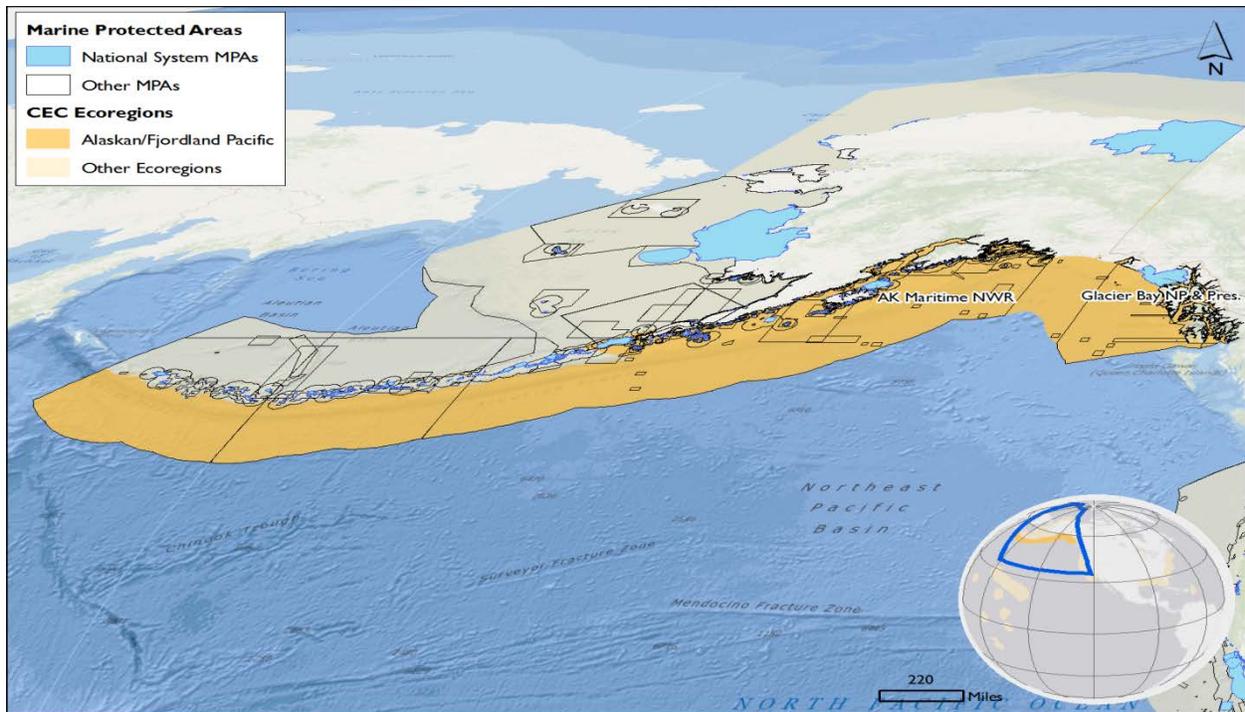


Alaskan/Fjordland Pacific (Ecoregion 22)

Background

The Alaskan/Fjordland Pacific Ecoregion is an area of abundant marine resources. The ecoregion begins at Vancouver Island and moves up the Gulf of Alaska and just offshore of the Aleutian Island Archipelago. The ecoregion has a tremendous diversity of islands, deep fjords, and sheltered bays and is also heavily influenced by the large freshwater input from numerous rivers and streams. The only significant urban center in the ecoregion is the city of Anchorage.



MPAs in the Alaskan/Fjordland Pacific Ecoregion

Of the 45 MPAs in the Alaskan/Fjordland Ecoregion, only two (4%) are National System members. The other 43 (96%) are eligible but are not currently National System members (Figure 1). The two National System members, the Alaska Maritime National Wildlife Refuge and Glacier Bay National Park and Preserve, were established for broader ecosystem protection and biodiversity conservation purposes. The other MPAs in the ecoregion are managed either by the Alaska Department of Fish and Game or the NOAA Fisheries Service. Many of these areas have been closed to all bottom fishing (trawling and bottom contact gear) and to protect specific species such as mackerel, lingcod and pollock as well as limiting nearshore fishing in order to protect feeding marine mammals (e.g., Stellar Sea Lion Protection Areas). The ecoregion contains very diverse and ecologically important habitats (Figure 2) such as temperate soft and stony corals (found in 9% of the MPAs), seagrass (39%), and kelp and algae (68%). The nearshore area has an abundance of rocky intertidal (39%) and rocky reef habitat (68%). The Fraser River and other rivers and streams (5%) add considerable freshwater discharge to the ecoregion and this gives rise to wetlands and mudflats (9%) as well. The mixing of cold (Bering Sea) and temperate (mid-latitude Pacific Ocean) water masses passing over important bathymetric features (seamounts, pinnacles) make areas rich in fisheries. More than 300 fish species have been recorded in this area. Anadromous fish such as various species of salmon migrate offshore

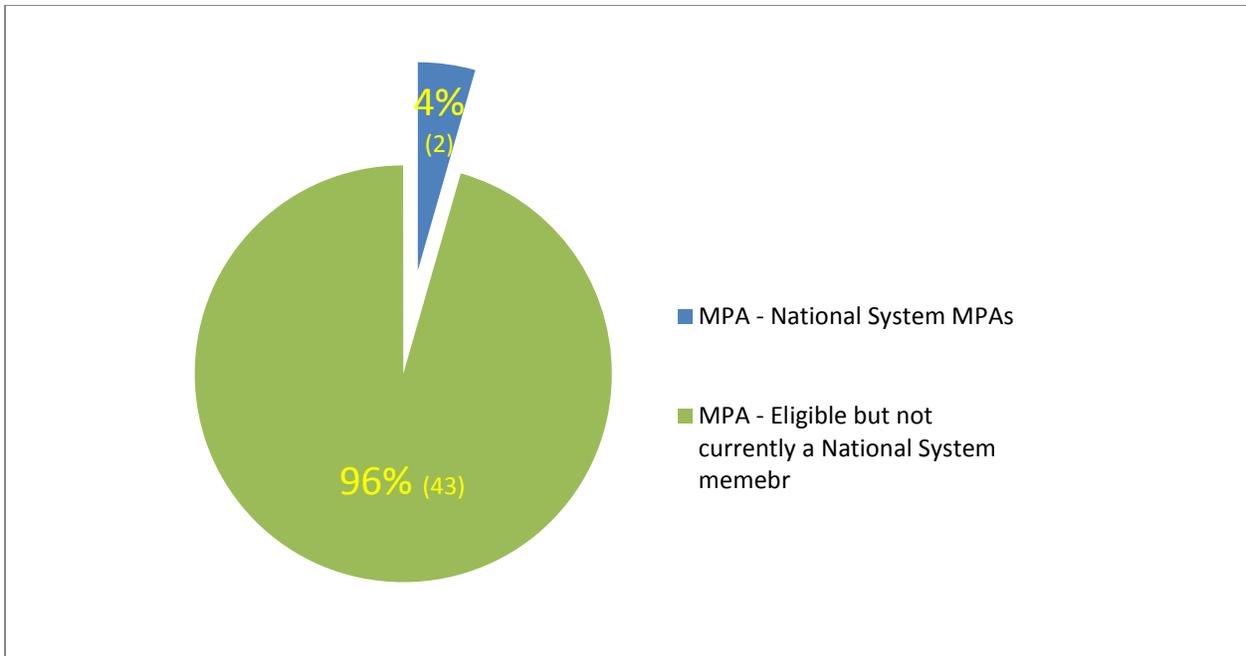


Figure 1. Percent of Marine Protected Areas(MPAs) within the Alaskan/Fjordland Pacific (Ecoregion 22) that are members of the National System of MPAs (n=45)

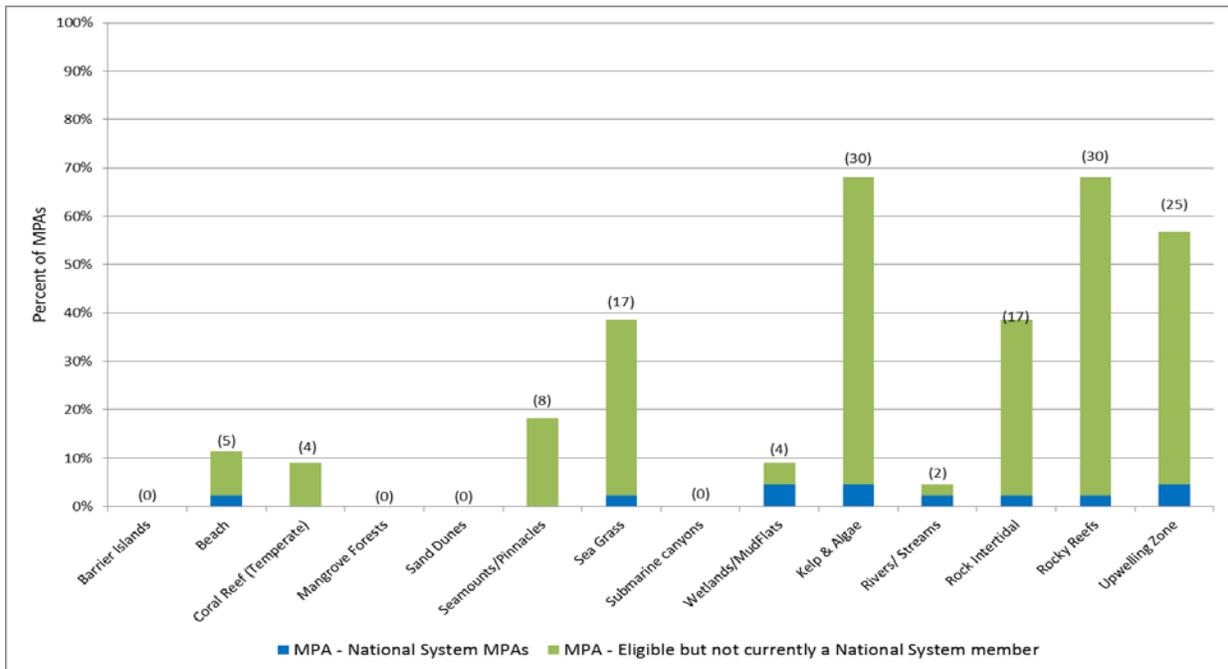


Figure 2. Percent of MPAs that contain certain habitat groups in the Alaskan/Fjordland Pacific (Ecoregion 22)

from the coast's rivers and streams during part of their life cycle, and are found in 89% of the MPAs in this ecoregion (Figure 3). Estuarine and coastal fish are reported in approximately 50% of the ecoregion's MPAs.

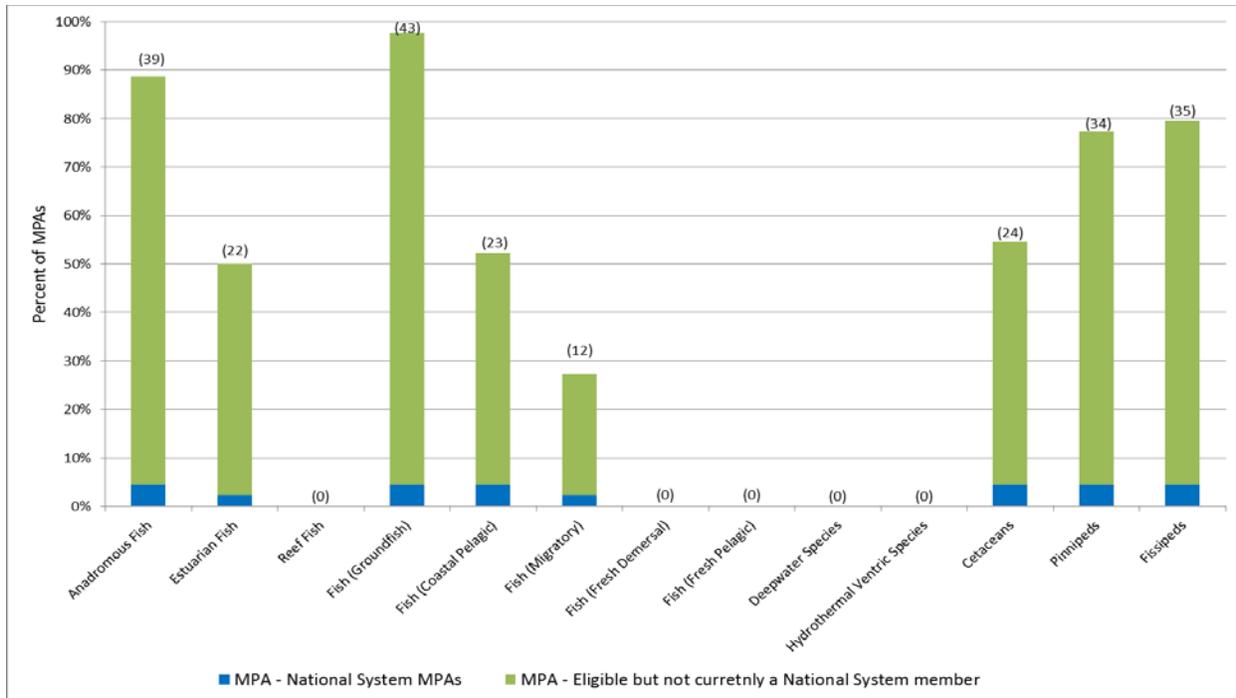


Figure 3. Percent of MPAs that contain certain fish and marine mammal groups in the Aleutian Alaskan/Fjordland Pacific (Ecoregion 22)

Various types of marine fishes are found throughout many of the ecoregion's 45 MPAs, including coastal pelagic species such as dolly varden, mackerel and Pacific herring in 52% and commercially important groundfish such as halibut and flounder in 98%. As this ecoregion stretches far north from Canada into the Gulf of Alaska, internationally significant populations of marine mammals, including cetaceans (reported in 55% of the MPAs) such as bowhead, beluga, sperm and killer whales that favor the both the coastal as well as deep and temperate waters. Other marine mammals benefit from the ecoregion's high productivity, including pinnipeds such as the Stellar sea lion and northern fur seal (77%) and fissipeds such as sea otters (80%), important predators as well as prey species.

This ecoregion is important to a large proportion of the world's marine bird populations (Figure 4). Birds are classified as waterfowl, estuarine or seabirds, signifying where their principal feeding areas occur and are found in many of the ecoregion's MPAs. Seabirds such as shearwaters and puffins are very abundant and are reported in 70% of the ecoregion's MPAs. Waterfowl and estuarine birds from rivers and streams along the water's edge feed and nest in the coastal salt marshes and large beds of seagrass and are reported in 34% and 50% of the ecoregion's MPAs, respectively. Birds not classified in any of these feeding guilds are found in 45% of the ecoregion's MPAs.

A mixture of oceanic, subpolar and temperate waters transports nutrients, phytoplankton and zooplankton throughout the ecoregion and the presence of diverse habitats contributes to supporting one of the largest marine invertebrate communities in the world. Benthic invertebrates are reported in 89% of the ecoregion's MPAs (Figure 5) and include many of the economically important crab, clam, scallop and shrimp species. Benthic algae are reported in 52% of the MPAs and provide food and refuge for many species. Ecologically important areas that support where species breed, nest, spawn and rest can be found in many of the nearshore and deepwater MPAs. Coldwater stony corals and gorgonians, seagrass beds and coastal marshes are important fish spawning areas

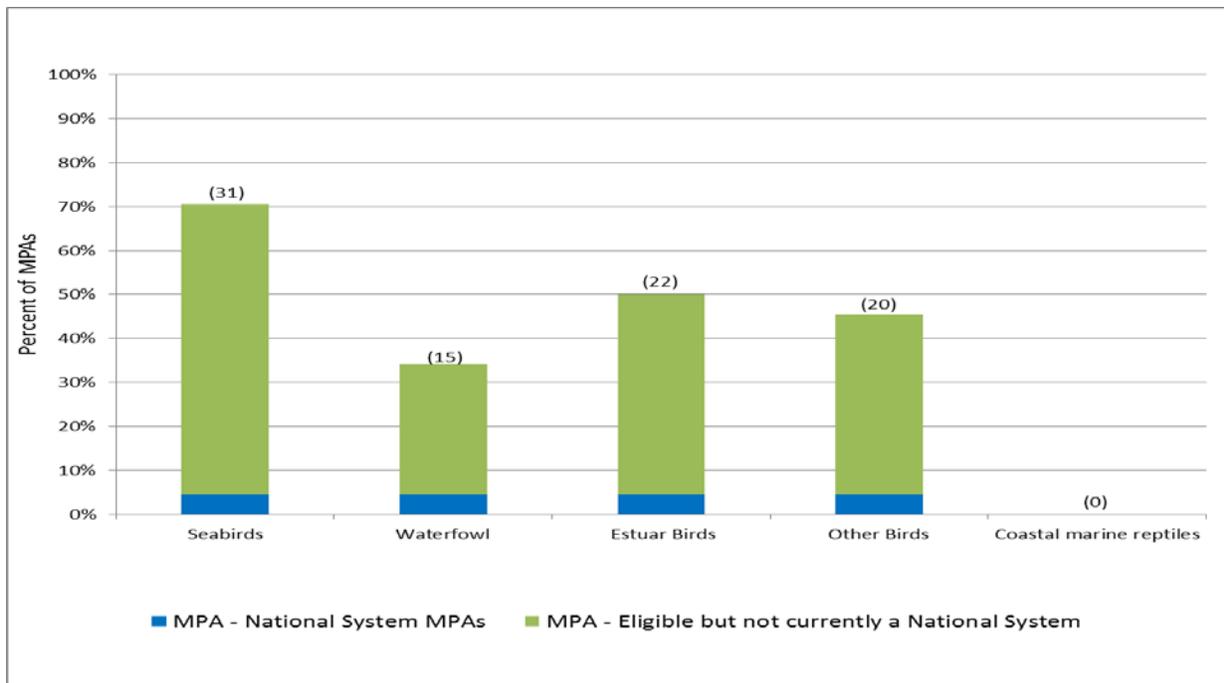


Figure 4. Percent of MPAs that contain certain marine birds and other marine resource groups in the Alaskan/Fjordland Pacific (Ecoregion 22)

(64%) and nurserygrounds (36%) for many species (Figure 6).

These habitats also support large bird nesting populations (73%). The many rocky outcrops along the Alaskan coast provide places for marine mammals to breed (41%) and haul out (77%) to rest and escape predation. The presence of large mollusks and other shellfish beds (61%) provide valuable habitat and food for various groundfish and benthic invertebrates. The NOAA Fisheries Service has jurisdiction over 102 threatened and endangered species listed under the Endangered Species Act (ESA), many of which (e.g., several species of whales, seals and sea lions and sea otters) are found in this ecoregion and in 75% of the ecoregion's MPAs.

Conclusions

The 45 MPAs in this ecoregion contain the major habitat and species groups and ecologically important areas found in the ecoregion as a whole. These resources are also found in more than one MPA, resulting in some replication of ecological features (species, habitats and ecological processes) -- one of the criteria identified by the Convention on Biological Diversity (CBD) in designing effective MPA networks.

Suggested Reading

Gulf of Alaska Large Marine Ecosystem. 2011. <http://www.eoearth.org/view/article/153189/>

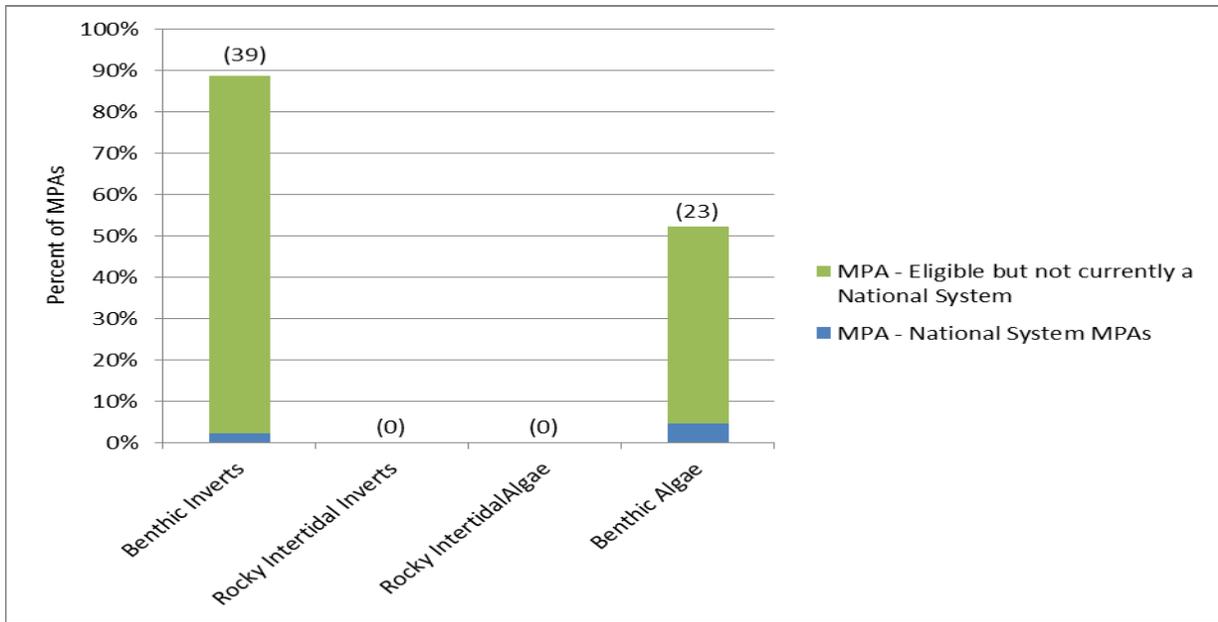


Figure 5. Percent of MPAs that contain invertebrates and algae in the Alaskan/Fjordland Pacific (Ecoregion 22)

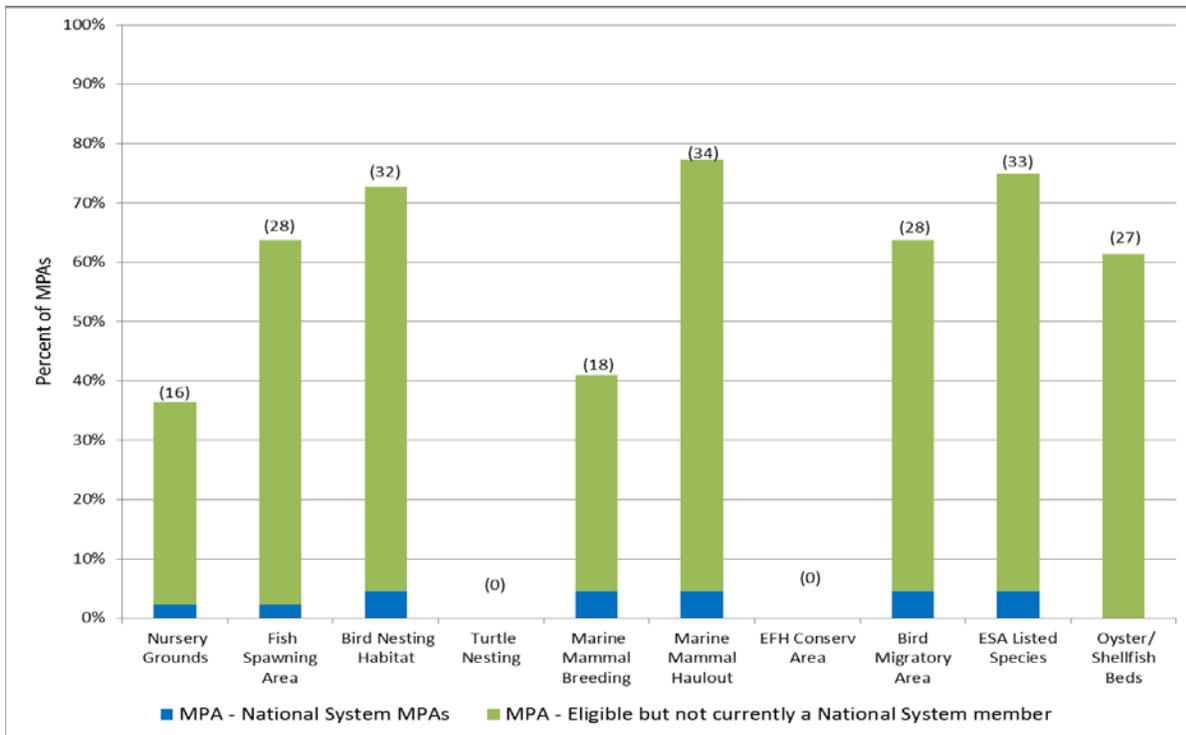


Figure 6. Percent of MPAs with ecologically important areas in the Alaska/ Fjordland Pacific (Ecoregion 22)