

Memorandum 1/11/2018

CC1: Impact of reduced ice cover in the Arctic marine environment

This memo provides a summary of reports submitted on the session CC1 organised at the Arctic Biodiversity Session in Rovaniemi, Finland on October 9 organised by *AMAP and IASC*.

Session Organisers:

- Arctic Monitoring and Assessment Programme (AMAP) Arctic Council Working Group
- International Arctic Science Council (IASC)

Attendance: 101

Arctic Biodiversity Assessment recommendation themes most prominently addressed in the session:

- Climate change
- Addressing stressors
- Identifying and safeguarding important areas
- Mainstreaming biodiversity

Key points raised in the session that were important to note:

- Eiders nesting areas are changing and becoming more spread out due to increased Polar bear's eggs predation (indirect effect of less sea-ice distribution).
- 38 % of the Arctic Ocean is now without sea-ice whereas only 2,4 % has some form of protection
- Heterogenetic hot-spots might be considered as possible Marine Protected Areas (MPA).
- Polar bear hunters in East Greenland have noted large changes to the climate in the areas where they hunt.
- More Polar bears are now coming into the communities in East Greenland.
- The Atlas of Marine Fish of the Arctic Region has been released and are now available at the CAFF website.
- Islands, distance and ice drive the genetic diversity of reindeer populations in Northeast Canada, where the relationship to ice-free coastline highlights the threat to reindeer populations posed by climate change and sea-ice loss
 - Early ice-breakup changes the annual cycle and behaviour of several species
 - More open waters annually changes the entire ecosystem, e.g. leading to more primary producers
 - Indigenous peoples' traditions change as the ecosystem services change

Recommendations/actions identified for how to deal with the issues raised in the session:

- Spatial-ecological modelling might help us to understand change caused by climate change
- Designation of Arctic MPAs and the setting of conservation targets and MPA management would be benefit and reflect ecological science

- Population genetics and genetic fingerprinting help us to understand the ecology of sub-populations of key species at finer spatial scales
- Mapping seafloor geomorphic features provides a consistent, ecologically meaningful approach to regional-scale marine seafloor protection
- Local resident and nomadic components of Polar bear populations should be tested more thoroughly in future studies
- The Atlas of Marine Fish of the Arctic Region book may help stimulate further research on Fish species and species identification
- A hierarchical analysis of reindeers in Northeast Canada could reveal important genetic substructure at finer spatial scales

Take home message from the session:

- Scientific mapping, surveys/monitoring and research are necessary for identifying Arctic change, understanding the reasons for this change and use this for adaptive management of human activities as well as for conservation of Arctic marine biodiversity.
- The Arctic is going to change therefore species reliant on sea ice will experience range reductions as sea ice retreat occurs earlier and the open water season is prolonged.
- Species and ecosystem adapting to the new, post-anthropogenic climate change environment are a future consideration to protect and conserve seafloor habitats.