

CBMP-Marine Plan

Kathleen Crane and Reidar Hindrum



Expert Monitoring Groups (EMG):

- ***Marine (MEMG),***
- Coastal,
- ***Freshwater (FEMG),***
- Terrestrial Flora, and Fauna
- ***+ Arctic Protected Areas Monitoring Scheme (APAMS)***



Participating institutions in the MEMG:



Fisheries and Oceans
Canada

Pêches et Océans
Canada



Environment
Canada

Environnement
Canada



Marine EMG members:

Co-leads:

Dr Kathleen Crane, US
Mr Reidar Hindrum, Norway

US:

Dr Sue E. Moore
Dr Russ Hopcroft
Dr Katrin Iken

Russia:

Dr Igor A. Melnikov
Dr Boris I. Sirenko
Dr Olga S. Liubina
Dr Nina Denisenko

Greenland:

Mr Fernando Ugarte
Ms Aili Labansen

Iceland:

Dr. Gudmundur Gudmundsson

Canada:

Dr Jill Watkins
Dr Jim D. Reist

Norway:

Dr Ingrid Bysveen
Mr Dag Vongraven
Dr Per Arneberg

CBMP Secretariat:

Mr Mike Gill

Aleut International Association:

Ms Victoria Gofman

AMAP

Mr Jason Stow

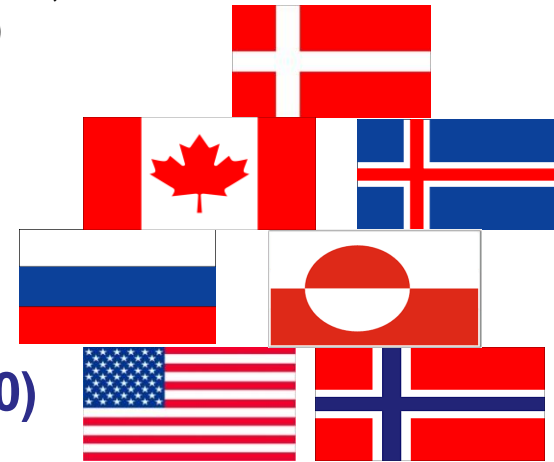
PAME:

Ms Soffia Gudmundsdottir



Developing a Marine IMP: Overall Process & Timeline

- ✓ Marine Expert Monitoring Group (MEMG) activated (**Aug'08**) – consisting of:
 - ✓ Norway & U.S. (Co-leads), Canada, Russia, Greenland/Denmark, Iceland, Aleut International Association (AIA), & Arctic Monitoring & Assessment Program (AMAP)
- ✓ Background paper (**Dec'08**)
- ✓ 1st Expert Workshop - Tromsø, Norway (**Jan'09**)
- ✓ 2nd Expert Workshop - Coral Gables, U.S. (**Nov'09**)
- ✓ Marine IMP 1st and 2nd Draft for review (**Jan'/June'10**)
- ✓ CBMP-Marine Plan for CAFF and SAO review (**Sep'/Oct'10**)
- ✓ Arctic Council Endorsement & Implementation (**2011**)



Arctic Marine Biodiversity Monitoring Plan (CBMP-Marine Plan) *Final Draft – January 2010*

Arctic Marine Biodiversity Monitoring Plan: Final Draft for Review / December 2010

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ARCTIC MARINE BIODIVERSITY MONITORING PLAN (CBMP-MARINE PLAN)

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FINAL DRAFT

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~JANUARY 2010~

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Gill, M.J., K. Crane, R. Hindrum, P. Arneberg, I. Bysveen, N.V. Denisenko, V. Gofman, A. Grant-Friedman,
G. Gudmundsson, R.R. Hopcroft, K. Iken, A. Labansen, O.S. Liubina, I.A. Melnikov, S.E. Moore, J.D. Reist,
B.I. Sirenko, J. Stow, F. Ugarte, D. Vongraven, and J. Watkins.

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Submitted by the

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Marine Expert Monitoring Group

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Circumpolar Biodiversity Monitoring Program

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Contact: Mike Gill

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Chair, Circumpolar Biodiversity Monitoring Program

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Northern Conservation Division | Division de la conservation du Nord

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Canadian Wildlife Service | Service Canadien de la faune

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Environment Canada | Environnement Canada

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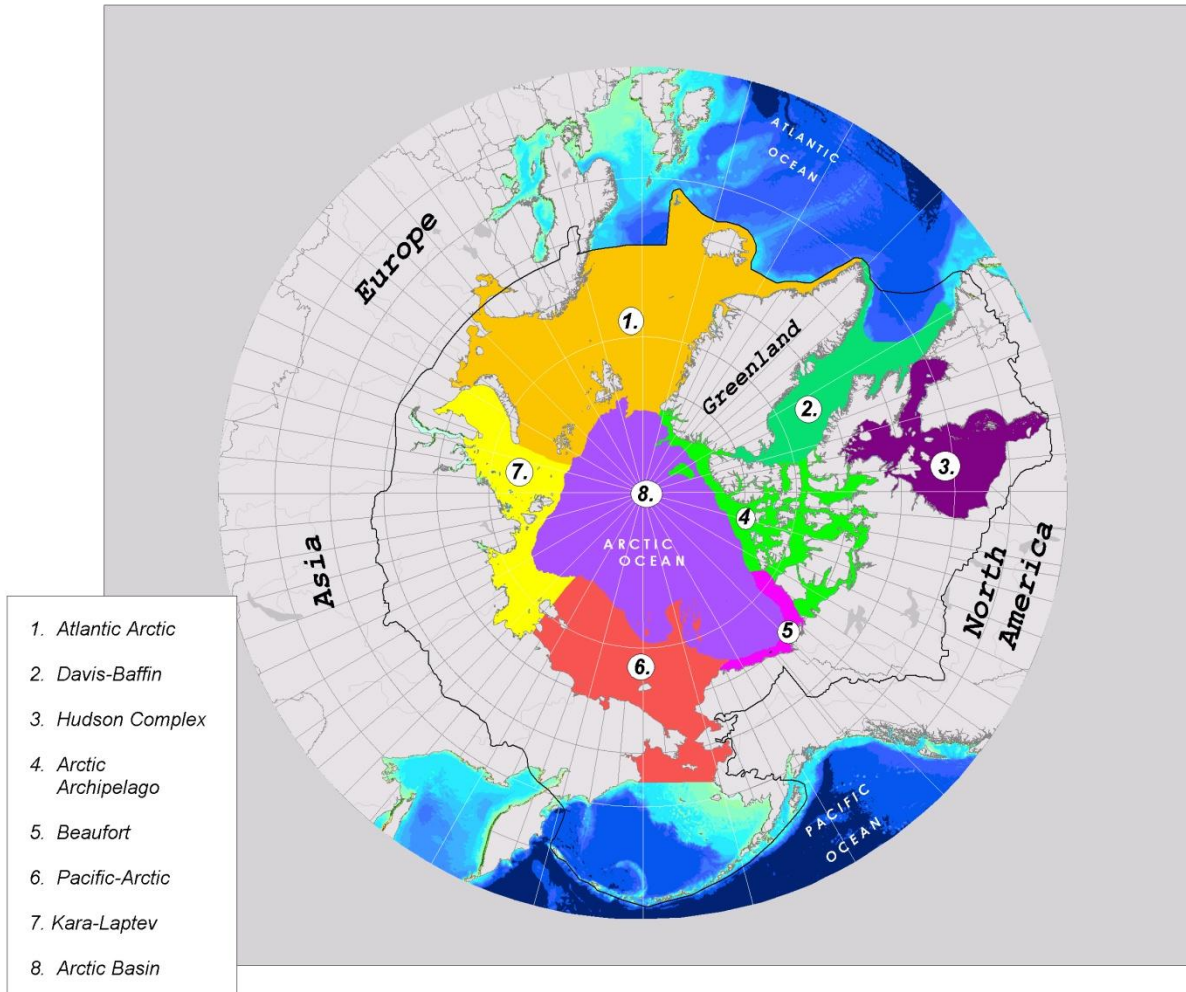
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Arctic Marine Areas



Parameters by Arctic Marine Area



EXAMPLE:

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Focal Ecosystem Components	Key Parameters	Existing Monitoring Programs	Coverage
Phytoplankton	Chlorophyll	Marine Basic Zackenberg	Zackenberg, East Greenland
		Barents Sea Ecosystem (IMR+PINRO)	Barents Sea from 68-80°N, 5°W to Novaya Zemlya
		Assorted (NPI)	Svalbard and MIZ region
		Assorted (ARCTOS, e.g. CLEOPATRA, Arctic Tipping points)	Barents Sea, Svalbard, MIZ
		White Sea Labs (Katesh - ZIN, WSBS -Moscow State)	White Sea

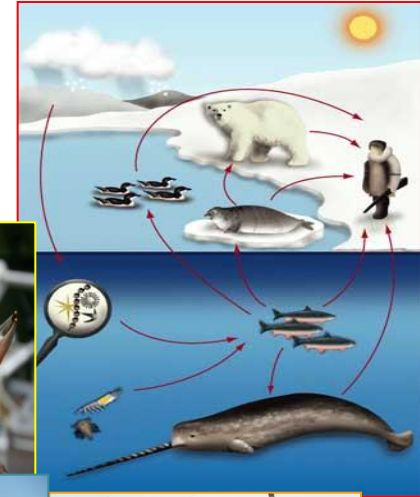


The most important drivers:

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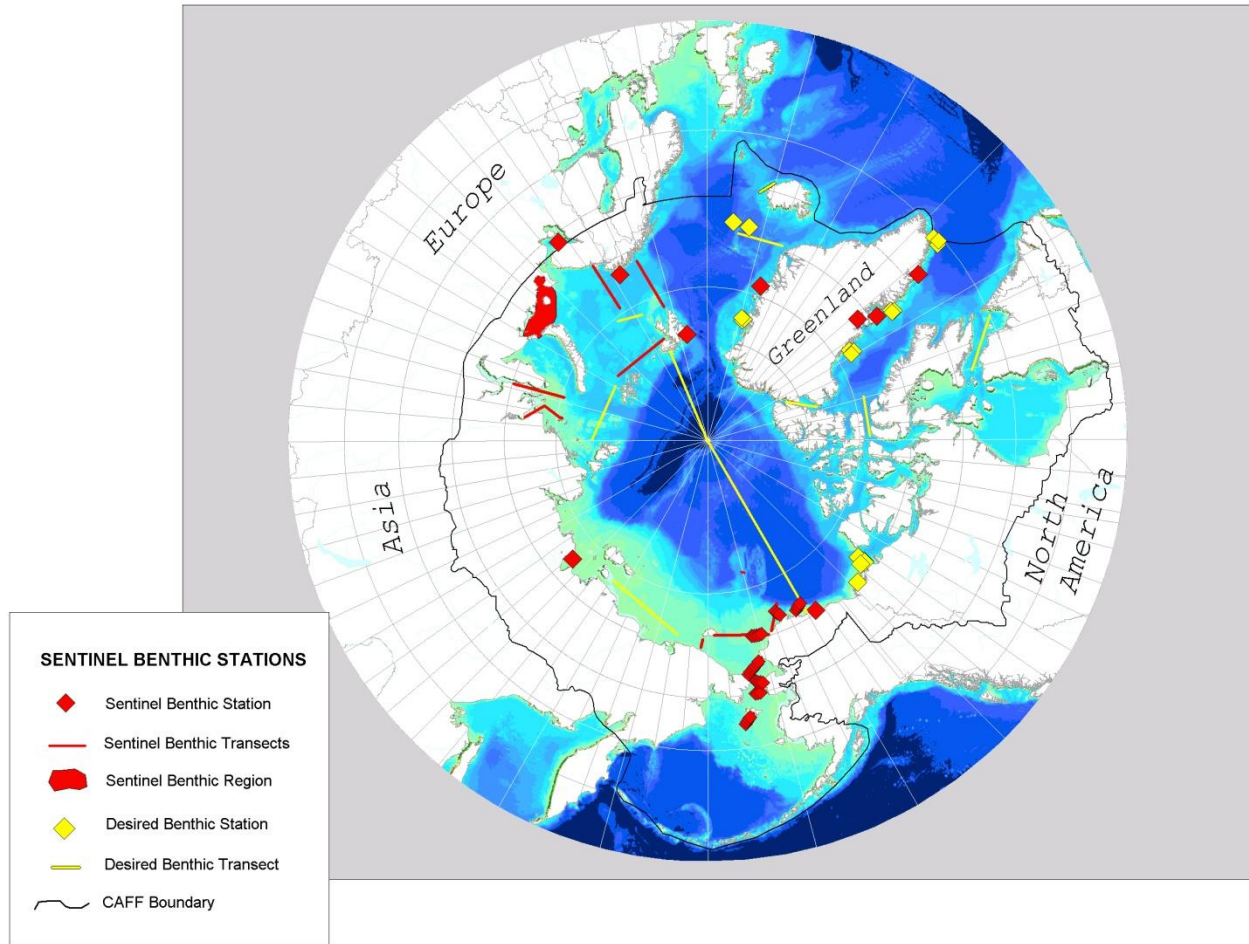


- ✓ **Environmental contamination** (i.e., long range transport of contaminants)
- ✓ **Invasive species** (non-native)
- ✓ **Increasing ship & air traffic**
- ✓ **Harvest**
- ✓ **Oil & gas exploration**
- ✓ **Climate change...**
...the most pervasive threat!



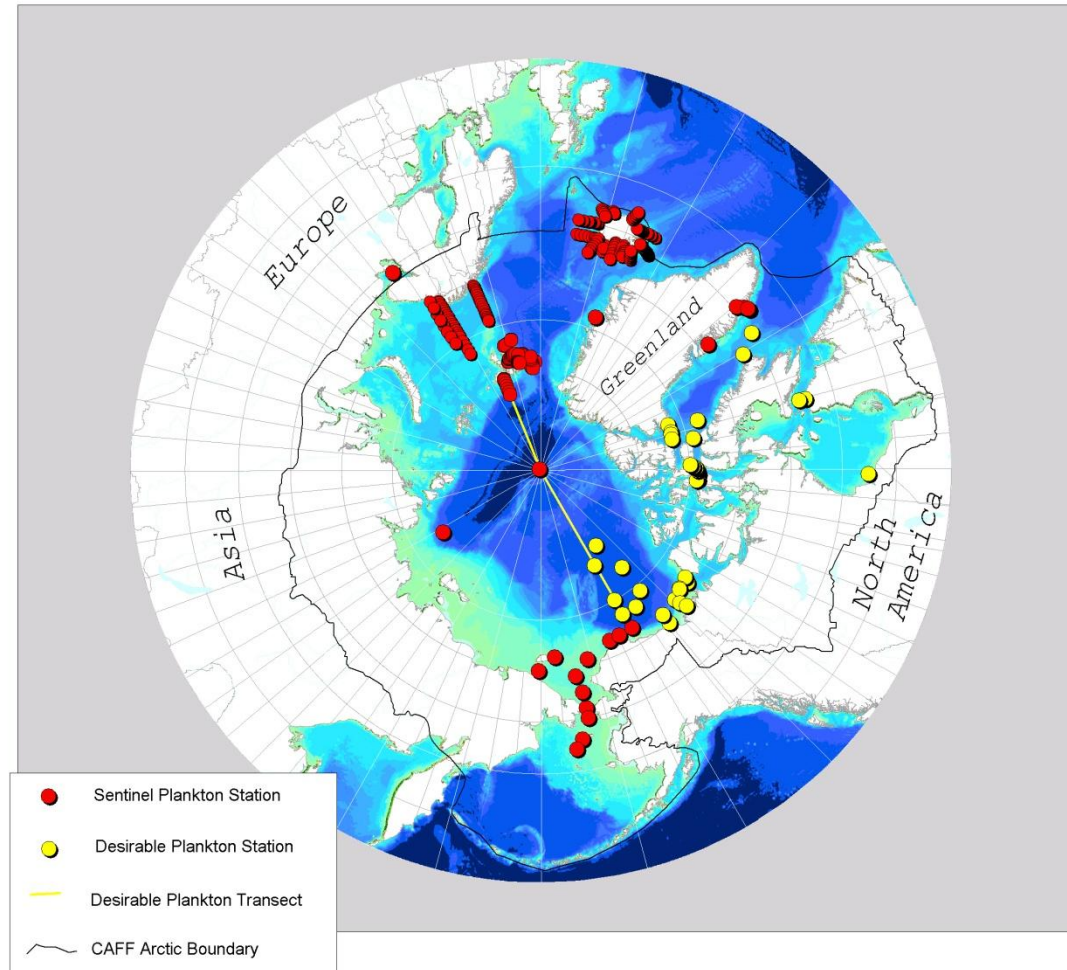
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Sentinel Benthic Regions, Stations and Transects



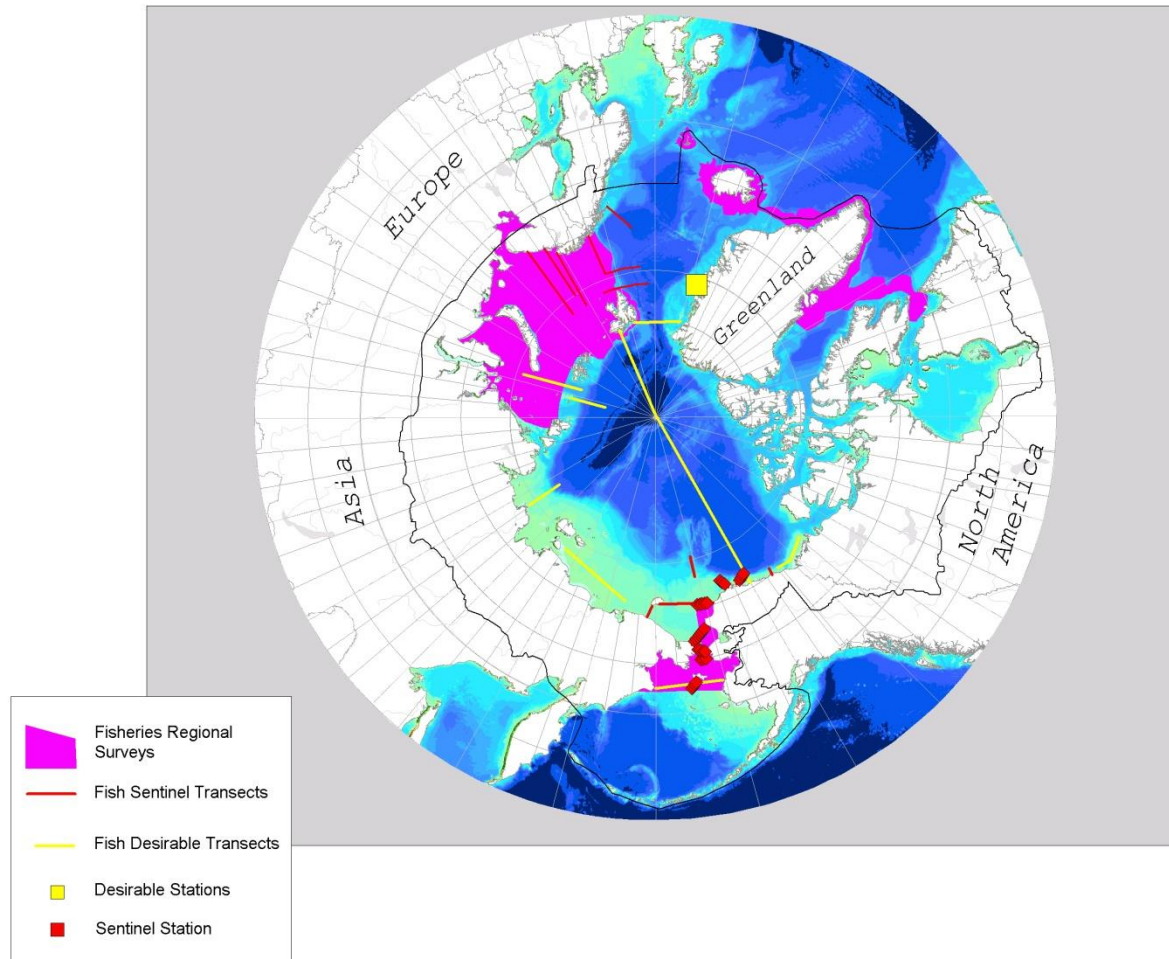
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Sentinel Plankton Stations and Transects



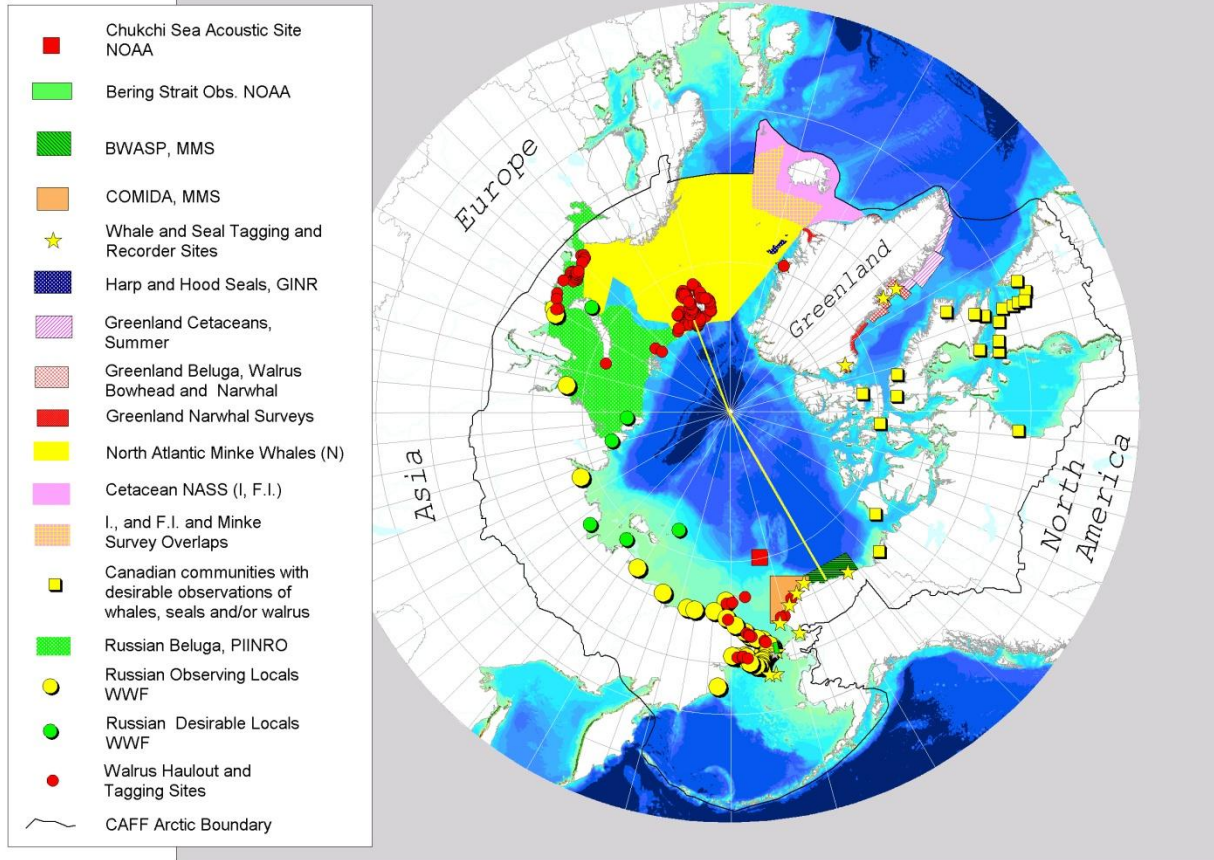
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Sentinel Fish Regions, Transects, and Stations



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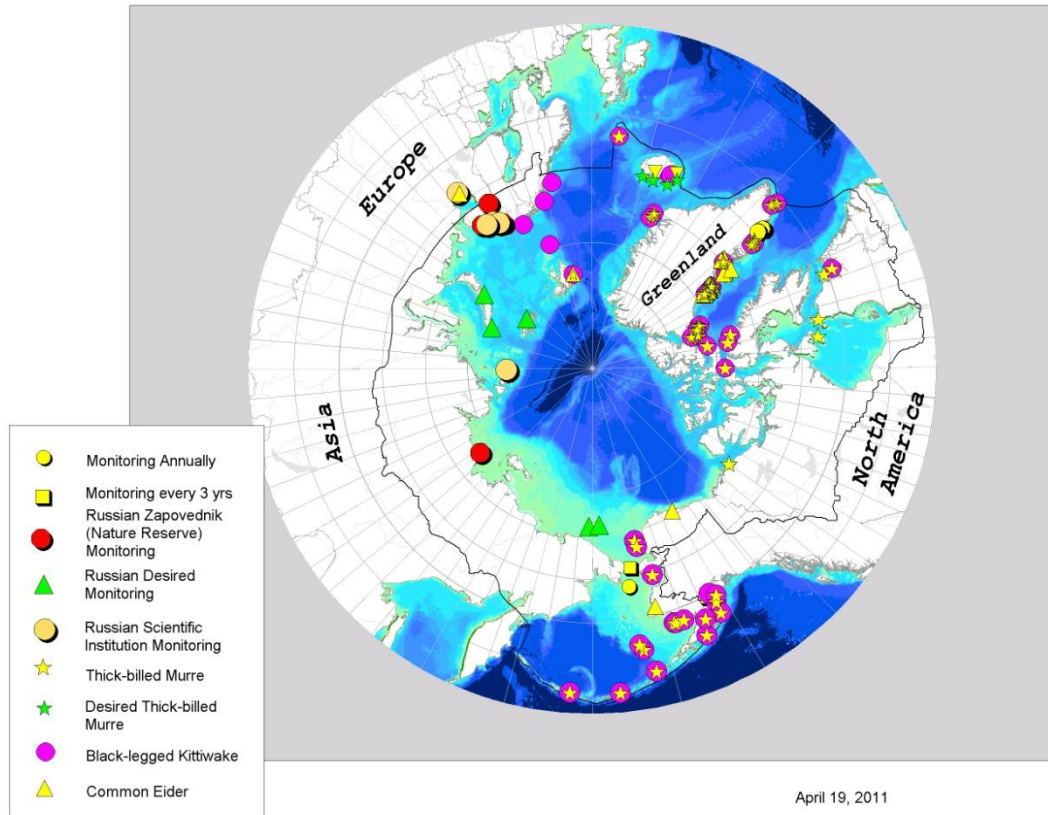
Sentinel Marine Mammal Regions and Tagging Sites



N., I., and F.I. (Norway, Iceland and Faroe Islands)

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Sentinel Seabird Monitoring Sites



April 19, 2011



Polar Bear Regions

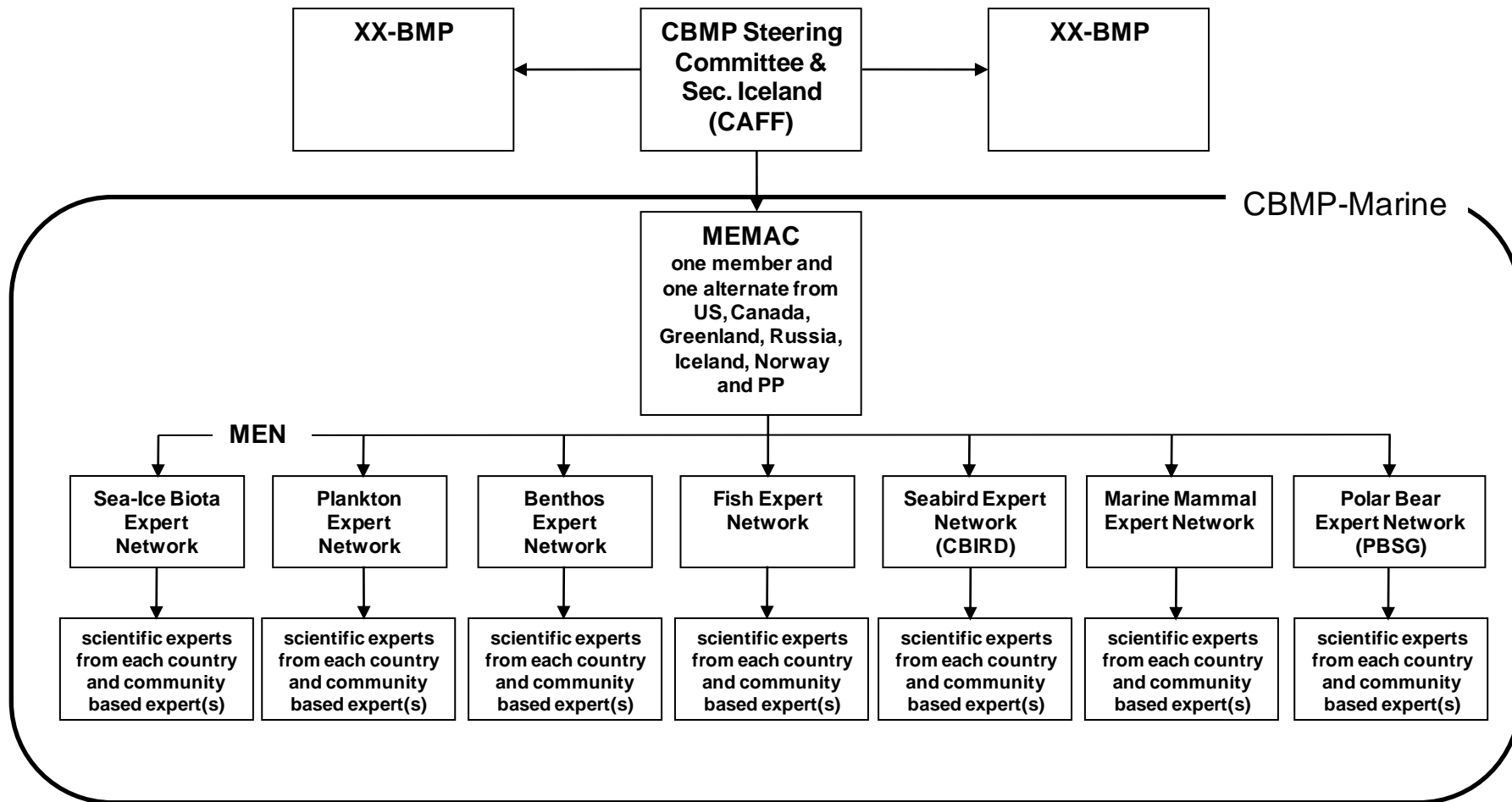


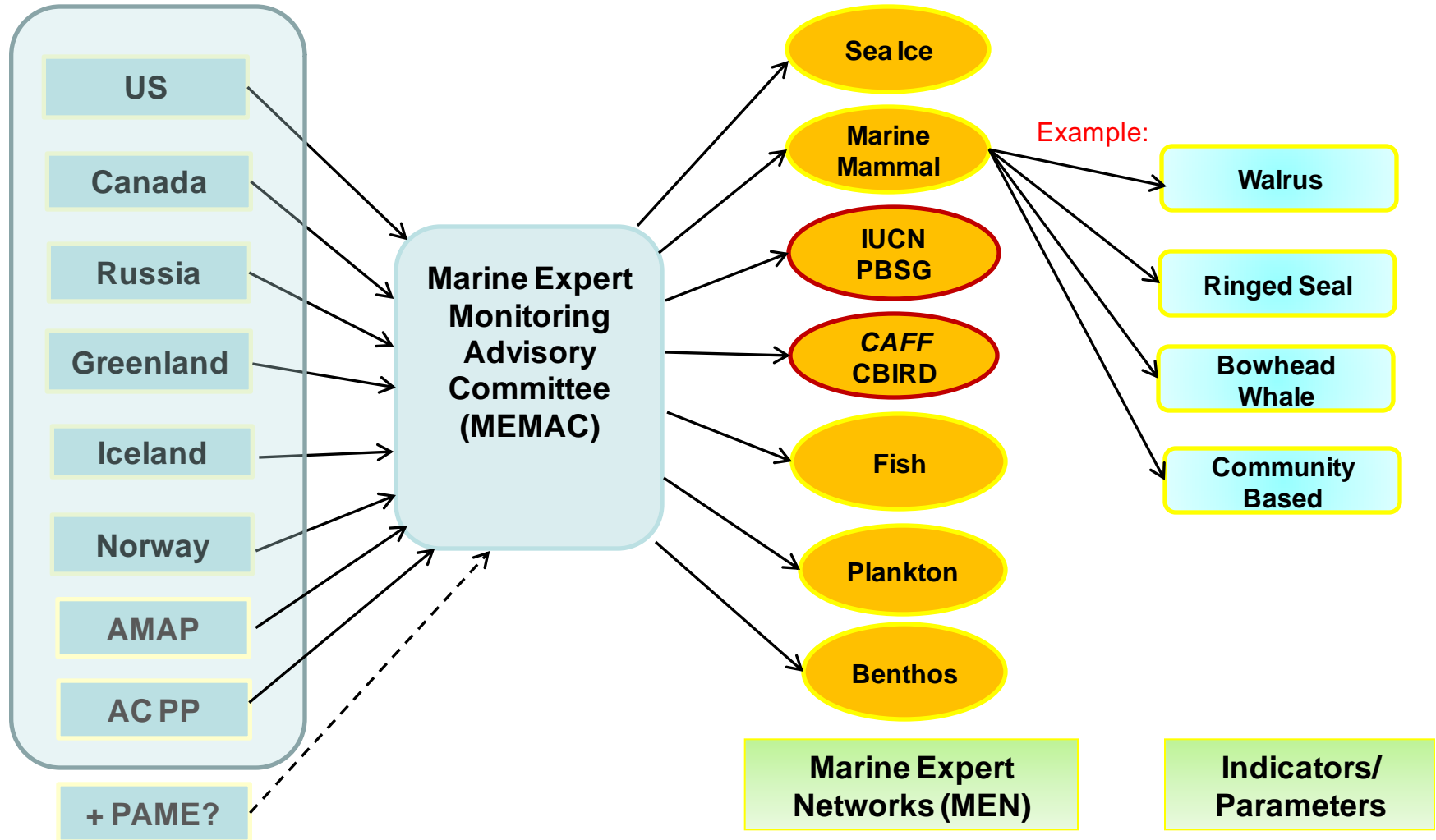
Data Management Approach

- Data Management (treatment, roles, financing, links to SAON, objectives, etc.)
- Functions of Data Management
- CBMP Web-Based Portal and Data Nodes
- Data formats agreed upon
- Current data in comparisons to historical baselines – trends
- Testing hypotheses about human induced changes



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Start up from 2011

- Marine Expert Networks (MEN's) **supported by the nations** will be established by the Marine Expert Monitoring Advisory Committee (MEMAC) (**supported by nations**)
- **Task:** Expert Networks will establish “baselines” from historical data
- **Task:** Expert networks will aggregate existing Pan Arctic data sets.



Circumpolar Marine Biodiversity Monitoring: *A Phased Approach to Planning & Implementation*

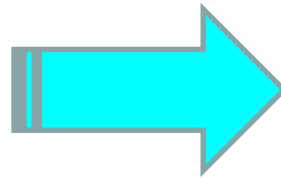
Phase 1 (2008-2011):

- ✓ Arctic Nations – Russia, USA, Canada, Greenland/Denmark, Iceland, & Norway

Phase 2 (2015 - TBD):

- ✓ Integration of Observer Countries into Phase 2 IMP
(*f. ex. PAG Member Nations: Japan, China, & Korea*)

Circumpolar Marine
Biodiversity
Monitoring Plan



**Sustaining Arctic
Observing
Network (SAON)**

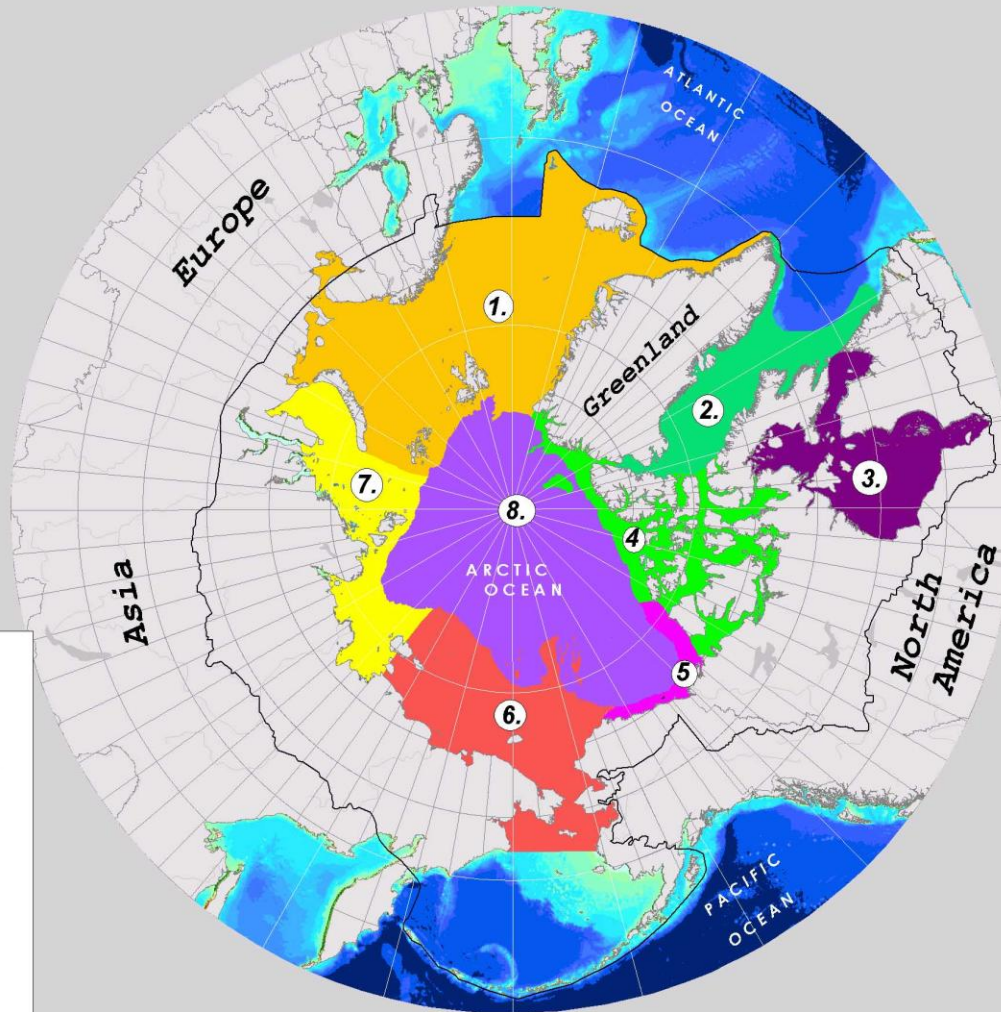
The SAON *vision* is that users should *have access to free, open & high quality data that will realize pan-Arctic & global value-added services & provide societal benefits.*

To attain that vision, SAON's *goal* is to enhance Arctic-wide observing activities by facilitating partnerships & synergies among existing 'building blocks', & promoting sharing & synthesis of data & information.

The CBMP MEMG directly supports the SAON vision & goal using the Circumpolar Marine Biodiversity Monitoring Plan as a tool to achieve this



Arctic Marine Areas

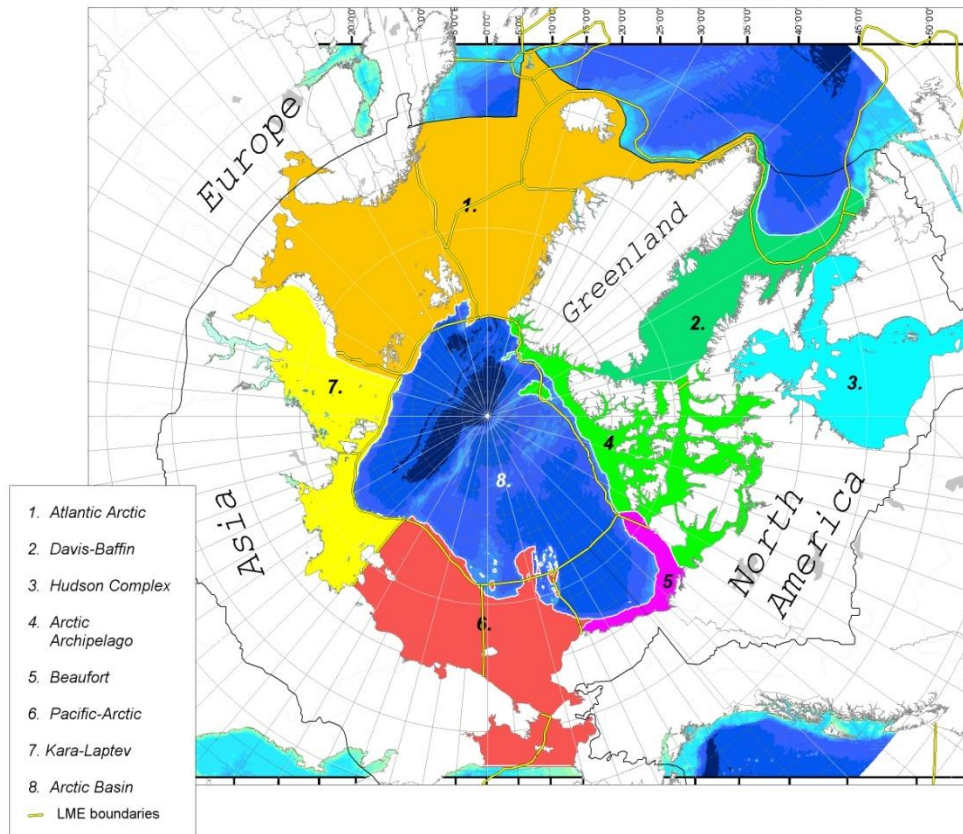


1. Atlantic Arctic
2. Davis-Baffin
3. Hudson Complex
4. Arctic Archipelago
5. Beaufort
6. Pacific-Arctic
7. Kara-Laptev
8. Arctic Basin

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LME's and AMA's

Focal Marine Areas- Compared to LME Boundaries



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