Log 15 Friday
1. 162100Z September 2005
2. Position: Lat: 2-30.1S LONG 140-00.1W
3. Course: On station
4. Speed: 0 kts
5. Distance: 90.0 NM
6. Steaming Time: 9H 00M
7. Station Time: 15H 00M
8. Fuel: 2397 gals
9. Sky: Clear
10. Wind: 110-T, 18 kts
11. Sea: 110-T, 3-4 ft
12. Swell: 110-T, 4-6 ft
13. Barometer: 1011.5 mb
14. Temperature: Air: 26.5 C, Sea: 26.0 C
15. Equipment Status: No change.
16. Comments: On station #15.

MASTER, R/V ROGER REVELLE

So speaking of what we eat out here and we do eat well. Mealtimes are important, almost the highlight of the day as most of us are working around the clock. Sampling starts at 1am and experiments are being run all the time. Someone was talking about the days of old when one of the biggest scourges of sailors and going to sea was: SCURVY!

So what is scurvy you ask and why isn't it a problem now?

Vitamin C and Scurvy

Vitamin C (ascorbic acid), a reducing agent, is necessary to maintain the enzyme prolyl hydroxylase in an active form, most likely by keeping its iron atom in a reduced state. The precursor molecule to the protein collagen, procollagen, contains an unusual amino acid sequence in that every third amino acid is a glycine and contains a high frequency of two amino acids not found in any other proteins - hydroxyproline and hydroxylysine. These latter two amino acids are converted from proline and lysine, respectively, after the procollagen molecule has been synthesized. The hydroxylation of proline and lysine in procollagen is carried out by the enzyme prolyl hydroxylase using vitamin C as a cofactor.

A vitamin C deficiency results in an underhydroxylation of proline and lysine in collagen which results in a lower melting temperature of the resulting collagen fibers which causes a breakdown of the protein collagen needed for connective tissue, bones and dentin, the major portion of teeth. Collagen is a cementing material that binds cells together, and is an essential connective tissue protein in the body. Whenever the body is wounded, collagen glues the separated tissues together to form a scar.

A lack of collagen causes the walls of the body's blood capillaries to break down and hemorrhaging occurs in cells throughout the body. When capillaries lose the "glue" that holds them together, symptoms of scurvy appear.

An affected person becomes weak and has joint pain. Internal hemorrhages cause black-and-blue marks to appear on the skin. At the first visible signs of scurvy, raised red spots appear on the skin around the hair follicles of the legs, buttocks, arms and back. When the tiny capillaries of the hair follicles hemorrhage, the hair-producing cells do not receive the nourishment needed for the hairs to grow normally. Consequently, the skin becomes flecked with small lesions that begin to appear on the body after about five months on a diet deficient in vitamin C. These lesions were the "spots" that James Lind observed on the skin of his sick men. Gums hemorrhage and their tissue becomes weak and spongy. Dentin, which lies below the enamel and is part of the root of teeth, breaks down. Teeth loosen and eating becomes difficult and painful. A personal account of scurvy.

James Lind's observation that citrus fruits contained something that counteracted the ravages of scurvy was followed by his development of a method for the concentration and preservation of citrus fruit juices for use at sea. In 1795, the British Royal Navy provided a daily ration of lime or lemon juice to all its men. English sailors to this day are called "limeys", for lime was the term used at the time for both lemons and limes. It was not until 1932, that W.A. Waugh and C.G. King at the University of Pittsburgh, and Albert Szent-Gyorgyi, a Hungarian scientist, isolated and synthesized ascorbic acid, or vitamin C.

Curiously, only primates and guinea pigs are unable to manufacture vitamin C on their own, having lost the genetic information necessary for the production of this important cofactor.

by Robert J. Huskey

.

So in another log I will talk about Piracy……the crew have been trained what to do in the even of being boarded by pirates…..so are there still pirates?

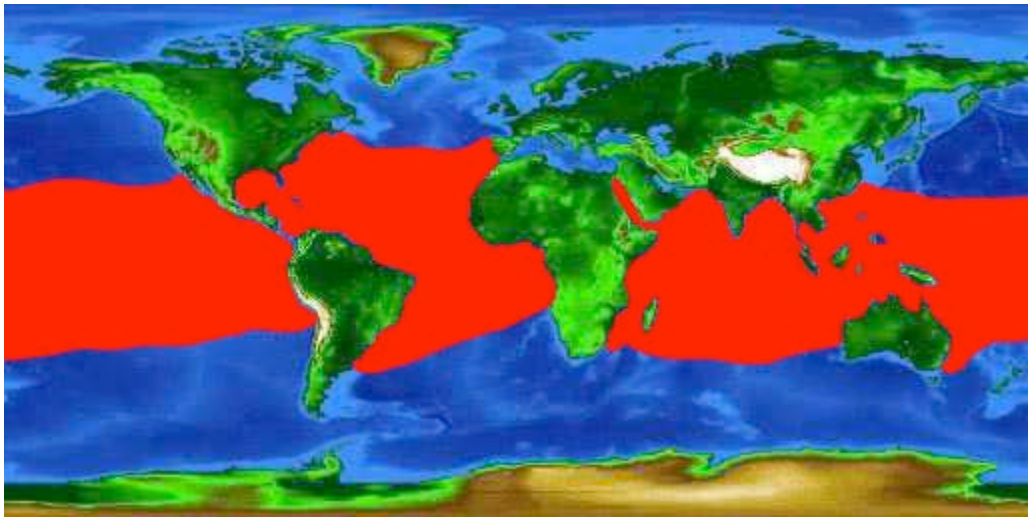
So do we see anything out here besides plankton, a few flying fish, tuna and mahi mahi…….yes we do. We saw an Oceanic White tip Shark off the stern of the boat the other day.

OCEANIC WHITETIP SHARK

Order: Carcharhiniformes
Family: Carcharhinidae
Genus: *Carcharhinus*
Species: *longimanus*

Geographical Distribution

The oceanic whitetip shark is distributed worldwide in epipelagic tropical and subtropical waters between 20°North and 20°South latitude. Its range includes Maine, U.S. south to Argentina in the western Atlantic Ocean and from Portugal to the Gulf of Guinea and possibly in the Mediterranean in the eastern Atlantic. In the Indo-Pacific this species is found in the Red Sea and East Africa to Hawaii, Samoa, Tahiti and the Tuamoto Islands and in the eastern Pacific it ranges from southern California, U.S. south to Peru, including the Galapagos. It is considered a highly migratory species by Annex I of the 1982 Convention on the Law of the Sea.



World distribution map for the oceanic whitetip shark

Habitat

This shark is usually observed well offshore in deep water areas (0-500 feet (0-152 m)) although on occasion it has been reported in shallower waters near land, usually near oceanic islands. Longline capture data in the Pacific Ocean shows that abundance of this shark increases along with distance from land. It is one of the top three most abundant oceanic sharks, which also include the blue shark (*Prionace glauca*) and the silky shark (*Carcharhinus falciformis*). The oceanic whitetip shark is very abundant throughout its range which includes water with temperatures are above 70°F (21°C). Although this shark is primarily solitary, it has been observed in "feeding frenzies" when a food source is present. It is a slow swimmer with equal amounts of activity during the day and nighttime hours. Reports have described swimming behavior in open waters at or near the surface of the water as moving slowly with the huge pectoral fins spread widely.

· *Distinctive Features*

The oceanic whitetip shark is easy to distinguish among species belonging to the family Carcharhinidae. This stocky shark has a large rounded first dorsal fin and very long and wide paddle-like pectoral fins. The head of this shark includes a short and bluntly rounded nose and small circular eyes that have nictitating membranes. The first dorsal fin is very large with a rounded tip, originating just in front of the free rear tips of the pectoral fins. The second dorsal fin originates over or slightly in front of the anal fin origin. Possessing broadly rounded tips, the pectoral fins are very large and elongated.

· *Coloration*

This species is commonly named the oceanic whitetip shark for the whitish-tipped first dorsal, pectoral, pelvic, and caudal fins. These white markings are sometimes accompanied by white mottling on the fins or black markings in young individuals. There may also be a dark saddle-shaped marking present between the first and second dorsal fins. The body of the oceanic whitetip shark is grayish bronze to brown in color, varying depending upon geographical location. The underside is whitish with a yellow tinge on some individuals.

Danger to Humans

Danger to Humans

Although primarily found offshore, this shark is considered potentially dangerous It is often the first species to be seen in waters surrounding mid-ocean disasters. During both World Wars, the oceanic whitetip shark was of major concern due to the high number of torpedoed boats and shot-down planes. The Nova Scotia steamship was sunk by torpedoes from a German submarine off the coast of South Africa. Close to 1,000 men were on board, however only 192 survived. It is believed that many of the fatalities were victims of the oceanic whitetip shark in what eyewitness accounts described as a "feeding frenzy". In encounters with divers, ocean whitetip sharks have shown little fear and much persistence investigating and circling the ongoing activities. Due to this shark's opportunistic feeding habits and strong jaws as well as its boldness and unpredictability around divers, this shark should be treated with extreme caution. Many potential attacks have been averted by quick action on divers' parts such as bumping the sharks on the snout to avoid close contact.

For more information: http://www.flmnh.ufl.edu/fish/Gallery/Descript/OceanicWT/OceanicWT.html