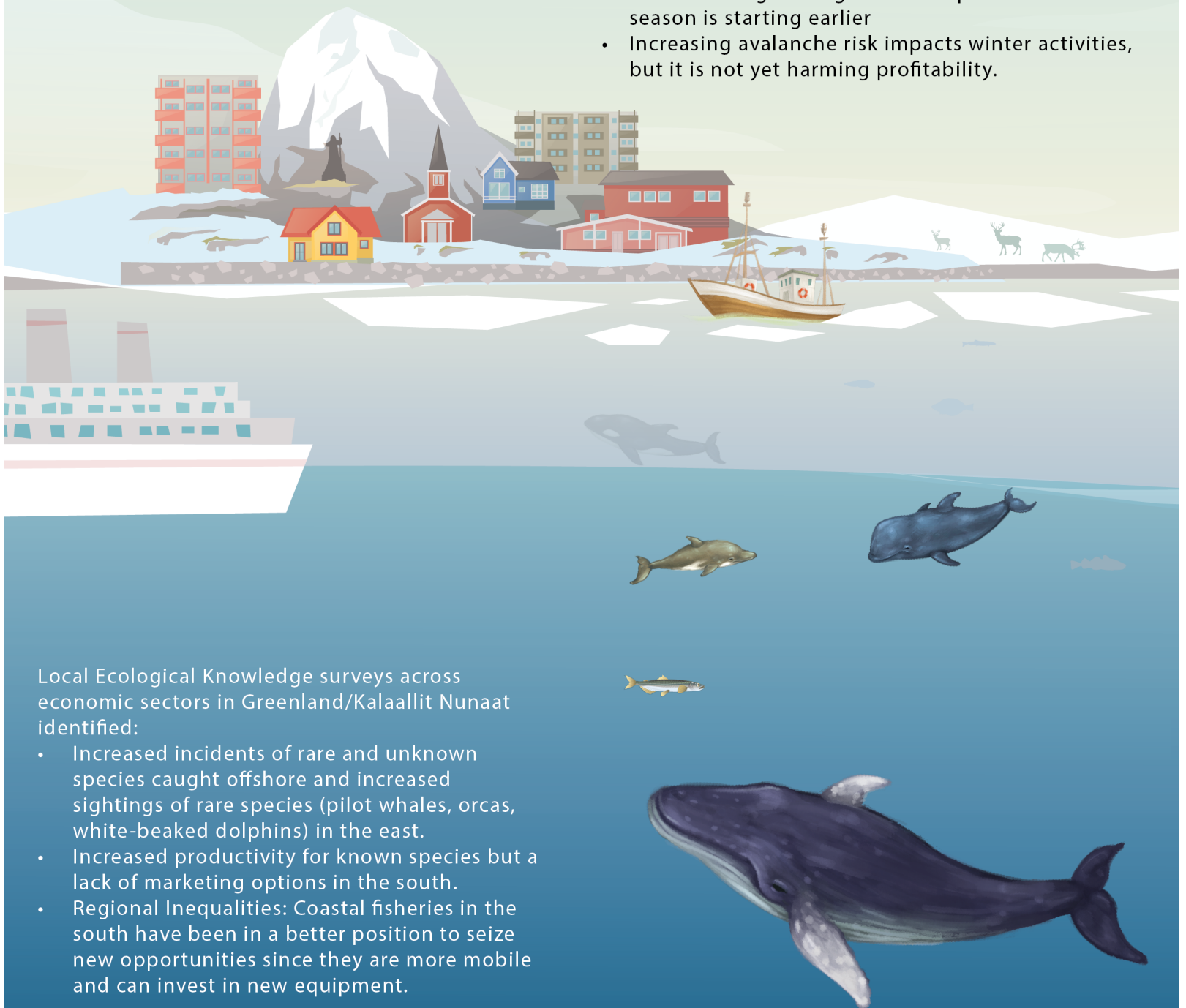


ENVIRONMENTAL ECONOMICS

The following factsheet presents the joint results, research gaps and priorities identified by the H2020-funded ECOTIP, FACE-IT, and CHARTER projects on Arctic biodiversity changes on land, coasts and in the ocean.

Physical impacts of climate change in the Arctic are well studied, but we have limited information about how changes in Arctic industries and communities will impact the rest of the world. Accepting climate change adaptation measures depends largely on the economic consequences to local communities that ultimately implement them. Arctic communities are already vulnerable to food, water, and energy insecurity, so dialogue with communities and rights holders and integration of social, cultural, and economic values is vital.

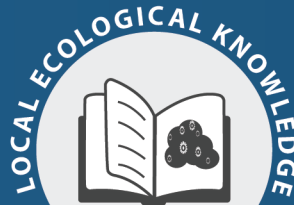
- Reindeer herder observations align with those of scientists: seasons do not arrive “in time” and extreme weather events occur more frequently.
- Communities are concerned about whether and how long future generations can rely on their Traditional Ecological Knowledge
- If certain traits of the natural environment disappear, the land-use practices based upon them are also impacted. This may further limit the ability of herders to adapt, which is only complicated by ongoing socio-economic shifts.
- In Greenland, both locals and tourist operators have high expectations for future development of the industry and support increased regulation of tourist activities.
- In Isfjorden, Svalbard, existing regulations are raising concerns and may limit future possibilities; but there is also more marine wildlife, which is attractive for operators.
- Climate change is introducing new risks to tourism - with less land-fast ice in spring, the tourism season is lengthening and the expedition cruise season is starting earlier
- Increasing avalanche risk impacts winter activities, but it is not yet harming profitability.



Local Ecological Knowledge surveys across economic sectors in Greenland/Kalaallit Nunaat identified:

- Increased incidents of rare and unknown species caught offshore and increased sightings of rare species (pilot whales, orcas, white-beaked dolphins) in the east.
- Increased productivity for known species but a lack of marketing options in the south.
- Regional Inequalities: Coastal fisheries in the south have been in a better position to seize new opportunities since they are more mobile and can invest in new equipment.

RESEARCH GAPS



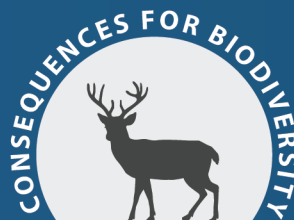
How can we integrate Local Ecological Knowledge and establish meaningful interactions between local communities and climate modelers? How do we incorporate end-user wants and needs during the planning phase? How do we facilitate mapping and weather predictions at locally-relevant spatial and temporal scales?



What are the effects of glaciers changing from marine- to land-terminating, on plankton productivity and community structure at the landscape level? What are the cascading effects to higher trophic levels?



What are the qualitative and quantitative aspects of pollutant transfer from land to sea? And what is the bioaccumulation along food web cascades?



What are the climate change consequences for biodiversity beyond the few emblematic (e.g., polar bear) and commercially harvested (e.g., Atlantic cod) species?



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