
Shark Research Institute

Newsletter

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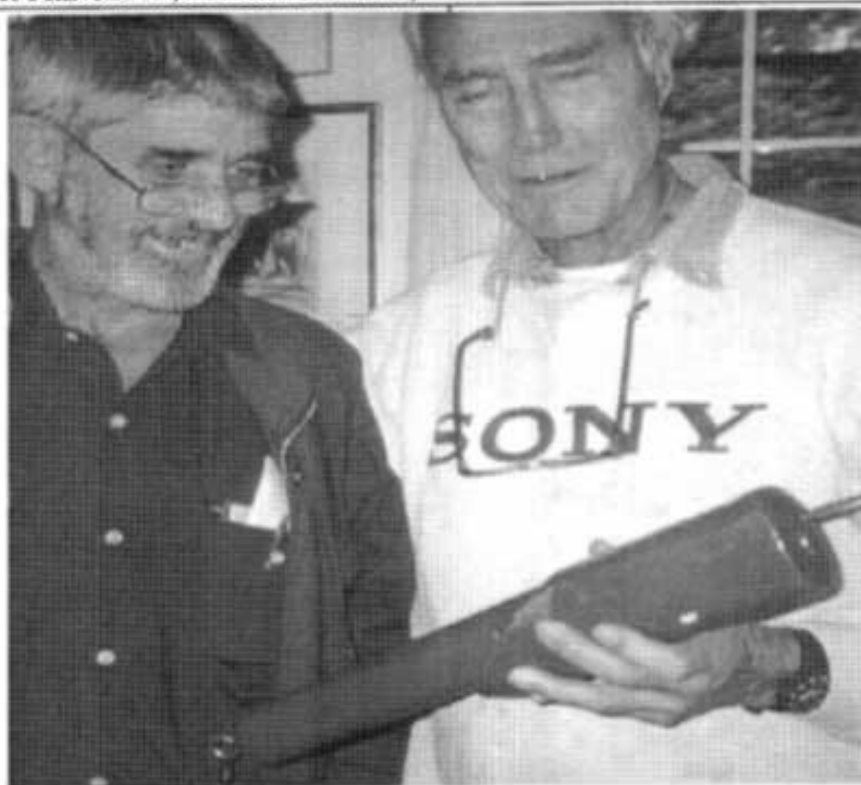
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SRI's Satellite Tag

We will soon deploy our first satellite tag on a whale shark off the coast of East Africa. The tag will allow us to monitor the seasonal movements and vertical habitat use of a single whale shark over a two-year period (or as long as the tag remains attached to the shark and the batteries hold out). Depth, temperature and location of the shark will be transmitted to the Argos satellite system, transmitted to Landover, Maryland, then e-mailed to HQ, Dr. Compagno in Cape Town, South Africa, and to Dr. Scott Eckert at Hubbs Sea World Research Institute in San Diego.

This project, funded by PADI Foundation, is a joint research project between SRI and



Director of the Whale Shark Tagging Project Andrew Gifford and Stan Waterman of SRI's Advisory Board examine the satellite tag.

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Hubbs Sea World Research Institute in San Diego, CA.

How it works:

Operational since 1978, the ARGOS satellite system was established under an agreement between the National Oceanic and Atmospheric Administration (NOAA, USA), the National Aeronautics and Space Administration (NASA, USA) and the French Space Agency (CNES), and it is dedicated to monitoring and protecting the environment. The system consists of two operational TIROS-N satellites in low-earth (830-870 km), near polar orbits with on-board radio receiver and transmitter units, a series of earth-based receiver stations, several earth-based Global Processing Centers, and radio-frequency transmitters (also known as Platform Transmitter Terminals or PTTs) attached to fixed or mobile earth-based subjects - such as whale sharks.

Each satellite makes one orbit approximately every 101 minutes, crossing the equator at a fixed time each day (sun-synchronous orbit). On each orbit an area of the earth's surface about 5,000 km wide is within radio-view of the satellite. The amount of overlap increases with latitude so that daily satellite coverage increases from six overpasses at the equator to

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28 overpasses at the poles. Any point on the ground track center line is within radio-view of a satellite for about ten minutes during each orbit. When the tag is on the surface, the PTT will transmit its identifier and encoded data collected by its sensors to an ARGOS satellite.

SRI's satellite tag is a custom designed Satellite-Linked Time-Depth-Recorder manufactured by Wildlife Computers. The one-watt transmitter and micro-processor are molded into a cylindrical syntactic foam float which is somewhat missile-shaped, measures 5 cm x 42 cm, and is covered with dark blue anti-fouling paint to retard marine growth. The encased PTT consists of a Seimac one-watt transmitter powered by lithium batteries and a microprocessor with on-board sensors to monitor depth and temperature. The 750 p.s.i. pressure transducer has a dual depth range of 250/500 metres. The transmitter is programmed to collect data on the amount of time the PTT spends at preprogrammed depths and temperatures summed over six-hour time periods. Upon surfacing the PTT transmits the previous 24 hours data divided into histograms for each variable. The built-in microprocessor allows for specific programming of the

transmitter, including the depth and temperature intervals of the histograms and the transmission cycle.

HEAVY METALS IN SHARKS

A whale shark that stranded in September on the KwaZulu-Natal coast of South Africa was found to have 100 ppm of lead in its liver - far in excess of safe levels. In October 1996, the *Hong Kong Standard* reported that samples of shark fin purchased from Hong Kong wholesalers and tested in the United States were found to contain up to 5.84 ppm of mercury (maximum permitted levels in Hong Kong are 0.5 ppm). The press report also noted that mercury may be a cause of subnormal sperm counts in men. Neither of these reports is surprising; as top predators it is to be expected that sharks accumulate heavy metals through the food chain, and long-lived species, such as the whale shark, may accumulate extremely high levels of heavy metals. A wider public awareness of the possible link between consumption of sharks and male infertility might significantly reduce the demand for shark meat and shark fin soup.

SRI, a non-profit tax-exempt [501(c)(3)] multi-disciplinary scientific organization, conducts and sponsors shark research throughout the world.

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We are sad to announce that on December 2, 1997, Dr. Maurice Dallas Coutts, SRI Board Member from 1992 to 1996, died on the wreck of the Windjammer in Bonaire, Netherlands Antilles.

Maurice lived life with enormous enthusiasm, and died doing what he loved. A great supporter of SRI, he was also a longtime friend and colleague. An electron microscopist, diver and lecturer, Maurice's great passion was filming shark behavior, particularly on deep-water shipwrecks. He is deeply missed by all of us. Please take a moment to write a note to his family (276 Applegarth Road, Cranbury, NJ 08512) and let them know how much he meant to everyone involved in shark research. In lieu of flowers, contributions may be sent to HQ with a note that the money is to be dedicated to the Maurice Coutts Memorial Fund.

Favorite Web Sites

<http://www.seychelles.net/dive.sey>

The Underwater Centre, Seychelles - read about the Shark Research Institute Whale Shark Monitoring Team in the Seychelles.

<http://www.Asiandiver.com>
The web site of one of the premier dive magazines.

Asian Diver, as its name suggests, focuses on the Pacific Rim, and also takes aim at the shark finning industry and other outfits that threaten the marine environment.

SRI-Certified Dive Operations

For the past 18 months we have been working with African Watersports and Blue Wilderness Divers, both local dive operators in Mozambique. Their divemasters participate in our research by tagging whale sharks and recording whale shark behavior. The dive operators are SRI-certified; they have accepted our protocols for whale shark / human contact and have collected vital data. Two more Mozambique dive operations have recently become SRI-certified. The first, Blu International, is a Johannesburg-based dive operator with facilities at Ponta do Ouro. Since becoming SRI-certified Blu International has tagged 28 whale sharks, conducted regular aerial surveys, and recorded numerous sightings of whale sharks. Simply Scuba Mozambique Dive Charters recently signed with SRI. They hosted their first Whale Shark Weekend for sport divers on 13-16 November 1997. To partici-

pate in a SRI-certified Whale Shark Weekend in Mozambique (or in the Seychelles) contact the operators directly or call Rothschild Dive Safaris at 1-800-359-0747

WHITE SHARK PHOTO EXPEDITION

28 March through 9 April 1998, SRI member and well-known underwater photographer Amos Nachoum will be leading a white shark photo expedition to South Africa. The price -- \$4,500 per person -- includes accommodations, cage diving, ground transportation, and coaching in great white shark photography by Amos. Divers will be staying in the picturesque seaside town of Hermanus, and cage diving is provided by the legendary Andre Hartman - the most experienced white shark dive tour operator in South Africa. Andre and Amos have designed the trip with two shark cages so that all divers can be in the water simultaneously. Dry suits are recommended. Underwater visibility is expected to be between 30 to 50 feet. A side trip to Mozambique to dive with whale sharks is optional. Trips to Victoria Falls and game park safaris can also be arranged. For more information call Amos at (415) 923-9865.

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Project A.W.A.R.E. Foundation Grant Awarded to SRI

Project A.W.A.R.E. Foundation has generously provided SRI with a grant to retool our web site. Our site will be expanded to include pages from our South African and Seychelles Offices.

Global Shark Attack File

CASE-SA0235: On 10 July 1997, Australian surfer Mark Penches (25), was fatally attacked by a white shark at Breezy Point on South Africa's Wild Coast. The surfer was alone in the water on a white-bottomed trifin surfboard. He rode the tube -- the ultimate experience in surfing. Then, at 14h00, as he paddled out for another wave, he was attacked and killed by a shark. The surfer's body washed ashore twenty minutes later, and his severed right leg, attached to his surfboard by the leash, was retrieved down the beach. Another surfer had been chased from the same break by a shark less than a week prior to this attack. Two days earlier a pocket of sardines was seen at Mazeppa Bay. Gannets were seen feeding seaward of Breezy Point when the surfer was

attacked. This season the sardine run moved close to the beaches of the Wild Coast, following a tapering band of cool water.

*Reported by Andrew Gifford,
SRI-South Africa*

On 28 October 1997 Mike Coots (18) was bodyboarding at Waiokapua Bay, Kauai, Hawaii when his right leg was removed at mid-calf by a large shark. He was 150 yards offshore in three to four foot surf at 07h20. Coots estimated that the head of his attacker, thought to be a 13- to 14-foot tiger shark, was about two feet in width. Coots paddled to shore where his friends wrapped a boogie-board leash around his thigh, dragged him up the beach to a truck and took him to the hospital. The boogie-boarder also sustained defense injuries to his hand while attempting to ward off his attacker.

Warning signs were placed along the beach but no attempts were made to fish for the shark as has been done following several previous attacks in Hawaiian waters. *Reported by Brad Wetherbee,
University of Hawaii & John Naughton, NMFS, Honolulu.*

Archival Attack - ISAF Case 313: On Friday July 20, 1956, British teacher, Jack Smedley (40), was attacked by a shark in St. Thomas Bay on the island of Malta in the Mediterranean Sea. At 16h20

Smedley and a student, Tony Grech (18), began swimming leisurely from a rocky shelf on the north shore of the bay to a rocky outcrop midway between the Il-Munxar headland and the base of a steep cliff. The pair were 1.5 metres apart and a hundred metres from the headland when Grech saw a large black shape speeding towards his teacher. Then Smedley disappeared below the surface. Seconds later Grech was rammed by the shark and flung out of the sea. The attack was witnessed by Alfred Xuereb (14) who saw Smedley resurface briefly after the attack. Grech swam to shore without further incident, and a fisherman returning to the shore reported that he saw a large dark fish swimming towards the open sea. Despite extensive sea searches by police Smedley's body was never recovered. Circumstances of the attack, together with eyewitness descriptions of the shark, suggest that a white shark, *Carcharodon carcharias* (known locally as *kelb il-ba har l-abjad*) may have been involved. *This case, reported to SRI by Alfred Xuereb, was investigated by Mark Marks and Ian Fergusson, Director of the European Shark Research Bureau (ESRB).*

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MICROLIGHT MISHAP

On December 1st at Ponta do Ouro, Mozambique, SRI's Whale Shark Study micro-light aircraft lost a bearing and went into the sea. Nobody was injured, but the microlight sustained \$1,600 in damages. It is hoped that the aircraft will be repaired and ready for action within a few weeks.

Whale Shark Study Expanding to the Caribbean

SRI is embarking on a joint project with Rutgers, The State University of New Jersey, U.S.A. Under the guidance of Dr. Alex Antoniou, Aquatics Coordinator at Rutgers, ten students from the Marine and Coastal Science Department will travel to Utila, Honduras, to assess the population of whale sharks in that area of the Caribbean Sea. The students will locate, tag, and document whale shark behavior. SRI is providing a tagging applicator and tags color-coded for use only in the Caribbean. We are excited to be working with Rutgers University and to be expanding our whale shark tagging program to the Caribbean.

AUSTRALIA PROTECTS WHITE SHARKS & SAND TIGERS

On 17 December 1997 Australian Federal Environment Minister Robert Hill announced the protection of great white sharks and grey nurse (known elsewhere as sand tiger and ragged-tooth) sharks in Australian Commonwealth waters. Both are listed as Vulnerable under the Endangered Species Protection Act; the taking or killing of either shark species is no longer permitted in Commonwealth waters. The protection takes place immediately. Anyone wishing to capture a great white shark or grey nurse shark in Commonwealth waters for scientific purposes must apply for a permit.

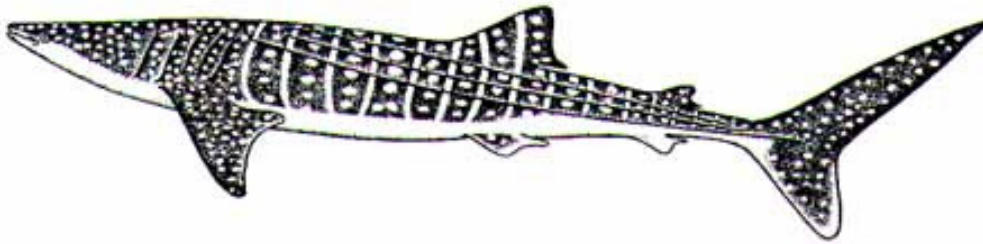
This protection complements that of all Australian states except Victoria, and extends the protection from three nautical miles offshore to the edge of the continental shelf or the Australian Fishing Zone, whichever is greater (Australia has the 3rd largest Fishing Zone in the world). This is an excellent and long-awaited Christmas present for these two species.

John Paxton, Australian Museum, Sydney, Australia.

GREAT STOCKING STUFFERS!

ADOPT A WHALE SHARK FOR EACH CHILD IN YOUR FAMILY!

Whale sharks, tagged by SRI, can still be adopted for one year for only \$10. (On 1 January 1998 the cost for each new adoption will increase to \$25 annually, and \$100 for a lifetime adoption.) Each guardian will receive a certificate (suitable for framing) that has the name of the shark and when, where and by whom it was tagged. When a tagged shark is resighted all of its guardians are notified where and when the resighting occurred.



• Yes, I would like to adopt a tagged whale shark. Enclosed is my check for \$_____.

Name - as it is to appear on the certificate

Address

City

State

Zip Code

Mail to - Shark Research Institute, P.O. Box 40, Princeton, NJ 08540

**Shark Research Institute
P.O. Box 40
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