

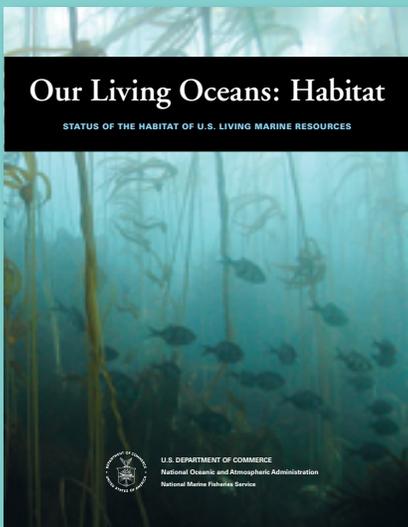


NOAA FISHERIES

“One of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats. Habitat considerations should receive increased attention for the conservation and management of fishery resources of the United States.”

- Magnuson-Stevens Act

To download an electronic copy of the *OLO: Habitat*, visit:
<http://www.st.nmfs.noaa.gov/ecosystems/habitat/plans/olohabitat/index>



Our Living Oceans: Habitat

Alaska Region

Alaska's productive marine waters include the North Pacific Ocean, the Bering Sea, the Chukchi Sea, and the Arctic Ocean. These extensive marine waters of the U.S. Exclusive Economic Zone (EEZ) total about 3.258 million km² (950,000 nmi²) and encompass about 28% of the EEZ. The Alaska Region hosts the largest share of continental shelf habitat in the United States. However, the distribution and extent of many habitat types important for spawning, rearing, or feeding of commercially important marine resources are largely unknown.



Left: A salmon spawning habitat in the southeastern part of Alaska. Upper right: Several sockeye salmon in spawning coloration. Lower right: Newly hatched salmon in the alevin stage.

Freshwater and nearshore marine habitats in the Alaska Region include lakes, rivers, wetlands, estuaries, and tidal shorelines. These habitat types are some of the most pristine and productive in the U.S. but they can also be sensitive to climate change and human disturbance. Large scale river deltas and extensive marine coastlines provide important nursery and forage areas that sustain fisheries throughout the Alaska Region. Coastal and offshore habitats include rocky shores, soft bottoms of sand and silt, pinnacles, banks, gullies, slopes, seamounts, and deep sea coral gardens.

Recently discovered coral gardens provide complex bottom structure and support high biological diversity. Seamounts are submerged volcanic features that are thought to provide island-type habitats within the larger open-ocean abyssal area. Other habitat types or characteristics that are unique to Alaska include numerous glacially carved fjords and sea ice.

These areas may contain species not yet discovered by science and may serve as refugia for many commercial fish. Overall, region-wide coastal and seafloor habitat mapping is hampered by cost and harsh ocean conditions that span the enormous Alaska Region.

Habitat Issues

Alaska's freshwater and marine ecosystems remain healthy and are highly productive. However, these habitats are not immune to human impacts. Some habitats in Alaska experience heavy resource development such as:

- Oil and gas exploration and production
- Mining
- Logging
- Fish processing

Human activities also increase the risk of contaminating Alaska's freshwater and marine habitats. In 1989, the *Exxon Valdez* ran aground in Prince William Sound, oiling approximately 2,080 km (1,300 mi) of shoreline, the largest coastline impact of any oil spill. Additional concerns lie with increases in persistent organic pollutants (e.g. PCBs, pesticides) and heavy metals in fishes of northern latitudes. This could have profound effects on apex predators like marine mammals, and could also impact coastal communities dependent on subsistence fishing.

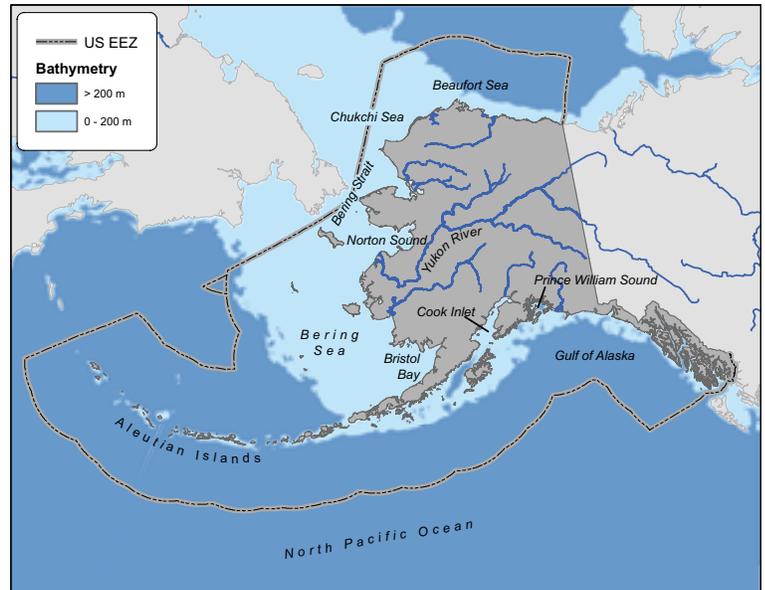
Alaska's marine habitats are on the forefront of experiencing climate change effects. Warming waters, ocean acidification and sea ice loss may cause changes in species distributions, productivity and habitat extent. Unique habitats, such as cold water coral gardens and sea ice, that support many species are likely to be impacted by these environmental changes.

Habitat Needs

The vast size, remoteness, and diversity of habitats in Alaska require comprehensive research and management plans to better understand the importance of habitat and ecological processes. These plans must also be flexible and adapt over time as environments change. These needs include:

- Basic life history information, as well as an improved understanding of the quantity and quality of habitats needed for all life stages for fisheries and protected species.
- Habitat mapping for both fisheries and protected species in all (relevant) habitat types to help further support an ecosystem-based approach to management.
- Understanding the effects of commercial activities on the various habitat types, particularly oil and gas development, as well as their impact on the marine species that use these habitats.
- Understanding the effects of climate change with respect to ocean acidification and loss of sea ice on fishery species, deep-sea corals, and marine mammals.
- Improved and increased habitat monitoring and restoration.

Map of the Alaska Region



Alaska Highlights

As fishery management organizations make progress in incorporating ecosystem-based thinking into management, there is a need to more clearly define the ecosystem-oriented management goals of the organization and the tools available to managers to attain those goals.

Habitat Strategic Planning within Alaska's Regional Office is looking to implement several habitat plans oriented towards an ecosystem approach, (i.e., Habitat Assessment Improvement Plan (May 2010), The AFSC Science Plan, the Alaska EFH Research Plan (2012), the NPFMC Habitat Priorities, NOAA's Habitat Blueprint). These plans structuralize habitat efforts and are driven by the best available and most recent science.

There is a broad spectrum of ecosystem research currently being conducted by the Alaska Fisheries Science Center (AFSC) that can provide useful advice to managers. This work includes habitat and trophic interactions research, long-term monitoring of non-commercial species, and multispecies and ecosystem modeling.

Two examples of an ecosystem approach at AFSC are the Resource Ecology and Ecosystem Management (REEM) group and the Fisheries and the Environment (FATE) program.

- The REEM agreement group at the AFSC provides the most up-to-date ecosystem information and assessments in the annual Ecosystem Considerations Report.
- The FATE program is a NOAA program that supports the agency's mission to ensure the sustainable use of U.S. fishery resources under a changing climate. The focus of FATE is on the development and evaluation of leading ecological and performance indicators, their application to practical fishery management problems, and the continuing responsibility to regularly update the indicators, thereby providing current information to fishery stock analysts and the public.