



2020

ANNUAL REPORT





A WORD FROM FOUNDER AND CEO

Alex Antoniou, Ph.D

Dear Shark and Ocean Lovers, and Fins Attached supporters,

What can be said about 2020? The year began with great optimism and hope for making a difference to save sharks and our oceans. If this year has taught me anything it is that no power or persuasion can deter us from our task. We must continue to have courage and commitment, and the drive to stay on course to achieve what is best for all of us. For me it's an addiction, I'm focused and I can't get enough of it. The thoughts you fill your mind with are crucial because what you cling to influences your worldview.

It is always easier to just watch and not take part because we think that obstacles in front of us are just too great to overcome. However, where would we be if we all had that attitude? Think of the dreams of those past, and make them your own. Don't try and do it all at once. Take them on one by one. Part of the growing process to greater achievements are defeats, and we have and will face defeats. If you are defeated, feel angry and depressed, then use that anger to succeed the next time. Believe that we will win the next time. Be a "gut runner." Listen to what your gut is telling you and do what you believe to be the right thing.

When Covid started to hit hard back in March, I was feeling defeated, but not yet depressed. Thoughts of "OH NO," how is a nonprofit suppose to make it through all this, especially when expedition after expedition, 10 in total, were canceled. Lost grant funds, sponsorships, citizen scientist, etc. were all having a major impact. The outlook was gloomy. Our expenses were still there, Sharkwater crew, marina fee, boat insurance, boat maintenance, etc., did not go away. When donor after donor, sponsor after sponsor started reaching out to me, this is when my faith in humanity was restored. One after another you stepped up to the plate and helped us through the challenging time, saying our mission was too important to fail. I can't begin to tell you how heart warmed I felt. I had people standing shoulder to shoulder with us. Thank you to each and everyone of you, and also thank you to our dedicated volunteers.

Wishing everyone a great holiday season and happy and prosperous New Year.

Alex Antoniou, Ph.D. Founder and CEO.



A word from the board chair, Todd Lemons

"I am deeply honored with the confidence that the board has afforded me. I assume the position of Chairman standing on the solid foundation that you have built for the past 10 years. As such, I have the luxury of challenging us to look at our business model in radical new ways. By default, the all consuming mission of most NGOs becomes fund raising, overshadowing the primary mission for which the organization was founded. My personal mission will be to help lead the design and construction of sustainable funding mechanisms, so that we have the financial stability to focus on our founding mission - the conservation of sharks and share habitats throughout the eastern pacific."



KEY SPONSORS





Fins Attached - CREMA: A perfect match!

Alex Antoniou and Randall Arauz met at shark conference in Taiwan in 2002, and started a long term collaboration that has resulted into one of the most effective partnerships for shark conservation in the Eastern Tropical Pacific. Back then, Alex was organizing shark research expeditions around the globe, while Randall was taking his fledgling steps in the shark conservation world (coming from a sea turtle background). A formal long term and ongoing collaboration started in Cocos Island National Park in 2004, with the goal of generating science on the movements of hammerhead sharks to influence public conservation policy. Alex eventually founded Fins Attached Marine Research and Conservation in 2010, as he saw the need to provide a platform not only for the development of the much required research, but to turn that research into effective conservation policy. Randall over the years, had gained experience in several international marine wildlife conventions, such as the UNCLOS, CITES, CMS, as well as fisheries conventions such as IATTC, and had imposed major fisheries policy change in Costa Rica through Court mandates. It all came together in 2017, when Fins Attached acquired the M/Y Sharkwater, and brought Randall Arauz on board to not only direct science operations in the Eastern Tropical Pacific, but to advise on the organization's international marine conservation policy.



KEY PARTNERS

Edwar Herreno
Ocean Blue Tree



Key Fins Attached Players



Randall Arauz is a Costa Rican sea turtle and shark biologist who is known for his effective activism that has domestic, regional, and global impact. After graduating from the University of Costa Rica in 1988, he directed research on the impact of shrimp trawls on sea turtles and techniques to mitigate the impact. While studying the impact of the longline industry on sea turtles in 1997, he stumbled upon the shark finning issue and obtained some of the first known video evidence of the horrific act, and launched an ongoing campaign in 2001 that has put Costa Rica under the spot light of the global shark finning issue. Randall is a member of the IUCN Sea Turtle Specialist Group, and has served as science advisor to official delegations at wildlife conservation conventions, such as CITES and CMS, He has authored and co-authored over 50 peer reviewed publications. His work has been acknowledged by the Whitley Fund for Nature in 2004 (UK) and the Goldman Prize (US) in 2010. Since 2017 he has served as Fins Attached's Marine Conservation Policy Advisor.

Dr. Mauricio Hoyos is the Director and Co-founder of Pelagios Kakunjá and the Chief Scientist from Fins Attached Marine Research and Conservation. Among his main lines of research are nursery areas, reproduction, movement patterns and habitat use, ecology and behavior of sharks. Based in La Paz, he has studied several species of sharks in different parts of the world: Guadalupe Island, the Gulf of California, the Revillagigedo Archipelago, Playa del Carmen, Cancun and Isla Mujeres (Mexico), Clipperton (France), Coco Island (Costa Rica), Malpelo (Colombia), Los Roques (Venezuela) and British Virgin Islands. He has studied sharks since 1998 and is part of the scientific committee of several marine reserves in Mexico. Dr. Hoyos has been active in outreach and education on shark conservation. During his career, he has received several awards (Golden Diver, Shark Researcher of the Year and Sea Hero) for his work in the conservation and protection of sharks. He has also published 48 peer-reviewed articles in international scientific journals, 3 book chapters, and a book on the White Shark. He has been the scientific advisor to several international documentaries for international networks such as National Geographic, Discovery, Japan Underwater Films, IMAX, Natural History New Zealand as well as Televisa and Canal Once TV-Mexico.



Key Volunteers



Stuart Edmondson: Volunteer Operations Manager. Stuart is a master of details, which is what we need from an operational person. Thank you to Stuart for dedicating his time as a volunteer to make sure operations run smoothly. Stuart is a motivated individual who performs very well under pressure with a highly successful military career that has instilled many positive and transferable qualities, such as teamwork, integrity, commitment, strong communication skills and selflessness.



Tamara Glover: Volunteer Coordinator. Since she was a child she has been fascinated by sharks, even writing a term paper on them in high school about how misunderstood they were. It wasn't until Tamara saw a documentary on how many sharks were being killed every year, that she knew she had to do something. She has been a volunteer with Fins Attached Marine Research and Conservation for 8 years ago. She uses every opportunity to educate people on sharks and that Fins Attached is making a difference with our research and conservation efforts. Thank you Tamara.

Board of Directors



Todd Lemons - Board Chair

For more than thirty years, Mr. Lemons has been on the leading edge of the development of market-based conservation models. During his career, he has lived and worked extensively in South America and Asia including: Guyana, Chile, Bolivia, Brazil, Mexico, Malaysia, China, Hong Kong, Indonesia and Thailand. Mr. Lemons' pioneering work in the field of market-based (for-profit) conservation solutions includes social & environmental enterprises.

Infinite-Earth, Ltd., is a Conservation Land Bank management company dedicated to for-profit forest conservation through its pioneering efforts in the development of disruptive environmental finance mechanisms. InfiniteEARTH is the author of the world's first forest carbon accounting methodology, known as REDD+ (Reduced Emissions from Deforestation and Degradation). A partnership with Fins Attached, has been founded to develop a network of Blue Carbon Mangrove & Marine Conservation projects within the greater Eastern Tropical Pacific Seascape (ETPS), including the Sea of Cortéz and the Baja.



Trisha Tyler - Vice Chair

Trisha is a scholar studying the impact of the Fourth Industrial Revolution on business and people in the U.S. with a specific focus on our ways of working in a digital world. She is a 2022 candidate to graduate from the prestigious UCLA's Anderson School Executive MBA program.

Until Aug 2020, Trisha worked at Mercer as a Partner and the West Market Health Business Leader, a \$250M business, for which she had P&L accountability and leadership responsibility for 300+ employees. In this role she was also a member of the U.S. Health Leadership, a \$1.2B consulting business. Her career has consisted of 20+ years of total rewards consulting, healthcare purchasing experience and business leadership.



Jeff Miller - Co-Treasurer

Jeff Miller is a Financial Advisor with Sound Financial Group, delivering an uncommon approach to financial security, protection, and wealth building through a model based on coaching and education. He has a passion for helping people learn about money, the financial industry, asset building, and to best position themselves for their own version of financial freedom and security.

Prior to finding his passion, Jeff spent 25 years in the corporate environment where he was responsible for sales, account management, finance, profit/loss, and overall business growth. He has a degree in finance from Lehigh University.



Andy Reid - Co-Treasurer

Andy is a pragmatic, adaptable and tenacious leader, with an innate belief in the power of education to change how people think. Motivated to lead and influence as demonstrated by an award-winning track record in expedition leadership, he is environmentally aware with a values-based approach to leadership and a significant interest in marine conservation, developing people and creating change for the better. Andy's first significant expedition was as to Malaysia with Operation Raleigh in 1987.

Over a 25-year career in the British Army he has led a significant number of diving, sailing and trekking expeditions. These included award-winning Joint Services (military) diving expeditions to Bikini Atoll (Marshall Islands), St Paul Island (Nova Scotia), Cocos Island (Costa Rica), the Revillagigedo Islands (Mexico) and Guadalupe (Mexico). In 2011 he was a leader on a British Schools Exploring Society Expedition to the Peruvian Amazon. Andy is a Fellow of the Royal Geographical Society and the Explorers Club (New York). During his Army career Andy has also worked as a salmon farm manager in Scotland and as a fisheries scientist in the Falkland Islands.



Ali Miller - Secretary

Despite growing up in landlocked Denver, Colorado, Ali has been scuba certified since the age of 12, falling in love with the oceans at a young age. She has turned her passions of environmental conservation and marine biology into a career as owner and travel director of Denver Divers and the Swim School of Denver. She strives to educate all generations about the importance of protecting the oceans through experiential learning on the many group trips she hosts for the dive shop. She holds a Master of Business Administration with a focus in entrepreneurship from the University of Colorado and an undergraduate degree in environmental Studies from the University of Redlands. She has worked in the dive industry for most of her career, becoming a scuba assistant instructor in 2005 and freediving instructor in 2013. Since purchasing Denver Divers in 2009, she has built the travel program from one to three trips per year up to 12-14 trips per year. Each trip she builds includes an aspect of environmental ocean education and conservation, fulfilled through partnerships with destination based non-profits around the world.



Dennis Santos

Dennis possesses a unique blend of working full time for the largest utility company in NJ, a fortune 500 company, PSEG, while owning and operating one of the East Coast's oldest and most recognizable dive shops, Elite Divers. He also owns and operates the rental property Blue Karma, located in Cayman Brac, Cayman Islands. His business acumen, contacts in the diving industry and resourcefulness exhibit his strengths as a leader.

- Elite Divers, President / CEO
- Blue Karma - Cayman Brac, Cayman Islands, Owner & Operator
- PADI - Master Instructor, Emergency First Response Instructor Trainer SDI / TDI/ ERDI Instructor
- Public Service Enterprise Group, Major Account Consultant



Jason Borkland

Jason's passion for diving goes hand in hand with a commitment to marine conservation, and his experience as a PADI Divemaster has inspired him to take a more active role in efforts to protect the world's oceans and the boundless life they contain. Jason feels it's impossible to experience the wonders of the undersea world first-hand without coming away with a profound feeling of reverence, and a sense of duty to preserve those wonders for future generations. Conservation is the key to the survival of the planet, as we are all interconnected and our survival is tied together. Jason helps the cause in more direct ways, too. He has volunteered his time and expertise at Texas State University's protected marine area at Spring Lake, and in the last few years, he's become particularly involved in Ocean conservation efforts through Fins Attached, where he has found his home away from home. Jason is Tesla certified, involved with the automotive industry his entire life, he sees the push into this new technology as the way forward to reduce the world's dependence on fossil fuels. At his company, Heritage Body and Frame they also use environmentally friendly paint systems to help reduce environmental impact.



Kevin Young

Kevin is the co-founder and President of K&K Masonry, Inc., one of the best-known masonry companies in Nebraska. They have been in business for 27 years with 30 full time employees. Kevin serves as the Managing Partner of K&K Masonry, managing day-to-day operations, working with existing clients and developing new ones. He was instrumental in developing The Mason Training Institute, an open shop, non-profit school designed to teach masonry techniques in order to produce qualified masons for the industry. Kevin is a past President of the Mason Training Institute, the Nebraska Masonry Institute, the Eastern Nebraska Mason Contractors Association, Ginger Cove Fireworks, and was a founding board member of Nebraska Masonry Alliance. As a volunteer rescue diver for the Yutan Fire and Rescue Department, Kevin earned his Divemaster Certification from PADI and currently has thousands of completed dives. Kevin joined Susie (wife) as a volunteer diver at Omaha Henry Doorly Zoo and Aquarium and completed his Scientific diver certification from SSI. Kevin became a Board member of Fins Attached in 2018.



Kristopher Lopez

Sun&Surf is headed by Kristopher Lopez who is an expert in aquatics, with over 39 years of experience. Kris holds NJ State teaching certifications in both Secondary Mathematics and Science. Kris currently teaches Chemistry and Physics at Allentown High School in New Jersey. Kris is currently Vice President of the UFRSD Teachers Union and the Negotiations Chair for over 15 years, most recently negotiating a contract settlement of over \$60M for the next three years for the school union. He has the ability to understand the big picture and then train and motivate people to achieve a goal as part of his daily routine. He is willing to serve in whatever capacity best serves M/Y Sharkwater and Fins Attached. He is presently scheduled to retire from teaching June 2021 and will be looking to invest my energy into a new project. After 33 years in the classroom this may be a welcome change.



Laith Pharaon

As Founder and Chief Executive Officer, Laith Ghaith Pharaon expertly oversees the investments, business development and ongoing operations of Orca Holding worldwide. He serves as the principal investor identifying lucrative real-estate opportunities in select international markets. Leveraging his well-respected acumen in hospitality management, he has established joint venture partnerships with world class luxury hotel and resort brands around the globe.

Laith's prior experience includes and asset management and development of a hospitality portfolio of hotels and resorts across the Mercosur region of Latin America. In his early career he managed distressed real estate portfolio assets in the U.S. and administered a sizeable Latin American debt portfolio for a major New York money center. Laith competed on an international level in Class 1 offshore powerboat racing. He was inducted in the American Power Boat Association's (APBA) Hall of Champions, the highest honor for the sport, in 1996. Among his career wins were four Formula 1 World Championship races: U.S. Championship (1996); European and World titles (1997); Pole Position World Title (1998). He is fluent in English, French, Spanish and Italian.



Shane Taylor

Shane is one of the founding members of Fins Attached Marine Research and Conservation and serves as the current Chairman. A-1 Scuba & Travel Aquatics Center GM, Master Technician, Service Manager and Scuba Instructor. Downtown Aquarium Dive Programs manager. Since a young age Shane has had a unique interest in sharks and the marine world. He was born into the sport of scuba diving and experienced his first dive into the ocean at the age of 6. He became a PADI Jr. Open Water Diver in 1984. Shane holds the rating of PADI and SSI Master Instructor and has logged well over 5,000 dives in his career. He is an experienced expedition guide escorting groups all over the globe for scuba diving and shark research adventures. Shane holds over 150 manufacturer technical certifications in the trade of scuba equipment service and repair and has been a licensed regulator technician since 1986. He has helped develop and test numerous creations that are used on various devices for diving some of which he hold the patents for.

Overseeing guest snorkeling and diving programs at the Denver Aquarium is one of Shane's passions. He helped develop the snorkeling and diving program protocols and has trained over 50 professional guides. Animal interaction and safety is his main focus. Underwater video and photography is another area of trade knowledge for Shane, often filming for media groups or professional projects.



Pat Purkhiser

Pat has taught High School Science, was a College Adjunct, scuba Instructor Trainer, Service Tech, 45 years SCUBA experience, Public Safety BLS Trainer, and a Platinum Diver. Pat has been a part of Fins Attached since the beginning and is committed to teach Environmental/Ecological Sciences. He has over 1000 certifications and 23 years leading Eco-trips around the world with high school and college students, for which he is extremely proud of.

2020 Scientific Publications

- Santana-Morales O, Abadiá-Cardoso A, Hoyos-Padilla M, et al. **The Smallest Known Free-Living White Shark *Carcharodon carcharias* (Lamniformes: Lamnidae): Ecological and Management Implications.** *Copeia*. 2020;108(1):39-46. doi:10.1643/OT-19-233
- Le Croizier G, Lorrain A, Schaal G., Ketchum J, Hoyos-Padilla M, Besnar L, Munaron JM, Le Loc'h F, Point D. **Trophic resources and mercury exposure of two silvertip shark populations in the Northeast Pacific Ocean.** *Chemosphere*. 2020;253. doi:10.1016/j.chemosphere. 2020.126645
- Tamburin E, Elorriaga-Verplancken FR, Estupiñan-Montaño C, Madigan, DJ, Sánchez-González A, Hoyos Padilla EM, Wcisel M & Galván-Magaña F. **New insights into the trophic ecology of young white sharks (*Carcharodon carcharias*) in waters off the Baja California Peninsula, Mexico.** *Mar Biol*. 2020;167(55):1-14. doi:10.1007/s00227-020-3660-8
- Meza-Arce MI, Malpica-Cruz L, Hoyos-Padilla EM, et al. **Unraveling the white shark observation tourism at Guadalupe Island, Mexico: Actors, needs and sustainability.** *Mar Policy*. 2020;119(2020). doi:10.1016/j.marpol.2020.104056
- Becerril-García EE, Hoyos-Padilla EM, Micarelli P, Galván-Magaña F, Sperone E. **Behavioural responses of white sharks to specific baits during cage diving ecotourism.** *Sci Rep*. 2020;10(11152). doi:10.1038/s41598-020-67947-x
- Becerril-García EE, Hoyos-Padilla EM, Henning B, Salinas-De León P. **Sharks, rays, and chimaeras of the Revillagigedo National Park: An update of new and confirmed records.** *J Fish Biol*. 2020;1–6. <https://doi.org/10.1111/jfb.14457>
- Becerril-García EE, Arellano-Martínez M, Bernot-Simon D, Hoyos-Padilla EM, Galván-Magaña F, Godard-Codding C. **Steroid hormones and chondrichthyan reproduction: physiological functions, scientific research, and implications for conservation.** *PeerJ*. 2020; 8:e9686 <https://doi.org/10.7717/peerj.9686>
- Alderete-Macal MJ, Caraveo-Patiño J, Hoyos-Padilla EM. **Ontogenetic differences in muscle fatty acid profile of white sharks *Carcharodon carcharias* off Guadalupe Island, México.** *Rev. Biol. Mar. Oceanogr*. 2020; 55, 37–46. DOI: <https://doi.org/10.22370/rbmo.2020.55.1.2372>
- Becerril-García EE, Hoyos-Padilla EM, Santana-Morales O, Gutiérrez-Ortiz MA, Ayala-Bocos A, Galván-Magaña F. **An estimate of the number of white sharks *Carcharodon carcharias* interacting with ecotourism in Guadalupe Island.** *J Fish Biol*. 2020;1–4. <https://doi.org/10.1111/jfb.14540>
- Becerril-García EE, Bernot-Simon D., Arellano-Martínez M, Galvan-Magaña Felipe, Hoyos-Padilla EM. **Evidence of interactions between white sharks and large squids in Guadalupe Island, Mexico.** *Sci Rep* 10, 17158 (2020). <https://doi.org/10.1038/s41598-020-74294-4>
- Whitehead DA, Galvan-Magaña F, Ketchum JT, Hoyos-Padilla EM, Gonzalez-Armas R, Pancaldi F, Olivier D. **The use of machine learning to detect foraging behaviour in whale sharks: a new tool in conservation.** *J Fish Biol*. 2020;1–5. <https://doi.org/10.1111/jfb.14589>



2020 Costa Rica Report

Campaign updates and results of field research on board M/V Sharkwater in the Eastern Tropical Pacific (January - November 2020)

Randall Arauz

Marine Conservation Policy Advisor Fins Attached Marine
Research and Conservation

All research activities in Cocos Island National Park were carried out under Research Permit Resolutions N° 07-2020-I-ACMC, and N° 09-2020-ACMC, issued by the authorities of the Cocos Marine Conservation Area (ACMC, acronym in Spanish of the National System of Protected Areas (SINAC), in a formal collaboration with our partner in science the Endangered Marine Species Rescue Center of Costa Rica (CREMA - Costa Rica).

BACKGROUND

The 2020 year has been especially challenging for Fins Attached Marine Research and Conservation, as it has been for every sector of society. Due to the COVID19 global pandemic, our operations suffered a total lockdown for six months. Two very important scientific expeditions were cancelled, both of which were expected to fuel our campaigns to obtain better transboundary protection of highly migratory species in the Eastern Tropical Pacific. One expedition was the Cocos Island National Park (Costa Rica) to the Galapagos Islands (Ecuador), and the other one was from Coiba Island National Park (Panama) to the Malpelo Marine Sanctuary (Colombia). These highly technical expeditions were planned with MigraMar, a coalition of marine scientists who study the migratory movements of whales, turtles and sharks in the region. They were to include the deployment of acoustic monitoring equipment at different seamounts of the region and the mapping of the seamounts with sidebar scan radars. Several expeditions to Cocos Island National Park, as well as along the North Pacific of the Costa Rican coast with our local sister organization CREMA and research partner the Center for Marine Research of the University of Costa Rica, were also canceled. These research expeditions were pushed to the 2021 schedule. This created havoc in the organization's administrative operation and cash flow situation. On the research side of our operation, our main concern was the array of seven acoustic monitors deployed around Cocos Island that record the movements of sharks tagged with acoustic transmitters, some of which may transmit for up to 10 years. The acoustic monitors depend on a long-life battery that must be replaced every 12 months. We had last serviced the acoustic monitors in December of 2019 and planned to service them again (check batteries and download data) in May of 2020 during the Cocos-Galapagos expedition. Due to the pandemic and the surrounding uncertainty, by September of 2020 it seemed unlikely that we would be visiting Cocos Island before May of 2021, which means a potential loss of critical and relevant data for six months (from December 2020 to May of 2021).

Thanks to support from our donors, we were able to make it through these challenging times, helping us to maintain our key activities in operation, and keeping our faithful crew busy. Of relevant importance was financial support to organize a scientific expedition to Cocos Island with the mission of servicing our acoustic monitors from September 21st to October 1st, with support from **Ocean Blue Tree**. Amidst the pandemic and with airports closed, this seemed to be our only chance we would have to visit Cocos Island in 2020 and service the receivers.

Fortunately, as of September 1st Costa Rica began to gradually open its borders, and as of September 15 opened its borders to 16 States of the United States and to the European Economic Union. This way, our September expedition to Cocos Island was joined by six citizen scientists.

Furthermore, through our partner SeaMasters Group, Sharkwater was hired for two film shoots, one with Disney Plus, "The Real Life Adventures of Bertie Gregory," and the other for Sky UK (NBCUniversal), "Shark with Steve Backshall," with wildlife TV presenter Steve Backshall.

Despite of the struggles, Fins Attached was able to survive the pandemic, close the year with three expeditions to Cocos Island National Park, service our array of acoustic receivers, and continue our campaign activities, all in preparation for 2021.



Costa Rica Highlights 2020

Publication of four peer reviewed articles in prestigious academic magazines

Binnhammer, M. R., Beange, M., and R. Arauz. 2019. **Sand Temperature, Sex Ratios, and Nest Success in Olive Ridley Sea Turtles**. Marine Turtle Newsletter. No. 159, 2019 - Pages 5 – 9.

Chávez, E. J., Arauz, R., Hearn, A., Nalesso, E., & Steiner, T. 2020. **Asociación de tiburones con el Monte Submarino Las Gemelas y primera evidencia de conectividad con la Isla del Coco, Pacífico de Costa Rica**. Revista de Biología Tropical, 68 (Supl. 1), S320-S329.

Hearn, A., Steiner, T., & Arauz, R. 2020. **A brief massive aggregation of pelagic swimming crabs *Euphylax dovii* (Decapoda: Portunidae) at Cocos Island, Costa Rica coincides with onset of El Niño event**. Revista de Biología Tropical, 68 (Suppl. 1), S289-S295.

De la Llata-Quiroga, E., E.J. Chaves, R Arauz, & J.G. Abarca. 2020. **A new geographic distribution record for *Leptodeira rubricata* Cope, 1893 (Squamata: Dipsadidae): Nicoya Península, Guanacaste, Costa Rica**. Herpetology Notes, volume 13: 347-348 (2020).



Costa Rica Campaigns

Sharks Are Wildlife, Campaign Updates:

In May of 2017, a Presidential Executive Decree was issued promulgating that sharks are not wildlife worthy of protection under the Wildlife Conservation Law, but rather commercial species of fish that deserved to be protected and managed under national fisheries legislation. This was a huge blow to the efforts that had been done with the authorities of the Ministry of Environment under the government of President Laura Chinchilla (2010-2014) to procure the domestic, regional, and global protection of hammerhead sharks, and threatened sharks in general, under the provisions of the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES). As an effect, the Ministry of Environment was stripped of its authority over sharks as well as the possibility of implementing the Wildlife Conservation Law for their protection and conservation, and such authority was delivered to Costa Rica's Fisheries entity (INCOPESCA) to attain such goals by implementing domestic fisheries legislation. This unfavorable policy scenario for sharks is common throughout the region.

A two-prong strategy has followed since to change this scenario. First, a lawsuit was filed against the authorities of the Ministry of Environment and the Costa Rican Fisheries Institute in September of 2017, with the intention of shooting down the May 2017 decree, returning wildlife status to sharks. After two hearings, our final day in court will be January 13, 2021. Second, we submitted a bill to the Costa Rican Congress modifying the Wildlife Conservation Law in such a way that it would protect any shark species that is listed under a threatened status (Vulnerable, Endangered, Critically Endangered). Once we are able to change policy in Costa Rica, we believe it will be time to file cases in international courts, over the convenience and effectiveness of international shark conservation policy if sharks are not protected under domestic wildlife conservation legislation.



Sharks Are Wildlife, Campaign Bill Timeline:

1. 27/01/2020. Our bill is accepted by the Technical Studies Office of the Costa Rican Congress and is published for consideration of the Costa Rican Congress and assignment of Commission. <https://www.cremacr.org/wp-content/uploads/2020/01/LA-GACETA-N%C2%B0-16-de-la-fecha-27-01-2020.pdf>

2. 09/02/2020. Full Page Article in La Nación, Costa Rica's main newspaper dedicated to our bill in the congress. The Minister of Environment Carlos Manuel Rodríguez states in the article that the bill would correct an administrative mistake when the government promulgated that sharks were apt for commercial exploitation. <https://drive.google.com/file/d/1qzqZVLtMRBYpcaX3aNVLknay0XBoCru7/view?usp=sharing>

3. 06/06/2020. Followed up on call by the Costa Rican Congress's Environmental Commission to supply technical criteria to their consideration in support of our bill. Obtained written support from the IUCN Costa Rican Membership, Saving Our Sharks (SOS) Mexico, Center of Marine Research (CIMAR) of the University of Costa Rica, CREMA-Costa Rica, Migramar.org (international coalition of researchers), Fins Attached Marine Research and Conservation (US), Sylvia Earle of Mission Blue (US), Natural Resource Defense Council (US), Ministry of Environment, and Team Sharkwater (Canada).

4. 01/06/2020. Spoke to the Ecuadorian Congress on shark legislation and the need for sharks to be considered wildlife (in Ecuador sharks are fishery and hydrobiological resources, not wildlife). https://www.researchgate.net/publication/341803886_Tiburones_Vida_Silvestre_o_Especies_Comerciales

5. 09/11/2020. Radio Interview with Amelia Rueda, a leading Costa Rican journalist, on Radio Monumental. Decline of 94% in hammerhead shark landings causes alarm. This press release garners our campaign for sharks to be wildlife again. <https://drive.google.com/file/d/1IQQxXr3-RxpN-4LHHgREHKM1JQf89OPS/view?usp=sharing>

6. 15/11/2020. LATEST NEWS! A lawsuit filed by Marviva was resolved this day, which shot down the executive decree promulgating that sharks are not wildlife. Even though this is a major victory, we are back to May of 2017, when Costa Rica was allowing the exportation of hammerhead sharks subject to sustainability studies (Non Detrimental Finding), even though the Wildlife Conservation Law clearly states that the exportation of Appendix II species is banned. However, INCOPECSA has always claimed a stake when it comes to sharks and other commercial marine species such as sea cucumbers, by listing them under their commercial species list. If successful in our court hearing on January 13, 2021, INCOPECSA would be obligated to remove threatened species of sharks (listed under CITES) from their Commercial Species List, and the Ministry of Environment would be obligated to include them under the National Endangered Species List. Our bill to amend the Wildlife Conservation Law would be the last blow, by mandating that any species of sharks listed under appendices of CITES or CMS must be protected by the provisions of this Law.



STOP Shrimp Trawling Timeline:

I. 28/11/2019. The Sustainable Shrimp Trawling Bill is passed in the Congress during the first plenary vote.

II. 10/04/2020. Produced technical report on increase of spotted rose snapper landings by artisanal fishers of Coyote and Bejuco, attributed to absence of shrimp trawler fishing effort. This study was

used in the Court to supplement our case, demonstrating how production of small scale fisheries had increased with the removal of the shrimp trawl industry (Figure 1)

<https://drive.google.com/file/d/1yVOgZzBT7PlgTZkfT5VpWJAh4dTYUHfj/view?usp=sharing>

III. 22/07/2020. Constitutional Court rules that no unconstitutionality was detected in the bill, which allows for a 2nd plenary vote.

IV. 22/10/2020. The Sustainable Shrimp Trawling Bill passes its 2nd plenary vote.

V. 30/10/2020. President Carlos Alvarado vetoes the Sustainable Shrimp Trawling Bill.

It is very unlikely that the Congress will try to override the Presidential veto, as they do not have the necessary votes. Fins Attached met with Congressmen throughout the year and led public awareness campaigns which culminated with the delivery of tens of thousands of signatures of Costa Rican citizens addressed to the President, calling for the Presidential veto. We also provided evidence of improved fisheries production of small-scale fishers with the removal of the shrimp trawl industry and signed onto a Full Page Ad in the Costa Rican Newspaper La Nación, calling for the Presidential veto.

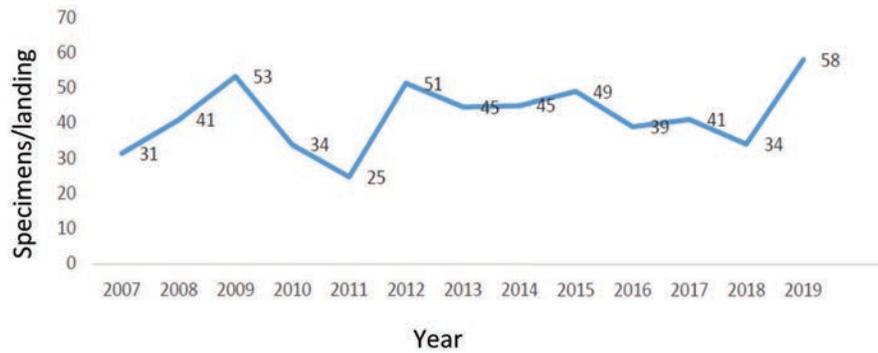


Figure 1. Catch per unit of effort (average number of specimens per landing) of spotted rose snappers (*Lutjanus guttatus*) in the small-scale snapper fishery of Coyote and Bejuco, from 2007 to 2019.

I. 23/10/2020. Full Page Ad in La Nación, Costa Rica's main newspaper, in a signed statement with a coalition of NGOs, small scale fishing associations, sport fishing association, marine tourism companies, and the municipal authorities of the Province of Guanacaste, addressed to the President of Costa Rica calling on him to veto the recently passed Sustainable Shrimp Trawling Bill. https://drive.google.com/file/d/1-vN8eyQQmolX_vlPZKQJyTYNjwg4cgQZ/view?usp=sharing

Expansion of protected waters around Cocos Island and creation of transboundary no-take Swimway between Cocos Island and Galapagos Islands.

Costa Rica has been struggling with the official intention to increase protections in waters surrounding Cocos Island National Park, currently set at a 12-mile no-take radius that covers almost 2,000km². In 2011 the Seamounts Marine Management Area (SMMA) was created, a 10,000km² rectangle surrounding Cocos Island. In 2014 a Management Plan was approved banning fishing activities in certain areas of the SMMA and allowing sustainable fisheries in others. Rules for sustainable fishing were never approved, and thus, the SMMA has remained a paper MPA. According to the former Minister of Environment, Carlos Manuel Rodríguez, it is the desire of the President to increase protections around Cocos Island National Park several fold, as part of his legacy. There are several possible options, but at Fins Attached we are recommending the government to first adopt a no-take policy in the 10,000km² of the SMMA, and then create a much larger no-take MPA that protects the seamounts in between Cocos Island and the border with the Exclusive Economic Zone of Ecuador, which would be Costa Rica's portion of the Cocos-Galapagos Swimway, which our research shows provides critical habitat for hammerhead shark conservation. We believe nothing short of a strict protection policy in these waters will do to effectively conserve hammerhead sharks and other critically endangered marine species. So far, we have met and presented the best scientific information justifying a no-take policy in these waters to the following authorities: Members of the official Cocos Island Regional Management Council, the Scientific Council of the National System of Protected Areas (SINAC), and the Vice Minister of Ocean Haydee Rodríguez and her scientific advisory board.

<https://drive.google.com/file/d/1ZK4J9oufLYMk3Dps7GsFTgyksYOnUvuN/view?usp=sharing>

M/Y Sharkwater Field Activities



Figure 2. Tissue sample obtained from a tiger shark using a pole spear.

Cocos Island Expedition. September 21 - October 1, 2020

The first expedition to Cocos Island 2020 was held with funding from Ocean Blue Tree, and support from Elite Divers of New Jersey, USA. During this expedition, we focused on servicing our array of acoustic receivers, by replacing batteries, downloading data, and replacing mooring ropes and buoys. Furthermore, we focused during this expedition on obtaining tissue samples for two projects: University of Costa Rica MSc thesis student Tatiana Araya who is performing stable isotope analysis, and Ph.D. Mexican thesis student Pedro Rodríguez who is studying hammerhead shark genetics and homing site fidelity.

We were able to service all 8 acoustic receivers and replace batteries. One receiver, the one at the site known as Ulloa, had stopped functioning. Since we did not have a spare receiver during this expedition, we had to bring the receiver back for repair. That left the site without a receiver. During this expedition we obtained 7 tissue samples for our genetic studies. Additionally, 34 tissue samples were obtained from Jordan snappers, bigeye jacks, whitetip reef sharks, marbled rays, Galapagos sharks, tiger sharks, bluefin trevally, and needlefish from seven sites for stable isotope analysis on behalf of the University of Costa Rica.

Cocos Island Expedition. Disney Plus. October 5 - 19, 2020

During this expedition, the priority was to facilitate the production of the shoot, by providing technical consultancy when needed. As part of the shoot, the objective of our tagging study was explained, and then we proceed to tag a shark for the cameras. An acoustic tag (#1925) was deployed on a male hammerhead shark in Alcyone on October 11, 2020. Furthermore, on that same day a tissue sample (vial CR026) was obtained from a hammerhead shark at Dirty Rock.



Figure 3. Moments before acoustic tag number 1925 is deployed on a male hammerhead shark at Alcyone.



**Cocos Island Expedition. Sky UK NBCUniversal, with Steve Backshall.
October 24 – November 7, 2020.**

Even though this expedition was also focused on the shoot, the producers were more interested in the research activities. During this expedition, we installed a new acoustic receiver (serial # 136846) at the Ulloa Listening station, which had been missing an acoustic receiver since September. We also obtained 18 tissue samples from hammerhead sharks, Galapagos sharks, blacktip sharks, silver tip sharks, and eagle rays. 13 samples were obtained by means of a pole spear and 5 were obtained after the animal had been decked in preparation for internal tagging after being fished. We also tagged 6 sharks with acoustic tags using two methods. Two Galapagos sharks, two silvertip sharks and one blacktip shark were caught during fishing operations off the stern of the Sharkwater, and acoustic tags were implanted surgically. Additionally, one shark was tagged externally with an acoustic tag. Additionally, we also tagged 6 sharks with acoustic tags using two methods.



Figure 4. Silvertip shark (*Carcharhinus albimarginatus*) on the dive platform of Sharkwater waiting for acoustic tag implant.



Next steps, 2021 Costa Rica Campaigns

2021 will be a busy year. On the policy side, we have our court hearing scheduled January 13, and our bill has been successfully moving through the Costa Rican Congress. We will initiate conversations with environmental lawyers to study our options and see if an international court case is possible against countries that continue to promulgate that their sharks are not wildlife.

- We are prepared to participate in the IUCN World Conservation Congress in France (July of 2021) to push for the approval of a resolution calling for the listing of hammerhead sharks under Appendix I of CITES in 2022. During this process, we hope to obtain not only the support of the Costa Rican Government, but also their commitment to propose hammerhead sharks for Appendix I listing during CITES.
- Publish at least two peer reviewed papers on tiger sharks in academic journals.
- Strengthen coastal research programs on highly migratory species in Costa Rica, by installing a radar in the mouth of the Bongo River, in the Caletas-Arío National Wildlife Refuge to monitor fisheries and provide the authorities with the information needed to design an effective action plan.
- Conduct two international expeditions with MigraMar to promote the creation of the Cocos-Galapagos Swimway and the Malpelo-Coiba Swimway.
- Map seamounts in the region with 3D sonars, as a technical support for authorities of Colombia, Ecuador, and Costa Rica, to expand the boundaries of existent MPAs.
- Conduct two expeditions to Cocos Island to tag as many sharks as possible for their possible detection at seamounts where acoustic receivers have been deployed.



Make Stewardship Work Campaign: Imposing a Fins Attached criteria for MSC Sustainability Certificate.

The Marine Stewardship Council (MSC) is an international non-profit organization that recognizes and rewards efforts to protect oceans and safeguard seafood supplies for the future, through ecolabels and fishery certification programs. Unfortunately, standards used by MSC for certification are weak and inefficient. Shark finning is not only ongoing in MSC certified fisheries, the MSC has been reluctant to implement a “fins attached” landing policy, which is globally acknowledged as the best practice to ensure this can no longer continue. On January 31 of 2020, as part of a coalition of over 50 organizations under the coordination of Shark Project-Germany, we sent a letter to the MSC questioning their current standards, requesting observer status during their annual meeting, and urging the adoption of a fins attached policy.

<https://drive.google.com/file/d/10zjvXM7zE3tUg5C1bxZEIce9oDIMyGq/view?usp=sharing>

Participated in a consultative workshop on July 8. Strong evidence presented on the Costa Rican experience and why Fins Attached is the only valid policy to avoid shark finning activities. Unfortunately, MSC has responded by not granting us observer status, and by announcing the significant changes to their standards wouldn't occur until 2022. This is unacceptable.

Currently participating in the design of a 2021-2024 strategy. Furthermore, we decided to support our partner Shark Project Germany on their work at the International Convention for the Conservation of Atlantic Tunas (ICCAT) where a proposal for a total ban on the retention of mako sharks (PA4-805C/2019) was submitted by Canada, Senegal, United Kingdom, Chinese Taipei and Gabon. Our coalition supported this call, which unfortunately was shot down by the United States and European Economic Union. Regardless, part of our strategy is to build global partnerships for shark conservation, and direct attention towards issues we will be bringing to the Inter American Tropical Tuna Commission (IATTC), the regional Fisheries Management Organization we deal with in the Eastern Pacific, where we will be seeking restrictions of fishing effort and bans on hammerhead shark retention.

<https://drive.google.com/file/d/1E8t5iDHY1OrjCuNQB8x8beKwZOD9E7OT/view?usp=sharing>

BRITISH VIRGIN ISLANDS

During March of 2020 we were able to start our project in British Virgin Islands. Our main objective was to survey the area and determine the diversity of shark species in the archipelago. We did several dives in potential shark areas and we were able to tag the first grey reef shark with an acoustic transmitter. That transmitter emits a signal with a unique code that can be detected by underwater listening stations deployed on important areas such as cleaning stations, feeding grounds, nursery areas, etc. Also, we left two underwater stations that were deployed by local volunteers from ***Commercial Diving and Beyond the Reef***, that will check and maintain them from now on. These underwater stations have been used by different scientists throughout the world, so when the shark migrates to any other area where these underwater stations are deployed, the unique code will be recorded and we will be able to infer their potential migratory routes. The tagging of sharks and data collection will continue in 2021.



Acoustic Transmitter



Grey Reef Shark Tagged in the BVI



MEXICO - Cedros/Natividad/San Benito

2020 saw the return of Fins Attached to Mexico. Fins Attached Mexico (FAM) is now a registered nonprofit in Mexico. For this year, FAM has conducted expeditions to a new study area at Cedros Island, Benito Island and Natividad. Expeditions were conducted on November 29 – December 4 and December 7-12. The plan was to deploy VEMCO receivers, tag white sharks, and collect tissue biopsies. This work has profound applications because it is a nursery area for white shark with significant conservation implications.

Cedros Island, a new Nursery Area for White Sharks (*Carcharodon carcharias*) in the Eastern Pacific Ocean White Sharks (*Carcharodon carcharias*) are distributed globally in subtropical and temperate waters and positioned as apex predators. This species of shark is known to have a long-life span, low reproductive potential and fecundity rate and are listed in the Appendix II of the 2004 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the International Union for Conservation of Nature (IUCN). Furthermore, in Mexican waters the white shark is protected by a permanent fishing ban prohibiting its capture (NOM-029-PESC-2006). Therefore, the early stages are ecologically important for understanding the species populations and generating adequate management plans for species conservation. Both juvenile and adult white sharks are caught as bycatch in commercial and sports fisheries over the world using gillnets, longlines and handlines. In the coastal waters of Baja California, Mexico, white sharks are reported to be incidentally caught in the artisanal fisheries which may be due to the intensity of fisheries activities in coastal areas that overlap nursery grounds.

Cedros Island, in the western coast of Baja California, has been previously documented to support a strong upwelling of cool waters, which sustain a complex trophic chain. These productive waters allow the development of a rich marine community, incorporating a range of marine species.

During 2015 to 2017 Tamburin and collaborators obtained twelve white sharks records on this area. In most cases, sharks were captured in gillnets and they were still alive, so fishermen were able to release them after data collection. Captured white sharks: three females, three males and six undetermined individuals ranged in size from 110 to 500 cm TL. Based on the birth and maturity sizes, the sharks were classified as: 6 neonates, 3 young of the year, 2 juveniles and 1 adult. All captured individuals were reported during March to November, with the peak of captures during the summer months.

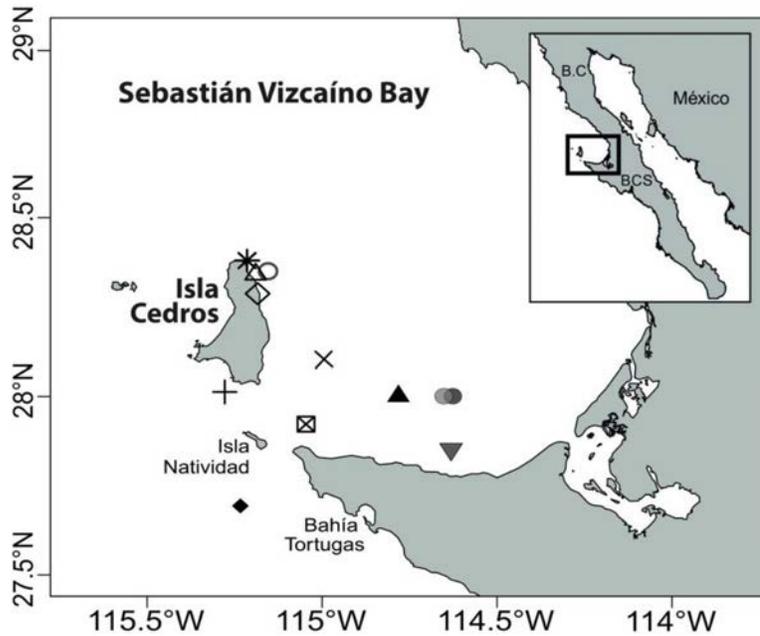


Figure 1. Isla Cedros, México as pupping ground for young white sharks (*Carcharodon carcharias*). Symbols represent location of white shark records.



Acoustic Receiver

The aim of these expedition onboard Sharkwater is to assess the presence of free-swimming white sharks in Cedros Island, using acoustic tagging. We will use natural attractants (fish carcasses) to bring sharks close to the boat and using special diving cages we will be able to photograph and identify the different in the vicinity. After the photo ID process, the plan was to tag the white sharks with acoustic transmitters and collect tissue samples. Once hot spot area for sharks were determined, we set underwater receivers (Figure 2) to detect the sharks tagged on the expedition as well as from other areas such as Guadalupe Island and California.

Fins Attached Co-Authored Publications in Forbes

Forbes

1,101 views | Nov 25, 2020, 11:10pm EST

Does Bait Influence White Shark Behavior?



Melissa Cristina Márquez Contributor

Science

I write about the latest, exciting research on sharks worldwide!

Have you ever thought about jumping into a cage and seeing great white sharks (*Carcharodon carcharias*) in their own territory? You wouldn't be alone! Ecotourism with these animals occurs in several countries around the world, including South Africa, Australia, New Zealand, the United States of America, and Mexico.



Forbes

16,823 views | Nov 15, 2020, 09:47pm EST

Evidence Shows White Sharks And Large Squid Showdowns In Mexico



Melissa Cristina Márquez Contributor

Science

I write about the latest, exciting research on sharks worldwide!

It's the showdown that would make a hit Hollywood movie: monster squid vs monster shark. Both armed with their own weapons – the squid with serrated tentacles and the shark with its razor-sharp teeth – it would be a true nail biter to see who would be crowned victor before the credits rolled.

But this isn't a movie... it's real life.

Shark and cephalopod interactions aren't new, having been documented in studies around the world due to cephalopods representing more than half of the diet in some shark species (e.g. blue sharks, scalloped hammerheads, and pelagic thresher). Just as humans enjoy the occasional octopus dish, these elasmobranchs seek out these animals for



Mexico Campaigns 2021

1. White Shark: Sharkwater will support several scientific expeditions in Mexican waters in 2021. During January we will start the first white shark Mexican distribution expedition. We will start at the Coronado's Island at the border with the U.S. From Coronado we will move to Cedros, Natividad and Benitos islands. Bahia Sebastian Vizcaino, a well-known white shark nursery area, which will also be part of the expedition. We will try to internally tag neonates with acoustic transmitters, take biopsies, and set CAT-cams in their dorsal fins. Additionally, we will deploy BRUVS (baited remote underwater video cameras) in order to identify potential prey and take footage of the newborn white sharks.

2. Sharks and Giant Manta Rays: During January, February, and March Shark Water will be the scientific platform to deploy and swap underwater stations all over the Revillagigedo Archipelago. We will tag several species of sharks and giant mantas with different technologies (acoustic transmitters, satellite transmitters, and CATS, which are camera tags). The visit to Clarion, the farthest island, will be the highlight of the expedition since it is the most vulnerable island due to its remote location, isolation and overfishing impact. The southeast part of the island has been identified as a nursery area for Galapagos sharks and we will swap out the receivers we have deployed there and to tag more neonate sharks.

3. Sevengill Shark: In September Sharkwater will visit the island of Natividad, home of the only known population of sevengill sharks in the Mexican Pacific. During the expedition we will fish sevengill sharks with special hooks to avoid harming them in order to bring them close to the boat to take measurements, biopsies, tag them internally and set satellite transmitters and camera tags (CATS). We will also maintain the array of receivers set on the island and we will use BRUVS to identify potential preys and different individual sharks. As part of the expedition, we will perform several dives in the kelp forest to take several photos and measurements with a laser system of each sevengill shark in order start a photo id guide that will help us to monitor this population over time.

WHAT WILL IT TAKE TO CHANGE THE WORLD?



PASSION TO CARE - STRENGTH TO ACT - VISION TO INSPIRE

Meet Our Dedicated Crew



From left to right:
Francisco - Engineer
Juan - Cruise Director
Kiko - 1st Officer
Raffa - Deck hand/skiff driver
Pablo - Steward
Jose - Captain
Gustavo - Chef

It is a fight between GOOD and EVIL. Evil puts fear, despair, defeat and discouragement in your mind, but these are not options. Good say never give up, no matter what obstacles are put in your path. Good will always prevail. In our own hands lies the power to choose – what we want most to be we are.



Fins Attached would like to wish everyone a happy and prosperous 2021.

