



SPRING 2012

SHARK RESEARCH INSTITUTE

Newsletter

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Shark Fin Bills Proposed in Five More States

Sharkfin soup was initially served in China as a symbol of great wealth; shark fins were rarely available and so the soup was a luxury dish. Development of modern fishing methods such as long-lining increased the bycatch (accidental catch) of sharks dramatically, and the sharkfin industry was created. Sharkfin soup ceased to be a dish of the aristocracy and became a status symbol among Asia's rising middle class. As many as many as 70 million sharks are now being slaughtered, mostly for their fins. As result, in just a few decades some shark populations have declined by 99 percent!

Why do we care? Because sharks play important roles in maintaining balance in the oceans, and the shark fin trade has put some shark species on a fast track to extinction.

Much of the sharkfin trade uses fins hacked off living sharks. "If we found dogs and horses with their legs severed, bleeding and dying, the public outrage would be deafening. The difference is that finning often takes place at sea, out of sight," says Marie Levine, executive director of SRI.

"A number of countries have banned shark finning in their waters," says Steve Nagiewicz, Board Chairman of SRI and former Executive Director of the Explorers Club. "Countries such as Palau, the Maldives, Honduras, Bahamas, and the Marshall Islands protect all species of sharks in their waters. Others such as Taiwan prohibit the finning of sharks, and a number of countries have regulations governing shark finning within their exclusive economic zones."



March 16, 2012: Trenton, New Jersey Press Conference announcing sharkfin bills S.1764 and A.2719, and Humane Society Lobby Day. (Left to right: SRI Chairman, Steve Nagiewicz, NJ Assemblywoman Connie Wagner and Dean Fessler, SRI Director of Education

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Although shark finning is illegal in United States' waters, federal law doesn't address the shark fin trade itself.

The sharkfin trade is largely unregulated and unmonitored. Finning often takes place on the high seas beyond national jurisdictions and fins are imported into the U.S. from countries with few or even no shark protections in place.

Continued on next page

The most effective method to bring an end to the practice is through legislation prohibiting the trade. To close the loopholes in our federal laws, Hawaii, Washington, Oregon and California have passed laws prohibiting the sale, possession and distribution of shark fins, and five other states have similar legislation pending.



February 21, 2012: New York Press Conference announcing A7707.a. Left to right: Elizabeth Wilson of Pew, Michael Hirshfield, Ph.D. of Oceana, Patrick Kwan of Humane Society International, artist Peter Max, Assemblywoman Linda B. Rosenthal, Senator Alan Maisel, Grace Chen, and Rebecca Regenery of HSUI.

Illinois: HB 4119, a measure to ban the possession, sale, trade, and distribution of shark fins in the state of Illinois, has been proposed by State Representative Sara Feigenholtz. If passed, the bill will go into effect in July 2013.

Maryland: HB 393 was introduced by Delegate Eric G. Luedtke in the House, and Senate Bill 465 was introduced by Senator Brian Frosh in the Senate. The proposed bills contains fines from \$5,000 for a first offense and up to \$50,000 for repeat offenders.

New York: Legislators Alan Maisel, Linda B. Rosenthal and Grace Meng are sponsoring bills A.7707.a banning the sale, possession and distribution of shark fins, and Senator Mark Grisanti is sponsoring S.6431, which is currently in the Committee on Environmental Conservation. Assemblywoman Meng, who represents the heavily Asian district of Flushing, Queens, and the only Asian-American in the Assembly, feels so strongly about the bill that she signed on as one of its sponsors. She says that while it will be an adjustment for some in the Asian community, "it is important to be responsible citizens."

New Jersey: Senator Christopher Bateman submitted S.1764 banning the sale and possession of shark fins. "It simply is the right thing to do," he said. Assemblywoman Connie Wagner has introduced a similar bill in the Assembly: A.2719

Virginia: Delegate Mark Sickles introduced House Bill 1159 which, if enacted, will ban the possession, sale and distribution of shark fins throughout the state.

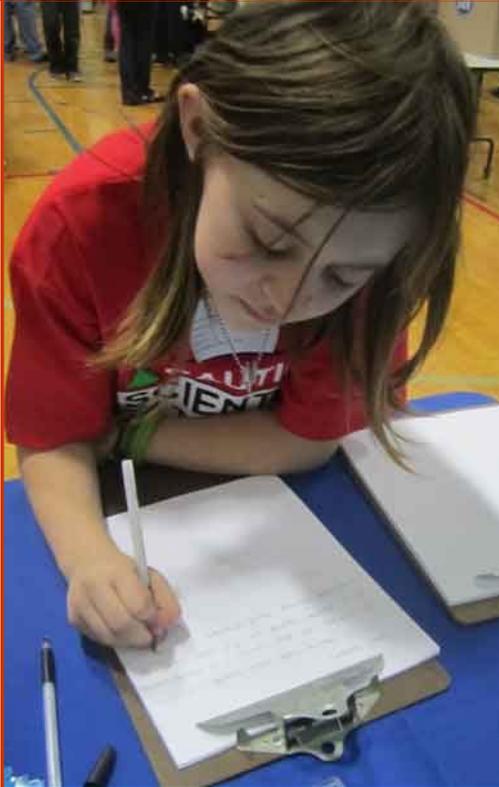
Even fishermen agree that shark populations are plummeting and that finning is brutal and cruel, but there other good reasons to ban the trade in fins. A third of fins collected in China, Hong Kong, Singapore and Taiwan which were tested had levels of mercury in excess of World Health Organization standards. Results of a study conducted by University of Miami study, published in the February 21, 2012 edition of the journal, *Marine Drugs*, detailed alarming accumulations of Cyanobacterial Neurotoxin β -N-Methylamino-L-alanine (BMAA) neurotoxin in shark fins, a neurotoxin linked to neurodegenerative diseases in humans including Alzheimer's and Lou Gehrig's Disease (ALS). The study suggests that consumption of shark fin soup and cartilage pills may pose a significant health risk for development of degenerative brain diseases. (see *article on page 12*).

"In a perfect world fishing of sharks would end and shark populations would be allowed to recover. But killing sharks for their fins -- fins that have little nutritional value but contain high levels of mercury and other toxins, fins whose only use are as a tasteless ingredient in a bowl of soup -- is ecologically irresponsible and morally reprehensible," says SRI president Jupp Kerckerinck.

In addition to SRI, Born Free, COARE, Defenders of Wildlife, Humane Society International, Oceana, and Wildaid, major conservation organizations are members of the coalition supporting these bills.

We urge all our members to support the bills now pending, particularly if you live in one of the states in which a sharkfin bill has been introduced. If a sharkfin bill has not been introduced in your home state, please contact your State Assemblymen and Senators and ask that they do so.

Kid Power!



What are these kids doing? Writing letters to their Senators! At the annual Hopewell Valley Elementary School Science Fair for grades K to 5 on March 16, they learned about the bills to ban sale of shark fins in NJ. More than 40 children came to our table, asked for paper and pens, and wrote letters expressing their views to their legislators. Civics in action!



The students in this "fins-up" photo are from the 2nd annual STEMcx (Science, Technology, Engineering, and Math conference and expo), held in Baltimore, MD on March 3, 2012. "Shark Week in a Day" was the title for the seminar/workshop the students participated in while learning about general shark biology from Joe Harber, Director of Education Programs at the National Aquarium in Baltimore and white sharks of South Africa with Dean Fessler, Education Director of SRI.



Central America and Dominican Republic Outlaw Shark Finning

January 2012: The eight member countries of the Central American Integration System (SICA) adopted a common binding regulation outlawing shark finning. Unlike finning bans in many countries, the regulation applies not only to domestic and foreign vessels that catch and land sharks in SICA countries, but also to vessels fishing in international waters that fly the flag of a SICA member country.

Regulation OSP-05-11, agreed upon in November 2011 and effective January 1, 2012, was adopted via SICA's Fisheries and Aquaculture Sector Organization of the Central American Isthmus (OSPESCA). It binds Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

The regulation outright bans finning, and requires member countries to take necessary measures in national legislation to guarantee the integral use of "sustainably captured" sharks. In particular, member governments are to only permit landing sharks when the fins are still naturally attached to the whole body or to a portion of the shark body. Furthermore, exports from or imports into SICA countries of fins not attached to a body must be accompanied by a document from the competent authority in the country of origin, certifying that it is not the product of finning.

OSPESCA has addressed the practice of finning previously, adopting in 2004 a set of national plans of action on shark conservation ("PAN-Tiburones") and in 2011 a Regional Plan of Action on Sharks. In 2011, SICA ministries and agencies in charge of fisheries decided to take a leadership role on the issue by drafting and adopting a harmonized and simultaneous ban on finning.

Ocean Geographic Magazine has rallied a team of dedicated individuals from Asia and initiated a drive to eradicate shark fin from restaurant menus. In early January, Michael Aw, publisher of the magazine and a member of SRI's Advisory Board, organized an initial meeting of more than a dozen like-minded activists and divers.



At present, roughly 95 percent of all shark fins are consumed within China alone, but the momentum to take the dish off the menu is growing there too. The W Hotel and the Westin Taipei, and all Peninsula and Shangri-La hotels have banned shark fin from their restaurants. Taiwan now requires fisherman to bring sharks back to shores intact to reduce capacity on boats. Sabah has banned shark hunting in its waters, and the Singapore supermarket chains FairPrice, Carrefour and ColdStorage, have pledged to halt the sale of shark fin.

The campaign will span the course of a year and include raising awareness to gain support. Singapore is a modern cosmopolitan city with immense influence over the rest of Asia. The campaign will start with Singapore and conclude with lobbying the Singaporean government to veto the import and sale of shark fins. The group's objective is to keep shark fins off the table and on the sharks where they belong.



Note: A passionate team from Singapore was in the Bahamas for the "Shark Makeover" shoot; Jessica Tan (Miss Singapore/Universe 2007) and friends graciously took time for this shoot to promote a friendlier image for sharks. Official campaign launch at ADEX 2012, Marina Bay Sand Singapore.

Shark Fin Street

On March 2, 2012, activists in Hong Kong placed thousands of shark fins along a street to call public attention to shark finning and called for a boycott on shark fin soup.

Photos by Paul Hilton



The sign reads:
"Please stop eating shark fin soup."

EU Backs Finning Ban

BRUSSELS (AP) – On March 19, European Union nations backed a complete ban on the practice of removing sharks' fins before throwing the fish back into the sea to die. The EU nations said they want all boats in their waters and EU-registered boats anywhere in the world to land sharks with their fins attached. The proposals still need the support of the European Parliament before they can become law.

EU fisheries chief Maria Damanaki said the law would "ease control and help us eradicate shark finning," which she called cruel and a vast waste of resources. Decades of overfishing have brought many species of sharks in the Atlantic and Mediterranean to the brink of commercial extinction. Hammerhead sharks are now virtually extinct in the Mediterranean Sea.

Under current rules, the EU still has exemptions and special permits for the practice, and the enforcement is so convoluted it is prone to fraud. Damanaki has compared shark finning to killing elephants for their tusks alone.

New Seats Available on SRI Board of Trustees

SRI's Board of Trustees is seeking additional members. Criteria for Trustees includes:

- Actively support and promote the mission of SRI;
- Be able to secure annual grants or corporate donations of at least \$5,000, or make an annual personal donation of the same;
- Be available to attend (either in-person or by conference call) at least one Board of Trustees meeting each year.

SRI members, sponsors or individuals who are interested in applying for a seat on the Board should send an email to marie@sharks.org or Steve Nagiewicz at nagiewicz@gmail.com

Hybrid Sharks



*Photo courtesy New South Wales Department
of Primary Industries*

A population of sharks discovered off the coast of eastern Australia are hybrids – a cross between the closely related common blacktip shark, *Carcharhinus limbatus*, and the Australian blacktip shark, *Carcharhinus tilstoni*.

The Australian blacktip is smaller than the common blacktip and is found in warm tropical waters, which end around Brisbane, Queensland. Some 57 hybrid sharks were discovered along the 2,000-kilometer (1,243-miles) stretch between Brisbane, Queensland and Sydney, New South Wales.

The hybrids spanned multiple generations, indicating this was not a one-time phenomenon. In some areas, the hybrids made up as much as 20 percent of the total blacktip population.

Researchers from the University of Queensland who made the discovery published their findings in the *Journal of Conservation Genetics*. They believe the hybrids may be an adaptation to climate change and changing sea temperature. Lead researcher Jess Morgan of the University of Queensland said, "If [the Australian blacktip] hybridizes with the common species it can effectively shift its range further south into cooler waters, so the effect of this hybridizing is a range expansion. "It's enabled a species restricted to the tropics to move into temperate waters."

Email Box

In our 2011 Shark Celebrity Auction, Danielle Austen won a day at sea with David Schiffman. Danielle, Artist-in-Residence at the Everglades National Park in February, was able to join David on March 2, and writes: "David also had a group of students from Miami Dade College also on board — his department is very active with local schools. We went out into Florida Bay in the Everglades National Park and caught four lemon sharks and a blacktip. Everyone got a turn to help with the different tasks of taking samples and tagging the sharks. Dave has a great passion for his research on sharks and was wonderful to talk to. Had a wonderful day and a great experience!"

Special thanks to Jenkinson's Aquarium in Point Pleasant, New Jersey www.jenkinsons.com/aquarium
They collected 68 full sheets of "Stop the Sharkfin Trade" signatures!

Thank You to Our Supporters!

We are very grateful for the continued support of:

- The Adikes Family Foundation
- Adjacent to One
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- Al Vinjamur
- The WAVE Foundation
- Kathrin Winkler & Angus Campbell
- World Wildlife Fund
- Josip Zeko

A Major Donation That Costs You Nothing

Spring is the time of year many homes go on the market. If you are thinking of buying or selling a home, you can make a big donation to the Shark Research Institute — and it won't cost you a dime.



My Broker Donates matches our supporters with caring, qualified real-estate brokers who have agreed to donate 15% of their fee to the Shark Research Institute.

That's money we can use to save sharks from destructive fishing practices and to educate people about these magnificent animals.

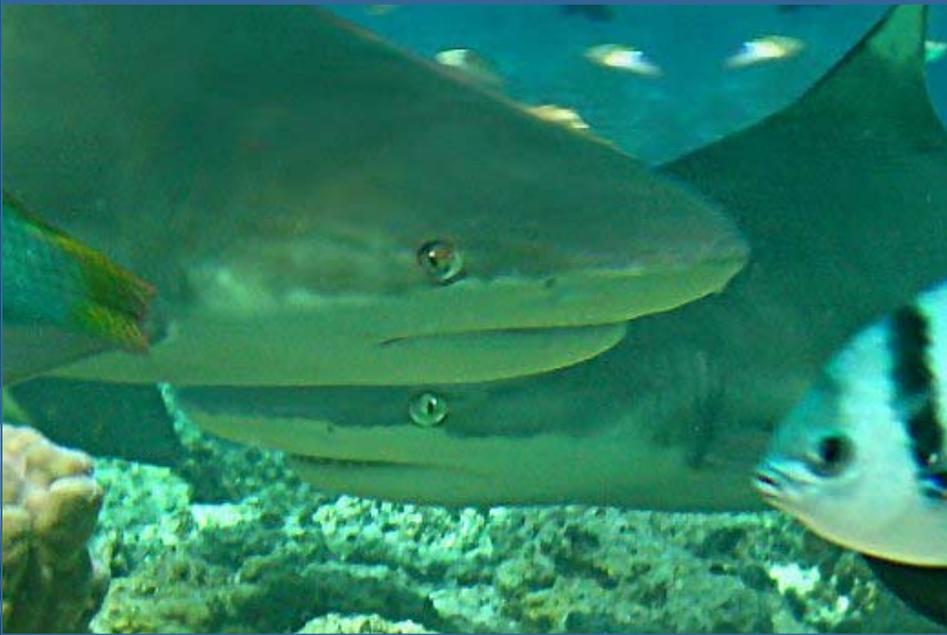
Please visit www.mybrokerdonates.com to learn more the program.

Two Other Ways to Support SRI

SRI Spring Auction: Do you have any books, unused dive vacations, dive buddies, shark jewelry, prints, posters, paintings, sculpture, maps, pieces of eight, doubloons, shipwreck artifacts in the back of a closet, gift cards, theater tickets, restaurant vouchers, anything weird, wonderful or shark related that that you'd be willing to donate? Items for the auction can be mailed to or dropped off at 70 Heather Lane, Princeton, NJ 08540. All donors will be given a tax receipt for the retail value of their donation. Thank you to all our members who have already donated materials. *We greatly appreciate your creativity & generosity!*

AND We've teamed up with Amazon and created a wish list for some much needed supplies. This is a fast and convenient way to show your support. <http://amzn.com/w/3C3HR4MDX1HYH> to select any products you are able to donate and they will be shipped straight to SRI.

The Social Life of Blacktip Reef Sharks — Sharks and BFFs



Odyssey and Clementine, two shark friends who came to visit only during the dark of the moon in April. Photo by Ila France Porcher

Two complementary studies of blacktip reef sharks *Carcharhinus melanopterus*, in French Polynesia, have independently found evidence of the importance of a social life in the species. Keeping track of their movements revealed that the species tended to favour the companionship of certain individuals and not others.

Working as an ethologist,* and following the ideas of Lorenz, Myrberg, Griffin, and others, Ila France Porcher identified 581 individuals of the species between 1999 and 2006, using a lagoon site she visited regularly. In the shallow waters it was possible to observe the community of sharks easily for

long periods. She describes her observations and findings in her book, *My Sunset Rendezvous: Crisis in Tahiti*, published in 2010.

The social nature of the species is a major theme of the book. Porcher found that the females have their home ranges in the shallow waters of the lagoon, and their pups are born and grow up there, so detailed data on their social biology was easily recorded. Observations of the individuals appearing at six other sites within three kilometres of the study area provided complementary data on the travels of both visitors and residents. The growth and movements of the pups as they matured and became sexually active, the sunset visits of the males in the reproductive season, and the way the adult females passed their time, was clear to see over the passage of so many years. This unique, long-term field study reveals a wealth of information about the behavior and biology of the species, including the gestation period (Porcher 2005). Some of Porcher's observations, presented by shark ethologist Arthur A. Myrberg at an international conference on cognition at the Max Planck Institute in Germany in 2003, provided the first scientific evidence of cognition in sharks.

Porcher documents many long-term companionships between sharks of the same gender, both male and female. She observed that individual sharks occupying overlapping home ranges knew each other, and when they traveled away from the familiar region, they often went with one or more of these "neighbors" as a companion. Pairs or groups of shark companions traveling along the lagoon inside the barrier reef socialized with the local residents as they moved. The resident and visiting sharks circled together, and each of the shark companions, without changing velocity, would swim nose to tail and in parallel with one shark after another, socializing over long periods before rejoining the original companion.

Though there were occasions when a shark swam straight along the lagoon for more than a kilometre, the usual swimming pattern was in circular or oval pathways, repeated in opposite directions to form figure eights and cloverleaf shapes when mapped from above. Observations of the movements of shark pups from above the surface revealed the same patterns being used, but on a much smaller scale.

Porcher suggests that these ever circling pathways likely brought the traveling sharks repeatedly into contact with the scent flows of their companions as they moved together in loose contact, out of visual range of each other most of the time. It became apparent through a variety of types of observations, that the sharks were accustomed to listening to, and sensing others, while remaining out of visual range.

Each shark's roaming habits were unique. Some of the sharks Porcher observed were loners, but sometimes a companionship between two sharks was so close that she never saw them separately. One pair of elderly female sharks, for example, traveling from beyond the region that she was monitoring, appeared in her study area each year in the dark of the moon corresponding to the end of April, and at no other time. While some sharks only left their home range to breed and birth, others were absent for months at a time, usually, but not always, during the reproductive season, which was the main influence on their travels.

But when shark finning began in 2003, such a large fraction of the adults disappeared that her study was gravely impacted and her book ends in 2006, when the sharks were protected by law. The juveniles of the species had remained in the protection of the lagoon for five years and they were finally able to mature in safety, because they were no longer finned when they began venturing into the ocean in adulthood. As a result, the population was able to recover.

French scientists, Johann Mourier, Julie Vercelloni, and Serge Planes began observing blacktip reef sharks on the northern shore of Moorea, French Polynesia, and their findings were published in January 2012 in *Scientific American*.

The French researchers conducted their observations of 133 individuals at seven sites along 10km of the shore and recorded their presence using photo-identification surveys. Population data analysis showed that the sharks organized themselves into four communities, with one really being two overlapping sub-communities. While the formation of the communities was mostly explained by non-social factors such as sex, age, and territory, shark associations were found to be the result of "an active choice of individuals as a sign of sociability." The communities were fairly stable; individuals tended to stick to their communities. Their data suggests that the communities are created by environmental factors, but within each community the interactions are social. That is, the sharks weren't just occupying the same space at the same time. The co-occurrence of individual sharks was not random; it tended to persist over time. The researchers found that some pairs of sharks were seen together more often than expected based solely on the overlap of their home regions. The same sharks were seen with the same companions several times, often engaging in actual interaction. In addition they found that some pairs of sharks actually avoided each other, despite a high degree of territory overlap.

The types of social interaction occurring among the blacktip reef sharks in the Moorea study were similar to those previously observed in the same species by Porcher. The French researchers write: "The grouping patterns displayed by this shark species indicate that the structure of this population does not reflect passive aggregations at specific resources but rather developed from an active choice of individuals similar in some ways to some other social animals." In short, as Porcher noted, sharks display cognition and make conscious, social choices.

* Ethology is a field of Zoology, and one of its major principles is to "know your animal" by observing its behavior closely over an extended period of time. Nowadays, such long term observations take too long in today's rapid pace of science. It's far easier to use place tags on animals to follow the actions of many individuals at one time. There are excellent points to accomplishing studies of numerous animals by such means and the field of behavioral science can well use such information. Its popularity is without question, but it cannot often explain, except in the broadest sense, why animals do what they do, since individuals often don't do what others, around them, do. That's why the work of ethologists will always be valuable.

Whale Sharks of Djibouti

By Jennifer Schmidt, Ph.D., Director SRI DNA Studies



My floating home, the M/V Deli

In January, I spent a week censusing whale sharks in the Gulf of Tadjoura, in the tiny east African country of Djibouti. The expedition was organized by the Marine Conservation Society Seychelles and Megaptera, who have jointly studied the Djibouti whale sharks since 2004. Michel Vely of Megaptera first noticed that whale sharks congregate in the shallow waters of the Gulf between October and January each year, and in 2006 they joined with MCSS to study this population. The group returns each year for a three week research expedition, working from the 26 meter dhow the *M/V Deli*. The MCSS staff are joined by a group of colleagues, friends and volunteers each week.

Whale sharks gather in seasonal aggregations at many locations around the world. These appearances usually coincide with a feeding

opportunity, a plankton bloom or a fish or coral spawn, and the whale sharks arrive like clockwork as the food appears. In Djibouti the cycle begins as a bloom of phytoplankton accumulating in the Gulf. The phytoplankton provides food for a large population of arrow worms, and the whale sharks come to feed on these marine worms. The Djibouti whale shark population is unique in comparison to those found in other areas, which are made up of predominantly subadult males 6-8 meters in length. The Djibouti sharks average just 4 meters, with animals as small as 2 meters occasionally seen, the smallest size of any known aggregation.

We know almost nothing about the early lives of whale sharks. It seems they are born in large numbers - the single pregnant female studied carried more than 300 embryos - but young free-living whale sharks are so rarely seen that only 15 incidents have been reported in the scientific literature. The habitat where newborn whale sharks spend their first year is unknown, but somewhere between one and two years of age many of these small animals turn up in Djibouti.

Life on the *Deli* falls into a rhythm, morning and afternoon small skiffs are taken from the *Deli*, searching the areas of the Gulf that whale sharks favor. When a shark is found the team quickly dons fins and snorkels, cameras at the ready, and drops over the side. The group works quickly, taking left and right side spot pattern photos for identification, as well as sexing and sizing the animal. Days vary from slow, one or two isolated whale sharks, to hectic feeding frenzies with many sharks. In addition to cataloging the animals,



plankton tows reveal the amount of food in a given area, and water depth and temperature readings provide information about preferred feeding areas. We recorded 369 encounters during the week, and during the entire three week season there were 1077 encounters. Data crunching will determine how many individual sharks these encounters represent, and identify any animals new to the aggregation. There were also two satellite tags deployed during the week, and tissue samples were taken for genetic analysis.

Evenings are spent uploading spot pattern photos to the database and matching them against known sharks. Most evenings the crew hangs a light off the back of the ship, concentrating a thick area of plankton. It's not long before the first whale shark glides silently in, appearing a ghostly white in the light. They pause briefly to scoop a mouthful of plankton, often assuming a vertical posture, then circle back into the darkness. Being in the water with these sharks is magical, alone with a whale shark in that small circle of light. It's a very different experience from daytime encounters, and one that you would like to enjoy forever, were it not for.....crabs! Vicious swimming crabs are also drawn by the light, and immediately move in for the attack. Any unprotected area of skin is at risk, and it takes just seconds before you have a crab attached to each ear!

Everyone is exhausted at the end of the day, and it's hard work for someone more used to the lab than the field. I'm not sure if I accumulated more muscle or more bruises during the week! Once the day's photos are entered most people retire to the Deli's surprisingly comfortable cabins.....as long as you're not in the tiny top bunk! The researchers are kept fueled by the terrific food turned out of the compact shipboard kitchen by the *Deli's* talented crew - baguette French toast and curried eggplant were among the many standout dishes during the week. Last but not least, we were all kept entertained by the stories of Captain Vincente, who "once owned the best bar in Ethiopia".



Whale shark at night

Whale sharks aside, Djibouti is a fascinating and complex country, with many different peoples, cultures and economies in its tiny area. The are beautiful coastlines that quickly give way to a harsh volcanic landscape, yet even this forbidding interior harbors an incredible diversity of life. A single day at the end of the trip, birding the coastal mudflats and interior "wadis" or dry riverbeds, turned up nearly 60 species of birds. The dramatic landscape of the rift valley includes deep gorges, literally the continent breaking apart, and stark saline lakes in an ethereal shade of green. There is also crushing poverty that affects many of the rural Djiboutians, and a contingent of Somali refugees fleeing unrest in the neighboring country. Djibouti is home to many military bases, so army jets and helicopters overhead are a common occurrence. The army personnel are familiar with the presence of whale sharks in the bay, and enormous military helicopters can sometimes be seen hovering over large aggregations of sharks!

The MCSS crew this year — Gareth, Laura and Darren (director David Rowat was unable to join them) — were assisted in week three by myself; Michel Vely and Daniel Jouannet from Megaptera; Dubai whale shark researcher David "I can outswim any shark" Robinson; Save Our Seas Foundation director Peter Verhoog; the "other" David, a diver and tour leader from the UK; attorney Ben from Paris; and the indefatigable Gabrielle, who volunteered all three weeks and never ran out of energy. Our combined group hailed from the UK, Seychelles, Dubai, Holland, France and of course the USA.

Swimming with the Afuera Whale Sharks

by Robin Culler

Ever since I became involved with shark conservation at Green Chimney's School, new experiences and opportunities have been rolling my way. When the Shark Research Institute asked if I would be interested in going on a whale shark expedition, I didn't have to ponder long. Who knows when a chance like this would come along again? Plans were made ... I was going to Cancun to swim with whale sharks!

Jennifer Schmidt, a molecular biologist who has spent the last nine years studying the population genetics of whale sharks, led the expedition. We were joined by eight other experienced divers from across the country. I was the fledgling, having only snorkeled once before.

We would be snorkeling with the gentle giants in the Mexican Riviera where hundreds of whale sharks appear to feed on a massive plankton bloom each summer. In the clear blue water of the Afuera there have been as many as 400 sharks, ranging from 25 – 35 feet long.

On this expedition we were to photograph the sharks' gill slits and pectoral fins. These photos would be entered into a database that allows shark researchers to identify, compare, and study whale sharks around the world. We would also experiment with a device used to measure the length of the whale shark and we would take water samples for further study.

We boarded our fishing boat, complete with captain and guides, early in the morning and traveled about 23 miles off the Cancun coast. Our mission: locate whale sharks! When we saw the water spotted with a congregation of boats, we knew we'd found the sharks. We donned our wetsuits and prepared masks, snorkels and fins. Anticipation escalated. I knew that I would soon be swimming with sharks!

As the first group of divers prepared to enter the water, I was ecstatic just being able to view the amazing sharks from on board the boat. They swam lazily near the surface, mouths opened wide, vacuuming in the water. Their feast, tiny tuna eggs, were trapped in their gill rakers while the water flowed back out their enormous gill slits. Their mouths can be four or five feet wide! Their eyes were tiny in comparison to their massive bodies. The sharks' beautiful grey bodies with distinct ridges were covered in a pattern of pale yellow spots and stripes. These configurations are comparable to our fingerprints ...each one unlike the other. Although they have over 3,000 teeth, they are tiny and of little or no use. Whale sharks are the biggest fish in the ocean, reaching up to 40 feet in length.

Soon the guide let me know it was my turn to jump in. With



Author holding water samples. You can see the concentration of fish eggs



Whale shark feeding on fish eggs



Author on boat in midst of the Afuera

mask and snorkel in place, I entered the water. The adrenaline that was coursing through my body was immeasurable! I was in water 140 feet deep, sprinkled with boats, snorkelers and sharks! I turned, saw the fin, and submerged. What I saw in front of me will stay with me forever. It's very hard to put into words how I felt being so close to that incredible shark. I swam in the direction it was going, trying my best to keep up with it, but was soon left behind. It moved with slow, leisurely swooshes of its huge caudal fin and posterior end of its body.

I spent about 20 minutes in the water and then it was time for the next group to enter. It was just as well, as I was tired from swimming alongside and after the sharks. Time to rest and regroup before entering the water again. Each time I left the boat, my encounters with the sharks were closer and more amazing. I often found myself right in one's path, scrambling to get out of the way! You are not allowed to touch the sharks, and I did my best to avoid collisions.

As much as I wanted to take pictures, I decided that job would be best left to the guys with the professional cameras. This was such a new experience for me. Plus, I really wanted to enjoy the moment without a camera pressed to my face.

We swam with the whale sharks on three consecutive mornings. Each day was better than the one before. The weather was perfect and the water warm and clear. It was such an exciting yet peaceful experience and one I couldn't wait to relay to my Shark Finatics back at Green Chimneys (*Robin is one of those extraordinary educators who inspires and empowers her students; her Shark Finatics were the winners of Oceana's 2011 Junior Ocean Hero Award*). I was humbled by the beauty and serenity of this gentle fish. How lucky I felt to be part of their world, even for just a little bit.

There is so much to be learned about our oceans and the creatures within. We need to stop, appreciate and explored what was naturally placed on this planet. Whale sharks are endangered and are facing a high risk of becoming extinct in the wild. Because of human intervention, such as commercial fisheries, time may be running out for this gentle giant. Ecotourism has brought some hope for this species and some others. Whale sharks are worth much more alive than dead. It is up to us to ensure their continued existence in our oceans. I will never forget the opportunity I was given to swim with and admire nature at its finest.



Each shark has a unique pattern of spots and stripes

Reprinted from The Latham Letter

Photos on this page courtesy of Dave Lowe

Field Expeditions

WHALE SHARKS — Cancun, Mexico

July 30 to August 3, 2012 : August 4 to August 8, 2012.

At present, this is the only open SRI expedition. Dr. Jennifer V. Schmidt, Director of SRI's DNA study and the project leader, will once again be taking divers to the Afuera Whale Shark Aggregation. Cost is \$1,200 per person. There is only one space left during the first week, but there are several spaces available on the second week. If you'd like to come along, call SRI HQ at 609-921-3522 as soon as possible.



Neurotoxins in Shark Fins: A Human Health Concern

A new study by University of Miami scientists in the journal *Marine Drugs* has discovered high concentrations of (BMAA) in shark fins, a neurotoxin linked to neurodegenerative diseases in humans including Alzheimer's and Lou Gehrig's Disease (ALS). The study suggests that consumption of shark fin soup and cartilage pills may pose a significant health risk for degenerative brain diseases.

"Shark fins are primarily derived through finning, a practice where by shark fins are removed at sea and the rest of the mutilated animal is thrown back in the water to die," said co-author Dr. Neil Hammerschlag, research assistant professor of Marine Affairs & Policy and director of the RJ Dunlap Marine Conservation Program (RJD) at UM. "Because sharks play important roles in maintaining balance in the oceans, not only is shark fin soup injurious to the marine environment, but our study suggests that it is likely harmful to the people who are consuming them."

Seven species of shark were tested for this study: blacknose, blacktip, bonnethead, bull, great hammerhead, lemon, and nurse sharks. Samples were collected from live animals in waters throughout South Florida.

"The concentrations of BMAA in the samples are a cause for concern, not only in shark fin soup, but also in dietary supplements and other forms ingested by humans, " says study co-author Professor Deborah Mash, Director of the University of Miami Brain Endowment Bank. The Bank supports basic and clinical research and holds one of the world's largest collection of postmortem human brains encompassing a wide range of neurological disorders. In 2009, Prof. Mash and her co-authors published a study in the journal *Acta Neurologica Scandinavica*, demonstrating that patients dying with diagnoses of Alzheimer's Disease and ALS had unusually high levels of BMAA in their brains, up to 256 ng/mg, whereas normal healthy aged people had no BMAA, or only trace quantities of the toxin present. "BMAA was first linked to neurodegenerative diseases in Guam, which resulted in the progressive loss of structure and function of neurons."

The study found a similar range and even higher BMAA in the fins tested. The new study found levels of between 144 and 1836 ng/mg of BMAA, which overlapped the levels measured in the brains of Alzheimer's and ALS victims. Surprisingly, this level fits with the BMAA levels in fruit bats examined by Paul Cox, animals which concentrate BMAA from their diet of cycad seeds. He linked ingestion of fruit bats to the severe ALS/Parkinsonism dementia that afflicted many people in Guam. "Not only does this work provide important information on one probable route of human exposure to BMAA, it may lead to a lowering of the demand for shark fin soup and consumption of shark products, which will aid ocean conservation efforts," added Hammerschlag.

An Update from South Africa by Chris Fallows

We are about to leave for Argentina after a terrible last few days with a 4.3 m great white being killed under very suspicious circumstances to say the least and the local "experts" for some or other reason covering it up. We fight on. On another issue the Shark Men team were in Mossel bay chumming with whale meat, caught 11 great whites and since then the whole population of great whites that was being seen by the local shark diving operator seem to have left the area. Died or vanished, not good. They now plan to catch sharks in Gansbaai and False Bay, so it is not a a good time for South African sharks.

On the whole beach fishing for great whites side of things, Richard Peirce and Lesley Rochat have been working hard at putting together a release that we hope will get some action going to stop this, but with MCM officials and "researchers" doing the same thing under the research banner for TV it is questionable how much we will achieve, nevertheless we will try. Lesley and I will forward you our efforts at the start of April and hopefully you can make a post of it. Sorry it is not good news our side, but on a more positive note we have had a great start to our shark season and have been seeing good numbers of sharks on all of our trips the past two weeks. Long may it last.

Upcoming Events



March 23, 24 & 25, 2012: *Beneath The Sea International*. BTS is the world's largest consumer dive show. Booths, workshops, film festival, Ocean Pals and imaging competitions. Visit SRI at Booth 221, meet some our staff, hang out and talk shark. *Venue:* Meadowlands Exposition Center in Secaucus, NJ — only 10 minutes from New York City. Tickets are available at www.beneaththesea.org

Dean Fessler, SRI Director of Education, will be presenting a workshop — Sharks and Shark Diving: A Global Perspective — at BTS on Saturday from 1:00 to 4:00p.m. This comprehensive workshop exposes divers (certified SCUBA/free divers) to the varied range of shark diving while preparing them for accredited shark diving specialty courses/certifications. The workshop covers sharks in a variety of geographic locations from New York to South Africa and species such as: whale sharks, Caribbean reef sharks, blues, makos, hammerheads, sandtigers, leopard sharks, tiger sharks, bulls and of course, white sharks. Plus, learn diver dos and don'ts during an "unexpected" shark dive, public aquarium shark diving, updates on the current global shark population crisis and how divers can help. Includes Certificate of Completion and SRI membership. Cost \$75, Limit 30 participants.

SRI Staff and Board — Steve Nagiewicz, David Doubilet, Michael Aw and Joe Romeiro — will also be presenting seminars at BTS, as will John Ares and other members.

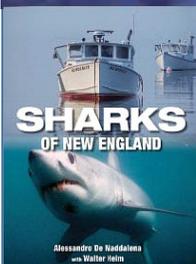
March 31 & April 1, 2012: *London International Dive Show (LIDS 2012)* LIDS, the first of 2012's two UK Dive Shows, has been a firm pre-season fixture for divers for many years. *Venue:* ExCeL Centre in London. Tickets available at www.diveshows.co.uk

May 11, 2012: *Fintastic Friday 2012: Giving Sharks a Voice*. WhaleTimes and SRI have teamed up to raise awareness of the plight of sharks through a new holiday: Fintastic Friday is celebrated annually on the second Friday in May.

May 17-19, 2012: *World EcoSummit*. This two-day event hosted by the World EcoAlliance will present forums on the State of the Oceans, ECONomic Sustainability, Sustainable Tourism and the Rainforest Initiative. *Venue:* San Jose, Costa Rica. For more information go to: www.worldecosummit.com/

March 3-15, 2013: CoP16: *Convention on International Trade in Endangered Species (CITES) 16th Conference of the Parties*. *Venue:* Bangkok, Thailand.

Member's Bookshelf



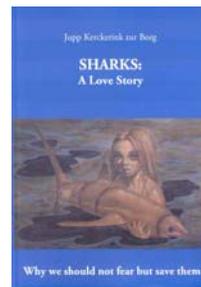
Sharks of New England, by Alessandro de Maddalena with Walter Heim, and foreword by Richard Ellis. Down East Books. \$24.95, available through Amazon.com.

The cool waters of New England are home to 33 species of sharks. Accurately illustrated and meticulously researched, this book aims to provide solid information on sharks in general and profile the species inhabiting New England waters. For each species, this handy field guide gives classification, morphology, color, shape of teeth and dental formula, size, age, embryonic development, diet, habitat, distribution, behavior and threat (if any) to humans. The authors' goal is encourage the understanding, admiration and

protection of sharks.

Sharks: A Love Story by Jupp Kerckerinck zur Borg. \$18, available through SRI Headquarters or Shark Shop at www.sharks.org

"I recommend it as a quick and well-illustrated introduction to sharks, suitable for people seeking a viewpoint other than the media-induced fear of sharks that is so lucrative and misleading." ... LJ V Compagno, Ph.D.



In case you missed it, this is a page from the January 2012 in-flight magazine of United Airlines. Thank you Hemispheres Magazine, Sam Polcer, Alicia Buchlperz and Tim Vienckowski!

THE WORLD

FACTS TRENDS NEWS



Fin-Win Situation

We're a far bigger danger to Jaws and company than they are to us—which is why the world's largest shark sanctuary was recently established by the Marshall Islands, in the central Pacific. Here's where, and why, our toothy pals are finding safe haven. **BY SAM POLCER AND ALICIA BUCHL PEREZ**

Deaths each year



\$100

average price of a bowl of shark fin soup, a delicacy in parts of Asia

In Palau, **A SINGLE SHARK**

brings in an estimated

\$1.9 MILLION

to the tourist economy over its lifetime

vs.

the **\$108**

it is worth once it's

CAUGHT and brought ashore

Shark ecotourism brings in **\$18 MILLION** to Palau each year,

making up **8%** of the national GDP

Annually, shark diving brings **\$24.7 MILLION** to

Canary Is., Spain, and

\$40 MILLION to

the Indo-Pacific region