

Telemetry, deep-water Arctic ecosystems and developing commercial fisheries

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The Arctic is experiencing rapid environmental shifts with largely unknown consequences for its fauna and flora and the indigenous people who are dependent on those resources. In the Eastern Canadian Arctic, commercial fisheries target Greenland halibut (*Reinhardtius hippoglossoides*), a deep-water flatfish, that occupies both inshore and offshore habitat. With continuing sea ice loss, Greenland halibut fisheries are expected to expand across the region, raising concern over the sustainable exploitation of such a deep-water species under predicted climate change. The current interdisciplinary program integrates long-term acoustic telemetry (years) with satellite tracking (up to a year), high-resolution biologgers (days), passive and active environmental sampling and marine mammal recordings to support ecosystem-based management of Arctic fisheries. Specifically, the project is monitoring the movements of Greenland halibut in the inshore environment to assist (i) the management of an established Inuit coastal fishery in Cumberland Sound and (ii) the development of coastal fisheries at two additional communities, Qikiqtarjuaq and Clyde River. In 2016 monitoring expanded in to the offshore to examine stock connectivity relative to defined management areas. Simultaneous monitoring of two principal bycatch species, Greenland shark (*Somniosus microcephalus*) and Arctic skate (*Amblyraja hyperborea*) and documentation of coincident marine mammal communities is also underway. I will provide an overview of telemetry to monitor fish at >1000m depth and principle findings that are directly shaping fisheries management in the Canadian Arctic.