Research can save the ocean's most important predators

The shark has a central role in our ecosystem, but the three Norwegian shark species are threatened with extinction. Scientists are working hard to uncover their behaviour in order to manage the populations properly. The gain is crucial knowledge about the ocean's most charismatic predators and balance in the marine ecosystem.

The shark is coming: Here you see the boat with the marine scientists on board, and how the basking shark swims close to the boat. This is one of the first basking sharks that marine scientists got the satellite tag after the shark phone was launched. (Photo: Institute of Marine Research)

In Norway, we have three species of sharks – the porbeagle, the basking shark and the dogfish. All three have been important in Norwegian fishing. The basking shark's liver was used for oil production. The porbeagle has flavorful meat that is reminiscent of tuna. If you ate fish and chips in the 80s, chances are it was spiny. Then it was overfished.

"Because we lacked monitoring, all three species were overfished," explains Claudia Junge, researcher at the Institute of Marine Research.

Now they are red-listed as endangered species. The Institute of Marine Research is collaborating with the Research Council of Norway and eight other partners, including the Directorate of Fisheries, to uncover where the sharks move, and why, in order to ensure sustainable management.

The project "Sharks on the move" has received NOK 12 million from the Research Council of Norway. The goal is to gain increased knowledge about the sharks' breeding areas in a stressed ecosystem. Fisheries, climate change, coastal area development and boat traffic affect the habitats of the shark.

Important to preserve the shark

The shark has an important function as a predator in the marine ecosystem, but little research has been done on them. The shark eats other fish, which in turn eat small fish, and which in turn eats algae that grow on corals. Life in the sea is interconnected, and nature regulates itself. If the shark disappears, there will be an imbalance in the food chain, and entire reefs will be covered in algae.

The shark also eats dead animals, migratory shark species transport important nutrients, and not least it has been important in fisheries.

Basking shark tagging: Jørgen Ree Wiig from the Directorate of Fisheries' Maritime Service and marine scientist Otte Bjelland from IMR had some eventful weeks with basking shark tagging. (Photo: Institute of Marine Research)

"Sharks are extra vulnerable because they grow very slowly, and most have few offspring. They have a long generation time, in fact up to 50 years! So when it is depleted, it takes a long time for the stock to rebuild," Junge explains.

For the first time since 2009, it is now allowed to fish a small proportion of dogfish. The fishing quota is the result of many years of collecting data and research.

Collecting data to understand the shark

By tagging the sharks, Junge and her collaborators can monitor how they behave in the ocean. Are they driven by food or temperature? And how do people's activities fit in? Do they stay where there is a lot or little activity? Claudia and the team collect all the data they can. Fisheries data, observation data and movement data. The goal is

to piece together the data to understand what the sharks are doing and where they are located. Both in Norwegian and international waters.

"For us, it is important to find so-called "hotspots", or core areas. We want to see if these are areas with a lot or little activity, so that we can prevent bycatch of sharks, and avoid the shark stray into cages or being injured by boat propellers," she says.

The information they collect is completely unique on a global scale. They also supply data and knowledge to the International Council of the Sea.

We are responsible for the ocean

Junge emphasises that we have a responsibility to understand and safeguard the marine resources and animals that live in the sea. The "Sharks on the move" project gives them the opportunity to talk to people about marine conservation and research. The shark has an important role in the ecosystem, but it is also a value in itself, to have a shark in the sea.

"We also collect observations through "dugnad for havet", where people can register observations they make of sharks. "Dugnad for havet" is an open database where anyone who wants to can report and search previous observations of species. Those who get in touch are often thrilled to have seen a shark, and we think it's great fun when people get in touch because they have had a positive nature experience in meeting these charismatic animals. It may be a small part of society, but it is still an important part," says Junge.

Hai

Muscle bundle of 2.5 meters: The researchers have great respect for the impressive tooth guard of the common eagle. They wear special gloves, and have both knife and pliers lying around in case someone gets caught in the fishing line or wire.

The support has made the research possible

Without the support from the Research Council, Claudia Junge could not have carried out the research. In particular, the satellite tagging of the sharks, which has been so successful, and from which they receive a lot of detailed data, would not have been possible without the support from the Research Council.

"We also have a PhD candidate who is doing his PhD in the project, and we couldn't have funded that without the Research Council. It is a very important educational position for the next generation who will be working out at sea," says Junge.

Collaboration yields valuable results

"Sharks on the move" is a collaborative project between research institutions and industry.

It gives the Institute of Marine Research great value to collaborate with various researchers and also those who know the industry and society's needs. That way, they get data and insights from people with different expertise.

"We have also had the opportunity to go out on a roughing and porpoise expedition with the Sea Service from the Directorate of Fisheries, which is a partner in the project. The collaborations have been fantastic, and we all work for the same social mission," says Junge.

The Directorate of Fisheries also sees the collaboration as a unique opportunity to learn more about the shark species.

"We know very little about these shark species, and such collaborative projects are very useful for gaining knowledge and having good discussions about populations we have little data on. In this way, we can put in place regulations that take care of the species," says Bård Aarbakke, adviser at the Directorate of Fisheries.

By Elin Scott | Published 23 Oct 2023 | Last updated 3 Sep 2024