

MPAs (n=63) are managed by the California State Water Resources Control Board and are water quality protection areas or marine conservation areas or marine reserves managed by the California Department of Fish and Wildlife. Most of the non-National System MPAs in the ecoregion (n=20) are managed by the NOAA Fisheries Service and are designated essential fish habitat (EFH) conservation areas that are closed to fishing gear that harms bottom habitat (e.g., trawling and

Figure 1. Percent of marine protected areas (MPAs) within the Southern Californian Pacific (Ecoregion 19)

all bottom contact gear). EFH areas are areas of the marine environment (water and habitat) required for fish spawning, breeding, feeding and an area for fish to grow to maturity. These are primarily focused on alleviating impacts of bottom trawling and other fishing gear on the benthic and epibenthic fauna of these ecosystems.

The ecoregion is very diverse with ecologically important biogenic habitats found in other ecoregions (Figure 2) such as coldwater corals (26%), seagrass (32%), wetlands and mudflats

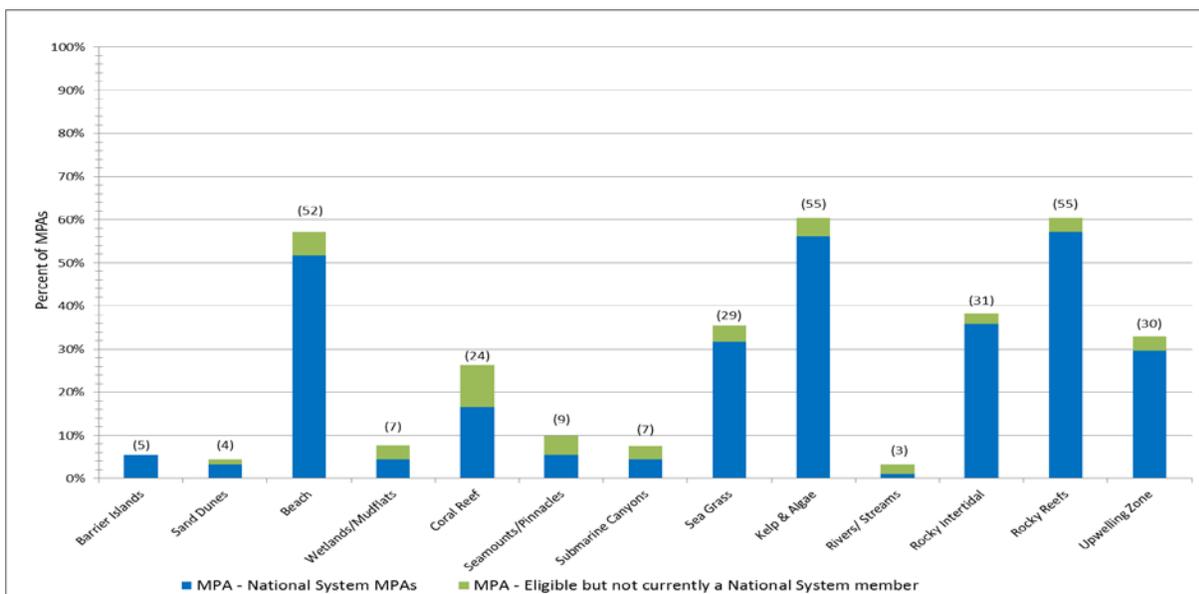


Figure 2. Percent of MPAs that contain certain habitat groups in the Southern Californian Pacific (Ecoregion 19)

(8%), and kelp/algae (60%), including the iconic giant kelp beds off California. Non-biogenic

habitat such as rocky reefs (60%) and rocky intertidal (34%) are also found in many of this ecoregion's MPAs. Overall, this ecoregion is characterized by very deep water, with the majority (72%) of the ecoregion classified as abyssal plain (depths > 3,000m).

The confluence of cold (California Current) and warm water masses from the south passing over important bathymetric features (seamounts, canyons, corals) contributes to rich and productive fisheries. Anadromous and estuarine/coastal fish migrate from coastal rivers and streams during part of their life cycle, reported in approximately 3% and 14%, respectively, of the ecoregion's MPAs (Figure 3). Various types of marine fishes are found

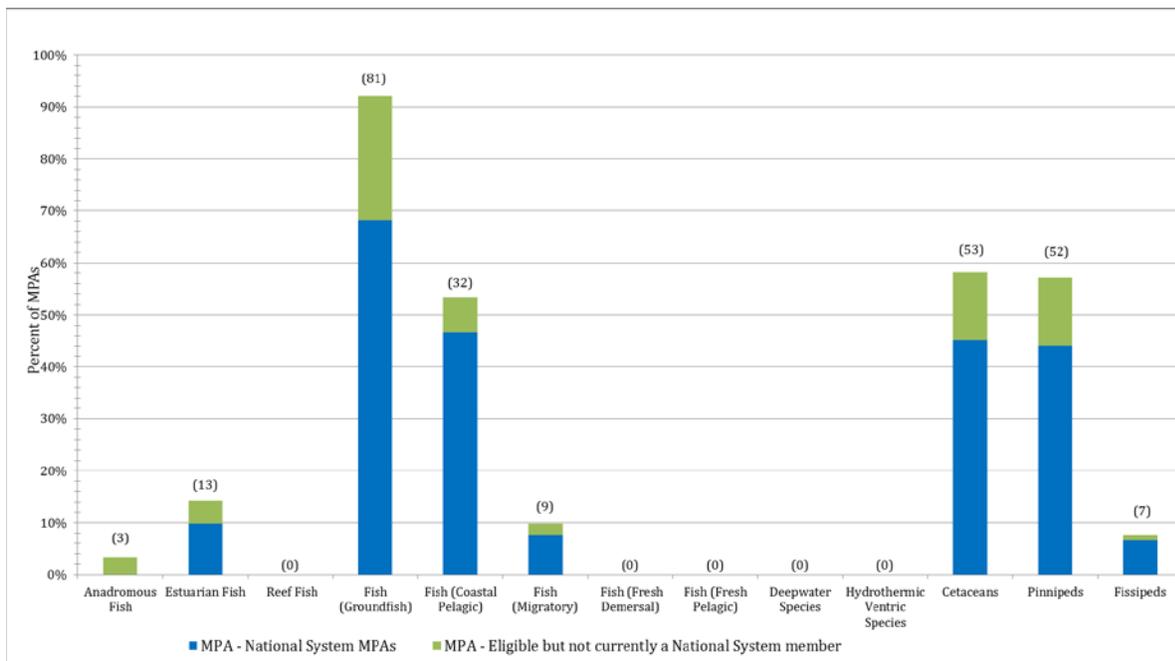


Figure 3. Percent of MPAs that contain certain fish and marine mammal groups in the Southern Californian Pacific (Ecoregion 19)

throughout many of the ecoregion's 91 MPAs, including coastal pelagic fish in 35%, and commercially important groundfish (89%) such as many recreationally and commercially valuable rockfish species. The ecoregion also supports internationally significant populations of marine mammals, including cetaceans (found in 58%) such as gray whales that migrate along the coast and blue whales that favor the deep and temperate waters. Temperate marine mammals benefit from the high productivity, including pinnipeds (57%) and fissipeds (8%), important predator as well as prey species. Several of the ecoregion's MPAs are very important breeding and pupping areas for these species.

Birds are classified as waterfowl, estuarine or seabirds, signifying where their principal feeding areas occur and are found in 15%, 43%, and 62%, respectively, of the ecoregion's MPAs (Figure 4). Highly migratory seabirds such as shearwaters and albatross use these productive waters for feeding. Birds not classified in any of these feeding guilds are found in 29% of the ecoregion's MPAs.

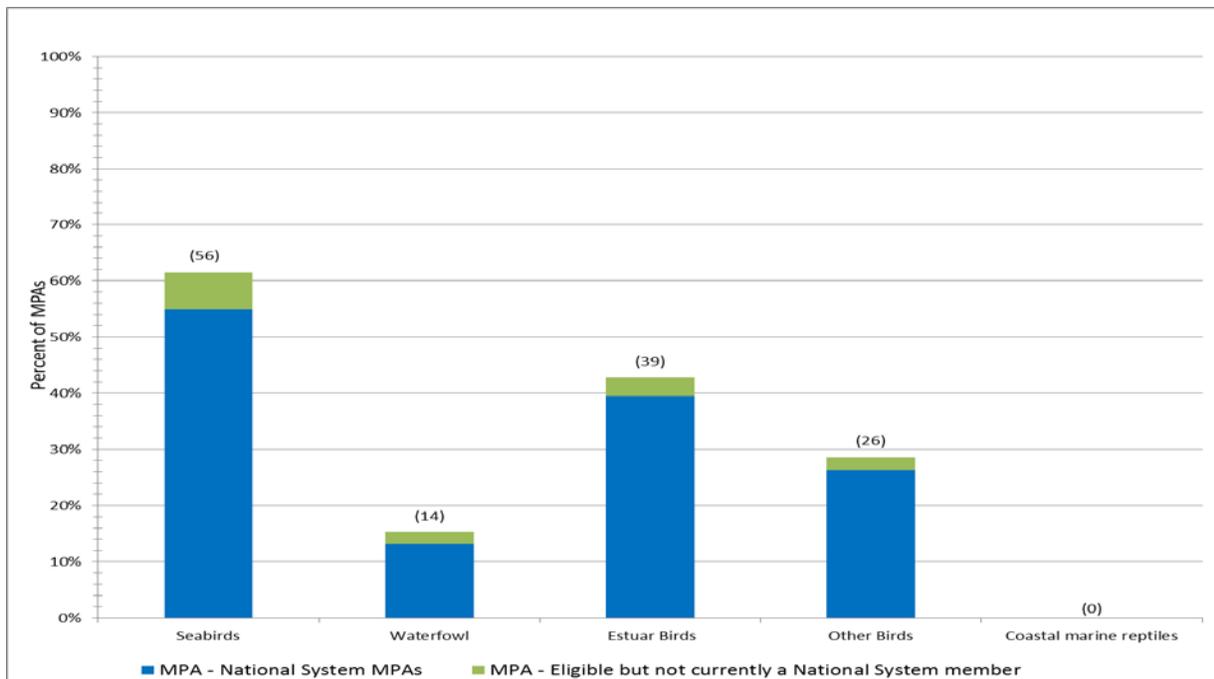


Figure 4. Percent of MPAs that contain marine birds and reptiles in the Southern Californian Pacific (Ecoregion 19)

The ecoregion contains many important complex habitats with a diverse assemblage of benthic invertebrates (Figure 5). Together with favorable upwelling conditions, tidal pools and

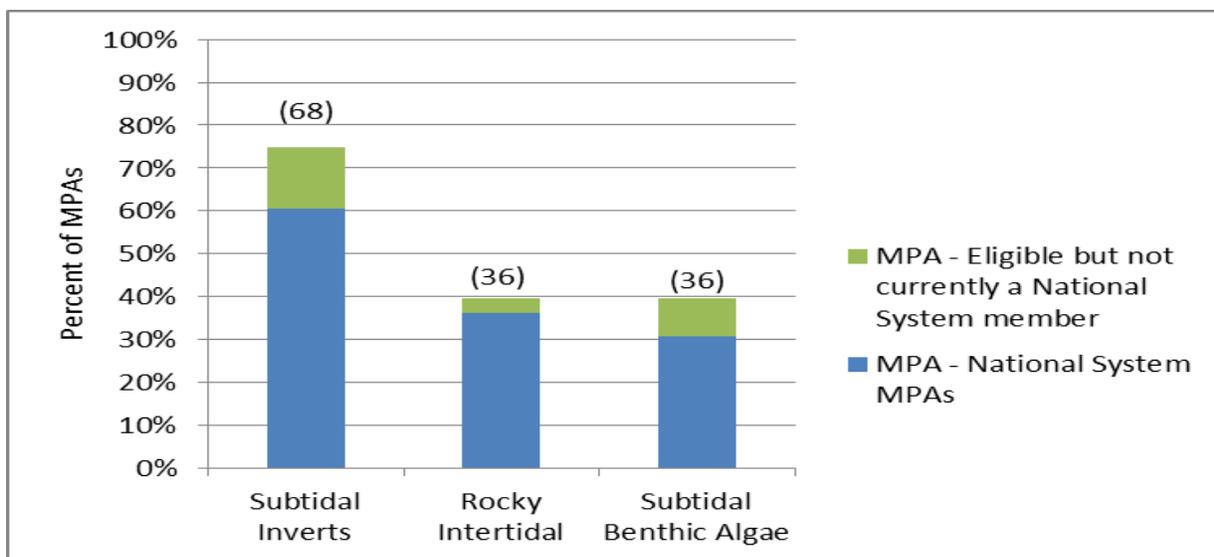


Figure 5. Percent of MPAs that contain Invertebrates and Algae in the Southern Californian Pacific (Ecoregion 19)

rocky shores provide needed refuge and substrate for many mobile and non-mobile rocky intertidal organisms (e.g., found in 40% of the ecoregion’s MPAs), subtidal invertebrates (75%) and subtidal benthic algae (40%). Subtidal invertebrates such as the iconic abalones are currently species at risk due to historic overfishing.

Ecologically important areas that support where species breed, nest, spawn and rest can be found throughout the ecoregion's MPAs. The NOAA Fisheries Service has jurisdiction over 102 threatened and endangered (T&E) species listed under the Endangered Species Act (ESA) and many species such as whales, seals, sea lions and sea otters are found throughout this ecoregion and in 73% of the ecoregion's MPAs (Figure 6). Pinnepeds use the many sandy

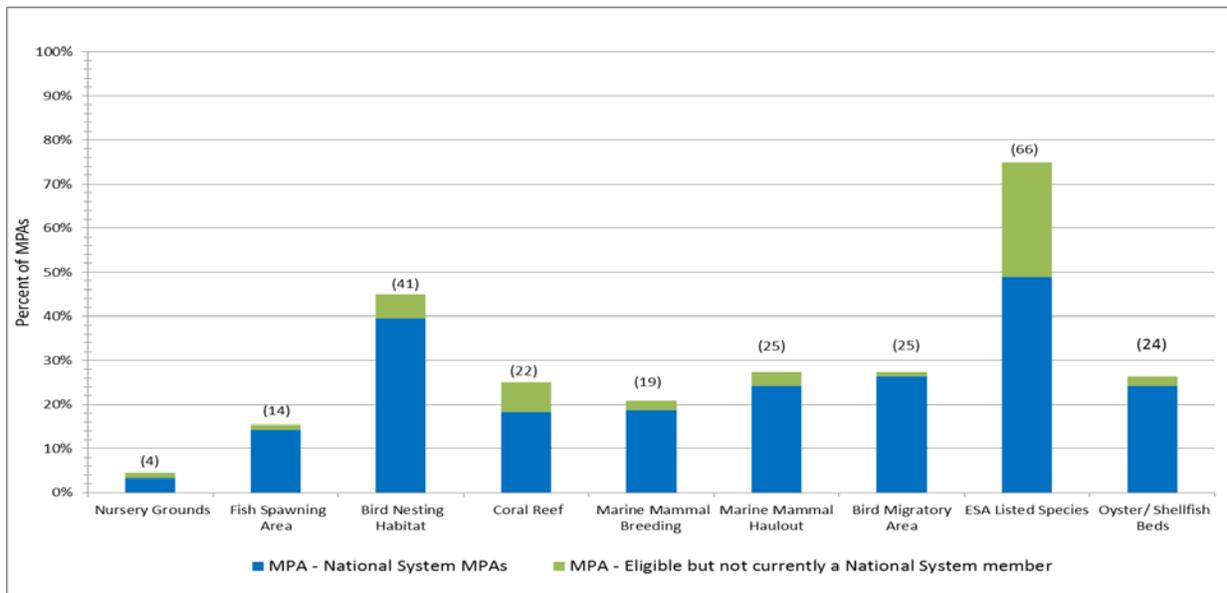


Figure 6. Percent of MPAs with ecologically important areas in the Southern Californian Pacific (Ecoregion 19)

beaches and offshore rock outcrops to haul out in 27% of the ecoregion's MPAs. These habitats are equally important to birds for nesting (45%) and resting during migratory routes (27%). Sandy and rocky habitats also support extensive shellfish beds, found in 26% of the ecoregion's MPAs.

Conclusions

The 91 MPAs in this ecoregion contain the major habitat and species groups and ecologically important areas found in the region as a whole. In all cases, 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

California current large marine ecosystem. 2011. <http://www.eoearth.org/view/article/150853/>