



Sustainable Fishing in the Arctic: Can the Harvest of Greenland's Biggest Export be Compatible with the Conservation of Benthic Ecosystems?

Targeted territory: Greenland

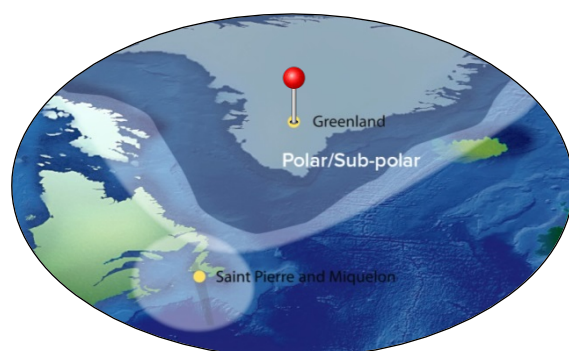
Total project budget: 324,759 Euros

BEST 2.0 grant awarded: 296,383 Euros

Duration: April 2017 – March 2019 (24 months)

Lead organisation: Institute of Zoology, Zoological Society of London (ZSL)

Partner organisation: Sustainable Fisheries Greenland



Background:



In a time of global environmental change, polar regions face particular challenges. Warming sea temperatures are influencing the movements and distributions of organisms, including many commercially important species. Changing patterns of biodiversity lead to changing fishing effort, which can place new pressures on important but vulnerable marine ecosystems, such as benthic habitats. Greenland is heavily dependent upon marine resources - fishing accounts for 87% of all exports – and the sustainability of its fishing industry is an important consideration. Its west coast is home to commercially important coldwater prawn and halibut fisheries. Their entrance into the MSC sustainability scheme has highlighted a concerning lack of knowledge of benthic habitats. Benthic habitats play vital roles in the marine ecosystem, functioning as carbon sinks and providing nurseries and protection for juvenile fish. Trawl fisheries (such as the prawn and halibut) directly impact the local

seabed environment, with removal of habitat-forming organisms, and consequently the marine ecosystem as a whole.

Description of the Project:

The project will perform photographic surveys of the West Greenland benthos to document existing seafloor communities, their structure, function and diversity. One survey will examine the continental shelf around Disko Bay, revisiting locations where benthic images were taken in the 1980s. This will create a unique time series allowing investigation of benthic habitats in response to climate change and trawling impact over more than 30 years and enable an assessment of the recovery potential of impacted communities. A second survey will be conducted in the deeper off-shelf area of the



existing halibut fishery, to document for the first time the benthic habitats in this region. From these benthic community data, and environmental data sourced from oceanographic models, predictive maps of species distributions and vulnerable marine ecosystems will be produced. Observations and

information collected, along with analytical interpretations, will be made publically available and used to develop and evaluate management plans for the sustainable use of marine resources in West Greenland.



Specimens, images, interactive web resources, and educational games will be used in a series of outreach events designed to engage a broad spectrum of stakeholders and raise awareness of the importance and conservation value of Greenland's precious and wondrous benthic habitats.

Intended results:

- An open access image library and data resource from photographic surveys of benthic habitats of West Greenland is developed.
- Changes to benthic habitats of West Greenland due to disturbance impact (trawling) and climate change are established and potential future changes under the existing impact regime are projected.
- A management plan for sustainable use of marine resources in West Greenland is developed.
- Fishermen, children, industry, and the public are engaged with the issue of the conservation value of Greenland's benthic habitats and the need for their sustainable management.

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