



TROPIC NEWS

DEPARTMENT OF PLANNING AND NATURAL RESOURCES DIVISION OF FISH AND WILDLIFE

May 1997

Volume 9 Number 8

SAGA OF A SPONGIVORE: The Ecology and Conservation of the Hawksbill Turtle

The hawksbill is the largest spongivore (sponge eater) and the only reptile known to feed almost exclusively on sponges. Fewer than a dozen vertebrate animals are known to be dedicated spongivores and those are predominantly angelfish (including the gray; French; and queen angelfish), filefish; trunkfish; and the Moorish idol.

Dr. Anne Meylan is one of the world's foremost authorities on hawksbill turtles. Her studies indicate that more than 95 percent of the stomach contents of hawksbills consist of sponges. Dr. Meylan's research and subsequent experiments by other scientists indicate that male and female hawksbills of all sizes depend on sponges as their primary food source.

To better understand the "uniqueness" of a sponge eater, you need to consider the structure, defenses and nutritional qualities of sponges. Sponges are multicelled animals which belong to the phylum Porifera.

Most sponges eaten by hawksbills are characterized by a dense matrix of spongin fibers and siliceous spicules. Spicules resemble needle-thin slivers of glass, many with multiple, hooklike tips. Spicules are unaffected by the digestive processes of hawksbills or other spongivores for that matter.

Some sponges consumed by hawksbills possess noxious or toxic chemical compounds that in most cases are effective deterrents against potential predators. No one is sure how hawksbills overcome the toxins that may be present in their prey sponges.

Given the questionable gastronomic character of sponges, why would hawksbills, angelfish, and other spongivores want to eat sponges? Some scientist have suggested that spongivory evolved in response to increased competition for food among animals on coral reefs. Sponges represent a widespread, abundant, relatively underexploited food source for any predator able to eat glass and not become poisoned by toxins in the sponge. Little information is available on how spongivores digest their prey.

Hawksbills are influential inhabitants of coral reefs. They not only maintain the size of sponge

populations on the reef but they enable other animals to prey on sponges. As the turtle eats the sponge, it exposes the soft inner parts of the sponge which are fed on by other fish. This also exposes many organisms that live within the sponge which then are also preyed upon.

Just as hawksbills affect life on the reef, the quality of the reef habitat affects them. Hawksbills require a vibrant sponge community on which to feed. Unfortunately, coral reefs worldwide are deteriorating as a result of marine pollution, the collection of reef life forms, other human disturbances, and natural catastrophes. If the conditions of reefs and the food provided by reefs continue to decline, the hawksbill will be affected.

As grim as the situation is for hawksbills, there is hope. Legal international trade of tortoiseshell has declined dramatically, although illegal trade probably still continues. In 1992, Japan, historically the largest importer of tortoiseshell, agreed to end its importation of tortoiseshell under the Convention on International Trade of Endangered Species (CITES). As recently as 1990, tortoiseshell from some 12,200 hawksbills was exported from the Caribbean into Japan. According to a report published by Anne Meylan in 1989, the turtles were taken from a region for which the maximum estimate of nesting females is 5,000 each year.

Only through stringent enforcement of bans on tortoiseshell trade, protection of coral reefs and conservation of the beaches on which hawksbills nest do we stand a chance to save this species. Loss of the hawksbill turtle would be a terrible loss to the biodiversity of the world's oceans.

Article partially excerpted from original story by Jeff Ripple, Ocean Realm Magazine.

Quote

Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question whether a still higher "standard of living" is worth its costs in things natural, wild and free.

A Record Year At Sandy Point

The Sandy Point leatherback turtle project has been running since 1981. Before the project was started by the Division, nearly 50% of all nests laid were lost to beach erosion each year. Those that remained suffered poaching by humans. This left very few nests to hatch and maintain the species. As a result, numbers of turtles nesting each year at Sandy Point was around 20 and probably declining. For the first eight years of the project, we had an average of 28 turtles nesting each year. For the last eight years, we have averaged 41 turtles per year with a high of 55 turtles in 1992 and 1994.

Starting in 1981, we began moving nests that were laid in erosion prone parts of the beach to "safe zones". We began patrolling the beach at night, every night, from April 1 to the end of August to try to encounter each and every turtle that nested. As a result of these activities, poaching has dropped to zero and loss to beach erosion is less than 3% each year. This means more hatchlings are successfully leaving Sandy Point than at any time in the recent past. From genetic work we know that the hatchlings return to Sandy Point to nest once they mature. It is believed that leatherbacks take from ten to fifteen years to reach maturity.

This year we may be seeing some exciting results of our nest protection efforts. As of the 18th of May we have 100 individual turtles nesting on Sandy Point. Thirty six of those are new, untagged turtles, presumably young turtles coming to nest for the first time. These may be turtles that hatched from protected nests on Sandy Point ten to fifteen years ago and have survived to maturity. It is estimated that only about one in one- cont'd

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thousand eggs laid survives the perils of life and lives long enough to reach maturity. When you figure that half are probably males, it means that a lot of eggs have to be protected to see one turtle come back. Each turtle lays an average of 5.3 nests per year, and 80 eggs per nest. If we exceed 100 turtles this year, which we easily may, we could have over 500 nests and 40,000 eggs on the beach this year, a monumental record for Sandy Point!

Article by Ralf H. Boulon, Jr., Chief of Environmental Education Program.

Turtle Video now available

Just as promised, our latest video is now available. Third in the series, Our Natural Virgin Islands: Sea Turtles: Our Endangered Mariners, is really a treat for the sea turtle enthusiast. "Tessa the Turtle", an animated turtle, shares interesting information about her species. The 9.5 minute video discusses Virgin Islands sea turtles; Leatherbacks, Green, and Hawksbills. The video is available at both DFW Offices in Redhook, St. Thomas (809 775 6762) and Lagoon Street, St. Croix Office (809 772 1955). Please give us a call if you are interested. We request a \$2.00 fee for postage per video.

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This newsletter was funded by the US Fish and Wildlife Service, Sport Fish and Wildlife Restoration Acts, the Caribbean Fishery Management Council and the Government of the VI.

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