**Quantifying the effects and risk reduction of the annual Canadian North Atlantic right whale fishery closure strategies in the Gulf of St. Lawrence snow crab fishery**

Since 2018, the government of Canada has implemented time-area fishery closures in the Gulf of St. Lawrence (GSL) to mitigate entanglement risk to North Atlantic right whales. When in effect, these closures provide large gear-free areas where whales are aggregating. Using various measures such as static, dynamic, and season-long closures, closure protocols have been amended in each subsequent year to include different measure combinations. However, there are concerns about the impact these management measures have on snow crab fishery operations, and their effectiveness to mitigate entanglement risk given continued mortalities and entanglement events in the GSL. Using whale sightings during the snow crab fishing season (April 28-June 30), we simulate closures under each annual management strategy (2018-2021) to evaluate their effect on the fishery and risk reduction value. Impact to the fishery was measured as the percentage of the total average catch-per-unit-effort (CPUE) within closed fishery management grid cells, based on averaged pre-closure fishing activity (2015-2017). Whale occurrence within each grid cell was based on annual reported sightings (2015-2019) using a location uncertainty estimate, and entanglement risk was estimated as the product of this and the average fishing activity. Using 2020 whale sightings to simulate closures, preliminary results showed that the dynamic-only, GSL-wide 2020 and 2021 measures closed more grid cells throughout the fishing season than the 2018 and 2019 measures consisting of static closures and more limited management areas. As a result, a larger proportion of the CPUE was closed to fishing by the 2020 and 2021 measures. The 2018 and 2019 static closures resulted in decreased entanglement risk throughout all of May, whereas the 2020 and 2021 measures did not reach similar risk reduction values until the end of May. Each annual fishery management strategy, however, achieved similar risk reduction values by the end of the fishing season.