

Workshop “Deep-water shark perceptions and map validation with fishers”

2nd Azores workshop – Faial Island – 13/04/2026

Marine Beacon – WP4.4 and WP8

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The Azores are home to 25 species of deep-sea sharks. These species are particularly vulnerable due to life-history traits such as slow growth, late maturity and low reproductive rates. Although many are currently protected under regulations prohibiting their capture and landing, they continue to be caught accidentally in several fisheries. Because these species cannot legally be landed, very limited data exist on how frequently these interactions occur, how many individuals are being caught, or the mortality associated with these captures. Improving our understanding of these interactions is therefore essential for assessing potential conservation risks and developing realistic bycatch mitigation strategies.

Following the first workshop held on Terceira Island, a second workshop was organised on Faial Island (Azores), but with fishers from Terceira Island, as part of the Marine Beacon project. The aim was to continue collecting information on interactions between fisheries and deep-sea sharks and gather data that can support ongoing work on bycatch mitigation and fisheries vulnerability assessments.

The workshop combined 1) an interactive survey, and 2) a validation exercise, creating a space for knowledge exchange between researchers and fishers.

1) Interactive survey

In the interactive survey, participants shared their experiences regarding encounters with deep-sea sharks, perceived impacts on fishing activities, and current practices used when these species are accidentally caught.

Eleven fishers participated in the workshop, all originally from Terceira Island and attending a training course on Faial at the time of the workshop. Participants included both recreational and professional fishers. Most participants used handlines, while some also operated bottom longlines, nets, and surface longlines. Fishing depth varied substantially among participants, although most

reported fishing primarily between shallow waters and approximately 600 meters, with only a few operating at depths exceeding 1000 meters.

Overall, participants reported relatively infrequent interactions with deep-sea sharks, although experiences varied considerably depending on fishing depth and fishing gear. Some fishers indicated never encountering deep-sea sharks, while others described these interactions as common. Species identification remained limited, with half the participants unable to identify the sharks they caught.

Some participants also reported observing spatial patterns in shark occurrence, with captures perceived as more common offshore or around seamounts and shallow banks, although many reported not observing any consistent patterns. Similarly, few participants reported clear patterns related to fishing depth, although those who did generally associated shark captures with fishing between approximately 200 and 600 meters. Regarding temporal patterns, many participants reported not observing differences in shark captures depending on time of day, while others suggested that interactions appeared to occur more frequently during dawn, dusk or night-time periods.

Participants reported different perceptions regarding the impacts caused by deep-sea sharks. Some fishers indicated that catches never arrived damaged by sharks, while others reported occasional or relatively frequent damage to captured fish. While most did not consider these species to be a direct problem, many nonetheless described economic impacts associated with shark interactions, particularly damage to fishing gear, partially consumed catches, and time lost during fishing operations.

Discussions around mitigation measures suggested limited interest in deterrent technologies. Most participants reported not using any specific strategies to avoid shark bycatch, although some indicated that they occasionally avoid areas where shark interactions are known to occur or adjust gear configuration or fishing depth. Most fishers reported no interest in acquiring deterrent devices because of elevated costs and the perception that shark interactions do not represent a sufficiently important problem.

When deep-sea sharks are caught, most participants reported immediately releasing the animal by either cutting the line or removing the hook. However, some participants described more aggressive handling practices, including striking the animal or killing it before “release”. Most fishers reported that sharks usually arrived at the vessel alive, although some indicated that animals occasionally arrived in poor condition or already dead. After release, participants generally reported that sharks either sank immediately or descended slowly, with some fishers noting that this could depend on the size or condition of the individual.

Most indicated that they would be willing to apply best handling and release practices if guidance were available. However, there was almost no interest in the use of release cages, that would lower the animals to specific depth before releasing them, with participants mentioning lack of time and operational practicality as the main reasons for rejecting this option.

Because capture and landing of many deep-sea shark species is prohibited, there are currently limited official data on bycatch frequency. For this reason, the workshop also included a discussion on a potential self-sampling programme for which fishers could voluntarily report accidental shark captures. Responses were mixed, with roughly half of participants indicating willingness to participate. Among those receptive to the idea, photo-based reporting was considered the preferred option, followed by mobile application-based reporting, while some participants also suggested onboard observer programmes as an alternative.

2) Validation exercise

In the validation exercise, fishers were asked to review and validate key parameters used in the EASI-Fish framework to assess the vulnerability of two deep-water sharks, the Arrowhead dogfish (*Deania profundorum*) and the Birdbeak dogfish (*Deania calcea*), including fishing depth ranges, the duration of fishing activity throughout the year, and the spatial distribution of fishing effort.

For bottom longline fisheries, participants indicated that fishing activity typically occurs between approximately 40 and 1000 metres depth, although responses showed substantial variability between fishers. They also reported that fishing effort is only occasionally interrupted by weather conditions, estimating that there are no vessels at sea for approximately 15 to 30 days per year.

Participants were also asked to review fishing effort maps derived from vessel monitoring system (VMS) data. They generally considered the fishing effort maps to be representative of the main fishing grounds used by the bottom longline fleet and suggested only minor adjustments. Participants were also asked to evaluate the interaction maps between the distribution of the two species under study and the fishing effort map. However, the participants did not have sufficient familiarity with the two deep-sea shark species under study to validate the predicted interaction areas.

For handline fisheries, participants reported a broad operating depth range extending from surface waters to approximately 700 metres depth. Unlike bottom longline fisheries, participants indicated that handline fishing activity is rarely interrupted by weather conditions because fishing occurs close to shore, making it possible to move to sheltered areas of the island when conditions deteriorate. During the mapping exercise, participants identified handline fishing grounds

concentrated primarily around the islands, generally within approximately six nautical miles of the coast. Participants indicated that these fishing grounds are used mainly by smaller local vessels operating close to shore.

Conclusion

This second workshop provided additional information that complements the results previously collected on Terceira Island and further highlighted the variability that exists among fishers in terms of experiences and perceptions regarding deep-sea shark interactions. These differences reinforce the importance of collecting information from a larger number of participants and across multiple islands. Additional workshops conducted as part of this series provided a broader picture of how fisheries interact with deep-sea shark species and contributed to ongoing assessments of fisheries interactions with deep-sea shark species in the Azores.