
Courtesy NMFS

Marine Reptiles

Honu or Green sea turtle

Chelonia mydas

Species Status:
Federally Listed as Threatened
State Listed as Threatened
State Recognized as Indigenous
IUCN Red list - Endangered

SPECIES INFORMATION: Mature males are distinguished from females by their longer, thicker tails. Little information exists on the feeding behavior of post-hatchlings and juveniles living in pelagic habitats, but most likely they are exclusively carnivorous (e.g., soft-bodied invertebrates and fish eggs). Subadult and adult turtles residing in nearshore benthic environments are almost completely herbivorous; feeding primarily on select macroalgae and sea grasses. Hawaiian honu display slow growth rates, even compared to other populations, with an average annual growth rate of approximately one to five centimeters (one-half to two inches) per year. Turtles often reach sexual maturity at 35 to 40 years of age. Females migrate to French Frigate Shoals in the Northwestern Hawaiian Islands (NWHI) to breed approximately once every two or more years, while male turtles may migrate to NWHI to breed every year. Honu mate at sea and approximately 25 to 35 days after mating females swim onshore to excavate a nest and lay eggs. Females may lay up to six clutches per season, often returning to the same site for each clutch every 12 to 15 days. Each clutch contains 100 eggs and sex determination is temperature dependent. Incubation takes about 60 days. Recent research suggests green sea turtles in the Caribbean are a keystone species that, when abundant, had a major effect on the structure of the ecosystem. A unique behavioral characteristic of both male and female green sea turtles living in Hawaii is that they often haul out in the NWHI during inter-nesting intervals and on a couple of places in the main islands to bask in the sun.

DISTRIBUTION: Historically, honu most likely inhabited the waters around the all Hawaiian Islands. Today, they still live and forage around all the Hawaiian Islands. Important foraging areas are located along the coastlines of Oʻahu, Molokaʻi, Maui, Lānaʻi, Hawaiʻi, Lisianski Island, and Pearl and Hermes Reef. Before European settlement, nesting also occurred at the south eastern end of the archipelago. Today, although nesting occurs on all islands, 90 percent of the nesting occurs on French Frigate Shoals of the NWHI. Low levels of nesting have been documented on Laysan Island, Lisianski Island, Pearl and Hermes Reef, and Kure Atoll. Male and females migrate to French Frigate Shoals to mate. Evidence shows that Hawaiian turtles only migrate throughout the 2,450 kilometer (1,500 mile) expanse of the Hawaiian Archipelago, and so make up a discrete population. Post-hatchlings and juveniles live in pelagic waters, but little is known of their specific distribution.

ABUNDANCE: Approximately 200-700 females nest annually. Abundance appears to be increasing locally and globally.

LOCATION and CONDITION OF KEY HABITAT: Honu are most often found in shallow, protected or semi-protected, water around coral reefs and coastal areas. These habitats contain critical foraging areas consisting of sea grasses and algae and they provide some shelter from predators such as tiger sharks. Key foraging habitat can be found around most of the Hawaiian Islands, but turtles often return to the same resident foraging areas after a breeding season. Conditions of foraging habitats vary, but degradation of foraging habitat is documented on the south coast of Molokaʻi; Kāneʻohe Bay, Oʻahu; Hanalei Bay, Hanamaulu Bay, and Nawiliwili Harbor, Kauaʻi; Maalaea Bay, Kihei, and Lahaina, Maui; and Hilo Bay, Hawaiʻi. Cleaning stations and resting habitats are important habitats for turtles as well but have not been mapped. Nesting areas are extremely critical to the survival of the honu. They prefer sandy beaches that are minimally disturbed. The condition of nesting sites on French Frigate Shoals is relatively good compared to other nesting sites for turtles throughout the world, because French Frigate Shoals is inhabited by less than ten humans with little development. Predation on eggs and hatchlings is low as well.

THREATS:

- A significant threat to the honu in Hawaii is the prevalence of the tumor disease Fibropapilloma (FP). FP tumors can grow to large sizes and often occur on the axial regions of the flippers and around the eyes. As such, the tumors can inhibit swimming, eating, breathing, vision and reproduction. If these critical functions are severely impaired, then the turtle may not survive. Infection rates are highest off Oʻahu with an estimated infection rate of up to 90 percent. Away from Oʻahu, infections rates are lower with the lowest rate of infection off Hawaiʻi. A herpes virus has been implicated as the cause of FP, and a parasitic worm and saddleback wrasses (which clean green sea turtles) are known to be carriers of the virus and potential vectors;
- Alien seaweeds are displacing important foraging, resting, and cleaning habitats of the turtles;
- Another important threat is the indirect take of adult and juvenile turtles as fisheries bycatch. Incidental Take Permits are in-place for the Hawaii longline fisheries;
- Predation is also a moderate threat especially for hatchlings in the open ocean; however, the exact impact is unknown;
- The impact on turtles from snorkeling and other human recreational activities are threats that need to be further investigated;
- Other threats include marine debris that entangles turtles or is ingested by them; the loss or degradation of foraging habitats along coastal areas due to development, sedimentation, soil erosion or sewage; nest predation, and boat collisions.

CONSERVATION ACTIONS: The goals of conservation actions are to not only protect current populations, but to also establish further populations to reduce the risk of extinction. Past efforts have included a threatened listing by the State of Hawaii and U. S. government, establishment of state parks, the Hawaiian National Wildlife Refuge complex, and Marine Life Conservation Districts that protect important nesting or foraging grounds; permits to control nearshore development; and various partnerships with local and national public and private organizations. The Western Pacific Regional Fisheries Management Council has implemented

rules to decrease incidental take in the longline fishery. In addition to common state-wide and island conservation actions, specific actions include:

- Restore nesting habitat, especially altered main islands beaches;
- Improve protection and management of turtles; nesting, foraging, and resting habitats; and cleaning stations;
- Determine the specific cause of, and a cure for, Fibropapilloma tumors;
- Collaborate with the National Marine Fisheries Service through the nearshore Incidental Take Permit process and otherwise to protect and manage turtles in the marine environment including both pelagic and foraging habitats to decrease incidental and direct takings;
- Work to reduce the amount of marine debris in nearshore feeding and breeding habitats;
- Increase education and outreach efforts, particularly to address threats such as fishing interactions, marine recreation interactions, and marine debris;
- Continue turtle stranding response partnerships;
- Continue on-going partnerships with groups such as Western Pacific Fisheries Management Council, University of Hawaii Sea Grant Program, The Honu Project, The Ocean Conservancy and local conservation groups to monitor and conserve turtles as well as conduct research and outreach programs.

MONITORING:

- Continue to monitor nesting sites for population of nesting turtles;
- Continue to monitor breeding sites to collect biological information on turtles;
- Continue to monitor population and distribution trends;
- Monitor the occurrence and effects of FP;
- Continue partnership to monitor turtles harmed or killed by marine debris;
- Monitor number of turtles stranded or taken as bycatch to determine if education and law enforcement efforts are successful.

RESEARCH PRIORITIES:

- Research the pathology and epidemiology of Fibropapilloma as well as other parasites and infectious agents;
- Continue research on ways to decrease bycatch;
- Research effects of tourism-related activities on turtles;
- Determine distribution, abundance and status of post-hatchlings, juveniles and adults in the marine environment.

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