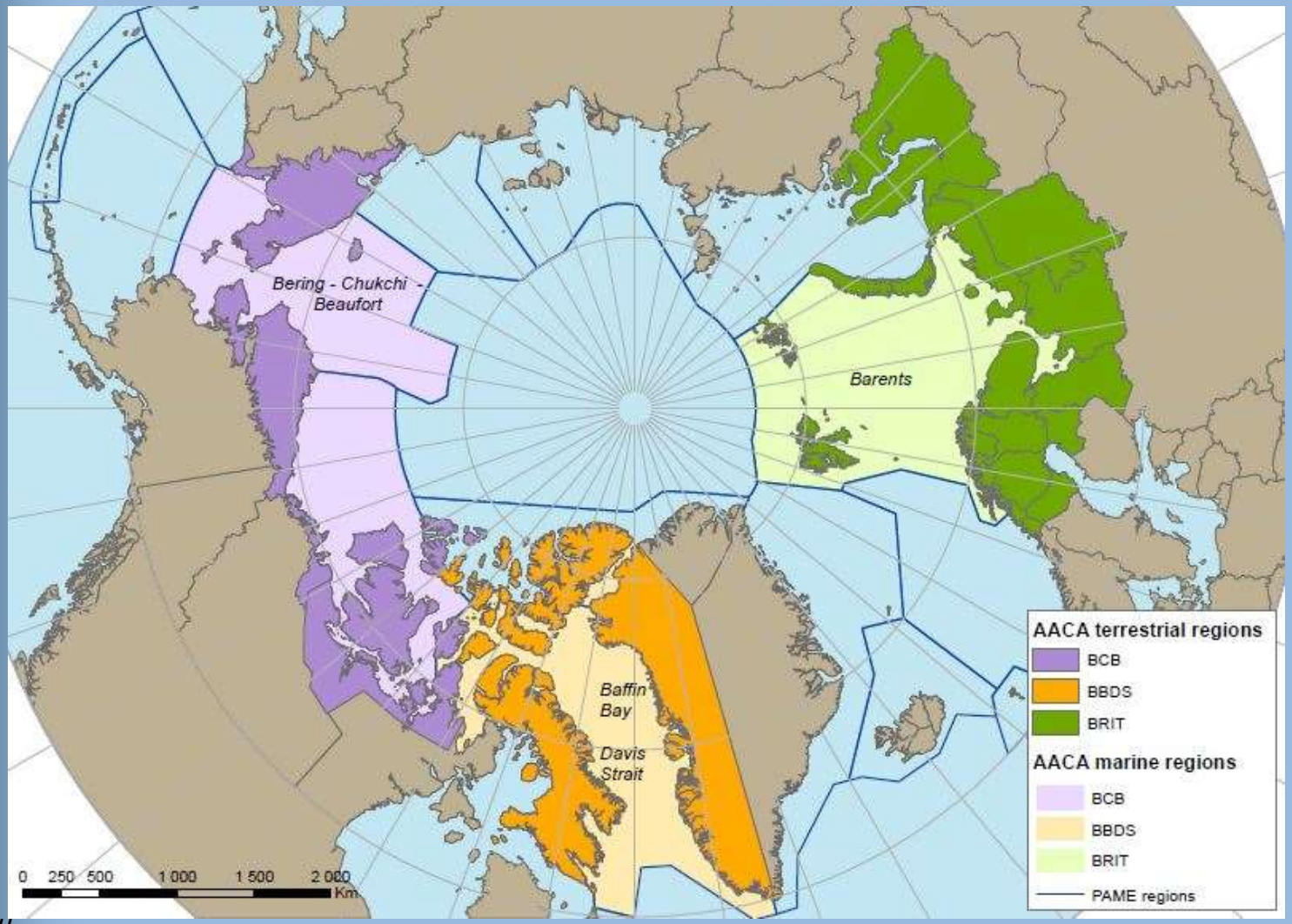
Adaptation Actions for a Changing Arctic

Some drivers of Arctic change

Ecosystem change
Erosion
Recreation and tourism
Mining
Population
Climate change
Oil and gas
Ocean acidification
Local development
Global economic development
Transport and shipping
Technology development
Migration
Fisheries
Infrastructure
Global pollution
Education
Sea ice decline


Bering - Chukchi - Beaufort
Barents
Baffin Bay
Davis Strait
0 250 500 1 000 1 500 2 000 Km
AACA terrestrial regions
BCB
BBDS
BRIT
AACA marine regions
BCB
BBDS
BRIT
PAME regions

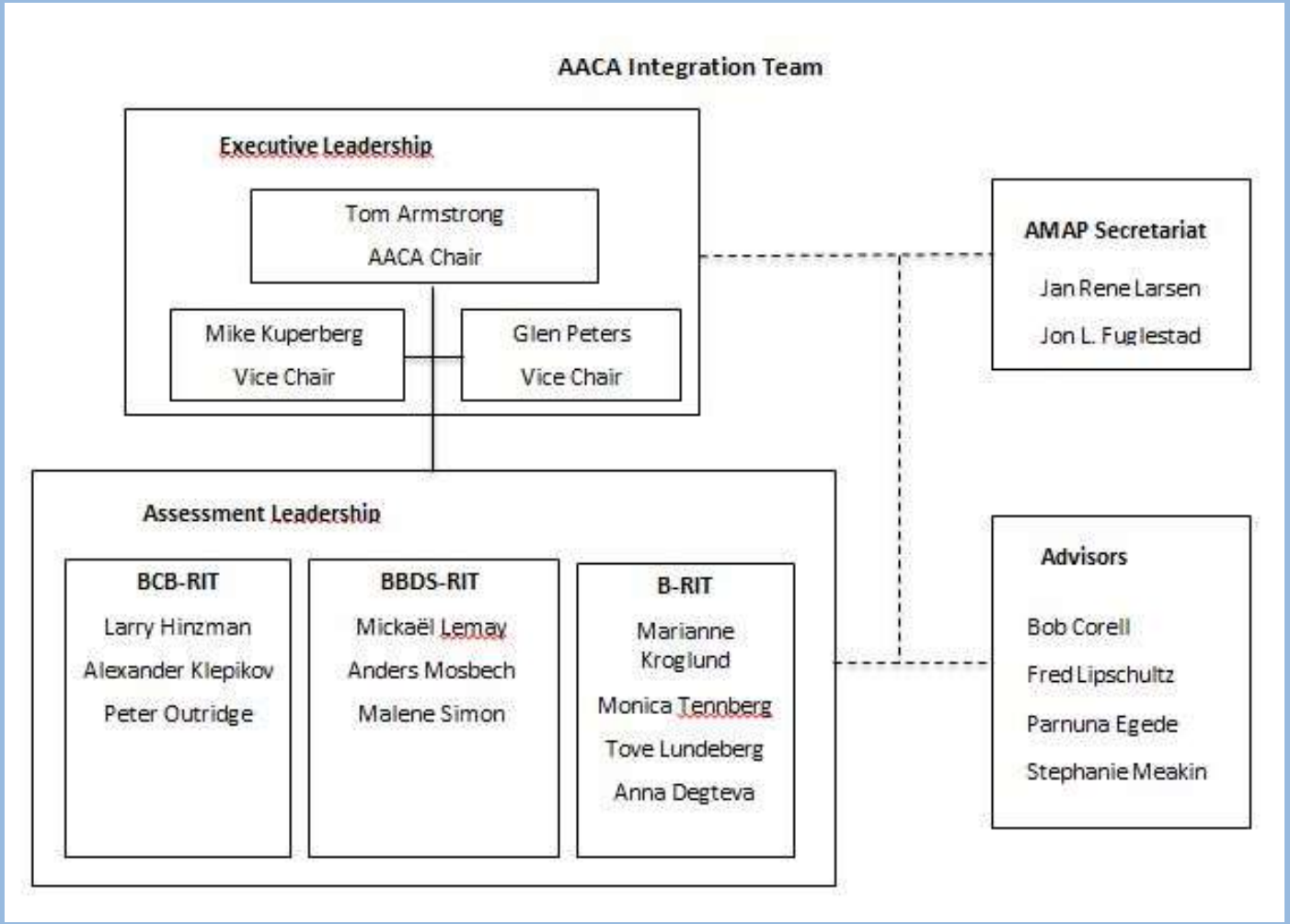
AACA:

The Arctic Council requested AMAP to:

«*produce information to assist local decision makers and stakeholders in three pilot regions in developing adaptation tools and strategies to better deal with climate change and other pertinent environmental stressors*”

Timeline regional reports

When in 2016	Milestone
January-February	Reports ready for peer-review
February-March	Official peer review period Stakeholders and national review
April-May	Address review comments Revise reports Author teams finalise report text
May-June	Hand over reports to AMAP Secretariat
June-December	Report production (editing/lay-out/graphics/printing)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More information at www.amap.no

ADAPTATION ACTIONS FOR A CHANGING ARCTIC (AACA)

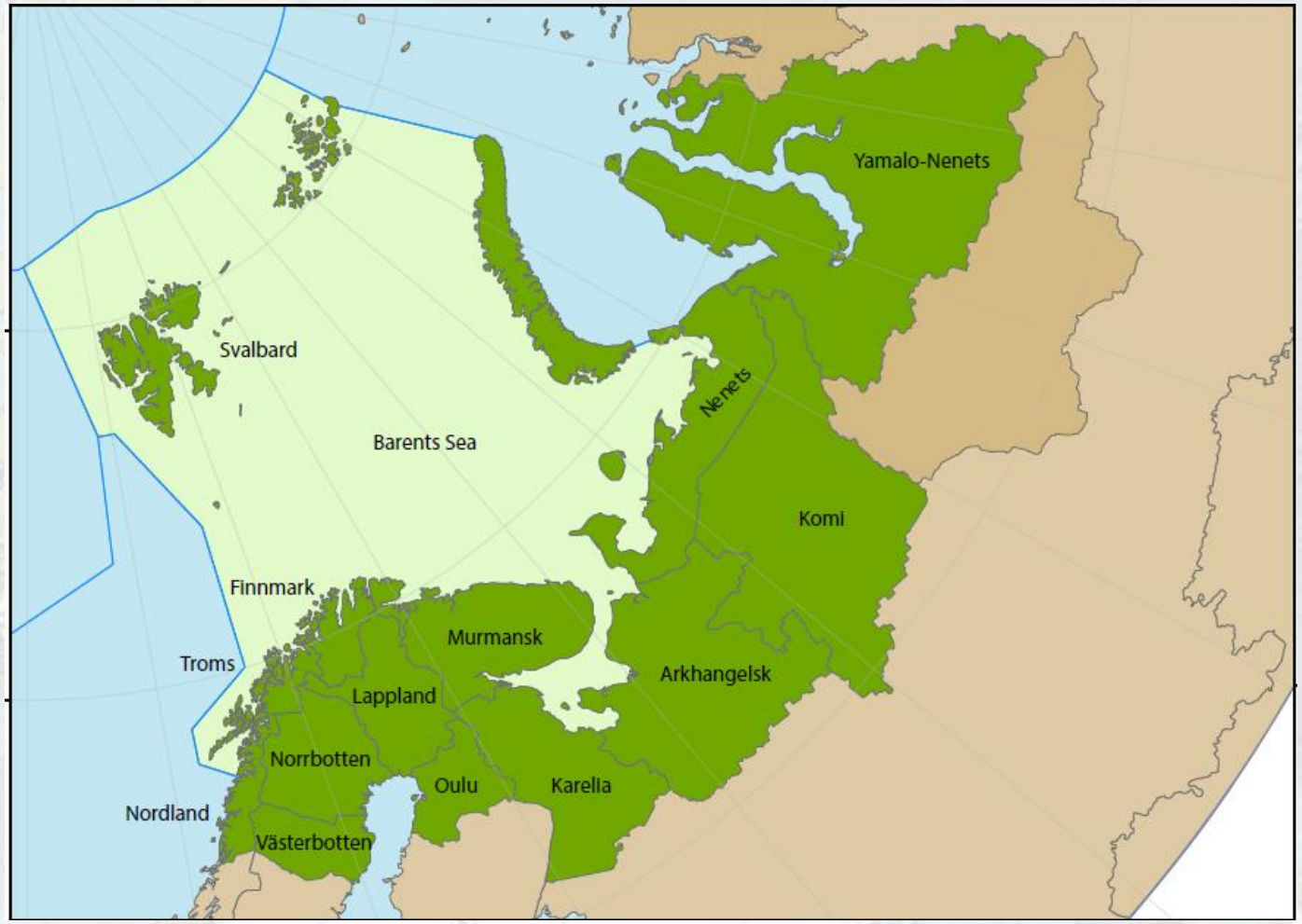
Grete K. Hovelsrud on behalf of AACA chair Tom Armstrong

Arctic Frontiers side event 27 January 2016

Background – why AACA?

- The Arctic is changing rapidly
- Common challenges and opportunities in responding to a changing Arctic -- early action is beneficial
- Necessary to build a comprehensive, multidisciplinary, co-produced knowledge base for adaptation actions in the Barents Region
- Utilizing existing knowledge from Arctic Council assessments – first time compiled for the purpose of adaptation
- Placing adaptation on the regional political agenda

AACA and the Barents region:



Ambitious and complex:

- Assess global and regional drivers of change, their impacts and consequences, as well as identify adaptation actions and options
- Heterogeneity: four countries and 13 sub-regions, different livelihoods, administrative practices and legal contexts, cultural diversity
- Co-production of knowledge across disciplines and knowledge systems
- Assess consequences of multiple stressors and cumulative effects
- Describe adaptation actions

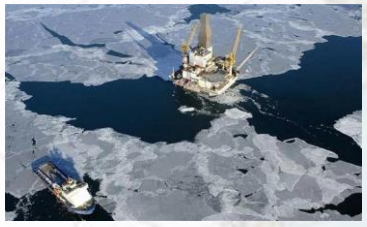
Main actors and sectors in the region

- **Nature-based industries**
  - Fisheries
  - Forestry
  - Aquaculture
  - Agriculture
  - Renewable energy
  - Tourism
- **Indigenous peoples traditional livelihoods**
  - Coastal and inland fisheries
  - Reindeer herding
  - Hunting and berry-picking

- **Extractive industries**
  - Oil & gas
  - Mining

- **Other industries, sectors or groups**
  - Transportation, shipping, tourism, hydro power
  - Infrastructure, communication, logistics
  - Service sector and institutions
  - Municipalities/regional governments








Structure of report

1. Introduction
2. Regional and local knowledges
3. General description of the region: status and trends
4. What shapes future environmental and socio-economic conditions in the Barents region?
5. Future narratives
6. Consequences of change
7. A resilience approach to adaptation actions
8. Adaptation options
9. Synthesis

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Preliminary findings

Regionally constructed knowledge base has been limited to support cross-border cooperation on specific issues, such as environmental hot spots and transport.

A meaningful knowledge base is necessary to tackle complacency, raise the saliency of adaptation, and to develop effective adaptation actions.

Biodiversity has been demonstrated as an important factor when it comes to ecosystem resilience. Conservation of rare as well as common species must be a priority when planning for the long-term maintenance of ecosystems.

Preliminary findings

Arctic climate warming is already accelerating with the average annual temperature increasing at rates 2 to 3 times the global average. The extent of warming depends on future emissions.

This will in general result in:

- increased precipitation, falling as rain rather than snow,
- increased events of rain-on-snow,
- diminished snow cover, season and depth,
- thawing permafrost,
- sea-level rise (up to 0.5 m locally).

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Preliminary findings

Arctic vegetation zones are shifting northward, causing wide-ranging impacts (new insect outbreaks and increases in forest fires).

Animal species' diversity, ranges, and distribution are changing, with consequences for marine mammals, terrestrial species and the movement of zoonotic diseases.

Many coastal communities face increasing exposure to storms, coastal erosion, loss of sea ice, flooding of coastal wetlands that impact local societies and natural ecosystems.

Reduced sea ice is increasing the prospects of marine transport (seasonal Northern Sea Route) and access to resources

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Preliminary findings

Thawing permafrost is disrupting transportation, buildings, pipelines, airports, industrial facilities and other infrastructure.

Indigenous communities are facing major impacts to their health, well-being and cultural ways of life.

Indigenous knowledge provides important insights and observations about the challenges of Arctic change and adaptive strategies.

It is clear that changes in the Arctic affect both the peoples and socio-economic interests within the region, but also the rest of the world.

Preliminary findings

Workshops (Pajala, Sweden, Kirovsk, Russia, Bodø, Norway) discussed possible futures linked to a set of global scenarios, in a 30-50 year timeframe.

Power over decision-making, sense of place, global markets, demography, including migration, and social factors that affect the capacity to shape the future and to adapt were raised as critical concerns.

Preliminary findings

Adaptation to cumulative and interacting changes is taking place at various societal scales by different actors, sectors, and local governments.

Adaptations take different forms depending on institutional capacity, access to knowledge and to human and economic resources.

Adaptation in practice is ahead of national developments and guidelines; mainly reactive adaptation in the primary industries and proactive adaptation in the local governance.

Preliminary findings

Adaptation strategies take multiple forms depending on the nature of cumulative and interactive effects in societal and environmental conditions:

- Engineering and technical solutions,
- Changing societal structures (infrastructural improvements),
- Economic mechanisms,
- New knowledge,
- Innovation and entrepreneurship,
- Product development and marketing,
- Changed or new institutional structures,
- Production practices and routines

Adaptation options may exist but are contingent on diversification, flexibility and a holistic approach.

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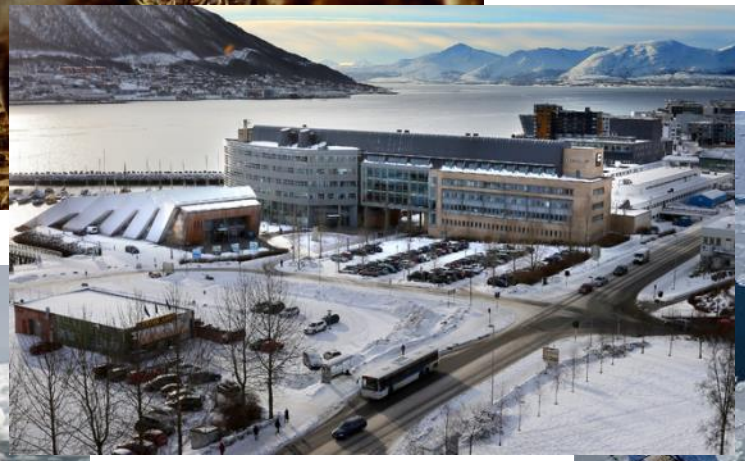
Thank you!








AECO – Association of Arctic Expedition Cruise Operators




Environmentally-friendly, safety and considerate cruise tourism

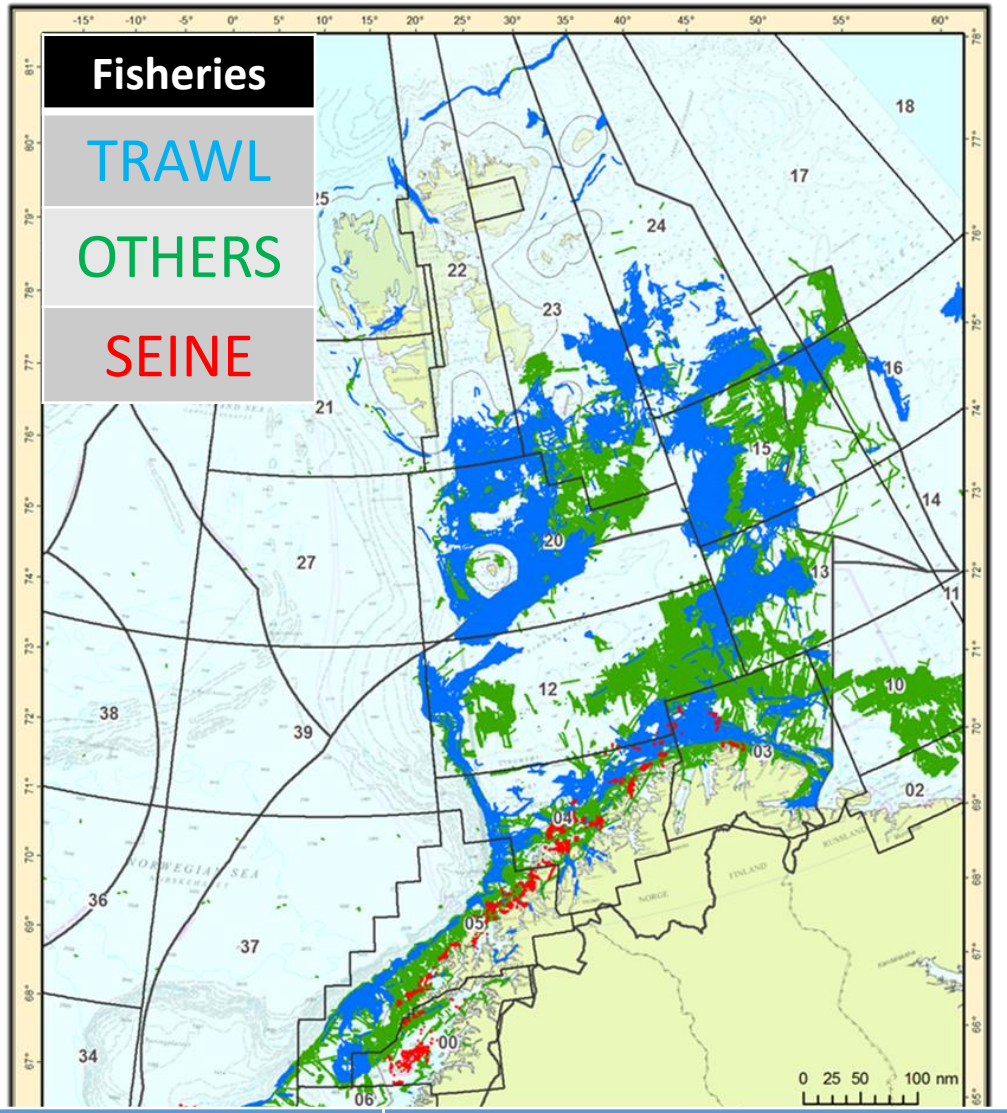
- Jørn Henriksen, chair AECO's Executive Committee

50 international members
25 expedition cruise operators
30 expedition Arctic expedition cruise vessels ‹ 450 pass

Guidelines, collective sailing plans, vessel tracking, crowd sourcing depth soundings, UAV-ban, wildlife reporting, Clean up, SAR TTX, etc, etc.

Norwegian Fishing Fleet in the Arctic region (2015)

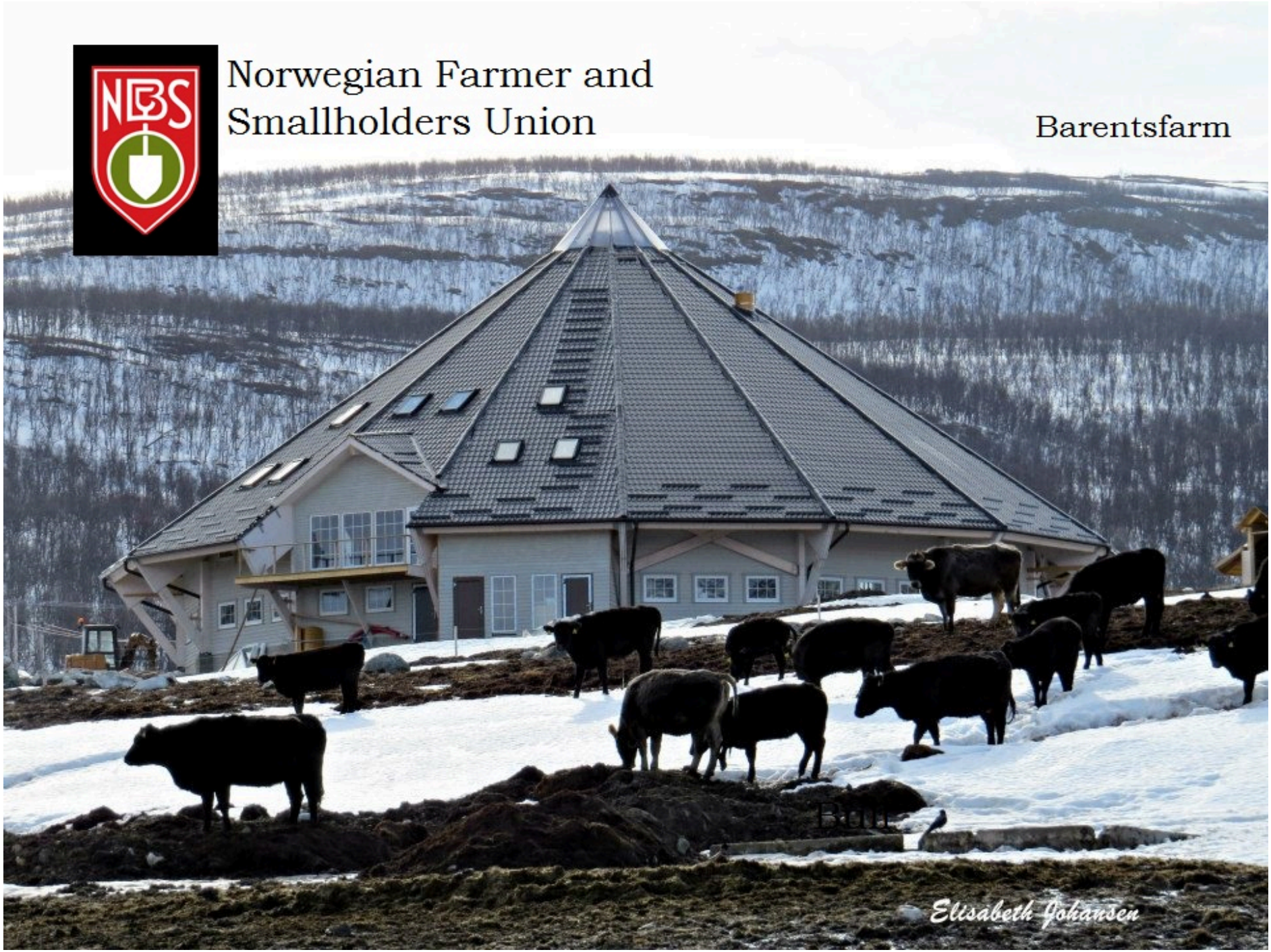
(Vessels 15 mts and above)



2015	Ground fisheries	Pelagic fisheries
Value of catch (1000 NOK)	6 361 983	824 270
Catch (tonnes)	505 104	172 382

Norwegian Farmer and
Smallholders Union

Barentsfarm



Tromsø kommune

Torben Marthinus

IPCC 2014 - Global warming will lead to widespread conflict, displacing millions of people and destroy the world economy!

AACA statement Hovelsrud

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The dynamic interactions between changing environmental and societal conditions currently require adaptation strategies at all societal levels.

The perceived need to adapt on the basis of scientific findings hinges on the whether such knowledge is viewed as salient, credible, legitimate, and on the individual or group's perceptions of risks, norms, values, culture and livelihood.

Adaptation options may exist but are contingent on diversification, flexibility and a holistic approach.

While always needing more knowledge we also need to communicate in ways that resonate with local communities and local decision-makers.