

Greenland Last Ice Area Scoping study: socio-economic and socio-cultural use of Greenland LIA

Summary

Based on recent estimates, the extent of Arctic sea ice is projected to decrease significantly over the coming decades and this spells significant consequences for local wildlife and local populations who rely on these for maintaining traditional livelihoods. While local wildlife will potentially be threatened by further reduction, degradation and shifts in habitat due to climate change there are also other developments such as increased mining and oil exploration, which can potentially threaten key species and unique ecosystems found in the High Arctic. In response to these developments, the analysis prepared for WWF Denmark represents an assessment of Greenlandic use of an area that may become part of the last remaining sea ice habitat in the Arctic. Sea ice modelling shows that an area along northern coast of Greenland and Canadian archipelago will still have summer sea ice in 2040.

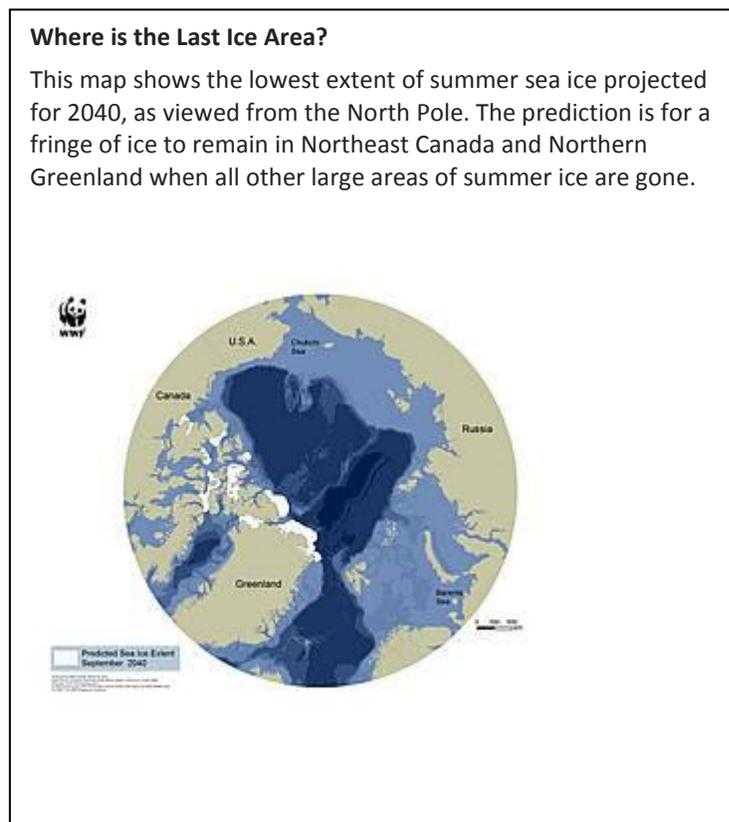


Figure 1: Projected sea ice, September 2040. WWF Global Arctic Programme.

This project is intended to facilitate discussion among stakeholders concerning a future management framework for the Last Ice Area (LIA). WWF will help chart a future for the last remaining sea ice habitat in the Arctic. Ideally defined and managed by Arctic Indigenous people and governments in the Arctic, the area should retain healthy and resilient wildlife and habitats on land, sea and sea ice. The area should continue to maintain the cultural, spiritual and livelihood needs of people in this region providing space for continued traditional use.

Conclusions

This part of the analysis brings together all of the previously outlined developments in order to assess both positive and negative impacts of current and future human activities in the LIA, and the effects that increased shipping, mineral exploration and tourism may hold in store for species conservation in the area. The conclusions include an identification of some knowledge gaps that should be filled and potential elements of a management regime for the Greenland portion of the LIA. These elements are identified not as a final position of WWF, but to promote discussion among relevant stakeholders.

Impacts of current and potential activities

A summary of current (and potential future) mining activities suggests that these are not only on the rise but that this development will probably increase even further as the ice gives way to more areas of open (and therefore accessible) land and shorelines for mining and related shipping activities.

In the north-eastern part of the LIA (including areas located inside the National Park), significant stretches of land have already been conceded to mining exploration and possible subsequent exploitation and drilling activities. Based on available information obtained to date, the combined size of the areas in question is somewhere between 4,000 and 5,000km². Should increases in mining occur, the King eider and the common sandpiper could be threatened, but there are also numerous other species, such as Canadian goose and Sabine's gull that depend upon parts of the National Park area (both inside and outside the LIA) as either stop-over, moulting or nesting sites. Numerous daily low-level helicopter flights might affect these species and it is recommended that future research be aimed at clarifying these and related noise-disturbance issues further.

Marine mammals such as walrus and seal use parts of the coastline and elaborate fjord systems in the north-eastern part of the LIA as haul-out and these species could also be adversely affected by significant increases in possible shipping and related transport activities associated with mineral exploration.

Core areas for polar bears have been identified within the Greenland LIA, including locations on Peary Land and Mylius Erichsen Land where polar bears with cubs are often seen (Aastrup & Boertmann, 2009). But satellite data document that polar bears use large parts of the Greenland Sea area. The 2012/2013 Greenland Sea hydrocarbon license round has highlighted the need for more research and new data on the East Greenland polar bear population followed by management to prevent negative consequences of new industry on wildlife.

Near Qaanaaq a number of important habitats for local waterfowl like little auks, king eiders and polar guillemots are identified. These habitats must be managed to sustain future healthy populations even under dual stress. More specifically, along the north-western coastline, the analysis identified a significant overlap between the current locations of important nesting sites and licensed areas reserved for mining exploration and development.

The risks associated with increased off-shore oil exploration inside or adjacent to the LIA should also be considered. A main concern is the dependence of the identified species on areas of open water (polynyas) for feeding grounds, and the near-shore marine ecosystem in general. The effects of any long-term presence of human activities related to oil exploitation, such as the construction of rigs, supply ports and increased shipping around coastal waters should be considered in relation to the delicate habitation patterns of waterfowl species such as little auks and king eiders.

Apart from current mining and possible future hydrocarbon exploration activities, other factors which could impact upon local birdlife include; gradual increases in arctic shipping and transport, overharvest of eggs and the impacts related to sudden shifts and general changes in local weather and climate, such as increased precipitation or irregularities in the occurrence of open water areas.

The potential future impacts of offshore oil exploration in the LIA are also threats to marine mammal species such as walrus, whales and polar bears that migrate, feed and nurse their young in and near the same waters. The effects that underwater disturbances such as seismic surveying and drilling activities have upon migrating groups of narwhals, belugas, walruses and bowheads, and local shallow-water dwelling walrus, are still poorly understood. The worst case scenario is a large oil spill in the area, which, based on the lessons learned from *Exxon Valdez* in 1989, would represent a significant threat to birdlife and local marine mammals that rely on the delicate floe edge environment as their primary habitat. The human costs of this scenario are

also high in that a significant proportion of the local population continues to depend upon the presence of harvestable species for vital aspects of health and traditional livelihoods to be maintained.

Walrus are often characterised as a highly noise sensitive, even shy, marine mammal and this species is dependent upon a very exclusive habitat for access to feeding opportunities i.e. near shore, shallow waters. A survey of studies and scholarly research that would shed more light on the effects of, for example, underwater noise from engines and offshore drilling equipment and their impacts upon selected species, should be critically assessed since this represents an important argument for careful management of walrus habitat.

The state of the current beluga whale population remains a critical issue since it is already endangered due to the periodically unsustainable management of the species (Boertmann, 2006). The management of beluga has a long record of heated debate due to the social significance of the animal and concerns and warnings from the authorities and the international community about potential over-harvest. Increases in offshore activities that may affect the conservation status of belugas will no doubt add to an already delicate national issue. The question of potential impacts on whales and other marine mammals is limited by lack of knowledge about their migration and feeding patterns.

Another consequence of new industry and increased activities is the risk of conflict as traditional uses of sea and land are under pressure from new uses. In the Greenland LIA Qaanaaq hunters are arguing that there is a need for regulation of tourism. This could be supplemented by dialogues with the tourism industry and information available for tourists, sailors etc.

As licenses are granted for mineral prospecting and exploration activities areas there is a risk of barriers to access to hunting grounds, fishing sites and sites of historical or spiritual value. In the licensing process traditional use must be addressed, people must be asked about their use of the area and information about the consequences of a license must be clear. Conflict of land use has occurred in other parts of Greenland, i.e. by the Appaluttoq mountain near Qeqertarsuaat where locals were restricted to go and harvest rubies as concessions for the area was given to True North Gems (Information, 2007). Industry must be aware of the risk of land use conflict and carefully map and mitigate potential conflict.

On the positive side, increased mining and oil exploration in the LIA would entail a likely increase in job availability for a local workforce, which currently only enjoys very few opportunities for waged employment. There is an ongoing debate in Greenland about the future of many of the smaller and more remote communities where economic alternatives to subsistence hunting and fishing have often been discussed and so the prospect of increased

mining and tourism can be viewed as a positive development. But at the same time however, the socio-cultural impacts of having to accommodate a sudden influx of foreign workers and its consequence for a remote small-scale fishing community should also be considered (Arctic Human Development Report, Arctic Council, 2004).

The resources hidden in the mountains and sea bed of Greenland are rich and there are potentials for new industries across the country. Many of these potentials are being developed these years, but still today only one mine is in operation: the Nalunaq gold mine in South Greenland.

Even if new industries are being developed Greenland still is highly dependent of its living resources at sea. Hunting and fishing in particular still provides food on the table for many families, a source of income for the many that work in the fishing industry and for the country an important export. Still today, fish and seafood make up 85 pct. of the export from Greenland. Sustainable management of existing fisheries in the light of climate change and loss of sea ice is increasingly important but likewise is the careful introduction of new fisheries or fisheries in newly opened waters to avoid over-harvest and collapse.

Development of new industry may also be a source of new research and knowledge. The prospective oil licensing round and subsequent national debate could give renewed life to the question concerning the many unique bird colonies found along the coast and how best to preserve their habitats for future generations. Seismic activities in four regions are planned for the 2013 field season. As part of these activities research in the consequences of seismic activities on marine mammals is carried out, increasing our knowledge about wildlife, wildlife use of the area and the consequences of seismic activities. Much research in Greenland today is conducted in relation to the EIAs and therefore funded by international corporations. Where researchers and organisations in Greenland take part in these projects, valuable capacity and knowledge is added to Greenlandic society.

Linked to this research is the discussion about nature management and conservation. Researchers have mapped biological hot-spots of the National Park (Aastrup & Boertmann, 2009) and most recently identified ecologically valuable and sensitive marine areas in relation to shipping (Christensen *et.al*, 2012). With these studies researchers put conservation and the increasing need for a comprehensive management regime on the agenda.

Creating a management regime for the Greenland LIA

From a conservation point of view, it would seem that the idea of creating a comprehensive

management regime for the Last Ice Area holds numerous advantages. If a special management regime is established it would potentially help to ensure that the status of vulnerable and exposed species such as unique waterfowl populations, marine mammals (beluga and walrus) will be markedly improved, to the benefit of local people. The analysis has identified a need for comprehensive and adaptive management as activities in the Greenland LIA are increasing.

Potential elements of a LIA management regime could include:

- Adaptive management for a future of uncertainty as a consequence of global warming and of new industry.
- Management based on available knowledge and research. Recent studies of biological hot-spots and marine vulnerability in relation to shipping must inform management.
- Using Strategic Environmental Assessments to identify the cumulative effect of proposed activities in the region as proposals for new uses are added.
- Engaging the local population in industry development, for example to inform Environmental Impacts Assessment and Social Impact Assessments, to map areas valuable to them for ecological, historical or spiritual reasons and to have a discussion about their visions for the future.
- Managing to reduce disturbances to wildlife from shipping and tourism, identifying passages and no-go zones, seasons etc.
- Industrial development strategies building on the precautionary principle, taking into consideration the available knowledge and research that have identified species specific key areas, biological hot-spots and consequences of disturbances on wildlife.
- Reviewing the prospects of expanding regulations already in place for the Greenland LIA, including the National Park regulation, RAMSAR regulations and regulations on single species.
- There are also possibilities of giving the Last Ice Area international recognition through the United Nations. Creating a world heritage site or biosphere reserve could help to maintain conservation and cultural values in the area.