

HAWAII HUMPBACK WHALES AND GREEN SEA TURTLE INFORMATION

Location: "Within the 100-fathom isobaths in the four-island area of Maui; Penguin Bank, and off the north shore of Kauai, the north and south shores of Oahu, and Kohala coastline off the Big Island. Protected Area 1,370-square miles."

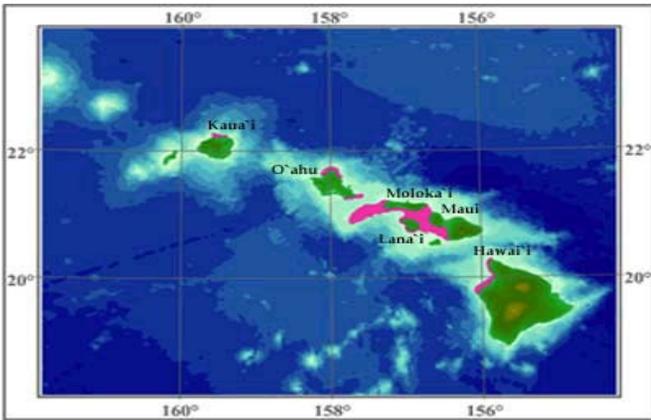


Photo: NOAA NMS Website

1. HUMPBACK WHALES

Significance: "Today the waters around the main Hawaiian Islands of Kauai, Oahu, Hawaii, Maui, Molokai, Lanai and Kaho'olawe constitute one of the world's most important North Pacific humpback whale (*Megaptera novaeangliae*) habitats and the only place in the U.S. where humpbacks reproduce. Scientists estimate that two-thirds of the entire North Pacific humpback whale population (approximately 4000-5000 whales) migrate to Hawaiian waters to breed, calve and nurse their young."



Photo: Joseph Mobley

The HUMPBACK WHALE is the fifth largest whale in the world and the fourth most endangered. Hawaii is the most important breeding grounds for North Pacific humpbacks.

Humpbacks travel some 3000 miles from productive summer feeding grounds in Alaska to Hawaii where mothers give birth to small babies in warm water. Calves may gain over 100 pounds per day nursing on fat-rich mother's milk to build a blubber layer of insulation to tolerate the cold waters of their high latitude feeding grounds.

People and humpbacks are increasing their shared use of the same marine habitats. A one-hundred yard approach limit has been established to give the whales the benefit of the right-of-way.

The Hawaiian Islands Humpback Whale National Marine Sanctuary is one of only 12 so-called marine national parks and is the only preserve in the United States dedicated to a marine mammal.

II. A CLOSER LOOK AT HAWAII'S HUMPBACKS

Humpback whales are very large animals. Adults typically range in size from 35 to 48 feet, and weigh in at about one ton per foot. Their scientific name is *Megaptera noveangliae*. This means "giant wings", which refers to their large front flippers that can reach a length of 15 feet-- about one-third of the animal's entire body length. Humpback whales are found in all of the world's oceans, although they generally prefer near shore and near-island habitats for both feeding and breeding. The current world population for the species is estimated to be between 5,000 and 7,500 individuals, and can be divided into groups based on the regions in which they live. One group found in the North Pacific in the waters off Alaska is estimated to consist of about 2,000 individuals. A large percentage of this population are the ones with which you are probably most familiar, as they migrate to the main Hawaiian islands during the winter months, November through May, each year. The round-trip distance they travel during this annual migration is approximately 6,000 miles, one of the longest migration distances of any animal species. During their stay in Hawaii, they do not feed, but rely upon energy stored in their blubber. Instead of feeding, the whales devote most of their time to mating and bearing their calves. (Fig. 4, Migration route of North Pacific Humpback Population)

Humpback whales become reproductively mature when they are between 4 and 8 years of age. As mentioned, they mate during their winter migration to warmer waters, and eleven to twelve months later, upon their return to winter breeding grounds, the mother gives birth to a single calf. At birth, calves are approximately 13 feet long and weigh two tons. This changes quickly however, as the mother must feed her newborn about 100 pounds of milk each day for a period of five to seven months until it is weaned. After weaning, the calf has doubled its length and has increased its weight five times, attaining a size of about 27 feet and 10 tons. Usually, a female humpback will bear one calf every two or three years. The maximum rate of reproduction for the species is one calf per year, but this is seldom practiced as it puts quite a strain on the mother whale. Scientists estimate the average life span of humpbacks in the wild to be between 30 and 40 years, although no one knows for certain.

While visiting the islands, humpbacks have become renowned for their various acrobatic displays. In fact, the common name "humpback" refers to the high arch of their backs when they dive. One of the humpback's more spectacular behaviors is the breach. Breaching is a true leap where a whale generates enough upward force with its powerful flukes to lift approximately two-thirds of its body out of the water. A breach may also involve a twisting motion, when the whale twists its body sideways as it reaches the height of the breach. Researchers are not certain why whales breach, but believe that it may be related to courtship or play activity. Some behaviors such as headlunging, which occurs when one whale thrusts its head forcefully towards another whale in a threatening manner, are believed to be aggressive behaviors meant to ward off competitors. Males display this behavior most often to gain access to females. Many other behaviors including fluke slaps, flipper slaps, and headslaps have also been characterized, although their apparent functions are unknown. Another interesting behavior exhibited by the humpbacks during their stay in the islands is singing. The "songs" of humpbacks are made up of complex vocal patterns. All whales within a given area and season seem to use the same songs. However, the songs appear to change from one breeding season to the next. Scientists believe that only male humpbacks sing. While the purpose of the songs is not known, many scientists think that males sing to attract mates, or to communicate among other males of the pod.

A Pod refers to a social group of whales. In Hawaii, humpback whales typically belong to pods consisting of 2 to 3 individuals, although pods as large as 15 individuals have been sighted. Scientists feel that whales belong

to certain pods for relatively short periods of time. One type of pod that is especially interesting is the cow-calf pod. A cow-calf pod represents the longest association between individual whales. In this type of pod the mother whale, the cow, remains with her calf for a year during which time she nurses the young whale. In many instances, cow-calf pods are accompanied by another adult known as an escort. Escorts can be of either sex, but are most often reported to be males. Escorts do not remain in the cow-calf pod for long periods of time, usually for only a few hours. There have been no reported sightings of whale pods which contain more than one calf, indicating that each young whale is given a great deal of individual attention and care. This fact, together with the fact that the normal breeding-cycle of a humpback whale is two years, helps to explain why the recovery of the humpback whale population is progressing so slowly.

III. FACTORS AFFECTING HUMPBACK WHALE POPULATIONS

A. Whaling

Largely because of their tendency to frequent coastal waters, and their habitual return to the same regions each year, humpback whales have been exploited by commercial whalers all around the world. Humpbacks were hunted for their oil, meat and whalebone. Most populations were drastically reduced in the early part of the 19th century, leaving only between 5 and 10 per cent of the original stock remaining. In the North Pacific, it is estimated that as many as 15,000 humpbacks existed prior to 1900. The population was truly decimated to fewer than 1,000 individuals before an international ban on commercial whaling was instituted in 1964. Today, the North Pacific population which returns to Hawaii in the winter months to breed, now numbers approximately 2,000. In spite of their recent strides towards recovery, humpbacks continue to be designated as an endangered species. Only the right whale, another species of baleen whale, is considered more endangered than the humpback in the North Pacific.

No one knows whether whales were present in ancient Hawaiian times in similar numbers as occur here today. Information related to whales in Hawaiian history is scanty. Lack of evidence about the presence of whales in Hawaii before Captain Cook's discovery of the islands in 1778, suggests that whales either played a minor role in ancient Hawaiian culture, or that their appearance in Hawaiian waters is one of recent migration. Some scientists believe that humpbacks first migrated to Hawaii as little as 200 years ago as a result of whaling pressures in other regions. Others believe that humpbacks had difficulty finding the islands because they are so far away from any other land masses, or that changes in oceanic habitats may have occurred, making Hawaii a more attractive destination. No one knows for certain.

One thing that is known for certain is that Hawaii was a central whaling port in the Pacific for more than 40 years. From 1820 into the 1860's, the islands served as an important port to the whaling ships of the North Pacific. Twice a year, Hawaii provided a place for the whaling ships to come and restock their provisions, transship their oil and whalebone, and provide respite for their weary crews. Both Lahaina and Honolulu prospered tremendously as millions of dollars were thrust freely into the island economy. The whaling industry created economic growth and jobs in Hawaii as had never been experienced before.

A Look at Whaling Today

Since the 1800's, much about whaling has changed. Not only did the methods of how the whales were hunted change, but also the way in which the whaling industry was managed.

Beginning in the mid-1800's, whalers made use of technology that was not available in the early whaling days. In many ways this modern technology seemed to make the fight between the whaler and the whale much less fair. It included the use of ships that were bigger, faster and capable of chasing and killing the larger, faster whales. In addition to being bigger and faster, these ships were later aided by new technologies for locating whales such as underwater sonar, spotter planes and helicopters that were a far cry from a lookout clutching the mast and scouting the horizon for whale spouts. The weaponry used to kill the whales was also more

effective. The lone harpooner braced on the bow of a rocking whaleboat was replaced by guns that fired barbed harpoons that exploded when embedded in the whale. These explosive harpoons caused the whale to suffer a painful death which sometimes took as long as two hours. Millions of whales were killed with these new harpoons and then hauled aboard a factory ship where they could be "processed" in less than an hour and turned into raw materials for products including shoe polish, dog food, margarine and tennis racket strings. The new technologies used in modern whaling were responsible for bringing about the drastic population reductions experienced by many whale populations- including the humpbacks.

In 1946, an international committee, the International Whaling Commission (IWC) was established to oversee management of the whaling industry worldwide and to provide for the conservation of whales so that they "may be safeguarded for future generations." Membership to the Commission was open to all of the whaling nations of the world. The IWC operated according to guidelines set forth in the International Convention for the Regulation of Whaling, a formal agreement developed at the time the Commission was established. The Convention imposed regulations for hunting species of whales determined to need protection and set open and closed seasons and waters. In its first twenty years the IWC concentrated heavily on managing the business aspects of whaling. It was not until the 1960's, following the depletion of several major whale populations, including those of the humpback and blue whale, that the IWC expanded its role to include a strong conservation ethic.

In 1986 the IWC instituted a 10 year moratorium, or complete ban, on commercial whaling to properly determine the status of whale populations and give depleted populations an opportunity to recover. Since the moratorium went into effect, several pro-whaling nations including Iceland, Norway and Japan have expressed their dissatisfaction over the moratorium as they wish to continue hunting some species of whales as a source of food and oil. Some of these nations have withdrawn or have threatened to withdraw from the IWC, while others are no longer honoring the moratorium. At least 14,000 whales have been killed since the moratorium took effect. In 1992, more whales were killed than in any year since the moratorium's passing. This illustrates the fact that the moratorium on commercial whaling is being weakened.

Presently under the IWC Convention two types of whaling are legally permitted. These two types are: 1) subsistence whaling, or the taking of a limited number of whales by certain indigenous, or native peoples, for their own use, and 2) scientific whaling which refers to the regulated taking of whales that are not considered to be threatened or endangered for the purpose of furthering our knowledge about whales.

In contrast, there are two types of whaling that are not legally permitted under the moratorium, but continue to be practiced by members of some nations despite the international ban. These are 1) pirate whaling which is the non-regulated, illegal taking of whales and 2) commercial whaling which is the taking of whales for commercial sale. The main motive behind both these types of whaling is the potential to make large sums of money. For instance, in Japan whale meat is a delicacy commanding prices of more than \$100 per pound. Such profits provide economic incentive for pro-whaling nations to have the moratorium on commercial whaling lifted, and to have the quotas on scientific whaling increased, as many of the whales hunted under the guise of scientific research mysteriously find their way into the commercial markets.

Whales face several threats other than the resumption of commercial whaling. These include entrapment in high seas driftnets, pollution and degradation of their habitat. Each of these issues is addressed briefly below.

B. Driftnets and Coastal Gill nets

Another human activity that poses a serious threat to the humpbacks as well as other species of whales is driftnet fishing. Driftnets are huge nets made of lightweight nylon which measure between 1.25 to 90 miles in length and 8 and 15 feet in depth. They are left to "drift" in the open ocean for periods of 8 hours or more, hence the name "driftnet". While driftnets are an effective means of catching their target species, the species they are intended to catch- generally tuna and squid, they are an indiscriminate method of fishing, and tend to

entrap anything larger than their mesh size. This includes sea birds, turtles, seals, dolphins, whales and many species of non-target fish which together are known as the by-catch. The majority of the animals that become entangled in driftnets are not able to free themselves and drown. Thousands of whales, dolphins, sea birds and turtles, many of which are endangered, die needlessly in driftnets each year.

Large-scale driftnet fishing has often been referred to as "the most deadly and wasteful fishing method ever developed." Driftnets deplete fish populations so completely that many times there are few fish remaining for fishermen who use more sustainable methods. Driftnet fishing is also extremely wasteful. Thousands of tons of fish drop out of the nets or are discarded when the nets are hauled in. Estimates of spoiled target catch and discarded by-catch vary between 17% and 55% of the total.

In 1991, the United Nations passed a resolution establishing an international moratorium on high seas driftnet fishing, effective January 1993. The driftnet moratorium makes it unlawful to set driftnets anywhere on the high seas after this date. While it is an important victory for conservationists and marine wildlife around the world, it is important that the driftnet moratorium be properly enforced in order for it to be effective. This may require that a system to carefully monitor the high seas and report any driftnet activity be developed. Needless to say, establishing such an observation system could prove to be quite difficult and presents a number of challenges to those involved with fisheries conservation.

In comparison, coastal gill nets are used primarily by artisanal, or non-commercial fishermen. Gill nets are smaller in size and can either be anchored on the sea bed or allowed to drift. The use of gill nets has been rapidly increasing around the world without any control or monitoring. Although they are an efficient method of catching fish, they are also leading to the population decline of several species of fish, as well as the deaths of many other marine animals each year. The whales, dolphins, sea turtles and other species most at risk from the use of gill nets are those that live close to shore. Gill nets are commonly used by fishermen around the main Hawaiian islands.

In the spring of 1993, new laws went into effect that regulate the use of gill nets in Hawaiian waters. It is now unlawful for any person fishing with a gill net to leave the net unattended for more than two hours without visually inspecting the net and releasing undersized, illegal or unwanted catch. It is also illegal to leave any gill net in the water for a period of more than four hours in a twenty-four hour period.

C. Marine Pollution

While the overall impact of pollution on the marine environment is unknown, contaminants introduced by rivers, coastal runoff, ocean dumping and various other activities are beginning to take their toll on the oceans. More than 80% of all marine pollution originates from land-based sources which are primarily industrial, agricultural and urban. Whale populations are coming under increasing stress from pollution, eutrophication and polychlorinated biphenyl (PCB) contamination.

PCBs are one of many man-made chemicals used in the production of plastics and styrofoams- common components of beach trash. Mass die offs of cetaceans thought to be related to PCBs and other environmental factors have been increasing in the last decade. For instance, an increasing number of deaths of Beluga whales (a species of white whale found predominantly in northern latitudes) have been associated with pollutants like PCBs. In many instances, the concentration of PCBs found in the tissue of Beluga whales is so high that their corpses are considered to be hazardous waste and must be handled as such. Accumulation of PCBs in the tissue of whales is also thought to alter their physiology and in turn, reduce their ability to reproduce.

Ozone depletion brought about by the burning of fossil fuels, such as oil and gasoline, is also thought to be indirectly harmful to whales. This is particularly true in the southern hemisphere where ozone depletion has resulted in increased levels of ultra-violet B radiation (UV-B) reaching the earth's surface. UV-B is known to

have significant negative biological effects on phytoplankton, the species of marine algae which form the basis of the marine food chain, and krill, a diet staple for many species of baleen whales. By limiting the consumption of fossil fuels, we can actually help protect the whale's ecosystem by keeping the food chain intact. Greater protection of the world's oceans, seas and rivers is vital to provide a livable habitat for whales and other marine species.

D. Whale Watching

Not all of man's actions towards the whales are harmful. One way man has chosen to take advantage of the whales is to enhance his understanding and appreciation of them through whale-watch cruises and other types of eco-tourism. Eco-tourism is a non-consumptive method of "using" wildlife species to make a profit without directly harming or killing them.

Increasingly, many nations of the world have come to realize that living whales have more economic value as marine resources than they do on a dinner plate. In many places, including Hawaii, whale-watching has become a lucrative business. The whale-watch industry draws almost one million visitors to Hawaii each year, resulting in tourist income for the state of more than 80 million dollars annually. Other nations including Norway, which has expressed a strong interest in resuming commercial whaling, are launching whale-watch programs and noting their successful results.

IV. PROTECTIVE MEASURES

A. Federal Laws and Regulations

In the United States all species of whales, including the humpbacks, are protected by two federal laws. They are 1) the Marine Mammal Protection Act of 1972; and 2) the Endangered Species Act of 1973. (See Appendix 2 for more detail of these laws.)

In addition, there are specific regulations on approaching humpback whales in Hawaiian waters. These regulations are meant to ensure that humpback whales are not disturbed or harassed in the course of human activities. These regulations are listed below.

It is unlawful to:

1. Operate any aircraft within 1,000 feet of a humpback whale
2. Approach by any means (i.e., by boat or by swimming) closer than 100 yards of any humpback whale or closer than 300 yards of a humpback mother and calf.
3. Disrupt the normal behavior or activity of a humpback whale. This is considered a form of harassment.

Violators of these regulations may be prosecuted by the Federal government and may be subject to penalties of up to \$25,000 for each violation or penalty. If you witness an incident or suspect a violation of any of these laws or regulations, you are encouraged to contact the law enforcement office of the National Marine Fisheries Service at (808) 541-2730.

HUMPBACK WHALE BEHAVIOR

FEEDING - The humpbacks don't eat during their six months in the Hawaiian Islands. Hawai'i doesn't offer their food, krill and herring. But, since the whales spent the winter in the north, doing nothing but eating, they

carry their summer food supply in their fat.

SLEEPING - Humpbacks sleep with half their brain at a time. Then they switch sides, and put the other half to sleep. The side that remains awake acts as a sentinel to protect the whale from threats, including sharks and boats.

MIGRATION - Humpbacks take about 39 days to travel the 3,200 miles from Alaska. They cruise an estimated 3 to 4 miles per hour, and are believed to swim 24 hours a day.

Breach- One of the most thrilling behaviors to observe is the breach. With just a few strokes of their flukes, humpbacks can gain enough momentum to hurl their 30 ton, 45 foot bodies into the air, then crash back down with a thunderous splash! Theories abound as to why whales breach, from acoustic signalling, to removal of barnacles, to joyous play.

TAIL SLAP - A powerful action often used in aggressive encounters, the tail slap occurs when the whale's flukes are lifted clear out of the water and then brought down on the surface with a great resounding "crack!" Whales have been seen tailslapping repeatedly, more than 40 times! The width of their flukes can reach 15 feet and the underside is as distinctive as our own fingerprints.

PECTORAL SLAP - Humpbacks have the longest pectoral fins of all whales, stretching up to 15 feet in length. These fins may be used to help maneuver the whale or signalling. A pectoral slap is created when a whale rolls on its side, raises its pectoral fin out of the water and forcefully slaps it down. At times a whale will turn completely on its back and slap both fins on the water's surface.

Courtship- Dynamic displays of humpbacks performing courtship behaviors can be seen in the waters off the Hawaiian Islands. Males engage in competitive activities with each other for access to receptive females. Sometimes whales lunge aggressively at each other trying to displace one another resulting in superficial abrasions.

NURTURANCE - Mothers and calves are always seen close together: there is a powerful bond between them. Mothers often use their pectoral fins to caress and cradle their young and have been seen assisting their babies to the surface. Newborns are 12 to 15 feet long and can weigh 2 tons. Calves typically nurse for 8 to 12 months and can consume 80 gallons in a day! They can double their size in one year.

WHALE SONG - Although it may sound like groaning, screeching or creaking to us, humpbacks can produce sounds that are classified as true songs.

Songs are produced on the breeding grounds, and to date, singers observed have been identified as males. Researchers speculate that singing may play a role in attracting a mate, establishing a territory, or advertising availability. Songs are produced on the breeding grounds, and to date, singers observed have been identified as males. Researchers speculate that singing may play a role in attracting a mate, establishing a territory, or advertising availability.

Humpbacks in Hawai'i all sing virtually the same song. Their song is identical to that of the humpbacks breeding off the coasts of Mexico and Japan. The song changes every year, and it changes across the Pacific basin at virtually the same time! The song of the humpback is a mystery and a marvel: its purpose may be more complex than we can imagine.

3. GREEN SEA TURTLES

Significance: There were once several million green sea turtles worldwide. Today, fewer than 200,000 nesting females are thought to remain. In Hawaii, scientists currently estimate that only 100 to 350 females nest each year, predominantly at French Frigate Shoals in the Northwest Hawaiian chain.

Green sea turtles are found throughout the world's oceans. Like the other six species of sea turtles, green sea turtle populations are considered either endangered or threatened. Hawaii's population of green sea turtles is listed as threatened under the federal Endangered Species Act, indicating that they may become endangered in the near future. Some populations of green sea turtles in other parts of the world are not as lucky; the populations off the coast of Florida and the Pacific coast of Mexico are already listed as endangered. While tiger sharks are known to feed upon the green sea turtles, man it seems, may pose a greater threat to the animal's survival.

III. FACTORS AFFECTING GREEN SEA TURTLE POPULATIONS:

In Hawaii, scientists currently estimate that only 100 to 350 females nest each year, predominantly at French Frigate Shoals in the Northwest Hawaiian chain. Listed below are some of the factors believed to have contributed to the decline of the green sea turtle, as well as other sea turtle species:

A. Hunting

Sea turtles have long been hunted for a variety of uses. Their shells have been used to make jewelry and ornaments, their skin to make small leather goods, their meat and eggs for food, and their fat for oil. In modern times, the number of sea turtles taken has increased dramatically due to the opportunity for profits they provide through commercial trade.

Ancient Hawaiians used the meat of the green sea turtle for food. Green sea turtles are also recognized as being the main ingredient in turtle soup. Before protective laws such as the Federal Endangered Species Act of 1973 were passed, green sea turtles were killed in large numbers to feed fishing crews in the Northwestern Hawaiian Islands and to provide meat for restaurants. Hawaiian populations experienced dramatic declines as a result. Because sea turtles take so many years to reach sexual maturity, it has taken 20 years since the passing of the Endangered species Act to see evidence of a population recovery.

Their natural habits also make sea turtles vulnerable to hunters. Because they lay their eggs in such a predictable way and are defenseless on land, poachers continue to kill hundreds of sea turtles each year for their eggs, shells and meat, despite laws prohibiting these activities in many countries. Egg clutches are especially easy to spot. After laying her eggs, the female turtle must struggle back to the ocean leaving a "tell-tale" trail behind in the sand.

Some native Pacific Islanders, as well as groups of native peoples in other parts of the world, continue to hunt depleted sea turtle populations for food. Continued subsistence takes under such conditions seriously risk both the survival of the species and the availability of this food source in the future.

B. Effects of Some Fisheries

Another important cause of sea turtle death is incidental (or non-deliberate) catch in fishing gear. Commercial shrimp fishers use nets that trap and drown more than 10,000 sea turtles each year. Many sea turtles could be saved if the shrimpers would use devices, called turtle excluder devices (TEDS), that keep turtles out of the nets. Laws exist that require shrimpers to install and use such devices, yet many shrimpers do not abide by them. In addition, thousands of sea turtles become entangled in longlines, driftnets, coastal gill nets and other discarded fishing gear each year.

C. Marine Debris

Litter and other marine debris can prove deadly to sea turtles when they entangle the turtles or are mistaken for food and ingested. Plastics are particularly harmful as they are not easily digested and remain in the turtle's stomachs for long periods of time, releasing toxic substances. Ingested plastics also can clog the turtle's

digestive system, blocking the proper passage of food. Thus, sea turtles may actually starve from ingesting plastic debris. Balls of oil and tar have also been found in the throats and stomachs of deceased sea turtles indicating that oil spills may pose another cause for concern.

D. Coastal Development and Habitat Degradation

Sea turtle nesting beaches are lost each year to coastal development, leaving the females without a familiar place to lay their eggs. Noise, lights and beach obstructions are disruptive to nesting areas and threaten this critical part of the sea turtle's life cycle. Some turtles may choose to nest on less developed beaches nearby, while others may not nest at all. Pollution and degradation of their marine habitat also threaten the turtle's survival.

E. Fibropapilloma

A fairly recent phenomenon recorded in Hawaii's population of green sea turtles as well as in populations off the coast of Florida is the presence of a disease called fibropapilloma. Fibropapilloma causes the growth of large bulbous tumors predominantly on the soft tissues of the turtles. Once turtles are stricken with the disease they do not appear to recover. The tumors often spread to many parts of the body, ultimately killing the turtles. While the exact cause of the disease is not known, scientists suspect that a virus, parasite or the effects of marine pollution may be involved. A survey conducted in Kaneohe Bay on the island of Oahu in 1991 indicated that more than 50% of the green sea turtles in the Bay are affected and 36% off the island of Molokai.

IV. Protective Measures

A. Federal Protection

Green sea turtles, as well as other sea turtles in Hawaii, are fully protected under both the federal Endangered Species Act (see Appendix 2) and under Hawaii state law. These laws prohibit hunting, injuring or harassing sea turtles or holding them in captivity without first obtaining a special permit for research or educational purposes. Swimmers and divers should be aware that riding sea turtles is illegal as it puts the animals under unnecessary stress. Fines for violating these laws protecting turtles can be as high as \$100,000 and may even include some time in prison.

Under provisions in the Endangered Species Act, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service and the State of Hawaii's Department of Land and Natural Resources have recently formed a recovery team to help restore Hawaii's green sea turtle population to previous levels. The goals of the recovery team are to identify research, management and enforcement needs for effective sea turtle conservation in the islands as well as promoting sea turtle protection through public education programs.

B. International Protection

International trade in sea turtle parts or products is also illegal under an agreement known as the Convention for International Trade of Endangered Species of wild fauna and flora, or CITES (see Appendix 2). Unfortunately, trade in sea turtles and their products continues at an alarming rate even though it is against the law. International trade currently focuses on two major markets: tortoise shell, which is used to make jewelry, eyeglass frames and ornaments, and small leather goods. Two species of sea turtles other than the green sea turtle are hunted primarily for these markets. They are the Hawksbill and the Olive Ridley, both sighted in Hawaiian waters. When returning from a foreign country, it is illegal under CITES for United States citizens to bring any sea turtle products into the country. Violators may be fined up to \$20,000 and be sentenced up to one year in prison.

