

From principles to practice: systematic conservation planning approach in the Arctic

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PAME Second EA International Conference
Bergen, Norway
25-27.06.2019





Outline

1. What is systematic conservation planning (SCP)?
2. SCP in the Arctic
3. Specifics:
 - A. *Systematic approach to data collection*
 - B. *Multiscale approach to the analysis*
 - C. *Dynamics and change in the Arctic Ecosystems*
 - D. *Connectivity issues*
 - E. *Post-Marxan analysis*
4. Next presentations



Systematic conservation planning approach (adapted from *Margules, Pressey, 2000*):

1. Identify conservation goals for the planning region
2. Compile data on the biodiversity of the planning region
3. Review existing conservation areas
4. Select additional conservation areas
5. Implement conservation actions
6. Maintain the required values of conservation areas

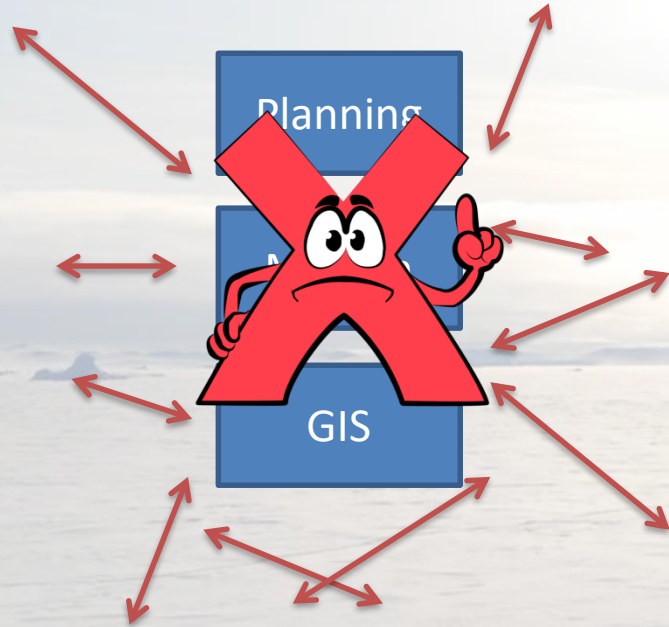


Systematic Conservation Planning in the Arctic Seas

- 1. Russian Arctic Seas (2014-2016)**
- 2. The Pechora Sea (2017-2018)**
- 3. MECCEA (Marine Ecological Conservation in the Canadian Eastern Arctic) (2017-2019)**
- 4. Russian Far East Seas (2018 - ...)**
- 5. PAMPAN (Pan-Arctic Marine Protected Areas Network) (2017 - ...)**



Systematic Approach to Data Collection



Thematic groups:

Benthos

Plankton

Fish

Birds

Mammals

Analytics:

Planning

Marxan

GIS

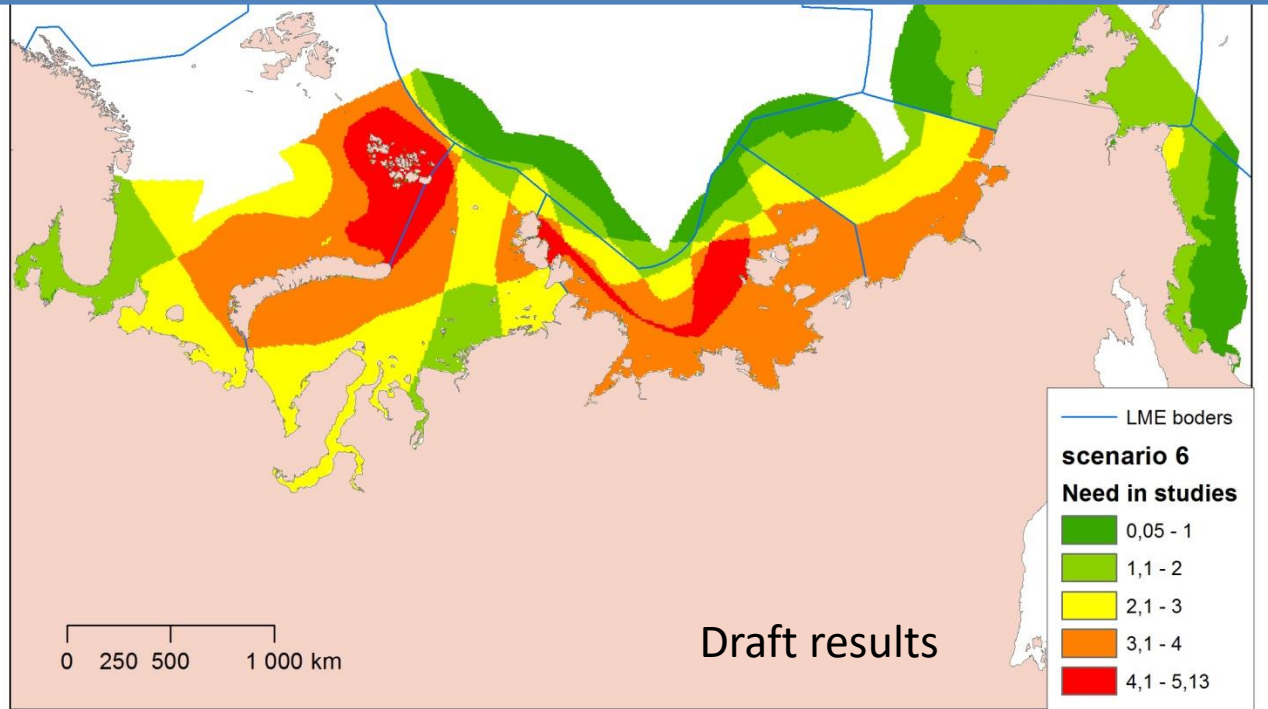




Gap analysis of data: selection of Research Priority Areas

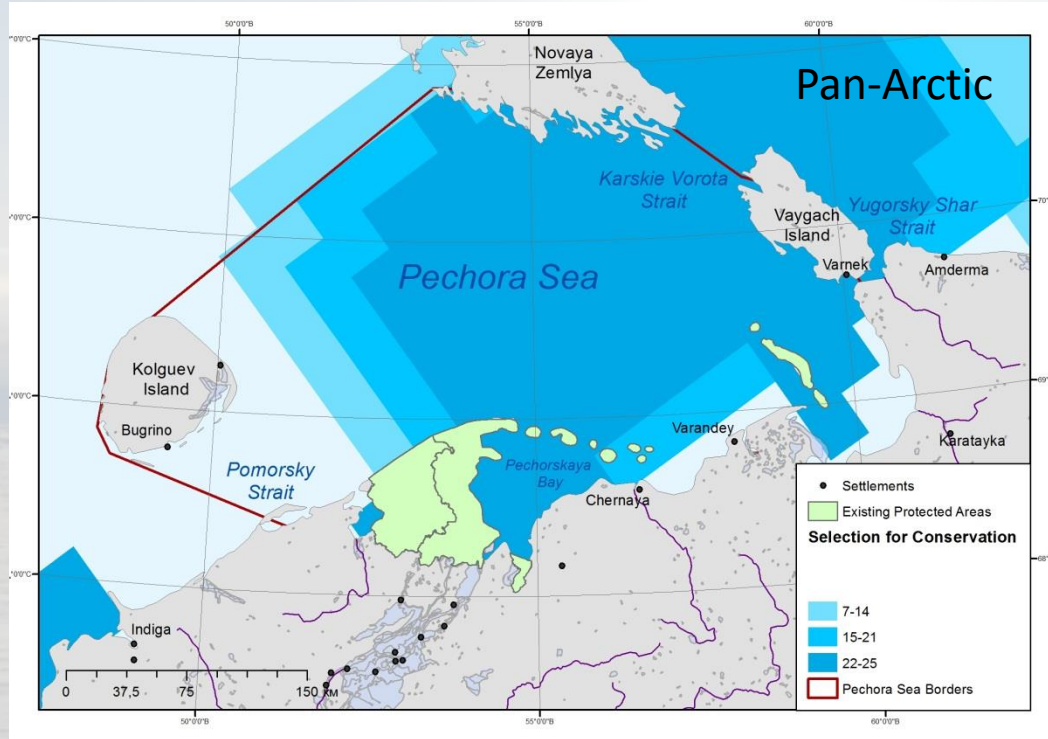
1. Issue of gaps in biological and oceanographic data
2. Need to identify these gaps in a systematic way
3. We are currently developing and testing a toolbox for identification of Research Priority Areas based on Systematic Conservation Planning Approach

Research priority areas for 6 Arctic marine mammals species:
Bowhead whale, beluga, narwhal, ringed seal, bearded seal and walrus





Multiscale approach to the analysis



Identification of Priority Areas for Conservation at **global, national and regional scale**

How should conservation measures be integrated?



Multiscale approach to the analysis

A HIERARCHY OF HABITATS - *TABULA RASA* FOR MARINE CONSERVATION

John Roff and Boris Solovyev

Aquatic Conservation: Marine and Freshwater Ecosystems, submitted

Table 1. A marine conservation hierarchy. A spatial planning framework for multiscale marine conservation studies, adapted from concepts and classification systems of Roff and Taylor 2000, Butler et al. 2001 and Last et al 2010.

Level	Scale, km	Name	Representative			Distinctive	
			Description	Example	Name	Description	Example
1	1000s	Province	Largest oceanic areas of biogeographically defined character	Arctic Ocean	Species range	Ranges of focal species	Thick-billed murre (<i>Uria lomvia</i>)
2	100s to 1000s	Region	Distinct suite of oceanographic, topographic, and/or biological features	MEOW, LME, bioregion	Subspecies, Populations ranges	Ranges, distribution areas of populations or subspecies of focal species	<i>Uria lomvia</i> arra, <i>Uria lomvia</i> eleonora
3	10s to 100s	Type of seascape	A. Sympagic	Regional fast ice zone, polynyas	A. Seasonal habitats of populations, subspecies	Spawning areas, feeding grounds, breeding grounds	Wintering areas of Anadyr beluga whales
			B. Pelagic	Regional water masses			
			C. Benthic	Continental shelf, slope; substrate type			
			D. Coastal	Accumulative, abrasive types of coasts; bays, estuaries, lagoons; littoral types	B. Seascape type of distinctive value	Some units of regional. having special importance under the	Polynyas as areas of high productivity



Dynamics and change in the Arctic Ecosystems

Dynamic features are a part of the Arctic system and in the changing Arctic many of them may become even more dynamic.

Received: 26 January 2017

Revised: 12 May 2017

Accepted: 22 May 2017

DOI: 10.1002/aqc.2807

WILEY

Aquatic Conservation: Marine and Freshwater Ecosystems. 2017; 27 (S1)

Importance of oceanographical background for a conservation priority areas network planned using MARXAN decision support tool in the Russian Arctic seas

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Dynamics and change in the Arctic Ecosystems

1. Systematically planned networks of MPAs and other area-based conservation measures are able to protect dynamic and changing environment much better than individually designed single protected areas.
2. Area-based conservation measures have a limited ability for conservation in a rapidly changing environment
3. There is a need in development of new and flexible innovative tools for conservation and management





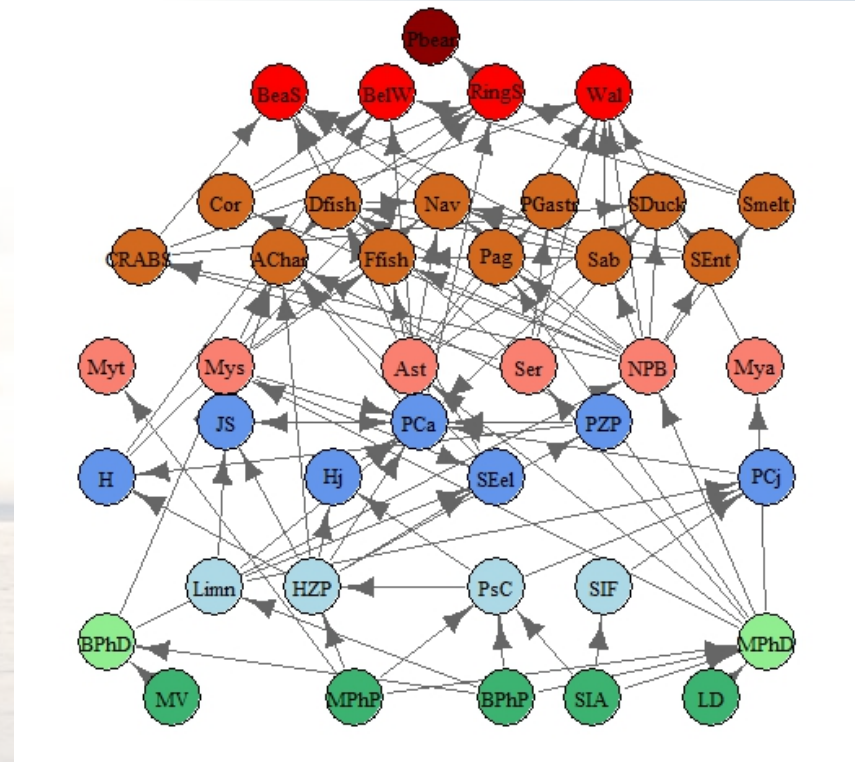
Connectivity issues

1. Geographic connectivity

A) Drifters

B) Active swimmers

2. Trophic connectivity



Central part of the Pechora Sea, V. Spiridonov et al.



Next presentations

1. Martine Giangioppi “Marine Ecological Conservation in the Canadian Eastern Arctic (MECCEA): A project to identify Priority Areas for Conservation (PACs).”
2. Martin Sommerkorn “The Pan-Arctic Marine Protected Area Network initiative and its contribution to implementing the Ecosystem Approach to Management in the Arctic”
3. Boris Solovyev “Systematic conservation planning for ecosystem based approach to management: case study from Pechora Sea”
4. Boris Solovyev “EA Implementation in Russian Arctic”
5. Vasily Spiridonov “Indicators of vulnerable benthic biotopes in the Arctic Ocean”



Thank you for your attention!

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