

Shark Forum Meeting
7pm 2nd June 2021 – Two Boats Club
Meeting Note

Attendance:

The meeting was attended by over 35 members of the Ascension Island community. It was facilitated by the AIG Conservation and Fisheries Directorate (AIGCFD): Dee Baum, Tiffany Simpson, Daniel Sadd, Darcy Philpott and Kirsty Jones.

Summary

- The current number of sharks is higher than people have experienced in previous years and is impacting people's ability to fish, swim and dive around Ascension. The situation and the behavior of the sharks is similar to that experienced in 2017, but this time the sharks have remained close to Ascension's coast for a much longer period than most people can remember.
- There are a number of potential explanations for the change in numbers and behavior, but there is insufficient evidence to confidently identify a cause.
- AIGCFD are undertaking and developing long-term research projects to gain more information about shark movements, behaviours and the broader environment. This research may provide an understanding of what factors are actually driving shark numbers, but it will take time to complete and there might not be a way to control or influence those factors. This research would also benefit from commitment and assistance from the Ascension community.
- There was strong disagreement between some attendees at the meeting and AIGCFD about whether culling sharks would improve the situation and whether it should therefore be considered. Some attendees felt that killing a small number of sharks should at least be tried. This would be illegal under current law and AIGCFD would not support a change in the law.
- There are options to try deterrent devices and potentially barriers. AIGCFD are trying to obtain deterrent devices that have shown some promise in trials on other shark species so that they can be tested on Ascension.
- Following the suggestions of attendees, AIGCFD will try to organise the disposal of fish waste out at sea and prevent blood from fish filleting at the pier entering the water in order to encourage sharks to move away from the pier area.

Introduction

AIGCFD thanked everyone for coming to the meeting and explained the aim was to understand the impact sharks were having on people's lives and find ways to work together to reduce these. It was noted that this will require cooperation and joint effort to understand the shark behavior and to suggest and trial methods to address the issue.

Impact of sharks

Attendees at the meeting described how the current numbers and behavior of sharks in inshore areas around the island were affecting their lives:

- One person reported not feeling safe diving any longer because they had experienced sharks present within seconds of entering the water, and they felt this was now the case all around the coast and not just at the pier.

- Many said it is now difficult to land fish because the sharks take hooked fish before they can be landed and the fished species seem to be more skittish due to the presence of sharks. One fisher reported landing only ten fish in the last six months, far below what they would expect. They suggested that sharks appear to have learnt to follow boats or loiter in popular fishing areas so it is difficult to escape them.
- Lures and line were reported as being lost when sharks take hooked fish or increasingly go for the lure itself.
- Sharks were reported to have damaged the propellers of some boats.
- People reported not feeling safe swimming, even at Comfortless Cove and English Bay, because the sharks have been seen coming into very shallow water. The behavior of the sharks is felt to be similar to that seen in 2017 before two people were injured by sharks at English Bay.

Many present at the meeting felt the problem is much greater than in previous years, both in terms of the number and behavior of the sharks and also the length of time they have been present around the coast. Reports suggested that the behavior of the sharks had become more worrying since Christmas with sharks even going for inanimate objects falling into the water, such as a hat.

Potential reasons for the change in the shark situation

There was discussion of what may have caused the increased number of Galapagos sharks seen in inshore areas and their more aggressive behavior relative to previous years. The following suggested explanations were considered:

- **The use of sardine chum** by sports fishing businesses up until 2017. It was suggested that AIGCFD had also used sardine chum to conduct research. However, it was noted that whilst AIGCFD had conducted opportunistic tagging of fish caught by sports fishing vessels, which were indeed using sardine chum, AIGCFD had only used small amounts of contained bait for video surveys, which mostly took place in offshore areas away from Ascension's coast. AIGCFD confirmed that sardines are not native to the ocean around Ascension and their oily nature would be very attractive to sharks. AIGCFD explained that chum would attract sharks already present in an area to a localised spot and this could become a learnt response that then affected their behavior. However, they suggested that it would be short-lived and require regular reinforcement and it is therefore unlikely that chum would attract sharks over a large distance. It was discussed that although some dive operations in other countries use chum to deliberately attract sharks, they need to repeat this daily to keep the sharks interest, and as such it is unlikely that a practice that stopped four years ago is still affecting shark behavior today. It was also noted that there have been periods since 2017 when shark sightings around Ascension's coast have been very infrequent and numbers therefore thought to be low.
- **Tuna fisheries** in the wider Atlantic Ocean may have altered the availability of food for sharks and caused them to move closer to Ascension. The tuna longline fishery in the Atlantic remains extensive and it is likely to have affected ecosystems at an ocean scale. AIGCFD stated that whilst there is no direct evidence to support a link between the fishery and Galapagos sharks or their food, it is a potential factor. Ascension has now stopped licensing commercial fishing vessels within its 200nm MPA and carries out surveillance for illegal fishing activity, but past fishing activity and ongoing fishing activity outside of the MPA could still have an impact.
- **Climate change** may alter patterns of shark behavior. It was discussed that in past years the sharks have moved away from the coast as water temperatures have increased seasonally. AIGCFD stated that it is not known if water temperature is a direct cause of this movement or if

it might affect the sharks indirectly by, for example, changing prey numbers or distribution. However, if it is a trigger then it was noted that climate change could result in profound changes to shark numbers and behaviour.

- **The protection of Galapagos sharks** under the Wildlife Protection Ordinance since 2016 has made any killing of sharks illegal. It was suggested that this had caused an increase in shark abundance. It was noted that prior to this change, a small number of sharks had been killed for food. AIGCFD stated that if the number of sharks taken was small, then it is unlikely that its prohibition would result in a large increase in sharks and given the longevity of Galapagos sharks (they live for up to 24 years and reach sexual maturity around 6-10 years old) it would likely take longer than four years to see such an impact.
- **The collection of fish waste** at the pier was introduced following the shark incidents in 2017 to prevent waste entering the water and attracting sharks. It was suggested that since this change the number of sharks has increased. AIGCFD stated that there does not seem to be any evidence of a causal link between these factors and high numbers of sharks were not reported in 2018 or 2019. Some people stated that they feel the contrary, and that disposing of waste into the water would affect the sharks' behaviour.

It was noted by AIGCFD that historical records suggest there has been many periods over the centuries since Ascension was discovered where shark numbers inshore have reached notable levels. Although the records often lack detail and are difficult to verify, this suggests that shark numbers around Ascension may be subject to a natural cycle of increases and decreases.

Further research planned to be conducted by AIGCFD

It was clear from the discussion that with the information currently available it is not possible to identify what has caused the recent change in shark numbers and behavior. AIGCFD described the research that has been done to date and the research it planned to carry out in the future. It was stressed that some of these projects may require assistance from the Ascension community. Slides were displayed to illustrate the methods.

- Satellite tagging of Galapagos sharks to track their movements. A total of 22 tags will be used with a battery life of up to 3.5 years. AIGCFD will need assistance from the community to deploy the tags. This is a continuation of previous tagging carried out around the island and on the seamounts between 2016 and 2018.
- Tagging sharks with unique coloured tags so that individuals can be identified if they are seen repeatedly. A member of the fishing community is developing the tags and everyone will be asked to report sightings to AIGCFD to make the work effective.
- Taking non-lethal tissue samples from Galapagos sharks for isotope analysis to see where they fit in the local food chain.
- Measuring environmental factors such as temperature, pH and plankton around the island and using satellites to monitor both these and current patterns across the Atlantic to see if they are linked to shark behavior.
- Modeling the predicted future changes in temperature, pH, productivity and ocean currents to try to forecast how the sharks might react if there is a link with their behavior.

It was stressed by AIGCFD that this research may take years to provide results and there is no guarantee that it will identify a clear cause for the changes currently being seen in shark numbers and behavior. Even if it did produce a greater understanding of what is driving the shark numbers

and behavior, it may not be something that AIG is able to control or reverse. Some attendees were frustrated by the time required to complete the work and the lack of any answers available now. AIGCFD offered the opportunity for attendees to provide suggestions for further options that may be able to provide a more immediate response.

Potential management actions

Attendees were asked to suggest means of addressing the current situation. AIGCFD had prepared some information on potential methods that was presented to the meeting on slides to aid the discussion.

- **Culling** – There was profound disagreement in the meeting about whether culling sharks should be considered as an option. Some attendees felt very strongly that the killing of sharks should be undertaken and that the protection of Galapagos sharks was unwarranted given their abundance around the island and their classification under the International Union for the Conservation of Nature (IUCN) as being of ‘Least Concern’ in their Red List of Threatened Species. They felt the current number of sharks around Ascension was out of balance and threatening other species. AIGCFD explained that Galapagos sharks were protected due to their wider international status and their inherent vulnerability due to their biology. AIGCFD provided case studies of other areas where culling had been undertaken and yet not subsequently reduced the number of shark incidents. AIGCFD’s opinion was that sharks are a natural part of the ecosystem and feedback processes such as lower survival and breeding success caused by lack of food or cannibalism will exert a natural constraint on shark numbers. Removing sharks could upset existing hierarchies and equilibria between species, leading to unintended consequences that may be worse in the long run. Some attendees stated that examples from other places or species were not relevant and a cull should at least be tried on Ascension. As targeting of Galapagos sharks is banned under the Wildlife Protection Ordinance this would be illegal under current legislation and AIGCFD stated that it would not support any change in the law.
- **Deterrents** – New products that claim to deter sharks from a localised area were discussed. Most rely on overwhelming a shark’s electromagnetic sensory system meaning they would not affect bony fish species. *Sharkbanz* magnets have already been tried on Ascension over the past few weeks, but with poor results. Other more advanced devices with some evidence of success on other species of sharks are available on the market, and AIGCFD are trying to obtain samples from *Ocean Guardian* to trial. It was stressed that these devices should not be seen as providing a guarantee of safety for people entering the water and people should take responsibility for their own assessment of risk when considering entering the ocean.
- **Barriers** – Barriers can be used to try to prevent sharks from entering particular areas, such as swimming beaches. They can consist of rigid vertical structures that either imitate kelp forests or emit an electromagnetic pulse. These products are designed specifically to deter sharks and have no known impacts on other species, including bony fish and turtles. None of these products provide complete assurance that a shark will not get into an area and all are expensive.
- **Encouraging sharks to move away from sensitive areas** – One attendee suggested sharks could be encouraged to move away from the pier to an area further offshore where they won’t cause a problem. It was suggested that this could be achieved by freezing daily fish waste from the bins on the pier and then frequently transporting the waste by vessel and taking it offshore. Further to this idea, another attendee suggested containing the fish waste in an offshore pen to hold the

interest of the sharks for longer periods. AIGCFD agreed to investigate options to do this but stressed that it will require support from others as they do not currently have a reefer unit to store the waste or a reliable vessel to transport away from the island.

- **Preventing blood entering the ocean at the pier** – One attendee suggested blood entering the water when fish are filleted at the pier could be attracting sharks to the area. Whilst it was noted that due to the construction of the fish bench area it may be logistically difficult to intercept and remove the water, AIGCFD would nonetheless look into options to prevent waste and wash off from entering the ocean.

Next steps

AIGCFD agreed to progress plans for long-term research projects on the Galapagos sharks around Ascension, as outlined in the discussion, and encouraged volunteer support to assist with these.

AIGCFD confirmed that efforts will be made to obtain samples of deterrent devices for trials around Ascension. Opportunities to trial these devices will be advertised on the AIG Conservation social media pages and in public notices.

AIGCFD confirmed efforts will be made to try to organise for the disposal of fish waste offshore and the interception of blood from filleting at the pier.

AIGCFD committed to hosting future meetings to report progress and identify any further potential ideas. They noted that it may be necessary to undertake wider public consultation on any suggested shark management measures that will have significant or widespread effects on the island community.