Courtesy Stuart Robbens

Marine Reptiles

Hawksbill sea turtle

Eretmochelys imbricata

Species Status:
Federally Listed as Endangered
State Listed as Endangered
IUCN Red list – Critically Endangered

SPECIES INFORMATION: 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., invertebrates and fish eggs) near the surface. They then switch to feeding in benthic reef areas as they grow. They appear to focus particularly on sponges which are not digestible by many other animals. At Honokowa, Maui they also feed on the algae *Hypnea*. As they age they dive to deeper and deeper reef areas. Hawksbill turtles display slow growth rates with an average annual growth rate of approximately two to five centimeters per year for juveniles that slows to almost no somatic growth in adults. Hawksbill turtles often reach sexual maturity at 30 to 50 years of age. Females generally breed once every two or more years. Turtles mate at sea. Nesting occurs from late May through November. Females may lay up to six clutches per season, often returning to the same site for each clutch every 14 to 20 days or so. Each clutch contains about 140 eggs and sex determination is temperature dependent. Incubation lasts about 60 days.

DISTRIBUTION: Historically, hawksbill sea turtles probably inhabited the coasts of all Hawaiian Islands. Today, turtles live around the Main Hawaiian Islands only but they are rare. Individuals are regularly seen off West Maui. Nesting occurs on all the main islands only, especially along the east coast of Hawaiʻi. The Northwestern Hawaiian Islands (NWHI) may have been used in the past. A black-sand beach in the Halawa River Valley of east Molokaʻi, and Kamehame Beach, Hawaiʻi are also used consistently. A few beaches on Maui are used occasionally. Post-hatchlings and juveniles live in pelagic waters, but little is known of their specific distribution or range or migrations. Some individuals have been recaptured over 1600 kilometers (1000 miles) from where they were tagged, so long distance movement is possible and genetic studies show foraging areas consist of individuals from different genetic stocks.

ABUNDANCE: Sixty or so female adults make up the breeding population. There is no current obvious trend to the population size.

LOCATION and CONDITION OF KEY HABITAT: Hawksbill sea turtles are most often found in shallow water around reefs, bays and inlets. Key foraging habitat can be found around most of the Main Hawaiian Islands, especially the north coasts. Nesting areas are extremely critical to the survival of the hawksbill sea turtle. The species appears to prefer areas with woody cover for nesting. Sand is not necessary but often used. Nests are usually within five meters (15 feet) of the high water line. Two nesting beaches (Halape and Apua Point) are located within Hawaii Volcanoes National Park and receive more protection.

THREATS:

- The main threats statewide to nesting beaches are from construction and human presence including vehicles at Punaluu and Kawa, beach erosion, artificial lighting, nest predation, and exotic vegetation;
- Marine debris from active and ghost fishing lines and lay nets is an incidental take
- Pollutants and sediments and boat collisions may be a threat;
- Another important threat is the direct take of adult and juvenile turtles which still occasionally occurs in the state;
- Predation and disease is also a moderate threat; however, the exact impact is unknown. In addition to natural predators, introduced mongooses, feral cats, rats, and pigs threaten hawksbills;
- Fibropapilloma has not been found in hawksbills.

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 an endangered listing by the State of Hawaii and U. S. government and resultant ban on capturing sea turtles; establishment of state parks, the Hawaiian National Wildlife Refuge complex, and Marine Life Conservation Districts that protect important nesting and foraging grounds; permits to control nearshore development; and various partnerships with local and national public and private organizations. In addition to common state-wide and island conservation actions, specific actions include:

- Restore nesting habitat, especially altered main islands beaches;
- Continue to protect and manage turtles and nests on nesting beaches;
- 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 marine debris;
- Continue on-going partnerships with 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;
- Continue turtle stranding response partnerships;
- 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:

- Identify population stock structure and home ranges using DNA analysis;

- Continue research on ways to decrease bycatch;
- Determine distribution, abundance and status of post-hatchlings, juveniles and adults in the marine environment;
- Research effects of tourism-related activities on turtles.

References:

Earth Tech, Inc. 2005. Preliminary draft EIS: issuance of an ESA Incidental Take Permit to the State of Hawaii. Honolulu, HI: Earth Tech, Inc.

Hawaii Department of Land and Natural Resources (DLNR). 2005. Application for an Individual Incidental Take Permit pursuant to the Endangered Species Act of 1973 for listed sea turtles and Hawaiian monk seals in inshore marine fisheries in the Main Hawaiian Islands managed by the State of Hawaii. Honolulu, HI: DLNR. 69 pp.

International Union for the Conservation of Nature and Natural Resources. Threatened Red List. Available from: http://www.redlist.org/search/search-expert.php (Accessed May 2005).

King CS, Gilmartin WG, Hau S, Bernard HJ, Canja SM, Nakai G, Grady MJ, Williams S, Hebard AG. In Press. Nesting hawksbill turtles (*Eretmochelys imbricata*) on the Island of Maui, Hawai'i from 1996-2003. Proceedings of the Twenty-fourth Annual Symposium on Sea Turtle Biology and Conservation.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. (US) [NMFS and USFWS]. 1998. Recovery plan for U.S. Pacific Populations of the hawksbill sea turtle (*Eretmochelys imbricata*). Silver Springs, MD: National Marine Fisheries Service. 95 pp.