Systematic conservation planning for ecosystem based approach to management: case study from Pechora Sea

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MPAs and EBM

1. Create new MPAs and expand existing MPAs
2. Develop other area-based Conservation Measures
3. Advance from identification of Conservation Priority Areas to Ecosystem Approach to Management

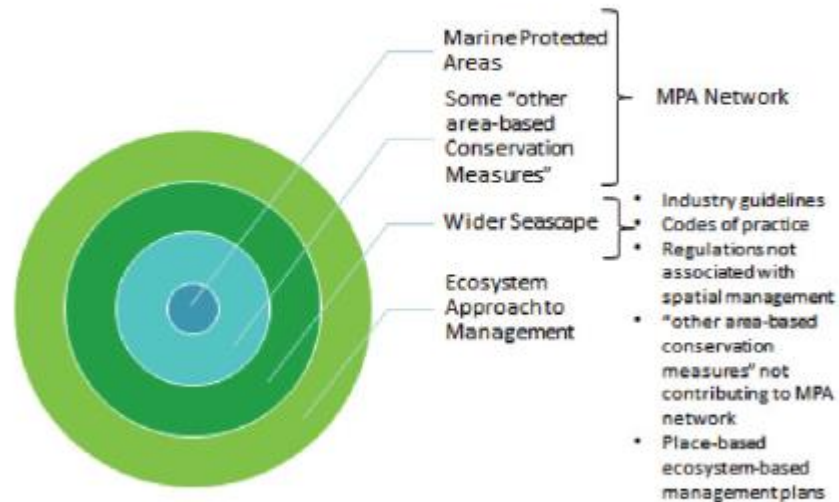**MPA Networks as Part of an Ecosystem Approach to Management**

- Marine Protected Areas ⎤
- Some "other area-based Conservation Measures" ⎦ MPA Network
- Wider Seascape
- Ecosystem Approach to Management

- Industry guidelines
- Codes of practice
- Regulations not associated with spatial management
- "other area-based conservation measures" not contributing to MPA network
- Place-based ecosystem-based management plans

Figure 3. Relationship between MPAs, "other area-based conservation measures," wider seascape and an ecosystem approach to management.

*Page 13, Framework for a Pan-Arctic Network of Marine Protected Areas, PAME, April 2015

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The goal of the project

Develop a spatially explicit biodiversity basis for ecosystem based management and marine spatial planning in the Pechora Sea

1. To identify areas of highest importance for biodiversity
2. To identify vulnerability of the biodiversity to the specific threats and integral vulnerability
3. To inform future marine spatial planning and ecosystem based management
4. To develop and test the methodology
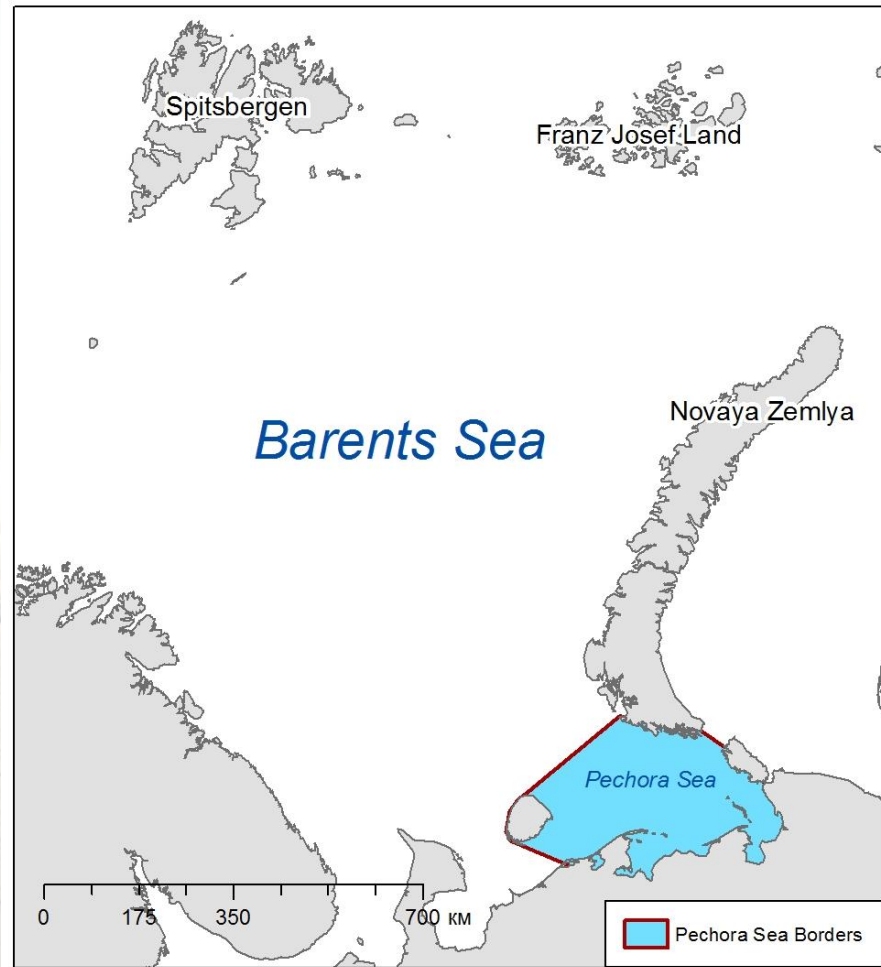
Why was Pechora Sea chosen for the analysis?

1. Relatively compact and well-studied area
2. Area of high biological importance as identified by many analyses (EBSA, AMAP etc)
3. Area of high economic importance
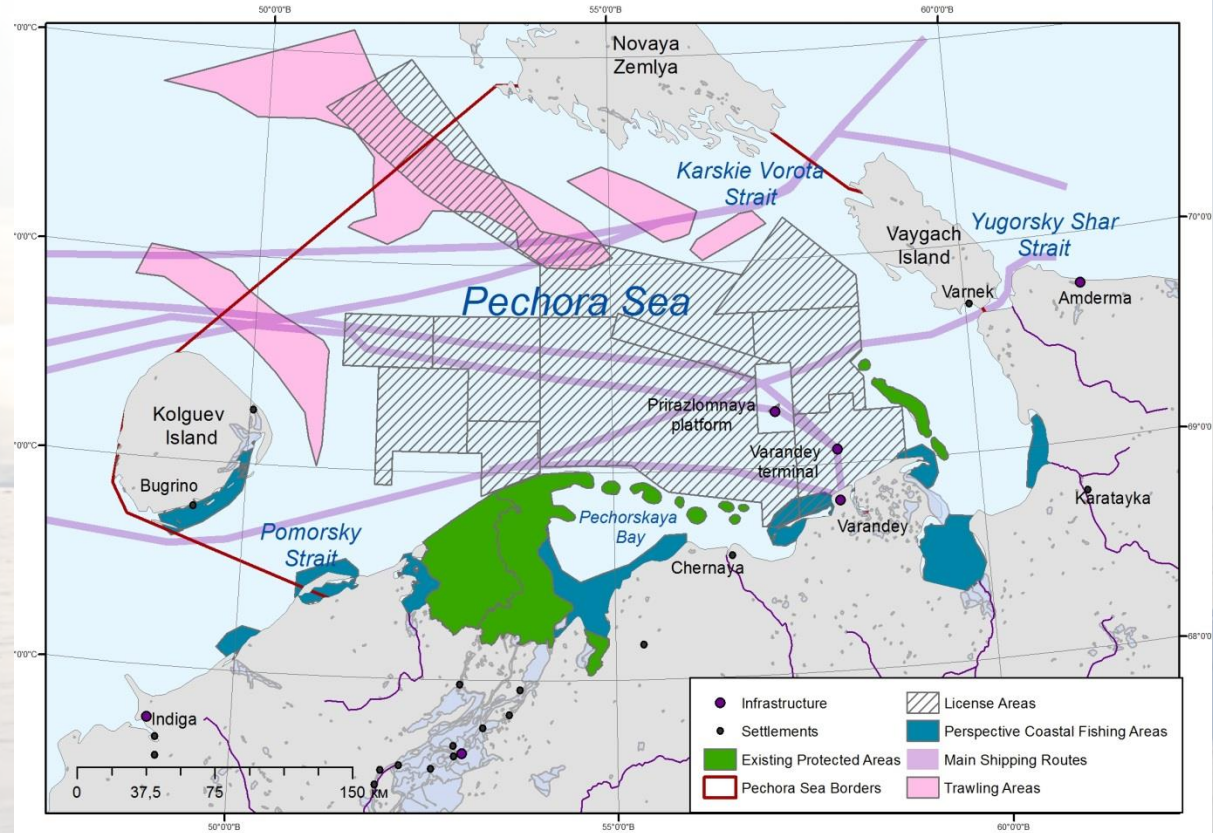
Identify conservation goals for the planning region

Criteria for selection of conservation features:

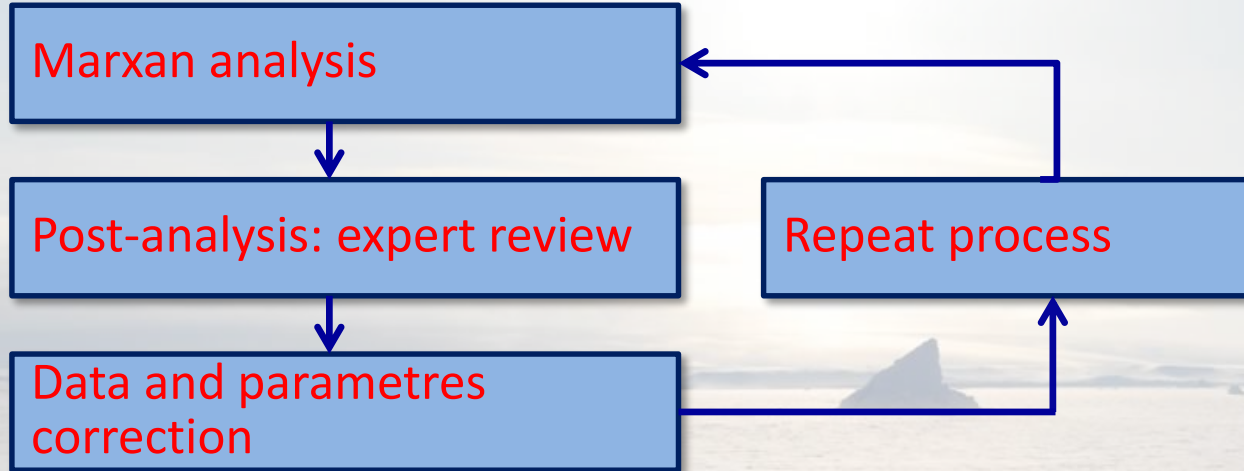| |
|---|
| **Uniqueness or rarity** |
| **Special importance for life history stages of species** |
| **Importance for the threatened, endangered or declining species and/or habitats** |
| **Vulnerability, fragility, sensitivity, or slow recovery** |
| **High biological productivity** |
| **High biological diversity** |
| **Representativity of biotopes** |
| **Genetic diversity (representativity of geographical forms, populations, subpopulations etc.)** |
| **Maintenance of functions/structures of ecosystems** |
| **Species and areas of special importance for indigenous peoples / communities** |

International criteria (CBD EBSA/ IUCN MPA/IMO PSSA)

Data collection

	Number of biotopes and communities	Number of species	Total number of Conservation Features
Marine mammals	-	4	8
Seabirds and waterfawl	5	9	19
Fishes	4	8	17
Pelagic features	7	-	8
Benthos	12	-	12
Seascapes	-	-	6

Analysis

Marxan analysis

Post-analysis: expert review

Data and parametres correction

Repeat process

- Transparent
- Open
- Iterative

Show 20 ▼ entries

Search:

CF	Name	Representation of selection ▼	Target	Target achievement for Pan-Arctic area	Target achievement for selection	Proportion of target achievement in selection
7245	Pechora Sea kelp patches (13-14)	0.5000	1.0000	100.00%	50.00%	0.5000
6020	Long-tailed duck (Clangula hyemalis) North East Atlantic moulting&migration stopovers	0.3106	0.4960	115.87%	31.95%	0.2757
8025	intertidal zone of the Barents Sea LME	0.1332	0.3200	171.49%	14.56%	0.0849
3012	Fast ice distribution in the Pechora Sea	0.0859	0.0800	832.48%	57.57%	0.0692
7076	I.1.3.4. Estuaries and lagoons	0.0314	0.7983	104.04%	0.34%	0.0033
7049	Pechora Sea - Baidara Bay transitional zone	0.0248	0.2660	267.03%	4.75%	0.0178
6061	Common eider (Somateria mollissima mollissima) SE Barents and Kara Sea breeding&moulting grounds	0.0222	0.3840	158.22%	2.95%	0.0187
4020	Feeding area of the White-sea vendace (Coregonus sardinella marisalbi) (F21)	0.0189	0.4000	203.41%	2.41%	0.0119
7064	I.1.1.1. Coastal domain in the Barents Sea	0.0149	0.1827	342.08%	4.32%	0.0126

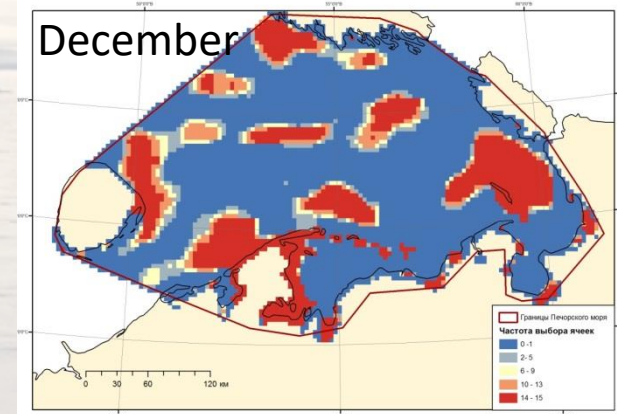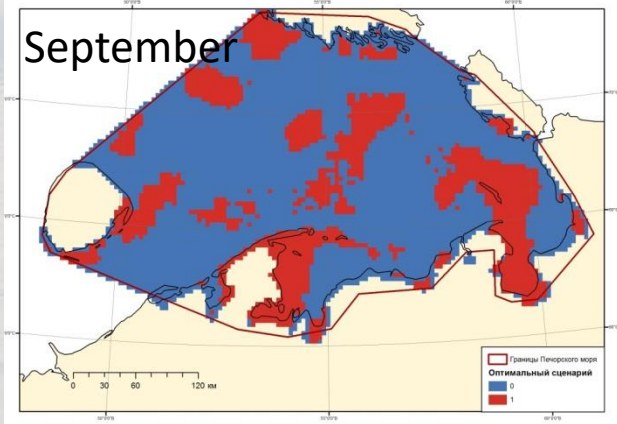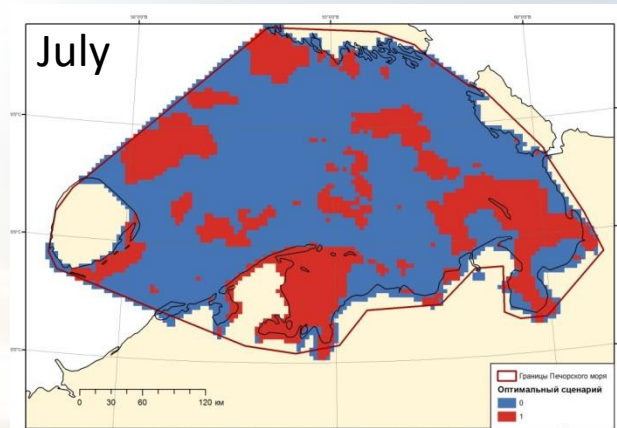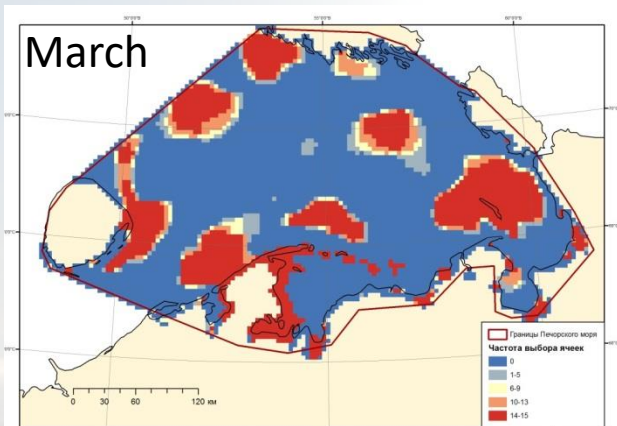Leaflet | © OpenStreetMap contributors, CC-BY-SA

https:/

50 km
50 mi
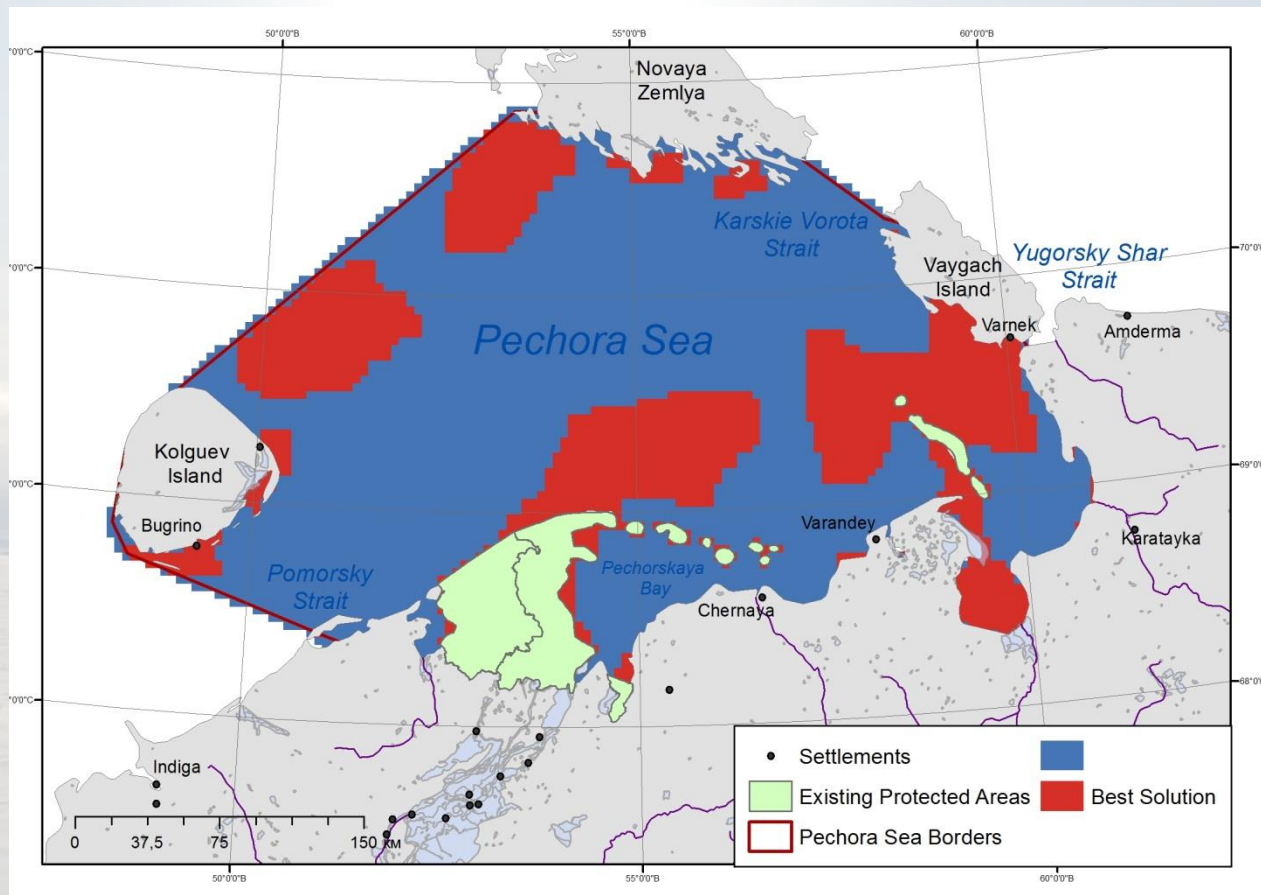
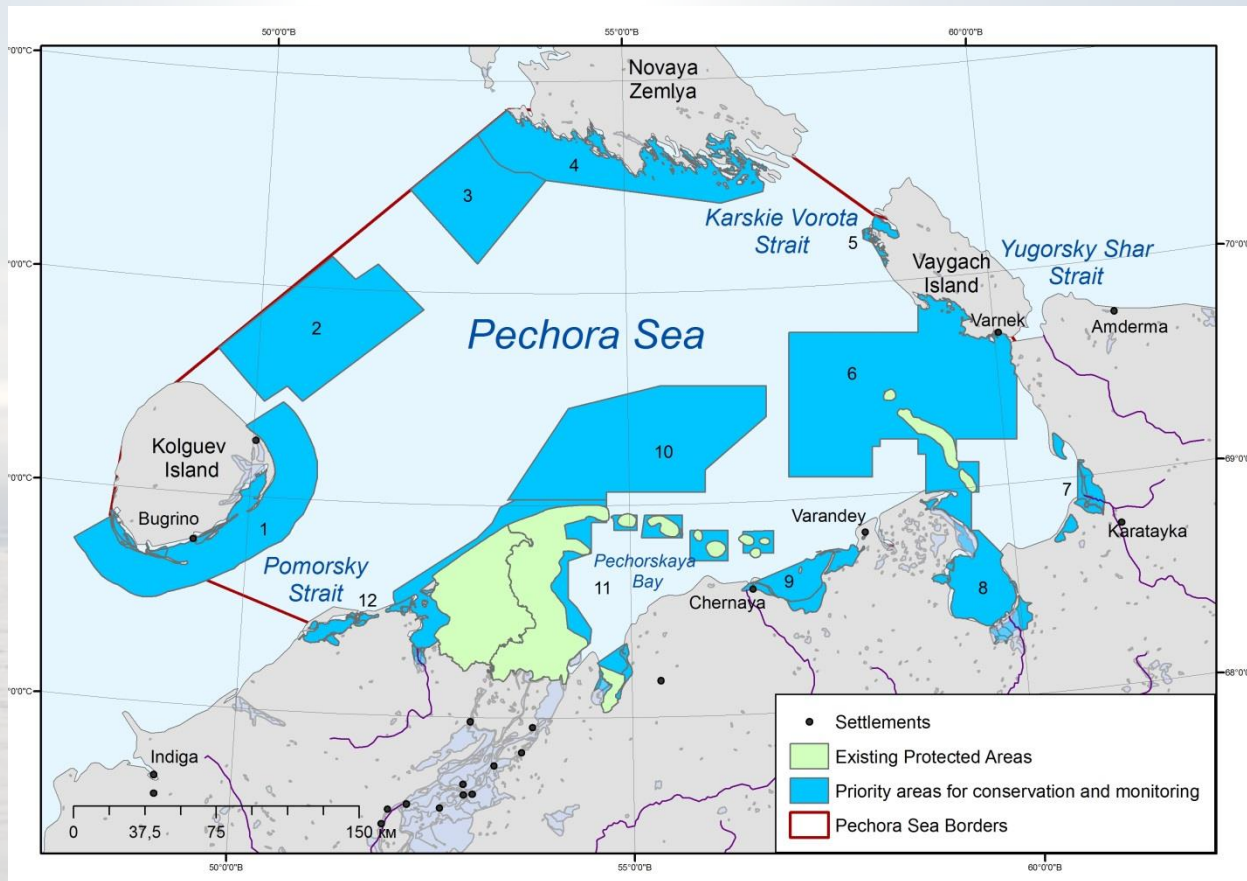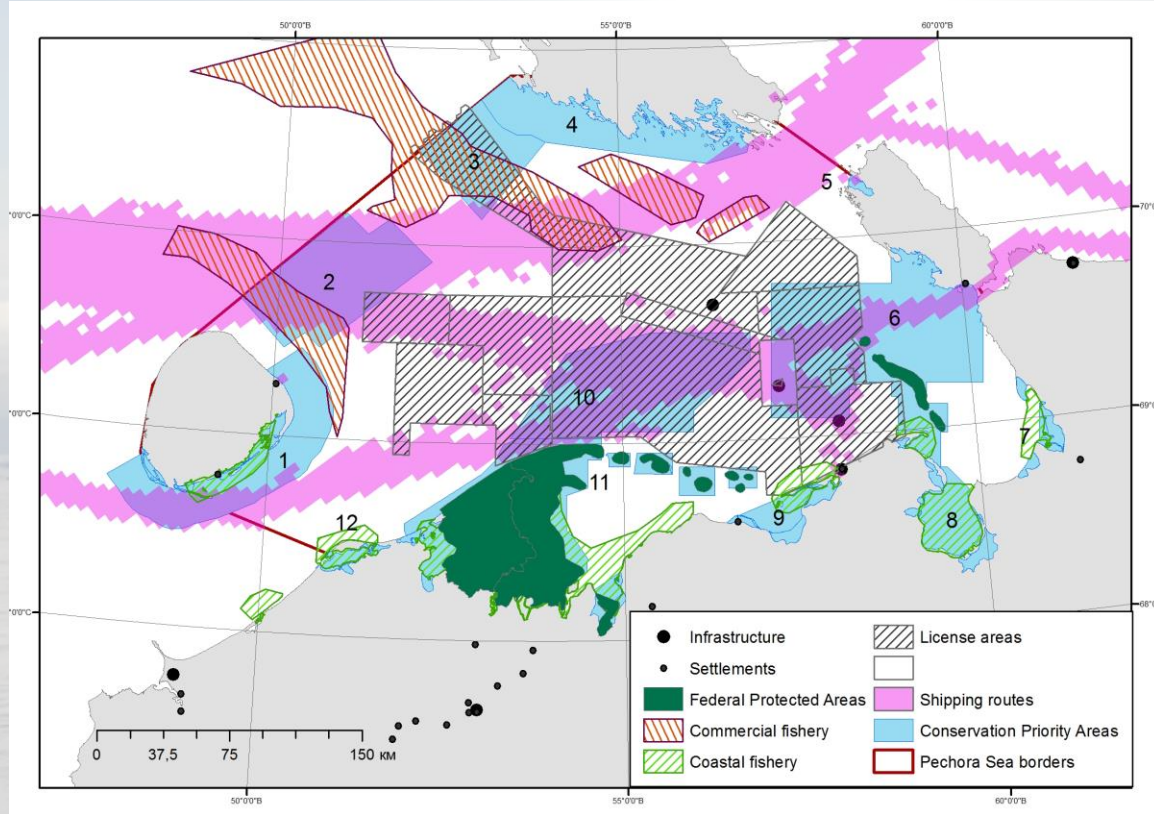# Seasonal scenarios to identify priority areas for conservation

Marxan outputs: final scenario

Priority areas for conservation in the Pechora Sea

Priority areas for conservation in the Pechora Sea and economic activities cannot be significantly separated

Vulnerability analysis

From sources (economic activities)

From conservation features (vulnerabilities)

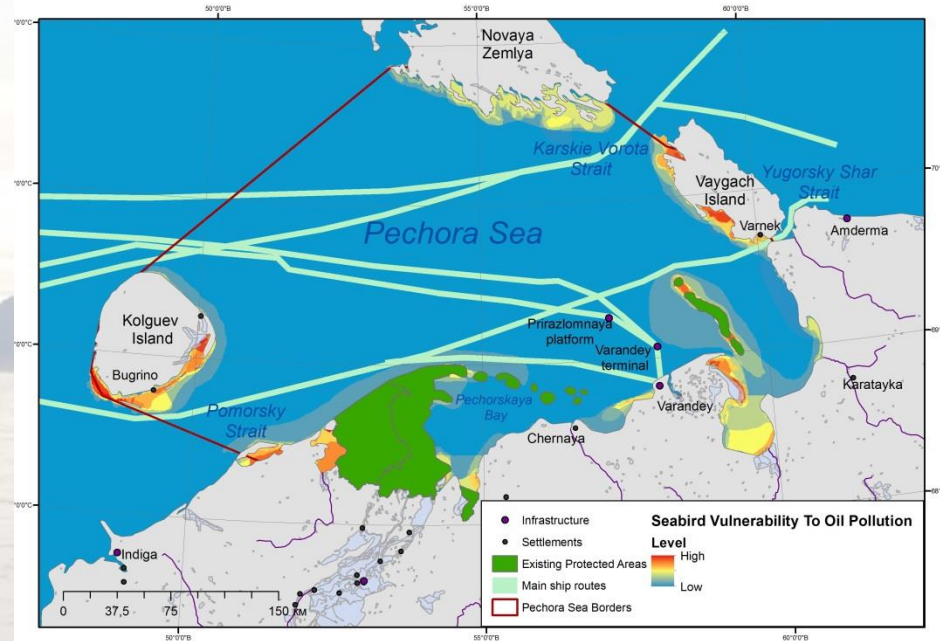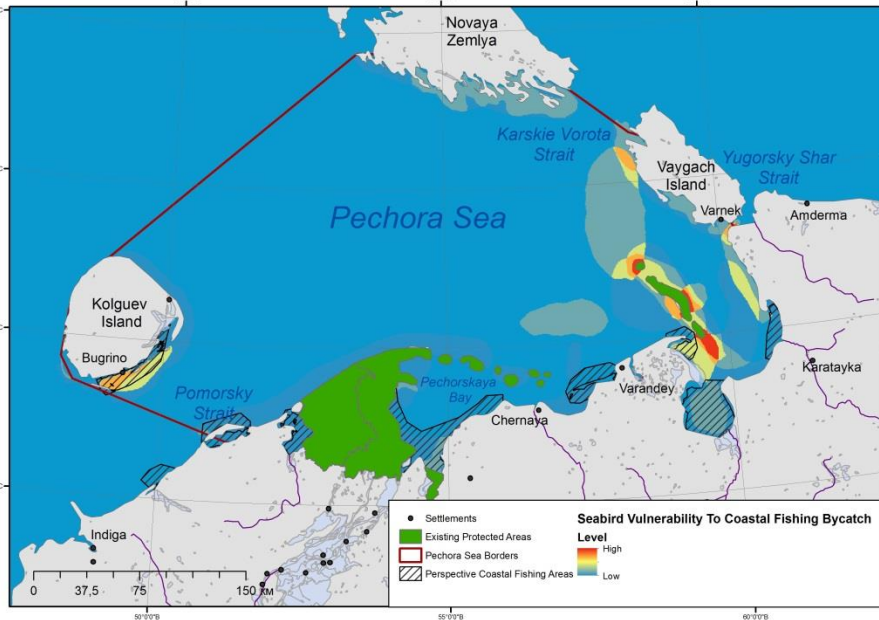For threat detection and management

To identify critical habitats and seasons
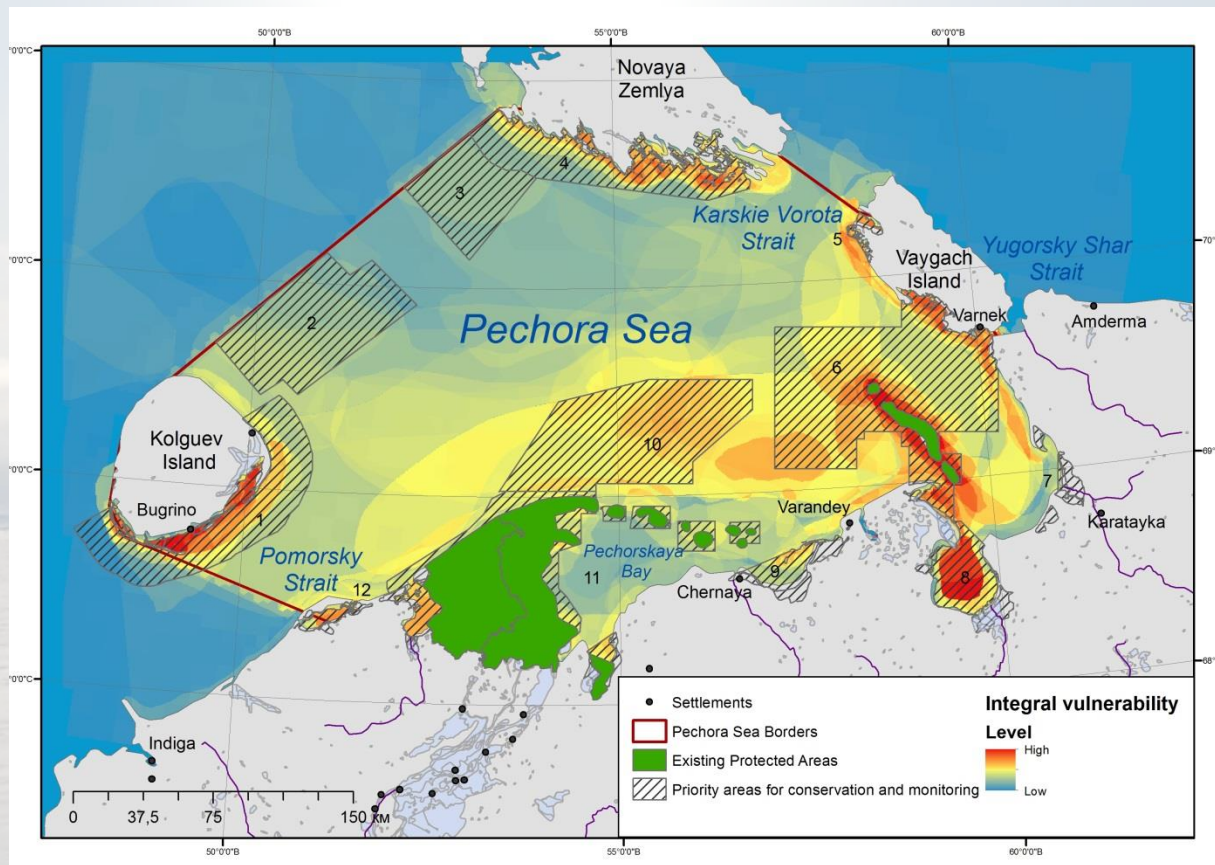
Spatial planning

Vulnerability to particular threats

Seabird vulnerability to coastal fishing bycatch

Seabird vulnerability to oil pollution

Integral vulnerability and PACs

Conclusions:

1. The systematic conservation planning approach we used and continue to develop provides us with transparent, replicable and adaptable process for defining the spatially explicit biodiversity basis for marine spatial planning

2. Pechora Sea is an excellent candidate region for pilot marine spatial planning and integrative ecosystem-based management plan

3. When significant separation of conservation priority areas and economic activity hotspots is not possible, specific sets of management measures should be defined for particular conservation priority areas and zones of conflicts

4. Systematic vulnerability assessment is needed both for ecosystem based management and for an industry regulations. Systematic vulnerability assessment helps to choose conservation measures adequately.

Thank you for your attention!

Integration of systematic conservation planning in Marine Spatial Planning in the Pechora Sea Project:

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