



Shark Foundation Annual Report for 2015

June 2016

General

Foundation

In 2015 the Foundation was actively involved in various activities for the protection of sharks and again received large and small donations from shark friends big and small who want to support our work.

We wish to express our deepest gratitude to all our donors and benefactors. Our work would not be possible without your generous help!

EEA Conference in Peniche, Portugal

From October 9 to 12, 2015, Alexander Godknecht represented the Shark Foundation as representative from Switzerland at the 19th International Scientific Conference of the European Elasmobranch Association (EEA) in Peniche (Portugal). A new small project (see Annual Report Short projects) on the behavior of juvenile lemon sharks was discussed and initiated in Peniche. Doc Gruber also attended the EEA Conference and visited with Alexander together with his wife on October 15 and 16, 2015.

US Shark Foundation

In 2015 the U.S. Shark Foundation was again registered as a charitable organization seated in Miami, Florida. Gary Adkison is the registered Director of the U.S. Foundation. The Foundation was self-supporting in 2015 and achieved various important successes for shark protection.

Total administrative costs to date: approx. CHF 58,000

Projects

Shark Exhibit

On October 21, 2015, the Shark Exhibit was opened in the Seemuseum Kreuzlingen (Lake of Constance) and will remain there until August 28, 2016. Guests were greeted by Alexander Godknecht who gave the official opening speech on the exhibit. On October 28, 2015, and April 29, 2016, he also gave presentations at a continuing education event for teachers. Toni Bürgin was also invited to attend a shark presentation in the Seemuseum.

Total expenditures/investments to date: approx. CHF 250,000

2015 successfully completed:

Shark Identification

The overall successful project "Shark Identification" initiated by Professor Mahmood Shivjis in his laboratory at Nova Southeastern University, Daenia Beach, FL, was completed at the end of 2015 after 15 years of support by the Shark Foundation. During this time, and with the support of the Shark Foundation, a total of 15 scientific papers were published.

Highlights of the project included:

- Progress was achieved in easily identifying 20, in part strongly endangered shark species based on the use of molecular-biological methods.
- Being able to identify tissue samples from white sharks opened the door to place this strongly endangered shark species on the CITES list of especially endangered animals.
- Professor Shivji's identification methods made it possible to establish a sound estimate of the different species found at various shark fin trading centers, e.g. in Hong Kong, allowing an estimation of the number of sharks caught annually for their fins (approx. 73 million).

- A subproject in Professor Shivjis's laboratory made it possible to examine cases of multiple paternity and virgin birth in sharks (parthenogenesis) for the first time employing molecular-biological analysis methods.

The Shark Foundation supported the project between 2000 and 2015 with a total of approx. CHF 186,000 CHF

New Project 2015:

Global Populations Oceanic Whitetip Sharks

Oceanic whitetip sharks (*Carcharhinus longimanus*) are being strongly overfished and are endangered worldwide. Although they can migrate over long distances, it must be assumed that they form individual local populations (Philopatry) which only sporadically exchange genetic material among themselves.

The genetic exchange between living populations that live in separate areas and hence the replenishment of gene pools is an especially important factor for the survival of strongly declining populations.

In this project initiated by Professor Mahmood Shivji from the Guy Harvey Research Institute, Daenia Beach, FL, global genetic connections between populations of oceanic whitetip sharks are to be analyzed on a molecular-biological basis. Although this species of shark is strongly overfished, this is the first time that this regionally endangered shark species – as defined by the IUCN – is being examined.

Investments 2015: CHF 12,000

Total investments to date: approx. CHF 12,000

New Project 2015:

Migration of Mako Sharks

Migrations are vital for many species of sharks, including for their food and reproduction needs, for protecting themselves from enemies and establishing new, favorable habitats. They are thus essential for the evolutionary health and preservation of species. Understanding migrations, their patterns and the environmental driving forces behind them is critical information that provides better understanding of population dynamics and the behavior of shark species. Shortfin mako sharks (*Isurus oxyrinchus*) are among the world's most endangered shark species (IUCN Assessment 2009). In 2000 mako shark fins were the second most frequently traded on the shark fin market. Mako sharks travel enormous distances on their migrations and the danger of them crossing the paths of international fishery fleets is extremely high.

Economically speaking, mako sharks are a strongly exploited shark species, yet biologically speaking, very little is known about their migrations, especially in the strongly fished Atlantic.

The Guy Harvey Research Institute (GHRI) is now financing a long-term study to analyze the migrations of mako sharks. The primary methods used in this study are satellite transmitters (SPOT and PSAT Tags). Since this study began, probably the worldwide largest data collection on migrational movements of mako sharks has been compiled and is ready to be evaluated. The interpretation of satellite data is highly complex and requires the services of a proven specialist in this field. The Shark Foundation will finance this project and the analysis part of the satellite data.

Investments 2015: CHF 18,000

Total investments to date: approx. CHF 18,000

Shark Nurseries

The "Shark Nurseries" project is centered in Rookery Bay, 10,000 Islands, and has been supervised by Pat O'Donnell since the year 2000 in collaboration with the Mote Marine Lab. Sharks frequent this region for use as their primary (pupping) and secondary nursing (juvenile sharks older than one year) grounds. The research area encompasses Fakahatchee, Faka Unio1n and Pumpkin Bay.

Initial comparative studies showed that all shark species examined, with the exception of bull sharks, avoid Faka Union Bay during the wet season. During this season the salinity of Faka Union Bay drops below 25 ppt (parts per thousand).

Despite efforts by the State of Florida to restore the natural balance of the marshlands, this freshwater outlet from the marshlands of the region did not significantly change in 2015. The data on juvenile sharks collected by the project team can still be viewed as baseline data prior

to restoration of the natural balance in the surrounding marshlands. During 2015 data collection continued and 99 sharks were caught, 87 of which were measured and tagged, 9 were recaptures and 3 sharks unfortunately did not survive.

Since the year 2000 the following number of juvenile sharks were captured, measured and marked: 740 bull sharks, 527 bonnet-head hammerhead sharks, 134 lemon sharks, 152 blacktip sharks, 13 nurse sharks, 2 Atlantic sharpnose sharks, 2 scalloped hammerheads and 1 great hammerhead.

The project works mainly with enthusiastic volunteers which substantially reduces costs. The Foundation will continue to fund the project when needed.

Investments 2015: CHF 0

Total investments to date: approx. CHF 61,500

Basking Sharks

No research was performed in 2015 so that no financial support was requested. The project manager, Colin Speedie, suggested suspending the project temporarily and to push the analysis of any data acquired so far. Furthermore, the data collected at sea should be correlated with a satellite study performed by the Scottish Natural Heritage organization. Depending on the possible establishment of a foreseen marine sanctuary in Scotland, any further activities on basking shark protection should then be planned by 2017.

Investments 2015: CHF 0

Total investments to date: approx. CHF 108,850

2015 successfully completed:

Bull Shark Migrations Fiji

Dr. Jürg Brunnschweiler's project "Bull Shark Migrations Fiji" was completed at the end of 2015. The Shark Foundation has supported this project since 2004. During the length of the project 7 scientific papers were published.

The project examined the wide scale and local distribution of bull sharks in the Fiji region, specifically the area around Shark Fin Reef (also see the Project Shark Protection Fiji Zone below). Very interesting data was collected and analyzed about movement patterns and the behavior of bull sharks in this region using satellite transmitters (large-scale) and acoustic transmitters (local).

In several smaller projects in the context of master dissertations local shark fishing practices were examined between 2011 and 2014 and possible rivers were identified as nurseries for bull sharks. The project team is now concentrating on regions in Fiji being used by bull sharks as nurseries.

As of 2016 a new project in the form of a thesis will begin in Fiji and will systematically examine the various aspects of bull shark nurseries.

The Shark Foundation supported the project between 2004 and 2015 with a total of approx. CHF 63,000 CHF

Shark protection zone Fiji

Today the Fiji Shark Protection Project is financially self-sustaining. The Foundation is prepared to support the project financially, if necessary. At the end of 2013 Mike Neumann requested continued support of the Fiji Shark Count project which since 2012 has aimed at establishing an inventory of all sharks in the region. The Fiji Shark Count continues and was co-financed by the Foundation in 2013/14.

In 2015 Christine Ward-Paige from Dalhousie University, Halifax, evaluated the data collected during the Fiji Shark Count.

Investments 2015: 0 CHF

Total investments to date: approx. 41,800 CHF

2015: Project focus extended from lemon sharks

in Jupiter to:

Migration of larger coastal sharks in Jupiter, FL, and the Bahamas

Lemon Sharks Jupiter/Bimini

Jupiter: In the period examined in 2015 data for almost all permanently installed 11 acoustic monitors was readout and the receivers again anchored to the seafloor. Between January 2014 and January 2015 the receivers registered the passing of lemon sharks 11,439 times. A male lemon shark (No. 25608) disappeared from the Florida region and was registered several times by receivers in Bimini in April 2015. It's possible that he migrated to Bimini to mate. Future genetic analyses of lemon shark populations in Florida and Bimini will answer these questions.

Bimini: In the period examined in 2015 the receivers registered the passing of lemon sharks

9,596 times. Lemon sharks mate in the Bimini region and the females return the following year to the shallow and protected waters around Bimini to bear their young. We expect that more data will provide us with information as to where the exact mating grounds are in Bimini.

Great Hammerhead Sharks Jupiter/Bimini

In 2014 the team in the Bimini Biological Field Station began the first intensive research on the great hammerhead sharks (*Sphyrna mokarran*) around Bimini. Their goal was to answer the following questions using acoustic and satellite telemetry, as well as genetic analyses:

- Why and how long are the great hammerheads in Bimini?
Which habitats do they frequent and what are their preferred regions (hot spots)?
- Where do they come from and where do they go?
- How much time do they spend in the shark preserve region of the Bahamas?

Bimini: Since January 2014 a total of 21 great hammerheads were tagged with transmitters. By July 2015 a total of almost 48,000 passing sharks were registered. The hammerheads stayed in the region between 10 and 40 days, indicating that they at least seasonally prefer the regions around Bimini. Tagged great hammerheads were registered both around Bimini as well as on the U.S. coast of Florida, indicating that this is one single population. One shark showed up in Boca Raton (FL), 3 days after he was registered in Bimini.

Jupiter: Up until 2015 in the area around Jupiter it was possible to tag 26 great hammerheads with standard NMFS (National Marine Fisheries Service) tags and 8 with acoustic transmitters. The project is fully financed by the Shark Foundation since 2006.

Investments 2015: 27,200 CHF

Total investments to date: approx. 160,000 CHF

Angel sharks in Gran Canaria

This project examines the strongly threatened angel shark population in the Gran Canaria region to better protect their last remaining habitats and nurseries on the Canary Islands. A molecular-biological relationship analysis is carried out in the laboratory of Professor Mahmood p. Shivji.

Initial, not yet verified (but expected) results point to a strongly isolated angel shark population around Gran Canaria so that hardly any genetic exchange with other populations occurs. This means that when populations are overfished, no replacement can come from other populations, thus making them strongly endangered.

In 2015 further tissue samples were collected near Tenerife, Lanzarote and Gran Canaria and sent to Mahmood Shivji's laboratory for genetic analyses. In addition, the angel shark populations in the region continued to be monitored using photo identification methods.

In September 2015 the team delivered input on the angel shark's situation in the region of the Canary Islands in response to a suggestion from the U.S. American National Oceanic and Atmospheric Administration (NOAA) to put 3 species of angel sharks on the List of Endangered Species (Endangered Species Act of 1973).

In 2015 two scientific papers were also published with the support of the Shark Foundation (see Publications). One concerned the sexual development of angel sharks, an important factor for their protection. A second one dealt with the parasitic isopods that have been found on angel sharks. A further publication on the parasites is in progress.

Investments 2015: 7,800 CHF

Total investments to date: approx. 41'900 CHF

Whale Sharks

Whale sharks are found on the IUCN Red List and on CITES Appendix II. In addition to the work being done in Mozambique to establish a marine preserve for whale sharks, Simon Pierce's team, together with local scientists, is extending its research on various ecological, genetic and biochemical aspects of whale shark populations around Mafia Island (Tanzania), the Red Sea, the Persian Gulf, the Philippines and Mexico (Yukatan).

Projects in the various locations include:

- Mafia Island: In 2015 a total of 53 boat excursions were made to the local whale shark populations around Mafia Island. To this day 130 individuals from the worldwide approx. 7,000 identified whale sharks were identified and examined. The individual sharks were all juveniles between 2.5 and 9 meters in length.
- Mozambique: The whale shark population along the Inhambane Province is declining.

Since 2005 the sightings of whale sharks have decreased more than 80%. This alarming development is due to regional overfishing. Local fishermen increasingly use long gill nets which they place vertically to the coastline to make sure they catch enough fish to help secure their income. These nets are highly dangerous for whale sharks but also for other endangered species that get caught in them and die, e.g. white sharks, mantas, sea turtles and dugongs.

Mozambique is a member of CITES and the Convention on Migratory Species and is well aware of the problem. The Ministry for Nature Protection and the Department for Nature Protection invited Simon Pierce and his team as advisors in the framework of this partnership to improve the protection of whale sharks and other endangered species through a respective law. In cooperation with the National Fisheries Research Institute (IIP) and the Bazaruto National Park Authority practical technical recommendations for the sustainable management of fish populations in Mozambique are to be developed. An additional important point to be looked at and included are suggestions made by local fishermen.

In 2015 two scientific papers were published with the support of the Shark Foundation (see Publications). A methodical publication analyzed the measurement of whale sharks using lasers. A second study was able to show that whale sharks remain in the region around Mafia Island (Tanzania) the entire year and not, as optical sightings suggest, only seasonally. This important information about the distribution of whale sharks in this region could only be won with the help of acoustic tracking.

Investments 2015: 12,000 CHF

Total investments to date: approx. 79,800 CHF

Thermoregulation Nurse sharks

For thousands of years nurse sharks (*Ginglymostoma cirratum*) have been gathering between June and July to mate in the very warm waters of the Dry Tortuga Islands off Florida. Over the past 21 years, the project team has marked and studied more than one hundred of these two to three meter long animals. In order to minimize any disturbance to the nurse sharks, only kayaks and nets were used during this process.

The project team is currently working on the publication of the respective data. No funding was requested for 2015.

Investments 2015: 0 CHF

Total investments to date: approx. 27,000 CHF

Short projects

New 2015: Photo Documentation Tubbataha Reef (Philippines)

The Tubbataha Reef Park (Philippines) is located in the coral triangle and is one of the few protected retreat areas for many endangered shark populations in southeast Asia. In May 2015 a comprehensive survey of the sharks in this UNESCO World Heritage Nature Reserve was carried out for the first time by a research team. This research was carried out exclusively with noninvasive techniques such as automatic underwater video recordings and direct observations by the scientists. Dr. Simon Pierce, Project Manager of the Foundation's Whale Shark Project, also participated in the study along with several other experts. Similar to the 2014 fox shark project in Malapascua, Philippines, the professional photographer Steve de Neef documented this project with videos and photos. This documentation – which will also appear online and in large national and international media – is designed to sensitize the general public to the importance of this reserve and of shark protection.

Project Manager: Steve De Neef

Grant 2015: CHF 2,300

Total investments to date: approx. CHF 2,300

New 2015: Behavior of juvenile lemon sharks

Joffrey Baeyaert from the University of Algarve, Portugal ("Universidade do Algarve") is writing his master thesis on the subject of whether or not juvenile lemon sharks demonstrate individual behavioral patterns. If yes, what factors characterize these personality traits and are there differences between sharks living in captivity and those juveniles living in the wild? Do such individual personality traits affect their social rank? These questions will be examined in detail at the Bimini Biological Field Station, Bahamas. .

Project Manager: Prof. S. Gruber / Bimini Biological Field Station, Joffrey Baeyaert
Grant 2015: CHF 1,600
Total investments to date: approx.. CHF 1,600

2015 erfolgreich abgeschlossen:

Sawsharks in Mozambique and East Africa

All sawsharks are on the IUCN Red List and are considerably endangered worldwide. It must be assumed that they are already extinct in large areas of their former range in Africa. This project aims to produce the first detailed record of the presence of sawsharks in Mozambique and other coastal areas of East Africa in order to acquire basic information needed to provide more effective protection of these last remaining sawsharks.

This project was proposed and approved in December 2013 and began in May 2014. It was successfully completed in August 2015 with a final report. Up until October 2014, structured interviews were held with fishermen, fish traders and fishery controllers and then documented in all of Mozambique's coastal provinces. The interviews revealed only very isolated catches in 2014, leaving hope that the strongly endangered sawsharks have not yet completely disappeared from the two coastal regions in Mozambique. Future efforts aimed at their protection should thus concentrate on these two regions.

Analyses of 13 sawshark rostrums in museums point to the existence of two species in Mozambique: the longtooth sawshark (*Pristis pristis*) and the green sawshark (*P. zijsron*).

Besides analyzing the occurrence of sawsharks, a successful sensitization to the plight of threatened sawsharks was also achieved in public institutions such as the National Institute for Fisheries Research (IIP) as well as nongovernmental organizations in Mozambique. Employees of the IIP received training in the identification of sawsharks.

Project Manager: Ruth Leeney, Simon Pierce
Grant 2015: CHF 8,200
Total investments to date: approx.. CHF 17,100

2015 successfully completed:

Indigenous fisheries in Fiji

Observations made at the intensely examined Shark Reef on the southern coast of Viti Levu, Fiji, show that sexually mature bull sharks leave this region for weeks to months at the end of each year and then return. The hypothesis is that the sharks move away from the region to mate/reproduce, but the interesting question is where do they go.

Extensive interviews with local fishermen in the year 2009 indicate that juvenile bull sharks are found in all large rivers in Fiji. In the Navua River – the nearest river to Shark Reef in Fiji – young bull sharks have been found up to 38 km upstream. Sample catches made in 2010 also confirmed the existence of young bull sharks in the estuary of the Navua. The pilot project 2014 was carried out successfully and confirmed that bull sharks also use this region as nurseries. It ended in 2015.

Kerstin Glaus will research the bull shark nurseries in this region in detail for her dissertation at the University of the South Pacific (Fiji). An application for financial support of this dissertation addressed to the Shark Foundation is planned for the beginning of 2016.

Project Managers: Dr. Jürg Brunnscheiler, Kerstin Glaus (University of Basel)
Grant 2015: CHF 0
Total investments to date: approx. CHF 15,700

Public Relations Activities of the Shark Foundation and Shark Info

Media / Public Relations

The Foundation gave several interviews, e.g. to the Focus and the Sauerländer local media, provided its expertise and advice revolving around the subject of sharks and shark protection.

Web Server

In 2015 the Shark Foundation's German website recorded approx. 343,500 visitors, while the English website of the Shark Foundation (www.shark.ch) counted roughly 341,600. Clearly leading in popularity on both servers was again the Shark Database. Compared to the previous year, a slight increase in the number of visitors to the German webpages and a slight decrease in visitors to the English site was registered.

Administration

Financial Policy of the Shark Foundation

Established on August 29, 1997, the Shark Foundation is an internationally active organization that falls under the supervision of the Federal Department of Home Affairs (FDHA) / Swiss Federal Supervisory Authority in Bern. The Foundation can accept tax-deductible donations and once a year it submits its annual report and financial statement to the supervisory authority for approval.

The Foundation finances all its activities through donations, presentations or the sale of products such as T-shirts or plush toy sharks. The Board of Trustees works on a voluntary basis and its members receive neither attendance fees nor salaries. The Foundation runs a "Shark Shop" on its Internet website (T-shirts, cuddly plush toy sharks, tear-off notebooks, postcards, shark sponsorships). Sales revenues flow directly into the Foundation account, and once a year all interested parties are sent a mailing requesting donations and including a pay-in slip.

In its first meeting of the respective year, the Board of Trustees of the Shark Foundation decides on the usage of any accumulated income and donation money from the previous year. Up until then no reserves are set aside; instead all funds are released to cover ongoing projects, investments and administrative costs. The annual accounts for both the Foundation and Shark Info are checked by Revisal, an auditing company located in Gossau.
