



Coral Diseases

In 1996, it was reported that a new, devastating disease called Rapid Wasting Disease (RWD) killed corals at a rate as high as 7.5 cm of tissue in 24 hours. Recent studies have shown that this is the result of two different syndromes; parrot white spot biting (PWSB) and rapid wasting syndrome (RWS). These are now being identified across the greater Caribbean.

Massive reef-building corals such as *Montastrea annularis*; and *Colpophyllia natans*, appear to be stripped of living tissue from the coral head surface by the stoplight parrot fish, *Sparisoma virde*. Microscopic examinations of affected samples reveal the presence of a filamentous fungus damaging the internal cell structure of the coral.

RWS was first seen in late 1996. In January 1997, scientists examined and identified this to be a new disease affecting two of the major reef builders in the Caribbean based on the microscopic examinations, along with this unusual physical damage. Recent research shows an extensive spread of fungal infected coral tissue. Parrot fish seem to be attracted to fungal infected tissue. The cause of the dramatic increase in fungal infection and PWSB is a subject of intensive investigation. Long term observation show a dramatic increase in PWSB which appears to have leveled off in many places.

RWS and PWSB looks as someone poured acid over the tops of the coral heads. The bright white skeleton remains completely intact, but with no living tissue surviving. On *Colpophyllia natans*, it occurs around the rim and on a few areas throughout the coral structure. During the beginning stages of RWS coral show signs of discoloration or loss of pigment in the polyp tissue, measurement show the repeated biting from the fish progresses up to one to two inches per day, and in some cases as high as 17 inches. There is a sharp boundary between the eroded skeleton and live tissue.

Algae quickly overgrow the skeleton. Therefore when one sees skeleton, it indicates the recent occurrence of RWS and PWSB. Sometimes the fungus resides on the coral that has just been bitten by *S. virde*, which explains why the two syndromes were originally thought to be one disease. Data shows that RWS and PWSB occur at depths of less than 80 feet. The good news is, the coral if not completely damaged by the parrot fish can recover, however, some corals as old as 100 years have been wiped out by the combination of PWSB and PWSB.

Another disease affecting the same species across the Caribbean is Yellow Band disease. Yellow band is slow acting and is characterized by round, yellow rings on the sides of the coral. Other diseases include White Plague Type I and II, Black Band Disease, White Band Disease Types I and II, Dark Spot Disease and Aspergillosis which is a disease which affects sea fans.

Many other diseases have been observed but not described, and the causes have not been identified. Corals may be stressed by disturbances such as increased sedimentation from deforestation, changes in climate cycles (such as El Nino) and other polluting activities. If the coral animal is more stressed, it is more susceptible to diseases. More research is needed to determine the cause of these diseases through observation, field experiments, and lab analysis of tissue. In the lab, researchers can attempt to culture and identify any possible disease causing microorganisms. To determine the disease' rate of spread, regular photographic and video monitoring of reefs is needed on select coral heads. This will also be helpful toward detecting changes in abundance of diseases.

Information excerpted from article by James M. Cervino, Global Coral Reef Alliance. Oceanic Resource Foundation, Summer 1998.

October 1998 - Redhook, St. Thomas

Temperature

Maximum

Minimum

Rainfall

89.2 °F

73.0 °F

5.33 inches

Quote

"We can only waste our environment once. Let's not waste it today.

-Unknown

What are Giant Ocean Fish?

Giant ocean fish are sharks, tuna and billfish (eg. marlins, swordfish and sailfish). They are the predators of the sea. Tuna, billfish and many shark species are pelagic, or open ocean fish. They spend a significant portion of their lives midway between the surface and the ocean bottom. They also use coastal areas for feeding, mating and nurseries for their young. Not all sharks are pelagic. Some are coastal animals because they spend the majority of their lives in shallow, near-shore waters.

Giant ocean fish play an important role in the marine food chain. Like lions, tigers, wolves and bears on land, giant ocean fish help maintain a natural balance in the ocean. A decline in the number of these marine predators could upset that balance. If the ocean's top predators decline in number, many animal populations lower on the food chain would grow making them susceptible to increase competition over limited food supplies, disease and starvation.

Humans also are dependent on these animals. The fisheries they support are vital to millions of people from small-scale fishermen in developing countries to large-scale industrialized fishing operations on the high seas. In addition, a countless number of seafood processors and distributors worldwide make their living through these fisheries.

What Makes These Animals Magnificent?

They are among the most long-lived and highly evolved of any marine fish species. Many are warm-bodied and can adjust to changing water temperatures, unlike other fish that must stay in a narrow temperature range. This enables them to have more places to hunt, from the cool waters

of the deep ocean to warmer, shallower waters of the coast. They have hydrodynamically perfect body designs, which enables them to maintain high speeds and travel great distances across ocean boundaries.

They can grow to enormous sizes exemplified by the whale shark (approximately 60 feet), the northern bluefin tuna (about 10 feet and an estimated 1,500 pounds), and the Atlantic swordfish (close to 15 feet and over 1,000 pounds), while retaining great agility. They are the true athletes of the ocean.

What Are The Threats They Face?

There are five primary threats that have contributed to decline in giant ocean fish: overfishing through targeted or inadvertent catch; limited or nonexistent fishing regulations; catching fish before they reach maturity and are able to reproduce; and degradation and destruction of the ocean habitat.

Giant ocean fish are important, but they are often forgotten except by the few who study or fish them. They play a critical role in the marine environment and provide food, employment and recreational enjoyment to countless numbers of people worldwide. By furthering our own understanding of these magnificent creatures, we can ensure that their populations are maintained for future generations.

Information gathered from a brochure produced by New England and The Pew Charitable Trust.



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.

Donna M. Griffin - Editor

Ralf H. Boulon Jr. - Chief of Environmental Education

GOVERNMENT OF THE VIRGIN ISLANDS
OF THE UNITED STATES

Department of Planning and Natural Resources
Division of Fish and Wildlife
6291 Estate Nazareth 101
St. Thomas, USVI 00802-1104
(809)775-6762 (ST.T.), (809)772-1955 (ST.X.)

BULK RATE
U.S. POSTAGE PAID
CHARLOTTE AMALIE, V.
PERMIT NO. 35

Address Correction Requested

Trees were saved by printing on recycled paper