The use of future analysis and Bayesian Belief Network models in Greenland

Side event at Science Week, Nuuk 2021

Organised by CARPADUS and FutureArcticLives

KØBENHAVNS UNIVERSITET

UNIVERSITY OF COPENHAGEN

NINA
Norwegian Institute for Nature Research

ILISIMATUSARFIK
University of Greenland

Welcome

Capacity-building in Arctic Standardisation Development (CAPARDUS)

- EU-funded capacity-building project with the aim to:
  - *Establish a comprehensive framework for development, understanding and implementation of Arctic standards. The framework will integrate standards used by communities active in the Arctic including research and services, indigenous and local communities, commercial operators and governance bodies. This will support sustainable economic development, safe activities, emergency prevention and response, and improved understanding and conservation of the environment.*

- ➢ Build capacity in Arctic standardization through workshops and research schools
- ➢ Workshop with focus on natural resource management in Greenland

Welcome

FutureArcticLives

www.futurearcticlives.eu

Future Arctic livelihoods and biodiversity in a changing climate.

- BiodivERsA funded project guided by the overall question:

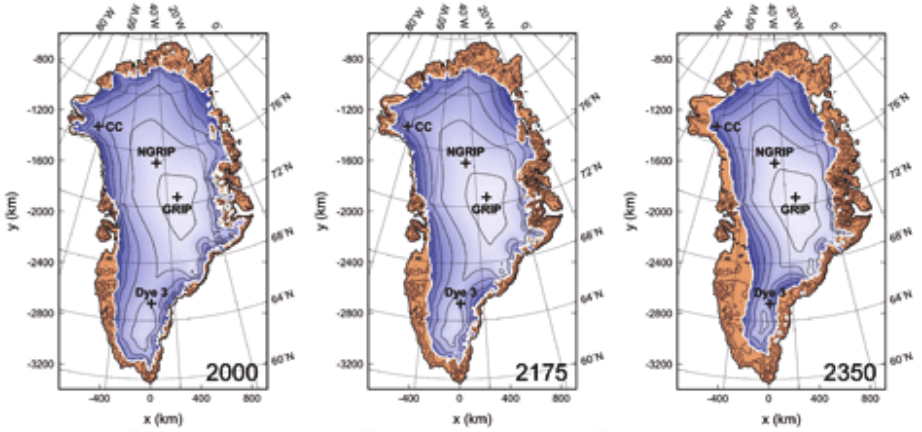
  What are the likely future impacts and adaptation possibilities for small-scale primary resource users in Greenland, Northern Sweden and Norway in the face of climate and biodiversity change?

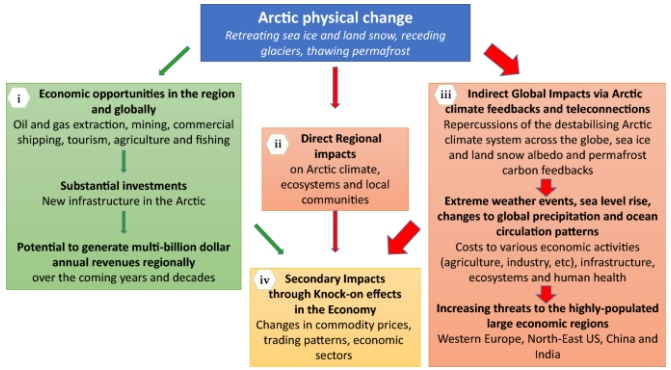
- In Greenland the project will - assess the implications of climate change for biodiversity and the welfare of Greenland's traditional hunters and fishers by:
  - quantifying reliance on wildlife and fish at the household and national economic level
  - assessing welfare implications in future scenarios of biodiversity change and development in other sectors
  - making maps facilitating optimisation of strategic investments in social services

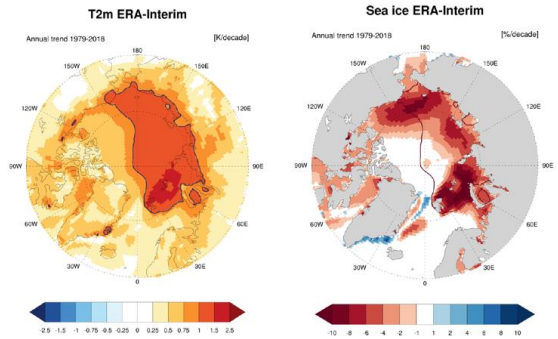
Morning session program – 10-12 – Presentations

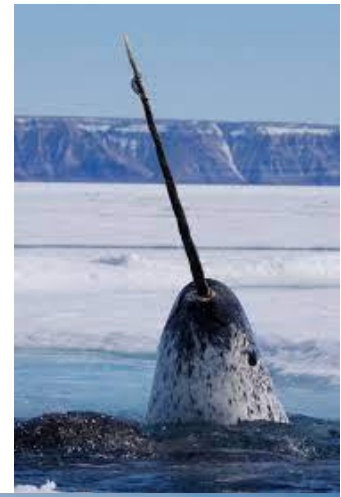
Time	Program	Presenter
10:00-10:05	Welcome and program	Roel May / Martin Reinhardt Nielsen
10:05-10:20	Sustainable development and natural resource management in Greenland	Roel May / Martin Reinhardt Nielsen
10:20-10:35	Participation in natural resource management: Community based monitoring and co-management	Roel May / Martin Reinhardt Nielsen
10:35-10:50	Assessing social-ecological systems, future scenarios for sustainable development – the use of Bayesian Belief Network tools	Roel May
10:50-11:00	Automatic bird detection and species determination using an 'artificial ornithologist' camera system – a Bayesian approach	Roel May
11:00-11:15	A Bayesian approach to identify trade-offs in local people's attitudes regarding conflict resolution and conservation of wild Asian elephants in Myanmar	Roel May
11:45-12:00	Future scenario analysis: Welfare implications of ecosystem service and management change in the Greater Serengeti-Mara Ecosystem	Roel May / Martin Reinhardt Nielsen
11:30-11:45	Servicescape of the Greater Serengeti-Mara Ecosystem: Visualizing the linkages between land use, biodiversity and the delivery of wildlife-related ecosystem services	Roel May
11:15-11:30	Integrated mapping of urban ecosystem services to manage spatial planning trade-offs in Trondheim, Norway	Roel May

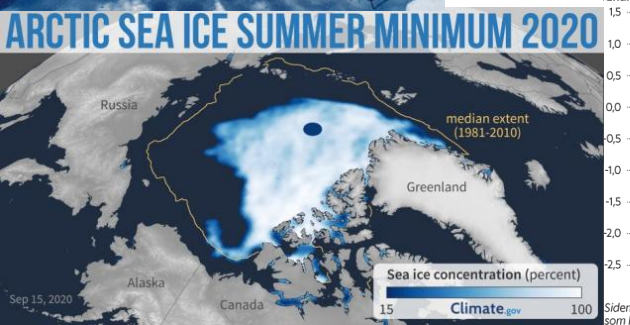
Sustainable development and natural resource management in Greenland

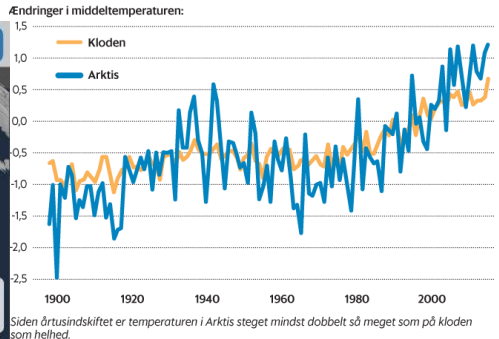


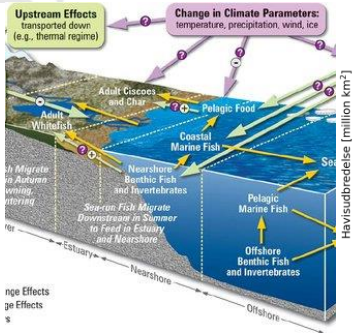


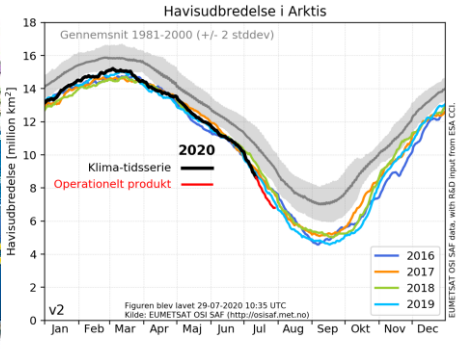










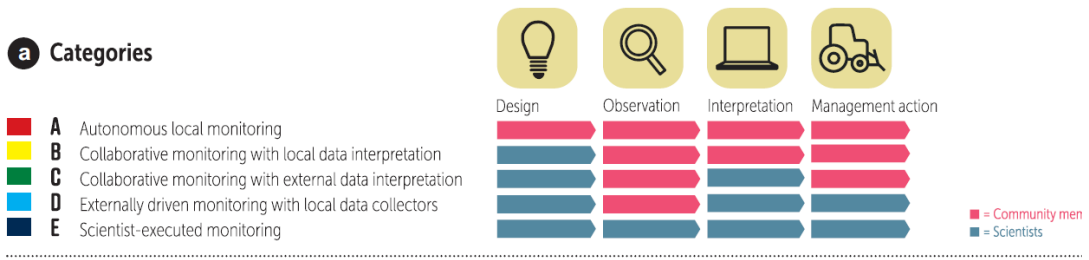


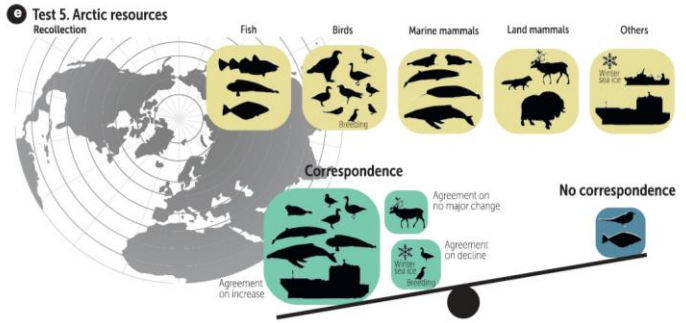
Arctic climate crisis – nature crisis – society crisis?

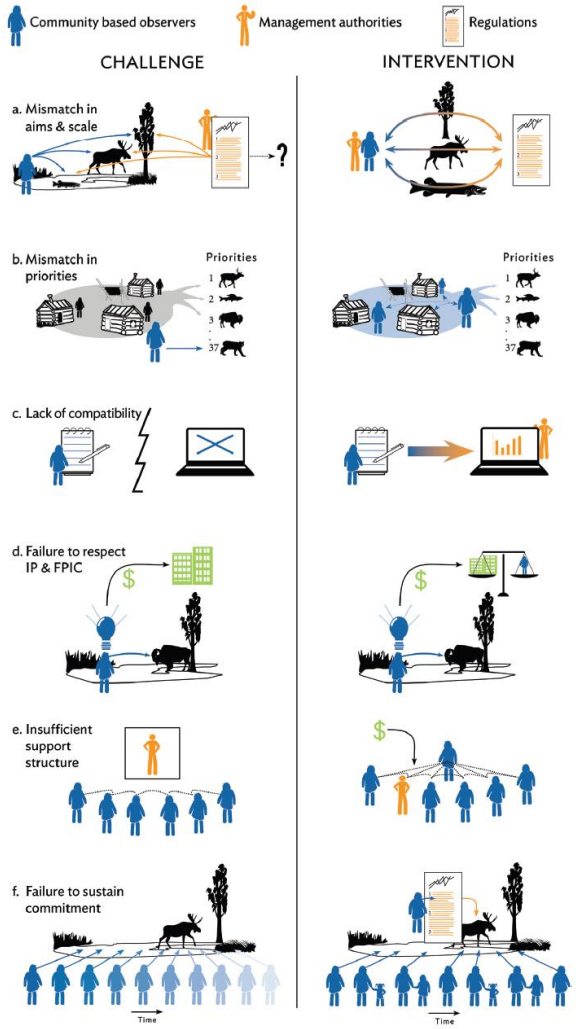
Climate change is occurring faster in the Arctic than any other region, with consequences for Arctic biodiversity and the people that depend on it

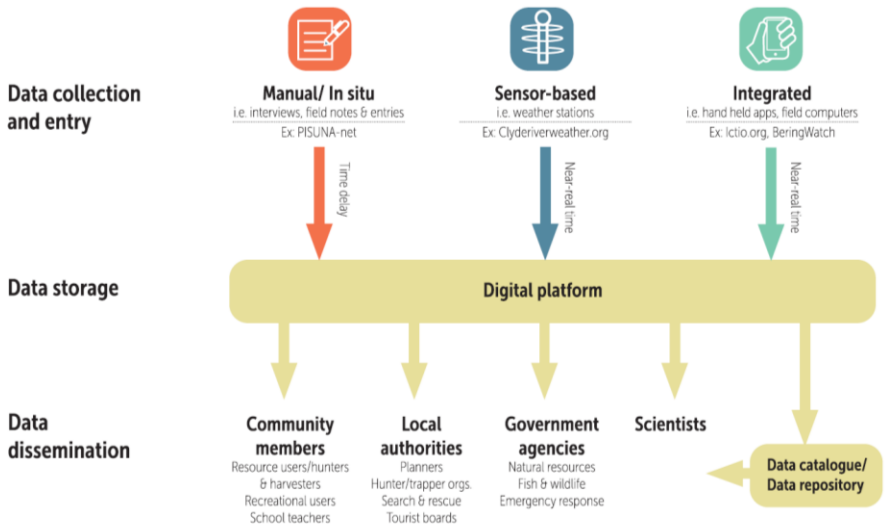
- Climate: Reduction in sea ice volume, area, age and thickness, and unpredictable land climate with increasing rain, snow and thawing events in winter
- Nature: Disappearance or dramatic modification of habitats, ecosystems and populations, shifts in species geographic range and the timing of ecological events and outbreaks of pests and disease
- Society: In turn, undermining established production patterns of hunting, fishing, gathering and herding by Arctic communities negatively influencing their welfare and wellbeing

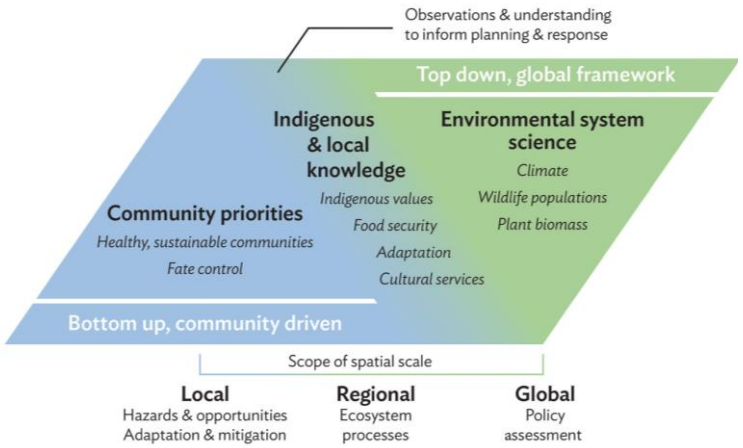
Participation in natural resource management: Community based monitoring and co-management











Transformational change

Transformational change in socio-environmental systems requires responses that build on integrated, informed, inclusive and adaptive governance, planning, and decision-making

- Integrated: Visualize complex interactions between humans and their biophysical environment within social-ecological systems
- Informed: The need to observe, track, understand, and predict environmental and societal change in space and time
- Inclusive: Engage with stakeholders across sectors and scales
- Adaptive: Biophysical and economic scenarios to assess impacts of climate and biodiversity change on Arctic communities and to explore adaptive management options under global policies and trends

'Transforming indigenous communities'

- In vast areas of the world, ecosystems are in practice governed primarily by indigenous peoples and local communities (IPLC) whose knowledge systems and practices are as diverse as the locations and groups from which they emanate
  - Acknowledging the rights and stakes of people directly affected by degrading ecosystems or by conservation interventions (relational values)
  - Local anchoring through engagement (support for interventions)
  - Citizen science contributing to local and context specific knowledge (ILK) on ecosystem dynamic and human nature interactions over time
  - Increasing the capacity to transform decisions into actions that are sustained over time (stewardship)

Arctic natural resource management in a changing world

Are small-scale rural users and indigenous groups resilient enough to adapt?

- The objective with this side event is to bring together people working with future scenario analysis and Bayesian Belief Network models to make predictions in complex social-ecological systems