



SPRING 2017
SHARK RESEARCH INSTITUTE
Newsletter

Shark Research Institute Global Headquarters
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White Shark Slaughter in Shark Alley

White sharks are apex predators, but are no match for gill nets, drum lines, poachers or orcas. They've been hunted by orcas along the coast of California and New Zealand, and earlier this month several white sharks were preyed upon by orcas near South Africa's Shark Alley.



On the morning of May 3rd, the remains of a 4.9 metre (16 foot) female white shark, estimated to weigh 1,110 kg (2,447 lbs) was found off Gansbaai, her underside slit open and her liver removed. The shark had been seen around Dyer Island last June and in Mossel Bay between August and December, according to marine biologist Dr. Alison Kock of the South African National Parks said, "At this size, she was likely reproductively mature which is rare to see and so impressive!"

"It was the first confirmed account of an orca predation on a white shark in South Africa," according to marine biologist Dr. Alison Kock of the South African National Parks. "It's mind blowing to think that a white shark of that size was a target!"



The next day another smaller white shark carcass, minus its liver and heart washed up, and a third white shark, a 4.3 metre male washed up a few days later – with matching injuries. Orcas had been seen in the area and bite marks on the white shark carcasses confirmed they were attacked by orcas. The livers of all three sharks had been removed, suggesting the orcas were targeting the nutrient-rich oil and fat in their livers and discarding the rest of their prey. There was also an unconfirmed report of two more white sharks washed up at Dyer Island.

According to South Africa's Department of Environmental Affairs, several cow shark carcasses were also discovered with their livers removed in False Bay after orca sightings.

Orcas, the largest members of the dolphin family, can weigh up to six tons and grow to a lengths of 23 to 32 feet and, like all dolphins, they use a type of sonar to locate and sometimes stun their prey. These apex marine predators hunt cooperatively in large pods, coordinating attacks on their prey from multiple directions, and are found throughout the oceans from the poles to the equator. Although orcas are classified as a single species, there are several distinct types, each with specialized learned behaviors that are passed through generations. "These orca cultures specialize on different prey and different hunting strategies," according to Boris Worm of Dalhousie University in Nova Scotia, Canada."



"Residents" typically feed primarily on fish. "Transients" prey on marine mammals such as whales, seals and other dolphins, while "Offshores" target sharks." Although captive orcas have injured people, there are no records of an orca ever attacking a human.

White sharks know when it is time to "get out of Dodge". South African cage-diving operators reported a drop in white shark sightings around the time that the white sharks were killed, a sign that other sharks had left the area for the time being, because of the orcas.

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What Killed This Shark? The Answer May Surprise You.



The death of the 10-foot juvenile male white shark in the shallows in Monterey Bay, California, was due a bacterial infection. The necropsy revealed the infection damaged the shark's brain, heart and liver, and may have compromised its immune system. Experts say the pathogen is unlike any kind of bacteria that has ever been seen in sharks before and it is possible other marine species could be dying farther from land.

In the past two years (as well as 2011, 2007 and 2006) there have been die-offs of hundreds of leopard sharks in San Francisco Bay, but the young white shark was the first of his species washed up on the Central Coast in the last 30 years. Salmon sharks (*Lamna ditropis*) strand, or wash up dead, along the central and southern California coast during late summer and early fall. While the reasons for all the strandings are not fully understood, however, a recent study examined tissues from 19 of the sharks, and histopathology revealed meningitis or meningoencephalitis in many of the shark brains, and bacteria (*Carnobacterium sp*) in brain and other tissues. Fish pathologist Mark Ohiro also reports the presence of a fungus in many of the sharks.

In June 2013, a 1,300 lb. mako shark caught off Huntington Beach contained levels of DDT, PCBs and mercury hundreds of times higher than the EPA limit for human consumption. As apex predators, sharks feed on prey lower down on the food chain, accumulating toxins consumed by their prey. DDT entered California coastal waters from the late 1940s into the 1980s, when the Montrose Chemical Corporation was dumping DDT-laced water into the sewer system in Los Angeles County sanitation districts which, in turn, was discharging the contaminated water into the ocean off White Point on the Palos Verdes Peninsula. From the late 1950s to the early 1970s, more than 1,700 tons of DDT entered the ocean from sanitation district pipes off Palos Verdes. PCBs entered coastal Southern California through a number of means, as manufacturers dumped contaminated water in sewer systems.

Update on Some State Shark Fin Trade Bills

Florida: Senator Travis Hutson (R-Elkton) filed SB884, a bill making it a first-degree misdemeanor in Florida to trade or offer shark fins for sale, and commercial and recreational fishers found in violation would face suspension or loss of their licenses or permits. The bill is available online at <http://www.flsenate.gov/Session/Bill/2017/0884/BillText/Filed/PDF>. Unfortunately, the bill was watered down, making it only a second-degree misdemeanor, by the time it was signed by Governor Rick Scott, and does little to stop the trade. The law takes effect October 1, 2017,

New Jersey: A3945 has passed the Assembly Committee with Amendments and is due for a 2nd Reading. If you live in New Jersey, please contact Assemblyman Reed Gusciora at (609) 292-0500 and ask that A3945 be scheduled for a vote in the Assembly as soon as possible. The bill is available online at: http://www.njleg.state.nj.us/2016/Bills/A4000/3945_R1.HTM Senator Raymond Lesniak, the sponsor of the bill and a strong conservationist with a 36-year-long record of protecting the environment (and lowering taxes) is now running for Governor. It would be a welcome change to have a conservationist in a position of power in New Jersey!

Thank You to Our Supporters!

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Status of the Shark Fin Trade Elimination Act of 2017

SRI partnered with the Humane Society and Oceana in support of the federal bill banning the trade in shark fins that was re-introduced this year.

S.793, the Shark Fin Trade Elimination Act of 2017, would prohibit the import, export, sale and trade of shark fins. This bipartisan bill is sponsored by Senators. Cory Booker, D-New Jersey; Shelley Moore Capito, R-West Virginia; Maria Cantwell, D-Washington; John McCain, R-Arizona; Gary Peters, D-Michigan; James Inhofe, R-Oklahoma; Sheldon Whitehouse, D-Rhode Island; Roger Wicker, R-Mississippi; Richard Blumenthal, D-Connecticut; Rob Portman, R-Ohio; and Brian Schatz, D-Hawaii.

S.793 has now been passed by the U.S. Senate Commerce, Science and Transportation Committee. Please contact Senate Majority Leader, Mitch McConnell, R-Kentucky, and urge him to schedule the measure for Senate floor action soon. His address: 317 Russell Senate Office Building, Washington, DC 20510-0001. phone: (202) 224-2541. fax: (202) 224-2499

A companion House bill, H.R. 1456, introduced by Reps. Ed Royce, R-California, and Gregorio Kilili Camacho Sablan, D-Northern Mariana Islands, has nearly 100 cosponsors.

A recent national poll shows that 81 percent of Americans support this bill.

SRI KIDS' CORNER: ASK HUNTER



Some people have an understanding or a connection to animals that allows them to approach animals more with curiosity and admiration than fear. At SRI, pretty much EVERYONE is one of those people. We love sharks more than fear them. However, we must exercise common sense. In a previous newsletter, we asked marine biologist Hunter Noren if he feared sharks while diving. Hunter, who has loved and respected sharks since he was in pre-school, explained why he did not. Today we ask him a slightly different question.

SRI: Considering that surfers are frequent victims of shark attacks, do you worry about sharks while you're surfing, if not diving?

Hunter: *I'm more afraid of being attacked in the parking lot. Shark populations are in decline and sharks don't really want anything to do with me. I'm not a tasty prey for them. When I'm in the water surfing, what I'm most worried about is getting a parking ticket if the meter runs out or someone breaking into my car.*

SRI: We're sorry to learn that someone took a baseball bat to your car while you were surfing a few weeks ago and stole your wallet. You make a good point about people being more dangerous than sharks. What do you do to keep a positive attitude?

Hunter: *Every time I visit the beach, I pick up trash. I feel good leaving the beach cleaner than I found it. Picking up trash is something everyone can do.*

We thank Hunter for excellent advice and for the donation of his nearly new scuba t-shirt, pictured here.

Send any questions you would like to ask Hunter to gmnoren@yahoo.com with Ask Hunter in the subject line. The most interesting question will be featured in a future newsletter, along with Hunter's response. The asker will also get a surprise gift.



Win Hunter's T-shirt!

How many logged dives do you think Hunter has? Send us your best guess and the person who comes closest will win Hunter's scuba t-shirt. Hint: Hunter started diving when he was 13 and is now 28 years old. Good luck!

SRI Scientists At Work

Shark Research Institute *Whale Sharks*
 La Paz, Mexico – April/May 2017
 Photo identification, tissue sampling,
 shark-cam, tagging and plankton



Next cruise: October, 2017
www.sharks.org



Empowering & Educating the Next Generation



Young scientists writing messages to Senators & Representatives

It has been a busy spring! In addition to talks and lectures by SRI staff and volunteers at schools, libraries, clubs and both a presentation and a booth at Beneath the Sea dive show staffed by Marie Levine, Dean Fessler, Dave Grant, Jian Smith & Peter Schweinsberg — who also gathered hundreds of signatures to ban the shark fin trade in NJ.

And here are photos from two recent events. Heather Stork represented SRI at the Hopewell Science Fair where hundreds of students signed our Ban the Shark Fin Trade notes.



Dave Grant, with students at Sandy Hook.

A Thank You and shout out to Riley James who donated a week's allowance toward banning the shark fin trade with a note asking us to deliver a sealed letter addressed to "The People Who Kill Sharks". We delivered your letter, Riley.

Expeditions

Afuera - One space left on the August 1-5, 2017 Afuera, the great massing of whale sharks. Fee of \$1400 based on double occupancy. Dr. Jennifer Schmidt, Expedition Leader. Departing Cancun. Passports are required. Although dive insurance is required, this is a snorkeling only expedition because the whale sharks are feeding and scuba bubbles frighten them. But there is great diving in the area with cenotes and Mayan ruins to explore. If swimming with these giant plankton feeding sharks is on your bucket list, act fast and claim this spot. For details, contact jennifer@sharks.org or call (609) 921-3522.

Sharks, Seabirds & Cetaceans of the Bay of Fundy - September 3rd - 10th, 2017. Join SRI to explore the islands and rich waters of Passamaquoddy Bay at the mouth of the Bay of Fundy. Departing Bangor, Maine, we'll search the shore and these productive waters for migrating seabirds, marine mammals and sharks. We will island-hop, visit Arcadia National Park, Grand Manan and other sites, hike to bogs & hopefully, tag some sharks. Passports are required, Fee of \$1,250 includes van transportation from BGR, double occupancy rooms, entrance fees, and whale-watch tickets. Dave Grant, Expedition Leader. If interested, contact expeditions@sharks.org

Guadalupe Island Expedition November 28th - December 2nd 2017. The 2015 and 2016 Shark Research Committee Guadalupe Island Expedition's were overwhelming successes. The white sharks encountered during these expeditions ranged in size from 12 – 18+ feet and provided excellent subjects for the expedition participants to observe, photograph and film. Due to the tremendous response last year, and the previous year, a third expedition has been scheduled for 2017. The host will be Jimi Partington of Shark Diving Xperts and the superb crew of Islander Charters. This is cage-diving, no 'out-of-cage' experiences are permitted. The fee is \$3,900 and can be paid by check or credit card. A minimum non-refundable deposit of 50% (\$1,950) is required to secure your reservation, with the balance due no later than July 30, 2017.

Space is limited so if you'd like to go along make your reservation today. Don't miss this opportunity to dive with these magnificent Apex Predators; it will be a remarkable adventure that you will remember for a lifetime. For additional information or to reserve your spot, contact Ralph Collier, the expedition leader, at sharkresearch@aol.com

Electa Pace

We are sad to relate the passing of Electa Pace, a legend among shark researchers. Born in Connecticut, Electa attended Syracuse University as a pre-med major, then from 1952 to 1955 she lived in New York City where she worked in television as staff producer and continued her studies at Columbia University. This multi-talented woman was also a concert pianist featured at Carnegie Hall and harvested cobra venom for medical research. After marriage to Peter Sguros, a microbiologist at Florida Atlantic University and a Commander in the Naval Reserve, she became a master sailor and expert diver. For many years Electa worked closely with her good friend the late Dr. Arthur Myrberg studying the mass migrations of sharks. In addition, she was the administrator of the Florida Shark Attack File headquartered at Rosensteil School of Marine and Atmospheric Science at the University of Miami, investigating shark incidents throughout the Caribbean. Electa was a repository of stories about the early research on sharks (and the researchers), and an enthusiastic and gracious hostess who gave unstintingly of her time and expertise to many of today's well-known shark scientists. She was one of a kind, much beloved and greatly missed by all who were fortunate to know her.



Electa Pace

Honoring Rob Stewart



Captain Alex Antoniou

We are thrilled to announce that on June 8, World Oceans Day, a new research vessel will be christened in Ft. Lauderdale, Florida. It is to be named *Sharkwater*, in honor of our late board member, Rob Stewart. Originally built as the *Senshu Maru* for Japanese fisheries, she has been converted for marine research and conservation to host filmmakers, scientists, students and conservation organizations.

Sharkwater's captain, Alex Antoniou, served as SRI's Director of Field Operations for more than a decade. On moving to Colorado he founded Fins Attached, and continues to work for protection of sharks. Alex also plans on assisting in the completion of Rob's film - *Sharkwater Extinction*.



"I'm Talking About Sharkin'"



Dean Fessler, Director of Education, will be hosting Sunday afternoon talks in Princeton throughout the summer about his many experiences with sharks. Cost: \$20, but free for members. Due to limited parking space only occupants of four cars can be accommodated each week. If interested in attending, contact sharkman@yahoo.com or marie@sharks.org to make a reservation or call (609) 921- 3522.



Dean Fessler

Upcoming Events



Ahead of the United Nations Ocean Conference, boaters and ocean enthusiasts are gathering in New York Harbor to celebrate the United Nations Sustainable Development Goal #14, which aims to promote conservation and sustainable use of the ocean.

Whether you row, sail or use an engine, all are invited to this fantastic water parade! Join the intrepid community of concerned and caring boaters, yachtsmen and women, ferry and cruise operators, sailors, Vikings, fishermen and women, as mariners who care enough to parade for the Oceans and bring that message to the world leaders as we kick off the World Ocean Festival.

- Grand parade of vessels around lower Manhattan Sunday June 4th (minimum requirements apply)
- Parade route 10+ Nautical Miles of Manhattan and Brooklyn waterfront from Hudson to East rivers
- Official review of the parade at UN Complex and Governors Island
- Opportunities for kayak and other human powered vessels to participate
- Land based marching alongside the parading vessels
- Spectators welcome!

To register your boat, go to: <https://www.worldoceanfest.org/take-action/#ocean-march>

If you are in NYC, but don't have a boat, you can visit the World Ocean Festival village on Governors Island!

June 5-9, 2017 : The Ocean Conference. Venue: United Nations Headquarters in New York. The objective of this high-level United Nations Conference is to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development. It aims to be the game changer that will reverse the decline in the health of our ocean. <https://oceanconference.un.org/about>

June 11, 2017 : Hunt for fossil shark teeth. Venue: Big Brook, Marlboro, NJ from 11 a.m. to 1 p.m. \$20, free to members & kids. Because SRI supplies equipment for all, registration is required. To sign up, email Dave Grant at: j_david_grant@yahoo.com or marie@sharks.org.

July 1-31, 2017 : Shark Awareness Month at Hot Rod's BBQ, 175 N Main St Wharton, NJ 07885. Bring in one of their postcards and they will donate 10% of your food bill to SRI.

July 8-9, 2017 : SharkCon 2017. Venue : Florida State Fairgrounds, Tampa, Florida. A conservation event. www.shark-con.com.

July 23-August, 2017 : Shark Celebrity Auction The catalog of shark celebrities and a link into the auction will be posted on our website: www.sharks.org

July 23-30, 2017 : Shark Week. Discovery Channel's Shark Week, on July 18 select theaters nationwide will show a 'Best Of' episode from Shark Week 2016 and debut a new special. Tickets for the "Shark Week 2017 Premiere Event" will go on sale June 9, at www.FathomEvents.com Shark Week 2017 is scheduled to begin airing on July 23, 2017 at 7 p.m.

August 12, 2017 : Hunt for fossil shark teeth. Venue: Big Brook, Marlboro, NJ from 11 a.m. to 1 p.m. \$20, free to members & kids. Because SRI supplies equipment for all, registration is required. To sign up, email Megan at megan.molok@gmail.com or marie@sharks.org

Sharks and Citizen Science on the Bay of Fundy

by Dave Grant, Deputy Director

I was recently in New England and the Maritimes and had the opportunity to look into local shark fisheries. The people on both sides of the border are supported by tourism and abundant maritime resources, but scientists in Maine are concerned that these waters may be undergoing the most rapid temperature rise and ecological change occurring along our coasts.



Tracked with a PSAT tag (Pop-up Satellite Archival Tag), *Independence* returns for another season.

Rising water temperatures that are displacing cold-water species like cod northward, apparently benefit lobster populations - which have skyrocketed - possibly as a result of fewer predatory fishes. This may be affecting shark distributions too, particularly the commercially valuable dogfish (*Squalus acanthias*), as well as other species that are not fished or are seasonal migrants.

One of the best spots to look for sharks is in Chatham, Massachusetts on Cape Cod. A population boom of seals at nearby Monomoy Island has made it a destination for shark watchers hoping to get a glimpse of an enormous white shark (*Carcharodon carcharias*); but an afternoon visit to the town dock instead will likely reward you with a view of the real heavyweights of these waters - up to 6,000 pounds of dogfish.

(The daily limit imposed on commercial fishermen by regulations.) Occupying a lower level on the food chain than their much larger cousins, dogfish can exploit different and varied food sources and thrive in much greater numbers. In fact, the allowable annual catch limit in recent years has been a whopping 60 million pounds, mainly for the export market.

Dogfish are visitors to New England migrating from the Carolinas in great numbers to feed and pup their young in the warmer summer waters. Their sudden appearance *en masse* can be so dramatic that William Garner - renowned biologist from Monmouth University - used them as an example of the common misconception of *spontaneous generation* among early naturalists.

After a *wild-goose chase* following up on reports of basking sharks (*Cetorhinus maximus*) from a whale-watch boat in Provincetown, in the Cape Cod Canal and off the Isle of Shoals, I continued north to Maine. SCUBA divers along the coast enthusiastically rehashed stories of schools of dogfish circling above them offshore; and years ago, fish-tagging off Mt. Desert Island, my students discovered that the surest way to attract a school of them was to go bottom fishing with me for cod and haddock. Sometimes the clear waters would reveal dozens of them idly circling below.

The boundary waters of Passamaquoddy Bay are crisscrossed by ferries between Canada's Campobello and Deer Island, and Eastport, Maine; and afford good chances of spotting seabirds and other creatures. The best place to observe marinelife is Grand Manan Island - the "Queen of the Fundy Isles." It has a rich maritime heritage and many local fishermen and residents who readily volunteer a wealth of information about fish and fishing. Its waters may have the highest concentration of harbor porpoise in the world and on the 90-minute ferry ride to the island I also have spotted numbers of whales, seals and occasionally basking sharks. However, the main harvest from the sea here is herring, mackerel, dulse seaweed and periwinkle snails.

A short drive from the Grand Manan ferry terminal at Blacks Harbor is my last stop in Canada, the lovely seaside village of St. Andrews - another town that developed around the abundant resources of the bay. Here I met with Nicole Leavitt, the fifth generation of local boat builders, sea captains and fishers, who wears a number of caps herself - whalewatch leader, graduate researcher. "Cruisin' with the whales" as the senior marine biologist for Island Quest Marine is her bread-and-butter, leading whale watches for the

busy ecotourism market in the summer. But her real love is tagging sharks on the family's sport-fishing boat Sea Fox. She and her father are a wealth knowledge about them, the fishing industry and the natural history here. (Not surprisingly, the license plate of their truck reads: SHARKS)

Tagging sharks was a natural progression that made sense for this resourceful crew. "When we first started years ago we were strictly sport fishing - going after cod, mackerel, pollock, haddock - but we kept losing fishes to sharks! There was a point in time that you couldn't get your line to bottom without a dogfish taking it." Today there is little commercial fishing for sharks and this may be related to population fluctuations and a downward trend in forage fish populations that have been observed. "I wish they were still around. We have not seen one single spiny dogfish in seven years!"

"My dad, Captain Chris, came to me asking about the sharks - what type, how long are they here, do they stay here year round, do they migrate anywhere else? I told him I didn't know and I didn't know if anyone did. I reached out to Dr. Steve Turnbull at the University of New Brunswick due to his interest in sharks, and that's when we decided to team up. We provide the fishing *know how* and he provides the scientific weight of being backed by a university. It's turned into a great partnership!"

The objectives of their study include developing population estimates of sharks in the Bay of Fundy, determining range, distribution and the duration of time spent in local waters. Besides affiliation with the University of New Brunswick, their efforts are approved by the World Wildlife Federation of Canada. "We've encountered no significant problems other than other individuals seeing us catching sharks and wanting to do so themselves. Sparking interest in sharks locally can sometimes lead to hunting sharks instead of conserving them. And a lot of people want to say they've caught a big shark, hoist it up on deck and take pictures with it, regardless of the outcome for the animal. That's probably the toughest thing we have had to endure."



A SPOT tag (Smart Position Or Temperature) attached to the dorsal fin of Edna, a female porbeagle shark

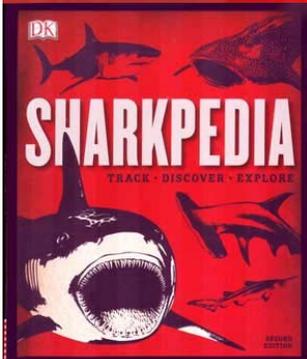
"Catching and tagging sharks is a big dream for lots of folks, and every single person we have had aboard has been excited by the prospect of helping with the research aspect of our efforts. Our target species is the porbeagle shark (*Lamna nasus*) the only species seen or tagged in the program, and most of them are females. We tagged only our third male shark ever this summer; and they range in size between seven and seven and a half feet – noticeably smaller than the females. Last July we encountered an 18-foot white shark and John Chisholm at the Atlantic White Shark Conservancy identified her as *Julia*. Tagged in 2011, she has grown over two feet, and this is the first sighting in the Bay of Fundy. We were able to spend a magical hour with her at the surface."

Nicole and Captain Chris have many other memorable nuggets to share about sailing these beautiful waters – regular sightings of bizarre ocean sunfish (*Mola mola*), breaching basking sharks, and anecdotes about reassuring passengers, puzzled by the enormous tides, who wonder if they were being returned to the same wharf they departed from in the morning...

Ecotourism and shark research here are in very capable hands, and will be returning in the fall to see what else they have discovered about these fabulous fishes and bountiful waters.

NOTE: SRI is organizing a shark fishing trip to St. Andrews after Labor Day in 2017. If you are interested in participating, contact Dave at dgrant@sharks.org

Members Bookshelf

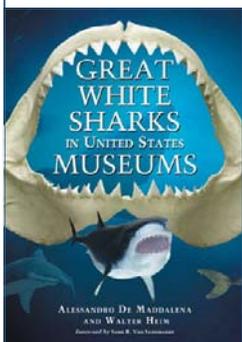
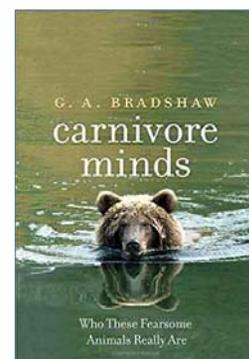


Sharkpedia, 2nd edition. \$12.99 USA, preorder from Amazon.com for \$9.33.

This scientifically accurate and comprehensive research manual and factoid-filled guide takes kids from tropical paradise to the cold, dark depths in search of the wildest, weirdest, and most wonderful sharks in the ocean! Kids can go on an around-the-world adventure to track the sea's most extraordinary predators from the huge and harmless whale shark to the tiny pygmy shark. These fascinating fish come in many shapes and sizes, and exhibit many different behaviors. What sharks live in the dark depths of the ocean. Who gulps up tiny plankton? What sharks are so fast they can leave a white-water wake. Kids who are fascinated by sharks will love this book!

Carnivore Minds: Who These Fearsome Animals Really Are by Gay Bradshaw, \$25.03 (Hardcover) or \$19.25 (Kindle) from Amazon.com.

Myth and media typically cast animals we consider predators or carnivores as unthinking killers — dangerous, unpredictable, and devoid of emotion. In this landmark book, Bradshaw uses the combined lenses of natural history, neuroscience and psychology to finally close the door on speculation about whether or not animals can feel, think and suffer, and why we must openly accept that we are their kin. By scrutinizing the lives of carnivores, she refutes the many misperceptions that hide the true nature of sharks, orcas, grizzly bears, coyotes, crocodiles, and even snakes. Bradshaw shows how predators share the rainbow of emotions that humans experience, including psychological trauma. Renowned for leading research on post-traumatic stress disorder (PTSD) in elephants and other species, she decries the irrational thinking behind wildlife policies, and proposes a new, ethical approach to coexistence with the planet's fiercest animals. Highly recommended!

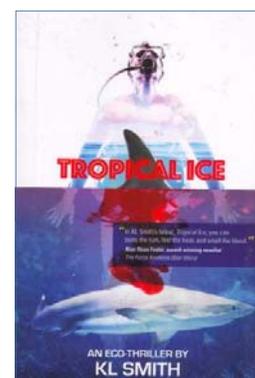


Great White Sharks in United States Museums, by Alessandro De Maddalena and Walter Heim. \$35 (paperback) from Amazon.com.

This is the first complete treatise on white shark items preserved in United States Museums. It includes a general introduction describing the biology, ethology and ecology of the white shark. It catalogs 160 white shark items contained in 26 institutions and provides detailed information and documentation of every specimen and a description of the methods of preservation or preparation of the items, as well as documentation available on all the cases in which white sharks have been kept in captivity in U.S. aquariums.

Tropic Ice, by KL Smith. \$12.99 (paperback) from Amazon.com.

KL Smith (a.k.a. Ben Davidson, the publisher and editor of *Undercurrent*, the private guide for traveling divers) knows his subject. This is a page-turner from start to finish! Divers gather round a frozen baitball during shark week in Belize until sharks rip out a gruesome surprise and scuba travel writer Matt Oliver finds himself smack in the middle of trouble. He tackles a corrupt ambassador and board member of a conservation organization, seahorse mining for a phony Asian aphrodisiac, jaguar poaching, shark finning, and endless crimes against against the environment, plus several murders. This eco-thriller is page-turner that you can't put down.



Some Easy Ways to Help Save Sharks.

“If there was ever a time to dare, to make a difference, to embark on something worth doing, IT IS NOW.” *Author Unknown*

At SRI, we're fighting for protection for sharks and the ocean every single day. By taking action, fundraising, donating, and making informed choices, you are partnering with an unprecedented global movement to secure vital protections for our ocean planet. *We can't do it without you.*

How can you help protect sharks and our ocean?

Join SRI's Monthly Giving Program. A monthly gift to the ocean is a remarkable commitment. By becoming a monthly giver, you join a growing group of dedicated supporters from around the world who provide an essential line of defense for marine wildlife.

Find out if your Company offers a Matching Gift Program. Many employers will match any charitable contributions made by their employees to a 501(c)(3) organization such as SRI. If your company has a matching gift program, sign up and list SRI. The impact of your gift may be doubled or possibly tripled! Some companies even match gifts made by retirees and/or spouses.

Fundraise for Sharks and Ocean Protection. Rally your friends and family around the cause. Set a challenge — a race or a beach cleanup, a dinner party, a birthday celebration or any one of dozens of activities. Just go on Google and enter keyword “Fundraising Ideas” for thousands of suggestions.

Leave a Legacy. Did you know you can invest in conservation with Shark Research Institute for years to come? Through gift and estate planning you can meet your financial goals and maximize your philanthropic giving. To start establishing your legacy for sharks and our ocean, contact your legal or financial advisor on ways to maximize your gift so that it benefits you as well as SRI.

Shop through Amazon Smile. Shopping through AmazonSmile is one of the simplest ways for you to support our research, education and conservation programs every time you shop on Amazon.com, at no cost to you. You'll find the exact same items and prices with the added bonus that Amazon donates a portion of the purchase price to the Shark Research Institute.

Another Megamouth!



On May 22, an extremely rare megamouth shark, *Megachasma pelagios*, swam into a fishing net off the coast of Tateyama, Chiba Prefecture, Japan. The five- to six-metre-long deep-water shark, a female, was found in a net offshore from the Sunosaki lighthouse around 4:30 a.m. The shark was to be transferred to another location in the ocean, but she died the next day.



The species was first recorded in Hawaii in 1976, and since that time only 110 specimens have been found worldwide, 10 of which were taken from Japan's waters according to professor Kazuhiro Nakaya of Hokkaido University.

Sharks in History

Castro, José I. (2016). **Historical Knowledge of Sharks: Ancient Lore, Earliest Attacks, American Fisheries, and Utilization.** *Marine Fisheries Review*. doi: [1dx.org/10.7755/MFR.75.5.1](https://doi.org/10.7755/MFR.75.5.1).

This fascinating journal article examines the panorama of our knowledge of sharks from Aristotle through Pliny and its loss in the chaos of the Dark Ages. The author illustrates how sharks were regarded by the Aztecs and colonial America. He discusses the utilization of their skins by the Ocean Leather company, their livers as a source of Vitamin A in the 1940s, and how overfishing of shark nursery areas resulted in the collapse of shark fisheries on both coasts of America. He points out how shark attacks on downed aviators and survivors of sunken ships in World War II spurred research for a shark repellent, and the research on shark behavior and sensory biology of sharks that resulted. This is a paper to download, and keep in your library.



Shark Tracking Study Shapes Marine Park

Lea, James S. E., Nicolas E. Humphries, Rainer G. von Brandis, Christopher R. Clarke & David W. Sims (July 2016) **Acoustic telemetry and network analysis reveal the space use of multiple reef predators and enhance marine protected area design.** *Proceedings of the Royal Society, Biology*. doi: [10.1098/rspb.2016.0717](https://doi.org/10.1098/rspb.2016.0717)

Monitoring the movements of sharks can help researchers to advise on the areas best served by marine reserves. In the Seychelles in the Indian Ocean, a proposed marine protected area has been designed to safeguard mainly turtles and coral reefs. To see how well it might protect sharks, James Lea at the Marine Biological Association of the United Kingdom in Plymouth and his colleagues used acoustic transmitters to track 116 sharks (five species, including the blacktip reef shark, *Carcharhinus melanopterus*) over a three-and-a-half-year period in and around an area earmarked for a reserve in the Seychelles. They also tracked 25 turtles. When they compared the areas that these animals favored with two proposed reserve sizes, they found that the larger reserve covered about 34% more of the animals' movements than the smaller one. In response to the research, the Seychelles government agreed to use the larger protected area.

Introduced & Threatened Species

Gibson, Luke and Ding Li Yong (2017) **Saving two birds with one stone: solving the quandary of introduced, threatened species.** *Frontiers in Ecology and the Environment*. DOI: [10.1002/fee.1449](https://doi.org/10.1002/fee.1449) or http://onlinelibrary.wiley.com/doi/10.1002/fee.1449/full?elq_mid=16155&elq_cid=2898864

The international wildlife trade has spread numerous species across the planet and reduced populations of many of these same species in their native ranges, threatening many of these native species with extinction. In some cases the intentional or accidental release of traded organisms has led to the establishment of populations beyond their native ranges, in urban centers or adjacent wilderness. The authors describe examples of the conservation dilemma posed by introduced, threatened species and highlight ways to mitigate the threats presented by introduced populations – as well as the threats facing native populations – of the same species. Managing introduced populations – either by using them as substitutes to help offset the demand for wild-caught organisms or by translocating them in an effort to reinforce imperiled populations within their native ranges – represents a currently underutilized solution to two pressing conservation problems. Alternatively, naturalized populations of introduced species could serve as research surrogates to facilitate an understanding of the natural history of the species in its native range and buffer declining populations of threatened species in their native ranges. Such creative conservation strategies could help stem the continuing worldwide degradation of biodiversity.