



## Shark Foundation Annual Report for 2013

March 2014

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### General

#### Foundation

In 2013 the foundation was again actively involved in a variety of activities for the protections of sharks.

The new regulation (Nr. 605/2013) by the European Parliament, released on June 12, 2013, implemented the total ban of the so-called finning of sharks, skates and rays. It is now prohibited for any vessel under the flag of a EU member state to continue with the past practice of cutting expensive fins off (often live) sharks, skates or rays and to dispose of the body at sea or use it in any other way. The landing of fins and, even more important, the transfer of fins between vessels at sea are prohibited as well.

This big success was only achievable through years of intensive lobbying of the Shark Alliance and its member organizations, one of which is the Shark Foundation.

In 2013 the Foundation also received larger and smaller donations from shark friends big and small, who want to support our work. Two boys from Germany donated more than 150 Euro towards the protection of sharks, which they had raised by playing music for the sharks. At this point we would like to give a very special thank you for this great event.

**At this point we would like to express our warmest gratitude to all donors and benefactors. Without your help we would not be able to do our work!**

#### Shark exhibit

The shark exhibit in the Galileo Park, Lennestadt/Meggen (Sauerland), was a great success. At the opening in March 2013, as well as during the Shark Days in August, which offered many attractions with regards to sharks and their protection, Dr. Alexander Godknecht, president of the Shark Foundation, gave presentations about the necessity of shark protection and the various shark protection projects of the Foundation.

In 2013, the Foundation supported a shark exhibition at the Cape Cod Museum of Natural History, MA, USA, by providing information material and several images from the material used at the shark exhibition.

#### US Shark Foundation

The U.S. Shark Foundation was again registered at its seat in Miami, Florida, as a charitable foundation in 2013. Gary and Brenda Adkison, as well as Professor Mahmood S. Shivji, continue in their function as directors of the U.S. Foundation, which was also self-supporting in 2013.

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

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### Projects

#### Shark Exhibit

In early 2013, the content of the information boards was updated and the exhibits were examined and, where necessary, repaired or replaced. All parts were inventoried and the documentation necessary for customs purposes (Carnet-ATA) for the export to Germany and

the reimport to Switzerland was prepared. The exhibition was held from March 8, 2013 to November 10, 2013 in the Galileo Park, Lennestadt/Meggen (Sauerland). Alexander Godknecht gave the opening speech and several interviews to the local press. The Shark Days were held in the Galileo Park the week of August 11, 2013. During this event, Godknecht gave two more presentations on August 11, 2013.

After the exhibition in the Galileo Park, the exhibits were put into storage. Some of the exhibits are to be shown at the fossil museum of the Holcim family in Dotternhausen in July 2014.

*Total expenditures/investments to date: approx. CHF 245,000*

## Shark Identification

No requests for financial support were received in 2013.

*Investments 2013: CHF*

*Total investments to date: approx. CHF 186,000 CHF*

## Shark Nurseries

The project Shark "Nurseries", located in Rookery Bay, 10.000 Islands, has been supervised by Pat O'Donnell since the year 2000, in collaboration with the Mote Marine Lab. Sharks use this region for their primary nursing (pupping) and secondary nursing (juvenile sharks older than one year) grounds. The research area encompasses Fakahatchee, Faka Union and Pumpkin Bay. Initial comparative studies showed that all species of shark investigated, 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). During 2013, data collection continued and a record number of 159 sharks were caught, of which 140 were measured and marked, 13 were recaptures. 5 sharks unfortunately did not survive. A great hammerhead (*Sphyrna mokarran*) was captured and marked for the first time in 2013.

Using information from genetic databases, the origin of the parents of young lemon, bull and hammerhead sharks was investigated in collaboration with Profs. Samuel Gruber and Demian Chapman. First results show, that parents of young lemon sharks do not originate from the Jupiter region, as was expected, but from the Golf region. The pilot project was supported by the Foundation with \$7.000.

*Investments 2013: CHF 11,000*

*Total investments to date: approx. CHF 61,500*

## Basking Sharks

Data collection about the occurrence and migrations of basking sharks in the region of the Hebrides was continued in 2013. Altogether 54 (2012: 43) trips were conducted with a sailboat following predetermined transects. The total time spent on data collection along the transects was roughly 74 hours. In comparison with the record year of 2012 with 80 sightings, only 9 basking sharks were identified and their position recorded. Generally, sightings are strongly dependent on the weather conditions during the weeks prior to the research period. Nevertheless, a few of the preliminary results could be supported by the additional data. No basking sharks were found in the former shark hunting grounds of Moonen Bay and Uishenish Point. The Coll (Gunna Sound) was reconfirmed as a basking shark hotspot. There, and specifically to the west of Coll, large basking sharks were spotted that even displayed courting behavior once in a while. This makes Coll a critical region for basking sharks, which is thus particularly worthy of protection.

*Investments 2013: 11,000 CHF*

*Total investments to date: approx. CHF 86,400*

## Bull Shark Tagging Fiji (Subproject 2)

At the moment the project team focuses on the small-scale distribution of young bull sharks in Fiji. See short projects: Indigenous fisheries in Fiji. In 2013 Jürg Brunnschweiler and Adam Barnett published a scientific paper in PLoS ONE about "Opportunistic Visitors: Long-Term Behavioural Response of Bull Sharks to Food Provisioning in Fiji".

*Investments 2013: CHF 0*  
*Total investments to date: approx. CHF 63,800*

#### Shark protection zone Fiji

Today, the Fiji Shark Protection Project is financially self-sustaining. If necessary, the Foundation will support the project financially. At the end of 2013, Mike Neumann asked for continued support of the project "Fiji Shark Count", which, commencing in 2012, aims to establish an inventory of all sharks in the region. The Fiji Shark Count is underway and was co-financed by the Foundation in 2013/14.

The numbers from 2012 (those from 2013 are not available yet) show that 8 different shark species occur in 11 of the investigated regions of Fiji. Altogether 3.700 divers sighted sharks on 855 dives and reported the sightings to the project team. The highest number of sharks was detected in Beqa, Namena, Savusavu and Lomaiviti, whereas the highest species diversity was found at Mamanuca Island, at the coral coastline of Viti Levu, Beqa, Kadavu and Taveuni.

*Investments 2013: 2,700 CHF*  
*Total investments to date: approx. 38,900 CHF*

#### Lemon sharks Jupiter (Florida / USA)

During the research period from January 5 to February 28, 2013, 13 days (58 hours) were conducted at sea. Altogether 33 big coastal sharks were captured, examined and marked: 11 lemon sharks, 10 tiger sharks, 2 bull sharks, 9 great hammerhead sharks, 1 Caribbean reef shark. Apart from the usual marking, the lemon sharks were fitted with a Standard NMFS CSTP (National Marine Fisheries Service Cooperative Shark Tagging Program) tag, and small biopsies were taken for genetic analysis. All 11 lemon sharks were also equipped with a Vemco V16H transmitter with 8-10 years battery life.

During this research period data were also downloaded from the stationary Vemco receivers. The new data sets contained data for 13.754 new shark positions from altogether 22 different lemon sharks. The database of the project's receiver array was extended with important additional data from the East Coast of the US, acquired through the collaboration and data exchange with the Florida Atlantic Coastal Telemetry (FACT) Array and the Atlantic Coastal Telemetry (ACT) group.

The project team around Prof. "Doc" Gruber and Dr. Steve Kessel uses this information in an attempt to stop the permission by the National Oceanic and Atmospheric Administration (NOAA) Fisheries of the United States to hunt large coastal sharks along the East Coast of the USA specifically during spring time, when lemon sharks gather in great numbers.

The project is fully financed by the Shark Foundation since 2006.

*Investments 2013: 20,000 CHF*  
*Total investments to date: approx. 140,000 CHF*

#### Angel sharks in Gran Canaria

The project investigates the angel shark population in the region of Gran Canaria in order to better protect the last available habitats and nurseries in the Canary Islands. More than 200 biopsies were collected from 2008 to 2013 and were sent to the laboratory for molecular biology of Prof. Mahmood S. Shivji for the analysis of relatedness. Initial and not yet validated results indicate that, as expected, angel shark populations in Gran Canaria are very isolated and that almost no exchange of genetic material occurs between populations. This means that if those stocks are overfished, no replacements can move in from other populations. The populations are endangered accordingly.

*Investments 2013: 10,400 CHF*  
*Total investments to date: approx. 34,100 CHF*

## Whale sharks Mozambique

Whale sharks are listed on the IUCN Red List and on the CITES Appendix II. The coastal region near Tofo Beach in Mozambique, where whale sharks gather during the algal bloom, is of international importance. The project was developed after a request by the government of Mozambique. For establishing a marine protection area for whale sharks off its south coast, Mozambique requires a scientifically sound recommendation with regards to the location and size of the protection area.

Since 2013, Simon Pierce and his team focus on 3 important sub-projects:

- Whale shark sightings in Mozambique have declined dramatically since 2005. The main reason for the decline is the usage of large mesh gillnets by local fishermen. Those gillnets also pose a major threat for other large species of shark, such as the great white shark. In 2013, Simon Pierce and his group have identified particularly critical coastal areas by analyzing satellite and movement data of whale sharks. The aim is, with the participation of government and non-government organizations, to raise awareness with those coastal villages and the local fishermen and to educate them about alternative fishing methods and particular locations for setting their nets.
- In 2013, Simon Pierce analyzed the worldwide population of whale sharks for the IUCN (International Union for Conservation of Nature) Red List of Threatened Species, the international standard for species protection. The analysis was presented and discussed at a workshop in October 2013 at the 3. Global Whale Shark Conference in Atlanta, USA. It is to be published in 2014 and will probably serve as a source of information and as a recommendation for the global protection of sharks until 2022. The inventory for the Red List is very complex and can only be implemented every 10 years.
- To date, most studies of global whale shark populations are limited to the analysis of small and large-scale movement patterns of those sharks. Comprehensive analyses, which also include nutritional physiology and genetic approaches as well as other methods such as the analysis of stable isotopes and fatty acids, are rare. The aim for 2013 is to correlate movement data of individual animals, size and growth rates based on laser measurements, ecological data (e.g. season, sunlight, temperature, algal bloom) with genetic and physiological data of individual animals. For this, the team conducted in-depth investigations of the accumulations of whale sharks in Mozambique, Tanzania and Qatar. Research teams in the Red Sea, the Philippines and Mexico also provided data and biopsies, so that a truly global analysis can be achieved. One interesting key question is, why there is such a distinct separation of males and females in feeding grounds all over the world and why large females are rarely sighted in those areas.

*Investments 2013: 13,600 CHF*

*Total investments to date: approx. 53,400 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. During the last 21 years, the project team has marked and studied more than one hundred of those two to three meter long animals. In order to reduce disturbance to the nurse sharks to a minimum, only kayaks and nets were used to mark the sharks.

Nurse sharks regularly visit regions that provide them with ideal conditions. This project aims to contribute to the understanding why pregnant female nurse sharks visit regions with particularly high water temperatures. Nurse sharks mate in June and July in the warm, shallow lagoons of Dry Tortugas. Some of the female animals return to these waters in the fall to give birth. It is assumed that the sharks visit these places in order to raise their body temperature, similar to reptiles, so that the development of the embryos and delivery is facilitated.

Since 1993, this project examined and marked altogether 291 nurse sharks. Of those 291 sharks 144 were adults. In 2013, 3 female sharks were captured, two of which carried electronic sensors, which had been attached in earlier years. The sensors were taken off for data analysis. Unfortunately both sensors experienced a battery malfunction so that not all of

the data from the two-year deployment could be downloaded. 15 mature males were registered either electronically or visually. All sensors financed by the Foundation are currently deployed.

*Investments 2013: 6,700 CHF*

*Total investments to date: approx. 20,300 CHF*

## Short projects

### **Indigenous fishing in Fiji:**

Local and indigenous fishing activities are a poorly investigated and often underestimated factor, which can strongly affect the fish stocks of the Pacific coastal regions. Especially shark populations, due to their low birth rates, react particularly sensibly to overfishing and pressure from fishing activities in general. This project investigated for the first time, how many and what species of shark were caught by local fishermen in Fiji. In addition, historical data were gathered and fishing methods, local fisheries and existing governmental regulations analyzed. Altogether 254 interviews were conducted with local fishermen and 31 shark biopsies collected. However, it was not always possible to assign the biopsies to a specific shark species. In 2013 this assignment was done by molecular techniques. Results: 70% of the local fishermen in Fiji land sharks mainly as bycatch, 15% fish for sharks specifically and 15% said they do not catch sharks. 18% of the fishermen that caught sharks as bycatch sold their fins. The species caught most frequently are blacktip reef shark and whitetip reef shark. DNA analysis of the 31 biopsies from local fish markets showed that 12 more species of cartilaginous fish went into the nets of the fishermen, amongst which were the endangered species of scalloped hammerhead and the rare nurse shark. Interestingly, the occurrence of guitarfish (*Rhynchobatus australiae*) in Fiji could be confirmed with DNA techniques. Until then, it was only assumed that they inhabited the waters around Fiji.

*Project managers:* Dr. Jürg Brunnscheiler, Kerstin Glaus (University of Basel)

*Grant 2013:* 2,000 CHF

*Total investments to date:* approx. 5,700 CHF

### **Sawsharks in Mozambique and East Africa**

All sawsharks are listed on the IUCN Red List and are considerably endangered worldwide. It has to be assumed that they are already extinct in large areas of their former range in Africa. This project aims to produce, for the first time, a detailed record of the occurrence of sawsharks in Mozambique and other coastal areas of East Africa in order to obtain basic information, which will be used towards a more effective protection of those last sawsharks.

This project was proposed and granted in December 2013 and will commence in May 2014.

*Project managers:* Ruth Leeney, Simon Pierce

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## Public Relations Activities of the Shark Foundation and Shark Info

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### 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 2013 the Shark Foundation's German web site ([www.hai.ch](http://www.hai.ch)) recorded approx. 236,000 visits, the English web site ([www.shark.ch](http://www.shark.ch)) roughly 463,000. Clearly leading in popularity in the sides frequented on both servers was the Shark Database. Compared to 2012, a slight increase in the number of visitors to the German web-pages and a slight decrease in [shark.ch](http://shark.ch) was registered.

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## Administration

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### 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.

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