

Marine Turtles: Information for Newsletter

1. What are Marine Turtles?

Sea turtles are a group of reptiles which are cold blooded, lay eggs and spend most of their lifetime in the sea.



Turtles have a stream-lined body, a large shell called a carapace, four strong, paddle-like flippers and a beak-like mouth used to tear or crush food. They have a tough skin covered with scales or plates and like all reptiles, turtles have lungs to breath in air.

Green Turtle with stream-line body

Photo: Marine Section, 2006

Turtles have lived in the oceans for over 100 million years, migrating long distances between their feeding grounds and nesting areas. When turtles are active they must swim to the surface to breath and when they rest, they are able to stay underwater for long periods of time.

Although turtles spend most of their life in the sea, female turtles tend to return to the same area (sandy beach) where they were hatched to lay their eggs. Turtle nesting seasons occur at different times around the world. The nesting season for the Hawksbill turtle here in Samoa occurs from October to June with the peak months being January and February.

2. Turtles of Samoa

Out of the seven species of turtles found worldwide, only three species of turtles have been recorded to occur in Samoa. Two of these species, the Green turtle (*Chelonia mydas*) and the Hawksbill turtle (*Eretmocheyls imbricata*) are commonly found in Samoa waters. The third specie, the Leatherback turtle (*Dermodchelys coriacea*) is considered rare and has only been caught from offshore long-line fishing operations.



Eretmochelys imbricata (Hawksbill turtle)



Chelonia mydas (Green turtle)

The hawksbill turtle is the only turtle that has been confirmed to nest in Samoa at the Aleipata Islands of Namua, Nuutele and Nuulua, these being the most important and known nesting areas in Samoa. The Green turtle is known to only feed within Samoa waters but migrate to neighbouring islands to nest.

3. Why are Marine turtles important?

Turtles have been an important part in the traditional Samoan way of life, featuring in legends, myths and songs. In the past, turtles were considered sacred (i'a sa) and were only hunted for special traditional ceremonies such as important matai title bestowments and other important events

Marine turtles are also ecologically important to the marine ecosystems such as the coral reef and seagrass beds. That is, they are known to be grazers of seagrass beds eating on and at the same time maintaining the health of these marine plants. Turtles also help maintain the health of coral reefs by eating sponges and soft corals that grow over and compete with corals for sunlight and space.

4. Threats to Marine Turtles

Today all marine turtles are listed as "Critically Endangered" species in the Appendix 1 of the Convention on the International Trade of Endangered Species of Wild Fauna and Flora (CITES). They are also included in the World Conservation Union (IUCN) Red List of Threatened Species. In general, all marine turtles are threatened and moving towards extinction worldwide if international trade or exploitation continues.

Turtle surveys which have been conducted so far have noted the declining status of the turtle population in Samoa. This is believed to have been caused by the following.

Natural threats

Natural predators of turtle eggs include crabs, lizards, and human beings, while hatchlings or baby turtles are predated by birds, fish and sharks. In addition, the survival of turtle eggs is reduced by nest disturbance made by pigs, and the destruction of nests and suitable nesting sites by cyclones. After reaching adulthood turtles are relatively immune to predation, except for the rare shark attack and diseases such as the fibropapilloma [warts on turtles]. Other natural causes of mortality include stranding and senescence (old age).

Human-caused threats

The main threat to turtles is the over harvesting of turtle eggs for food, killing of adult turtles for meat and the utilization of turtle shells commercially for handicrafts and ornaments. This has been made worse since the weakening in the past of traditional laws which regulated the harvesting of this sacred fish. Increasing debris and pollution in the sea has also become a major source of mortality, with turtles getting entangled in discarded fishing nets or suffocating after ingesting plastics and other materials which it mistakes for food. Furthermore, coastal developments such as reclamation, sea walls and bright road side lighting have impeded nesting females from laying their eggs. Artificial lighting from beach lights can also disorient hatchlings. There is still evidence of illegal trading involving turtle shells, as well as boat strike incidents.

5. Turtles Research in Samoa

The Ministry of Natural Resources, Environment and Meteorology (MNREM) through the Division of Environment and Conservation (DEC) has a Marine Species Conservation Program, under which marine turtles are targeted for conservation efforts given their endangered population status.

Part of our activities under the Marine Species Conservation Program includes the tagging and releasing of marine turtles back into the sea.

Turtle Nesting Survey:

Research has been initiated by the DEC to assess the breeding population of hawksbill turtles in Samoa. A study in 1994 noted that the population of turtles in Samoa is declining. The lack of statistics on the utilization of the turtle resource in Samoa has made it impossible to trace trends in effort and landings and thus the status of turtles.

A continuous Turtle Nesting Survey has been implemented since 2003 in collaboration with the Fisheries Division in an attempt to assess the turtle population status in Samoa. The survey takes place during the turtle nesting season which normally starts in October and ends in April. The results from this survey will not only demonstrate timely trends in the nesting populations of Hawksbill turtles in the country, but also provide information on the overall population status and the likely impacts of other factors on the turtles and their nesting habitats.

Regional Turtle Tagging Program:

The Regional Tagging program is coordinated by the Secretariat of the Pacific Regional Environment Programme (SPREP). The Year 2006 is declared the Pacific Year of the Sea Turtle (YOST) as recommended in the SPREP regional Marine Turtle Action Plan 2003-2007. One of the main activities highlighted for the YOST campaign is the multiple release of satellite tags in the region. The program portrays that turtles are a shared resource due to their migratory nature, thus requiring regional cooperation in their conservation.

At the national level, the Ministry of Natural Resources, Environment and Meteorology - *Division of Environment and Conservation* is one of the collaborating government agencies for this program because of the common interest in the protection and conservation of marine turtles.

Flipper tagging:

The common tool which has been and is currently used to obtain information on the migration of turtles is simple tags, a small light piece of metal which is attached to the turtle's two front flippers. Flipper tags have a number on one side and a returning address on the other.



***Turtle research team applying titanium flipper tag on a Green turtle.
Photo: Marine Conservation Section, 2006***

A disadvantage of flipper tags is that the information can only be collected if the tagged turtle is recovered. Another drawback of using flipper tagging is that the tags are not permanent and can be easily detached from the flippers.

Satellite Tagging:

Turtles are migratory marine animals and the satellite tag is a monitoring device that enables the efficient monitoring of the turtles migration routes and activities especially between their foraging and nesting grounds.

The Satellite Tag is a radio transmitter which sends signals/information that can be picked up by an orbiting satellite. The information can then be retransmitted to a receiving station on land and can be accessed through the computer.

With a satellite tag, detailed and more accurate and reliable information such as the post-nesting migration of adult turtles between foraging areas and nesting beaches, depth and dive profiles, and swim speed and water temperatures can be obtained. These kinds of information provide the basis for the development of strategies and measures for the monitoring, conservation and protection of marine turtles.



Green turtle returning to the sea after attaching satellite tag on her carapace
Photo: Marine Conservation Section, 2006

As a collaborating partner, the Satellite Tagging Programme has benefited the MNREM in terms of obtaining more accurate and reliable information, getting first hand experience on the monitoring device, training, and improving working relationships with Intergovernmental Organizations such as the SPREP.

Conservation of Marine Turtles in Samoa

Current Activities

Other than tagging (flipper and satellite) and releasing turtles and Nesting Surveys, other activities carried out by the Division of Environment and Conservation for the same purpose include the production of information Sheets and an identification Poster on Marine Turtles, the preparation and deliverance of public and schools presentations to raise and increase awareness on marine turtles and other related issues.

Legislative Framework for Turtles Conservation

In Samoa, the 'Local Fisheries Regulations 1996' prohibits fishing for, possession or selling of any green or hawksbill turtle whether dead/alive with a shell that is less than 700mm at its longest part of the carapace measured along the curve of the carapace from that part of the carapace nearest the head to the part nearest the tail. The regulation also prohibits the disturbance of any turtle nest, including the taking, using and destroying of the eggs within the nest.

The MNREM has developed a Marine Wildlife Protection Regulation (yet to be approved by Cabinet) which prohibits the disturbance, possession, selling or purchasing of turtle eggs, the commercial fishing of turtles and the interference and/or taking of nesting turtles. The Wildlife Protection Regulation also requires the reporting of incidents involving turtles such as accidental captures, injuries or kills while undertaking fishing activity.

6. How Can You Help Protect The Turtles?

Everyone can help protect the turtles by doing the following:

- Do not discard old fishing lines/nets, plastic and other non-biodegradable rubbish on beaches or into the sea.
- Support local sea turtle conservation initiatives.
- Do not buy or sell any turtle products
- Release turtles caught in fishing lines/nets and do not keep them in captivity.
- Keep a good lookout for turtles while boating to avoid injuries to them, especially in shallow waters. Boat strikes can kill.
- Never try to spear, harass, catch or ride turtles.
- Leave breeding female turtles alone.
- Leave hatchlings crawling into the sea alone.
- Avoid using turtle nesting beaches for activities such as camping and barbeques.
- Help control access of pigs and dogs to nesting beaches as they can endanger eggs and hatchlings.
- Avoid sources of light or campfires near turtle nesting beaches.
- If you find a turtle, record the tag number and where and when you saw the turtle or if the turtle you find is dead, please call, return or send the tag to the address below.