Basking Sharks at Risk

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Background

A workshop was help at the 2025 International Conference on Basking Shark to facilitate discussions and share and collect knowledge on risks facing basking sharks throughout our world's oceans. The workshop began with speed talks which provided context in relation to four main categories of risk to be discussed;

Bycatch Risk (Dr Julia Calderwood)

Boat strikes and basking sharks (Dr Taylor Chapple)

Surface risks (Dr Paul Mensink)

Climatic Risks & Basking Shark Prey (Dr Lilian Lieber)

The workshop then proceeded to utilise an interactive 'World Café' style format to foster dialogue, share knowledge and generate innovative ideas (Figure 1). Participants in the workshop rotated around each of the four themes as groups and spent 10 minutes discussing each risk, with several sub-questions being posed to groups for each topic (See table 1). Thoughts and ideas were added to each theme in the form of comments on post-it notes. As groups rotated around each of the four themes participants had the opportunity to reflect on previous contributions and add additional thoughts and comments.

Table 1: Questions posed to workshop attendees to stimulate discussions under each 'risk' theme

Bycatch	Boat Strikes	Surface Risks	Climatic Risks
How do we improve records of bycatch events?	When and where is risk greatest?	What activities pose risk at the surface?	What risks are linked to climate?
When, where and in which fishery are sharks at risk?	What shipping activities = greatest risk?	How do surface risks vary in time and space?	When are here are climatic risks greatest?
What tools/technology can help reduce/prevent bycatch and entanglement?	What knowledge gaps exist?	What else should we consider?	What knowledge gaps exist?
Other thoughts on bycatch/entanglement?	How can we mitigate against this risk?	How can we mitigate against this risk?	How can we mitigate against this risk?

Methodology

Following completion of the workshop all contributions (in the form of comments on post-it notes) were transcribed and labelled based on the theme and sub-question they related to. A thematic analysis of all contributions was conducted to identify overall themes emerging from the contributions of workshop participants. The methods of Braun and Clarke (2006)

were followed to generate initial codes, before grouping these into broader themes to provide a clear narrative on the discussions held during the workshop.

Figure 1: *Photos taken during the World Café workshop*

Results

The discussion on bycatch risk centred around the key questions presented, with many of the responses being focussed on gaps in our knowledge and how data collection could be improved to fill in these gaps and improve risk identification (Figure 2). A key link between the themes was related to the challenges of collecting data on bycatch events and challenges in relation to reporting. There were calls for mandatory reporting, with cameras being identified as a tool to collect data. There were also acknowledgements that positive incentives to encourage reporting, rather than penalties, were required and that there may be challenges around collecting data on bycatch events for charismatic species, especially if these might be perceived poorly by the public.

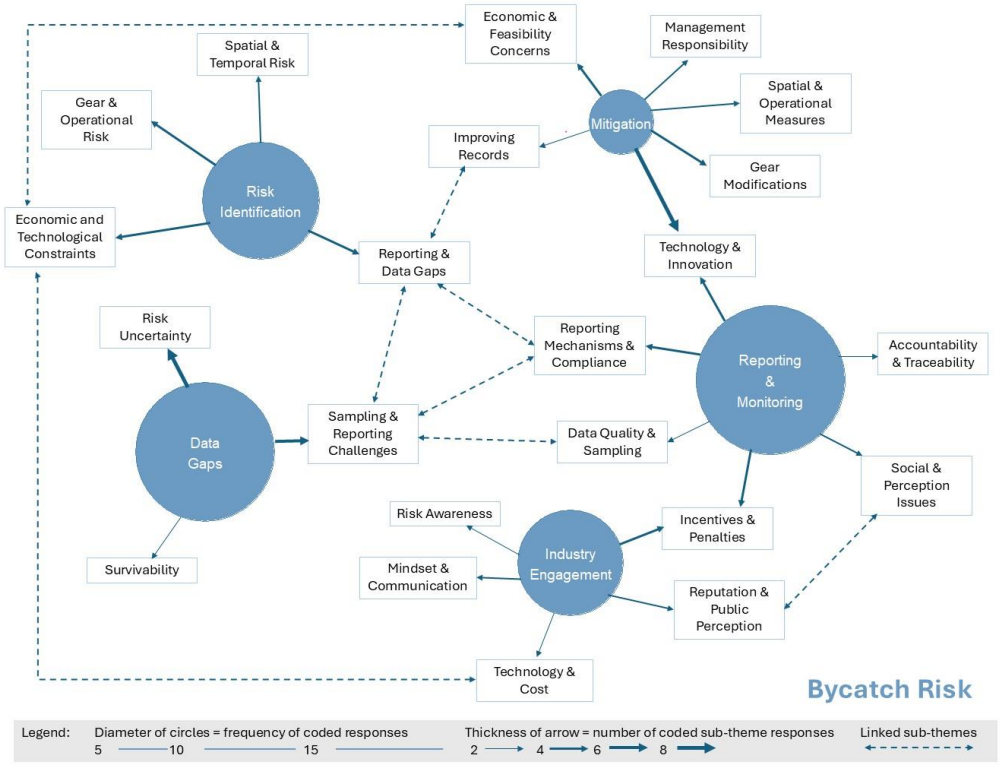

Figure 2: *The main themes and sub-themes identified during Bycatch Risk discussions, including linkages between themes*

Overall, it was acknowledged that there are currently limited data records available regarding bycatch events and thus our knowledge on the times or locations where bycatch risk might be greatest is limited. There were conflicting opinions about which fishing gear may pose the highest risk. It was noted that as new meso-pelagic fisheries open there could be increased

risk, but with limited information as to the depths at which bycatch normally occurs this was hard to evaluate.

Potential mitigation solutions were identified including gear modifications, electromagnetic deterrents and dynamic spatial management options. Another key sub-theme identified across the main themes was related to economics and the cost of technology required to improve both reporting and to adopt mitigation measures that could potentially reduce bycatch risk. Several comments related to whose responsibility it is to fund the tools and technology required to reduce bycatch risk for basking shark. Further, industry engagement was identified as a key theme in relation to bycatch risk, both in terms of working together to encourage reporting without fear of repercussion, and to utilise the expertise from the fishing industry to identify how best to mitigate bycatch risk.

Data gaps were again the key topic of discussions when considering boat strikes (Figure 3). Participants highlighted that there is limited data available on the impact of different types of vessels, with another theme related to the impact of different vessels and boating activities emerging from the discussions. Another data gap is a lack of knowledge on the frequency of boat strikes and its impact on injury or mortality rates of sharks. The risk is then exacerbated by our lack of understanding about how spatial and temporal risk of boat strikes varies, which again is due to our lack in fundamental knowledge in terms of where sharks aggregate and how this relates to ship and boat activity. Some potential risk hotspots were highlighted, however, including around the mouth of the Shannon estuary where boating activity is high and aggregations of sharks are known to occur.

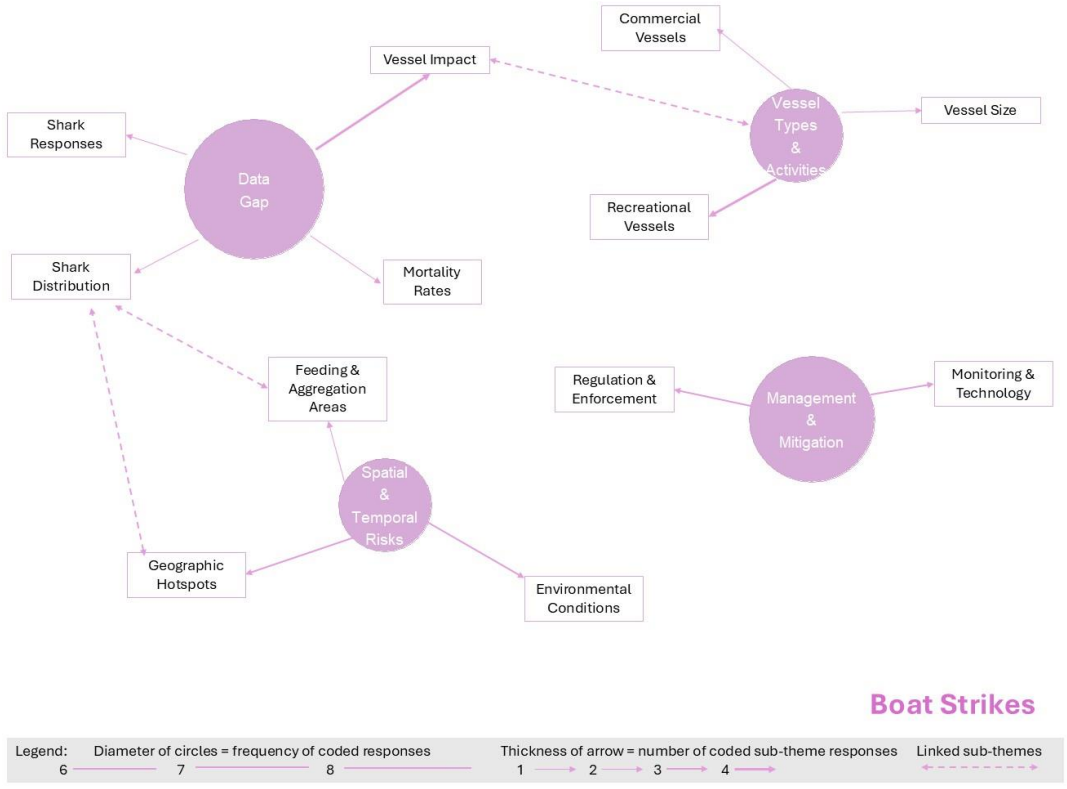

Figure 3: *The main themes and sub-themes identified during Boat Stikes discussions, including linkages between themes*

Ideas on how to mitigate against boat strikes linked back to idea of observation and enforcement, although simple mitigation approaches including restricting speed limits and requiring mandatory look-outs for sharks at times where aggregations are likely could be beneficial.

Vessel related risks were again highlighted when discussing more broad surface risks faced by basking sharks. And again, the risk of fishing, which may result in entanglement, injury and bycatch were further discussed. In addition to the risks from boats a lot of the discussion focussed on wider human activities that interact with sharks and may pose threats. This included tourism and recreational activities, with people being increasingly interested in watching sharks in the waters around Ireland for example, which is great in terms of education and raising the profile of basking sharks, but may pose threats if appropriate behaviour isn't adopted.

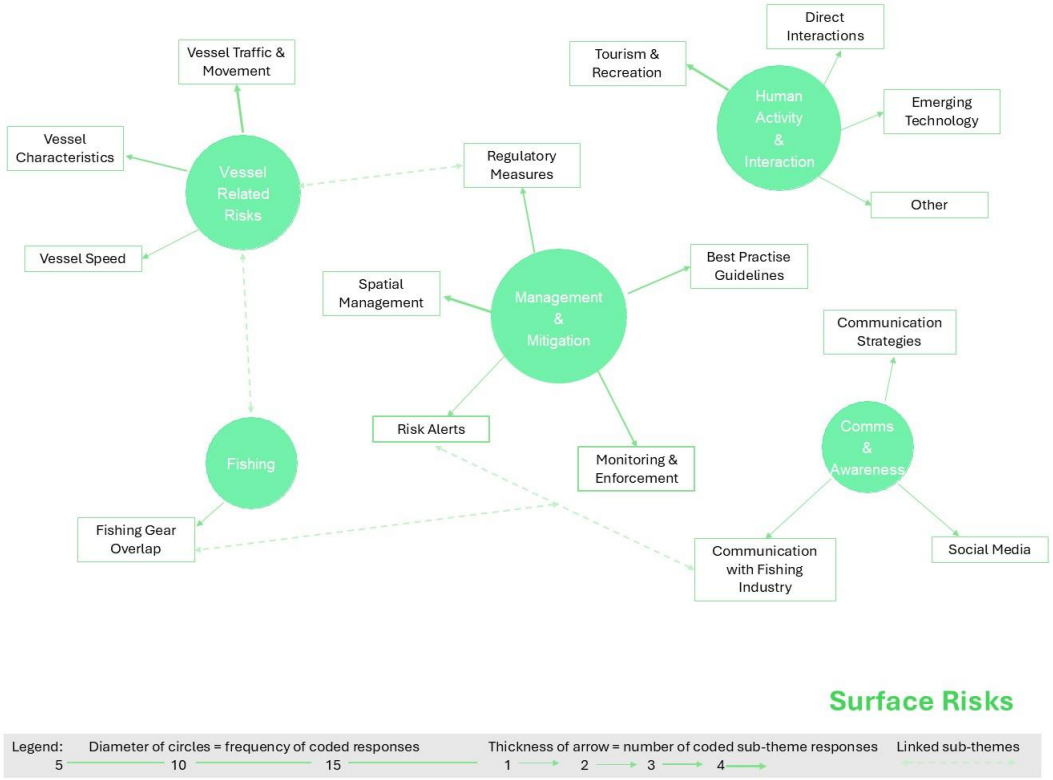

Figure 4: *The main themes and sub-themes identified during Surface Risk discussions, including linkages between themes*

There were a lot of thoughts and comments in relation to the mitigation of surface risks (Figure 4). The development and promotion of best practice guidelines, like the code of conduct developed by the Irish Basking Shark Group (2024), were seen as highly important but without resources for enforcement their efficacy may be limited. Communicating real-time risk was another sub-theme that spanned several of the key themes that emerged during discussions. This style of risk alert could include temporary restrictions on static fishing gear use to avoid basking shark hotspots in addition to restrictions on yachting events for short periods of time when disturbance risks may be greatest.

Habitat and Prey Dynamics were the primary discussion points when focussing on climatic risks (Figure 5). There was clear understanding of the close linkages between the planktonic food

sources basking shark rely on and the oceanic fronts that basking shark frequently occupy with climate change. Much of these discussion points, however, were linked to knowledge gaps, with acknowledgement that we lack data and a detailed understanding of how basking sharks may be able to adapt to these changes. These data gaps are concerning considering the understanding of workshop participants of several stressors that may exacerbate pressures related to climatic change.

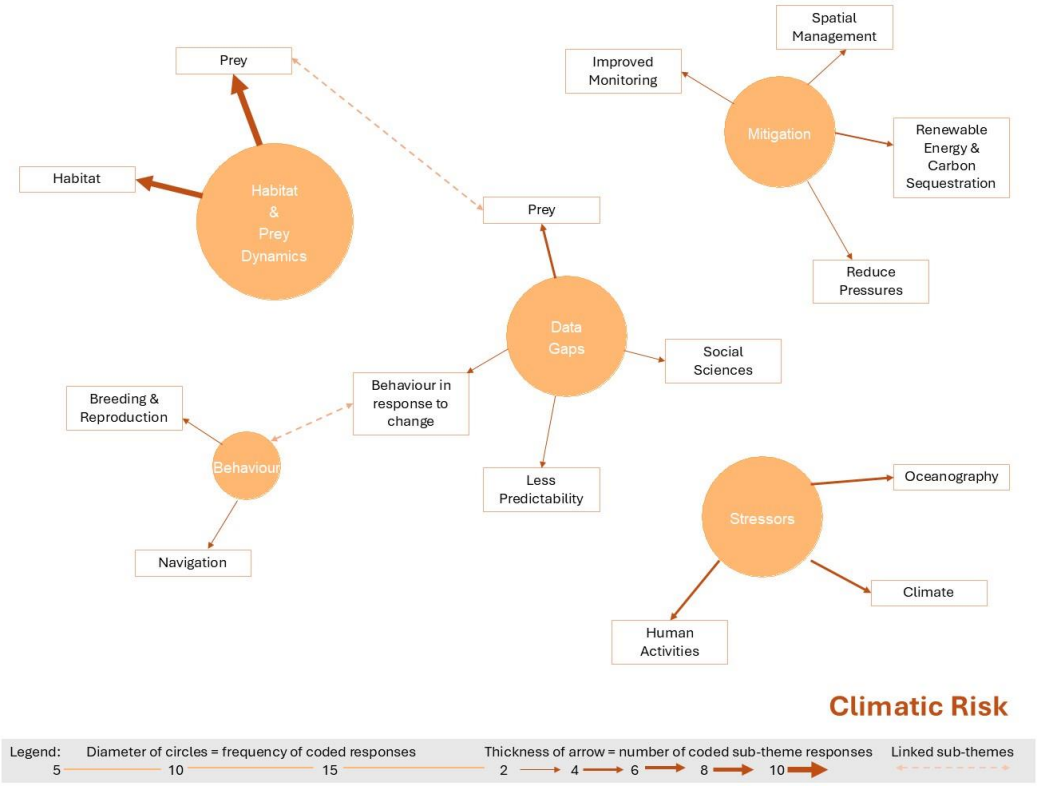

Figure 5: *The main themes and sub-themes identified during Climatic Risk discussions, including linkages between themes*

The mitigation options considered regarding Climatic Risk often considered much more long-term and widespread options compared with the other discussion topics. Participants recognised the need to reduce the world's population reliance on carbon and switch to alternative energy sources including offshore renewable energy as well as considering carbon sequestration systems by protecting and restoring natural carbon sinks and blue carbon habitats.

Next Steps

We hope to collect further contributions from the wider community who could not be present at the Basking Shark conference and participate in the workshop. This will further add to our understanding of the risks faced by Basking Sharks, the knowledge gaps we need to fill to better understand the severity, location and timing of these risks and the potential solutions that could help to mitigate such risks. Following the collection of this data we plan to publish our final findings, so watch this space for further outputs.

Acknowledgements

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References

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