern fulmar			1,000S	General Distribution						J	J	A	S	O	N	-	-	-	
	Parakeet auklet			100S	General Distribution				M	A	M	J	J	A	S	O	N	-	Mar-May	Aug-Nov
	Ross's gull			100S	General Distribution						J			S	O	N	-	Jun-Jun	Sep-Nov	
	Short-tailed shearwater			1,000S	General Distribution				A	M	J	J	A	S	O		-	Apr-May	Sep-Oct	
	Tufted puffin			100S	General Distribution	F	M	A	M					S	O	N	D	-	Feb-May	Sep-Dec

FISH:

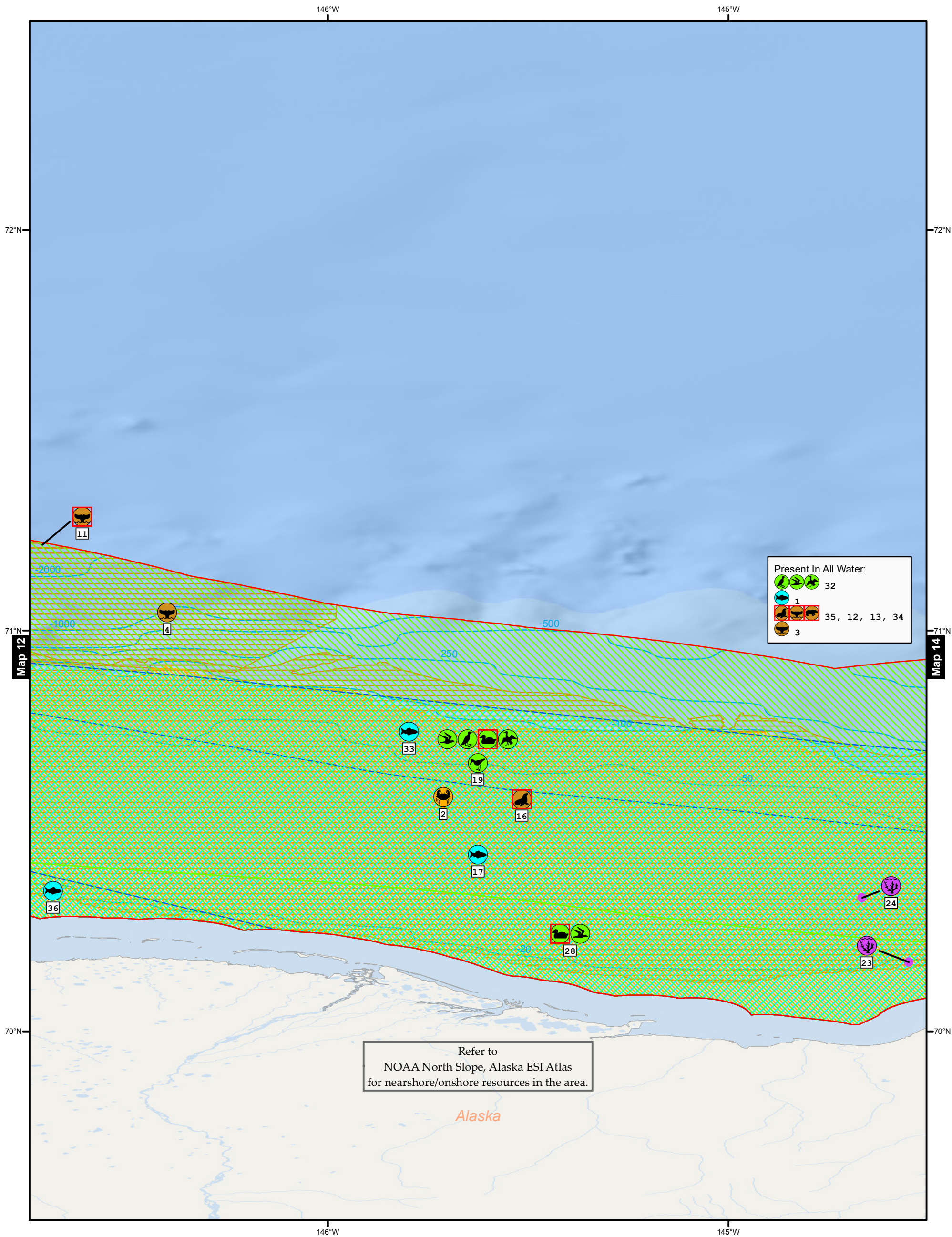
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
15	Anemones			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Bryozoans			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Molluscs			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Sea squirts			-	Concentration Area	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting
3	Beluga whale			Feeding	Vulnerable Occurrence							J	A	S	O		-	-	-		
4	Beluga whale			Migratory Route	Migration				A	M						N	-	-	-		
11	Bowhead whale		E	Migratory Route	Migration				A	M							-	-	-		
12	Bowhead whale		E	Migratory Route	Migration								A	S	O		-	-	-		
13	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence								J	A	S	O	-	-	-		
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul



Biology Map 13

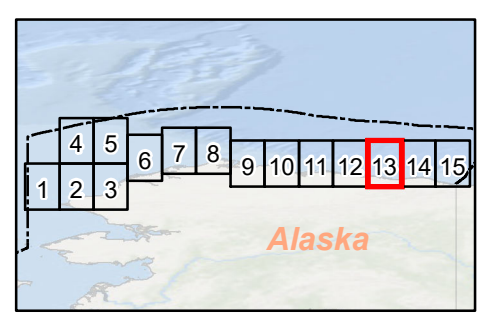
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

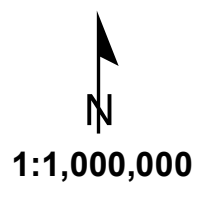
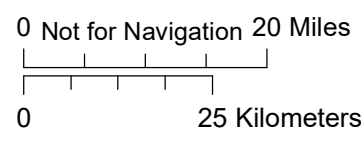


Bureau of Safety and Environmental Enforcement

- Benthic
- Birds
- Fish
- Invertebrates
- Marine Mammals
- Benthic Points
- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
 for Status, Seasonality, and Breed information about mapped species.
 Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 13

BIOLOGICAL RESOURCES:

BENTHIC:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)
23	Soft coral		Solitary	Vulnerable Occurrence	J F M A M J J A S O N D
24	Sea pens		Structure-Forming	Vulnerable Occurrence	J F M A M J J A S O N D

BIRD:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Nesting	Migrating	Molting
19	Arctic tern		100S	General Distribution	M J J A S O	-	-	-
	Black-legged kittiwake		10,000S	General Distribution	M J J A S O N	-	-	-
	Common eider		10S	General Distribution	A M J J A S O N	-	Apr-Jun	Oct-Nov
	Common murre		1,000S	General Distribution	J J A S O	-	-	Sep-Oct
	Glaucous-winged gull		100S	General Distribution	M J J A S O	-	-	-
	Glaucous gull		1,000S	General Distribution	A M J J A S O N	-	-	-
	King eider		100S	General Distribution	A M J J A S O N	-	Apr-Jul	Oct-Nov
	Long-tailed duck		100S	General Distribution	J J A S	-	-	Jun-Sep
	Pacific loon		100S	General Distribution	M J J A S O	-	Jun-Sep	-
	Parasitic jaeger		100S	General Distribution	M J J A S O	-	-	-
	Pomarine jaeger		100S	General Distribution	M J J A S O	-	-	-
	Red-necked phalarope		100S	General Distribution	M J J A S O	-	-	-
	Red phalarope		100S	General Distribution	M J J A S O N	-	May-Nov	Aug-Sep
	Sabine's gull		100S	General Distribution	M J J A S O	-	-	-
	Spectacled eider	T	100S	General Distribution	M J J A S O N	-	May-Jun	Oct-Nov
	Steller's eider	T	10S	General Distribution	M J J A S O	-	May-Oct	Jun-Oct
	Thick-billed murre		1,000S	General Distribution	M J J A S O N	-	Jul-Sep	Aug-Nov
	White-winged scoter		10S	General Distribution	M J J A S O	-	-	-
28	Black scoter		Up To 100 Birds	Concentration Area	J J A S O	-	-	Jul-Sep
	Common eider		Up To 4,500 Birds	Concentration Area	A M J J A S O N	Jun-Oct	Apr-Jun	Oct-Nov
	Glaucous gull		Up To 29,696 Birds	Concentration Area	A M J J A S O N	Jul-Aug	-	-
	King eider		Up To 2,500 Birds	Concentration Area	A M J J A S O N	-	Apr-Jul	Oct-Nov
	Long-tailed duck		Up To 70,000 Birds	Concentration Area	A M J J A S O N	May-Aug	Apr-May	Oct-Nov
	Spectacled eider	T	100S	Concentration Area	M J J A S O N	May-Aug	May-Jun	Oct-Nov
	Steller's eider	T	10S	Concentration Area	J J A S O	Jun-Aug	Jun-Oct	Jun-Oct
	Surf scoter		Up To 4,000 Birds	Concentration Area	M J J A S O N	-	-	Jul-Aug
	White-winged scoter		100S	Concentration Area	M J J A S O	-	-	-
32	Ancient murrelet		100S	General Distribution	J J A S O	-	-	-
	Black guillemot		100S	General Distribution	A M J J A S O N	-	-	-
	Crested auklet		1,000S	General Distribution	J J A S O	-	Aug-Oct	Jun-Oct
	Horned puffin		100S	General Distribution	J J A S O	-	Jun-Jun	Sep-Oct
	Ivory gull		10S	General Distribution	A M J J A S O N	-	Apr-May	Sep-Nov
	Kittlitz's murrelet		100S	General Distribution	J J A S O N	-	-	-
	Least auklet		1,000S	General Distribution	M A M J J A S O N	-	Mar-Nov	Jun-Oct
	Long-tailed jaeger		100S	General Distribution	M J J A S O	-	-	-
	Loons		100S	General Distribution	A M J J A S O N	-	-	-
	Northern fulmar		1,000S	General Distribution	J J A S O N	-	-	-
	Parakeet auklet		100S	General Distribution	M A M J J A S O N	-	Mar-May	Aug-Nov
	Ross's gull		100S	General Distribution	J J A S O N	-	Jun-Jun	Sep-Nov
	Short-tailed shearwater		1,000S	General Distribution	A M J J A S O	-	Apr-May	Sep-Oct
	Tufted puffin		100S	General Distribution	F M A M J J A S O N D	-	Feb-May	Sep-Dec

FISH:

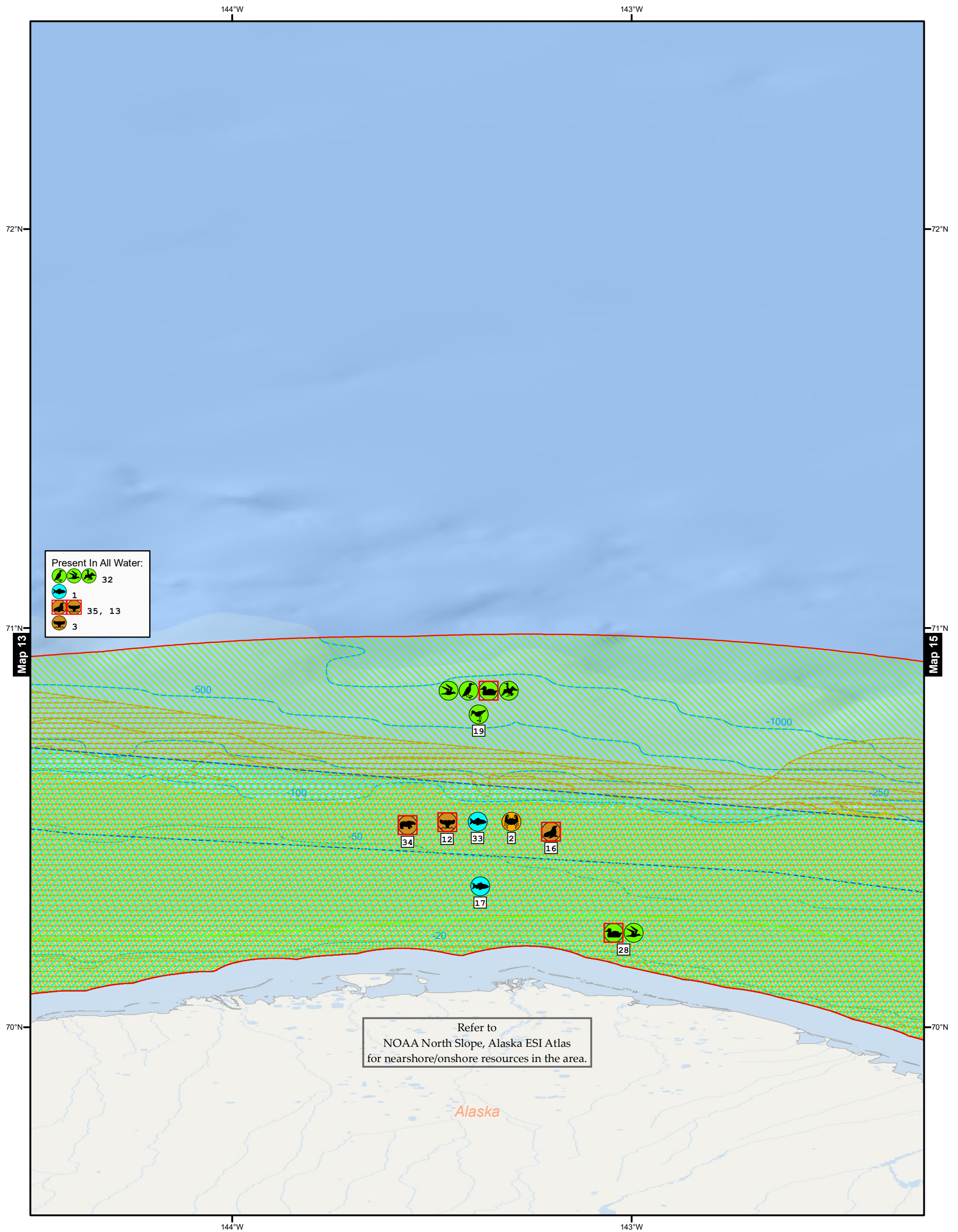
RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
1	Arctic cod		-	General Distribution	J F M A M J J A S O N D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec
	Bering flounder		-	General Distribution	J F M A M J J A S O N D	-	-	Aug-Aug	Aug-Aug	Jan-Dec
	Greenland halibut (turbot)		-	General Distribution	J F M A M J J A S O N D	-	-	-	-	Jan-Dec
	Pacific cod		-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-
	Pacific sand lance		-	General Distribution	J F M A M J J A S O N D	-	-	-	Aug-Sep	Jan-Dec
	Walleye pollock		-	General Distribution	J F M A M J J A S O N D	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin		-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole		-	General Distribution	J F M A M J J A S O N D	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
36	Chum salmon		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Pink salmon		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jul-Dec	Jan-Dec
	Saffron cod		-	General Distribution	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Spawning	Eggs	Larvae	Juveniles	Adults
2	Snow crab		-	General Distribution	J F M A M J J A S O N D	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)	Mating	Calving	Pupping	Molting
3	Beluga whale		Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
4	Beluga whale		Migratory Route	Migration	A M	-	-	-	-
11	Bowhead whale	E	Migratory Route	Migration	A M	-	-	-	-
12	Bowhead whale	E	Migratory Route	Migration	A S O	-	-	-	-
13	Bowhead whale	E	Reproductive/Feeding	Vulnerable Occurrence	J A S O	-	-	-	-
16	Bearded seal	T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear	T	-	General Distribution	J F M A M J J A S O N D	-	-	-	-
35	Ringed seal	T	-	General Distribution	J F M A M J J A S O N D	Apr-May	-	Mar-Jun	May-Jul



Biology Map 14

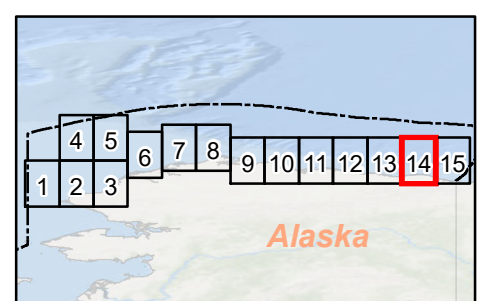
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

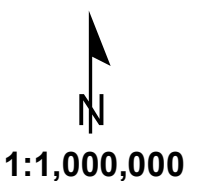
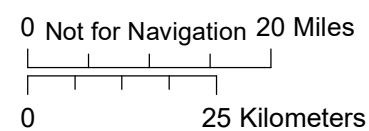


Bureau of Safety and Environmental Enforcement

- Benthic
- Benthic Points
- Birds
- Bathymetry (Meters)
- Fish
- US Exclusive Economic Zone
- Invertebrates
- AOI
- Marine Mammals



SEE MAP DATA TABLE
 for Status, Seasonality, and Breed
 information about mapped species.
 Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 14

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating	Molting		
19	Arctic tern			100S	General Distribution					M	J	J	A	S	O			-	-	-	-	
	Black-legged kittiwake			10,000S	General Distribution					M	J	J	A	S	O	N	-	-	-	-		
	Common eider			10S	General Distribution					A	M	J	J	A	S	O	N	-	Apr-Jun	Oct-Nov	Jun-Jul	
	Common murre			1,000S	General Distribution					J	J	A	S	O			-	-	-	Sep-Oct		
	Glaucous-winged gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Glaucous gull			1,000S	General Distribution					A	M	J	J	A	S	O	N	-	-	-	-	
	King eider			100S	General Distribution					A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep	
	Long-tailed duck			100S	General Distribution					J	J	A	S				-	-	-	Jun-Sep		
	Pacific loon			100S	General Distribution					M	J	J	A	S	O		-	Jun-Sep	-	-		
	Parasitic jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Pomarine jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Red-necked phalarope			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Red phalarope			100S	General Distribution					M	J	J	A	S	O	N	-	May-Nov	-	Aug-Sep		
	Sabine's gull			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Spectacled eider		T	100S	General Distribution					M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	Jun-Sep		
	Steller's eider		T	10S	General Distribution					M	J	J	A	S	O		-	May-Oct	-	Jun-Oct		
	Thick-billed murre			1,000S	General Distribution					M	J	J	A	S	O	N	-	Jul-Sep	-	Aug-Nov		
	White-winged scoter			10S	General Distribution					M	J	J	A	S	O		-	-	-	-		
28	Black scoter			Up To 100 Birds	Concentration Area					J	J	A	S	O			-	-	-	Jul-Sep		
	Common eider			Up To 4,500 Birds	Concentration Area					A	M	J	J	A	S	O	N	Jun-Oct	Apr-Jun	Oct-Nov	Jun-Jul	
	Glaucous gull			Up To 29,696 Birds	Concentration Area					A	M	J	J	A	S	O	N	Jul-Aug	-	-	-	
	King eider			Up To 2,500 Birds	Concentration Area					A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep	
	Long-tailed duck			Up To 70,000 Birds	Concentration Area					A	M	J	J	A	S	O	N	May-Aug	Apr-May	Oct-Nov	Jun-Aug	
	Spectacled eider		T	100S	Concentration Area					M	J	J	A	S	O	N	May-Aug	May-Jun	Oct-Nov	Jun-Sep		
	Steller's eider		T	10S	Concentration Area					J	J	A	S	O			Jun-Aug	Jun-Oct	-	Jun-Oct		
	Surf scoter			Up To 4,000 Birds	Concentration Area					M	J	J	A	S	O	N	-	-	-	Jul-Aug		
	White-winged scoter			100S	Concentration Area					M	J	J	A	S	O		-	-	-	-		
32	Ancient murrelet			100S	General Distribution					J	J	A	S	O			-	-	-	-		
	Black guillemot			100S	General Distribution					A	M	J	J	A	S	O	N	-	-	-	-	
	Crested auklet			1,000S	General Distribution					J	J	A	S	O			-	Aug-Oct	-	Jun-Oct		
	Horned puffin			100S	General Distribution					J	J	A	S	O			-	Jun-Jun	Sep-Oct	-		
	Ivory gull			10S	General Distribution					A	M	J	J	A	S	O	N	-	Apr-May	Sep-Nov	-	
	Kittlitz's murrelet			100S	General Distribution					J	J	A	S	O	N		-	-	-	-		
	Least auklet			1,000S	General Distribution					M	A	M	J	J	A	S	O	N	-	Mar-Nov	-	Jun-Oct
	Long-tailed jaeger			100S	General Distribution					M	J	J	A	S	O		-	-	-	-		
	Loons			100S	General Distribution					A	M	J	J	A	S	O	N	-	-	-	-	
	Northern fulmar			1,000S	General Distribution					J	J	A	S	O	N		-	-	-	-		
	Parakeet auklet			100S	General Distribution					M	A	M	J	J	A	S	O	N	-	Mar-May	Aug-Nov	Jun-Nov
	Ross's gull			100S	General Distribution					J				S	O	N	-	Jun-Jun	Sep-Nov	-		
	Short-tailed shearwater			1,000S	General Distribution					A	M	J	J	A	S	O	-	Apr-May	Sep-Oct	May-Sep		
	Tufted puffin			100S	General Distribution					F	M	A	M		S	O	N	D	-	Feb-May	Sep-Dec	-

FISH:

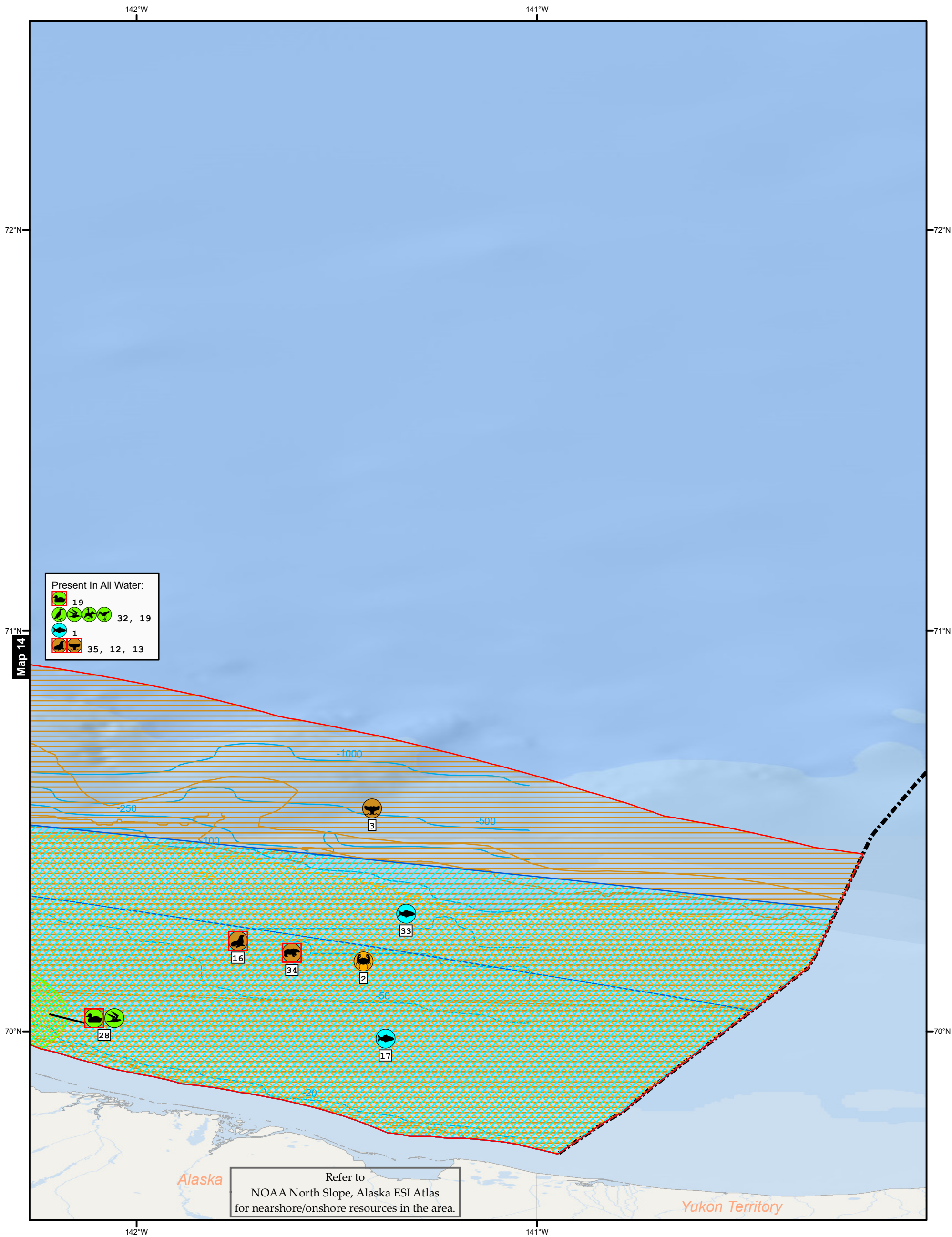
RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting
3	Beluga whale			Feeding	Vulnerable Occurrence					J	A	S	O				-	-	-	-	
12	Bowhead whale		E	Migratory Route	Migration					A	S	O					-	-	-	-	
13	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence					J	A	S	O				-	-	-	-	
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J			O	N	D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul



Biology Map 15

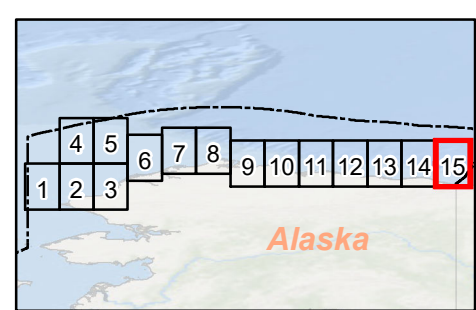
Arctic Alaska Offshore ESI

Chukchi and Beaufort Seas

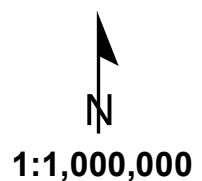
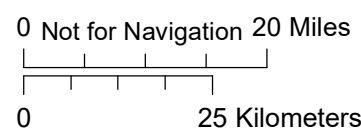


Bureau of Safety and Environmental Enforcement

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- Invertebrates
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- Bathymetry (Meters)
- US Exclusive Economic Zone
- AOI



SEE MAP DATA TABLE
for Status, Seasonality, and Breed information about mapped species.
Published: December 2023



Arctic Alaska Offshore ESI: Biology Map 15

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Nesting	Migrating		Molting			
19	Arctic tern			100S	General Distribution							M	J	J	A	S	O	-	-	-	-			
	Black-legged kittiwake			10,000S	General Distribution							M	J	J	A	S	O	N	-	-	-	-		
	Common eider			10S	General Distribution							A	M	J	J	A	S	O	N	-	Apr-Jun	Oct-Nov	Jun-Jul	
	Common murre			1,000S	General Distribution							J	J	A	S	O	-	-	-	Sep-Oct				
	Glaucous-winged gull			100S	General Distribution							M	J	J	A	S	O	-	-	-	-			
	Glaucous gull			1,000S	General Distribution							A	M	J	J	A	S	O	N	-	-	-	-	
	King eider			100S	General Distribution							A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep	
	Long-tailed duck			100S	General Distribution							J	J	A	S	-	-	-	Jun-Sep					
	Pacific loon			100S	General Distribution							M	J	J	A	S	O	-	Jun-Sep	-	-			
	Parasitic jaeger			100S	General Distribution							M	J	J	A	S	O	-	-	-	-			
	Pomarine jaeger			100S	General Distribution							M	J	J	A	S	O	-	-	-	-			
	Red-necked phalarope			100S	General Distribution							M	J	J	A	S	O	-	-	-	-			
	Red phalarope			100S	General Distribution							M	J	J	A	S	O	N	-	May-Nov	-	Aug-Sep		
	Sabine's gull			100S	General Distribution							M	J	J	A	S	O	-	-	-	-			
	Spectacled eider		T	100S	General Distribution							M	J	J	A	S	O	N	-	May-Jun	Oct-Nov	Jun-Sep		
	Steller's eider		T	10S	General Distribution							M	J	J	A	S	O	-	May-Oct	-	Jun-Oct			
	Thick-billed murre			1,000S	General Distribution							M	J	J	A	S	O	N	-	Jul-Sep	-	Aug-Nov		
	White-winged scoter			10S	General Distribution							M	J	J	A	S	O	-	-	-	-			
28	Black scoter			Up To 100 Birds	Concentration Area							J	J	A	S	O	-	-	-	Jul-Sep				
	Common eider			Up To 4,500 Birds	Concentration Area							A	M	J	J	A	S	O	N	Jun-Oct	Apr-Jun	Oct-Nov	Jun-Jul	
	Glaucous gull			Up To 29,696 Birds	Concentration Area							A	M	J	J	A	S	O	N	Jul-Aug	-	-	-	
	King eider			Up To 2,500 Birds	Concentration Area							A	M	J	J	A	S	O	N	-	Apr-Jul	Oct-Nov	Jun-Sep	
	Long-tailed duck			Up To 70,000 Birds	Concentration Area							A	M	J	J	A	S	O	N	May-Aug	Apr-May	Oct-Nov	Jun-Aug	
	Spectacled eider		T	100S	Concentration Area							M	J	J	A	S	O	N	May-Aug	May-Jun	Oct-Nov	Jun-Sep		
	Steller's eider		T	10S	Concentration Area							J	J	A	S	O	Jun-Aug	Jun-Oct	-	Jun-Oct				
	Surf scoter			Up To 4,000 Birds	Concentration Area							M	J	J	A	S	O	N	-	-	-	Jul-Aug		
	White-winged scoter			100S	Concentration Area							M	J	J	A	S	O	-	-	-	-			
32	Ancient murrelet			100S	General Distribution							J	J	A	S	O	-	-	-	-				
	Black guillemot			100S	General Distribution							A	M	J	J	A	S	O	N	-	-	-	-	
	Crested auklet			1,000S	General Distribution							J	J	A	S	O	-	Aug-Oct	-	Jun-Oct				
	Horned puffin			100S	General Distribution							J	J	A	S	O	-	Jun-Jun	Sep-Oct	-				
	Ivory gull			10S	General Distribution							A	M	J	J	A	S	O	N	-	Apr-May	Sep-Nov	-	
	Kittlitz's murrelet			100S	General Distribution							J	J	A	S	O	N	-	-	-	-			
	Least auklet			1,000S	General Distribution							M	A	M	J	J	A	S	O	N	-	Mar-Nov	-	Jun-Oct
	Long-tailed jaeger			100S	General Distribution							M	J	J	A	S	O	-	-	-	-			
	Loons			100S	General Distribution							A	M	J	J	A	S	O	N	-	-	-	-	
	Northern fulmar			1,000S	General Distribution							J	J	A	S	O	N	-	-	-	-			
	Parakeet auklet			100S	General Distribution							M	A	M	J	J	A	S	O	N	-	Mar-May	Aug-Nov	Jun-Nov
	Ross's gull			100S	General Distribution							J	-	-	-	S	O	N	-	Jun-Jun	Sep-Nov	-		
	Short-tailed shearwater			1,000S	General Distribution							A	M	J	J	A	S	O	-	Apr-May	Sep-Oct	May-Sep		
	Tufted puffin			100S	General Distribution							F	M	A	M	-	Feb-May	Sep-Dec	-					

FISH:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
1	Arctic cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Dec-Mar	-	Aug-Sep	Aug-Sep	Jan-Dec	Jan-Dec
	Bering flounder			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Aug-Aug	Aug-Aug	Jan-Dec	Jan-Dec
	Greenland halibut (turbot)			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec
	Pacific cod			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Pacific sand lance			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Aug-Sep	Jan-Dec	Jan-Dec
	Walleye pollock			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Sep-Sep	Sep-Sep	Jan-Dec	Jan-Dec
17	Capelin			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
	Yellowfin sole			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Sep-Sep	Jan-Dec	Jan-Dec
33	Pacific herring			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	Jan-Dec	Jan-Dec

INVERTEBRATE:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Spawning	Eggs	Larvae	Juveniles	Adults	
2	Snow crab			-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S	F	Concentration	Mapping Qualifier	Monthly Presence (Jan-Dec)												Mating	Calving	Pupping	Molting
3	Beluga whale			Feeding	Vulnerable Occurrence							J	A	S	O	-	-	-	-		
12	Bowhead whale		E	Migratory Route	Migration							A	S	O	-	-	-	-			
13	Bowhead whale		E	Reproductive/Feeding	Vulnerable Occurrence							J	A	S	O	-	-	-	-		
16	Bearded seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-May	Apr-Jul
34	Polar bear		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
35	Ringed seal		T	-	General Distribution	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	-	Mar-Jun	May-Jul