Designing network of MPA in the Russian Arctic to support ecosystem resilience.

Irina Onufrenya

Before support resilience…..

MPA Network should be build.

Resilient

to/for what?

- Biodiversity loss:
  - species
  - ecosystems/seascapes
  - processes/services?

- Nature use and anthropogenic impact?
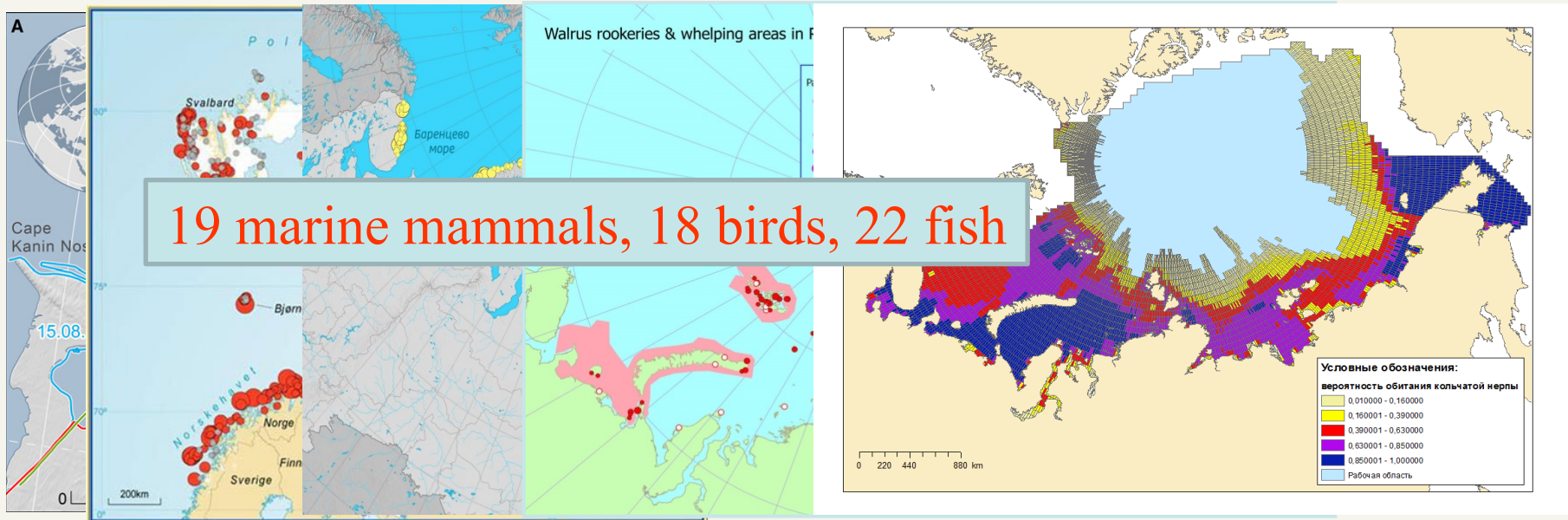
- Governance?

- Climate change?

how to manage?

- MPAS

- Other areas

- Efficiency

- Management

- Governance

Resilient to/for Biodiversity loss

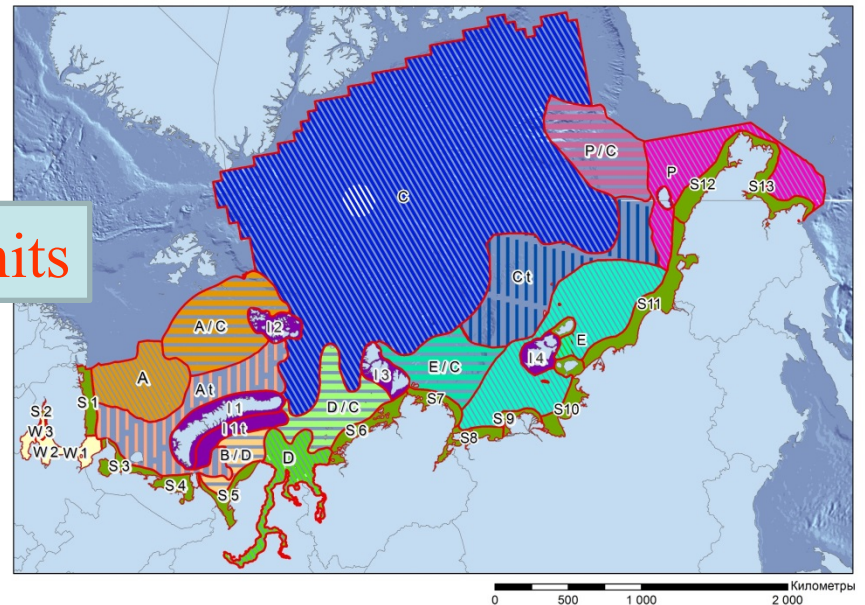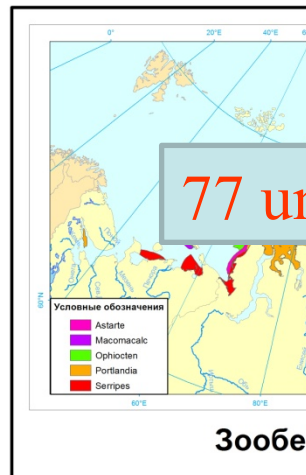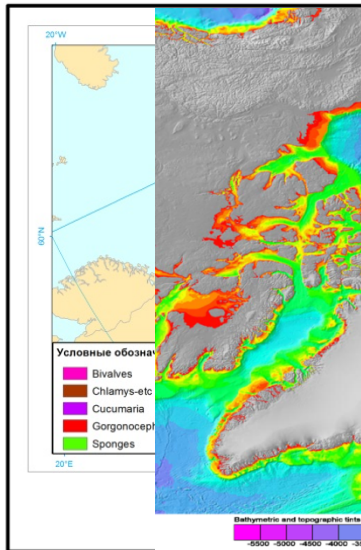## Species representation and sufficiency

- Uniqueness or rarity

- Genetic diversity

- All levels of trophic pyramid

- Vulnerability, fragility, sensitivity, or slow recovery

- Special importance for local people/ industrial fishing…

19 marine mammals, 18 birds, 22 fish

Walrus rookeries & whelping areas in R

Условные обозначения:
вероятность обитания кольчатой нерпы

- 0,010000 - 0,160000
- 0,160001 - 0,390000
- 0,390001 - 0,630000
- 0,630001 - 0,850000
- 0,850001 - 1,000000
- Рабочая область

Resilient to/for Biodiversity loss

Ecosystems/communities
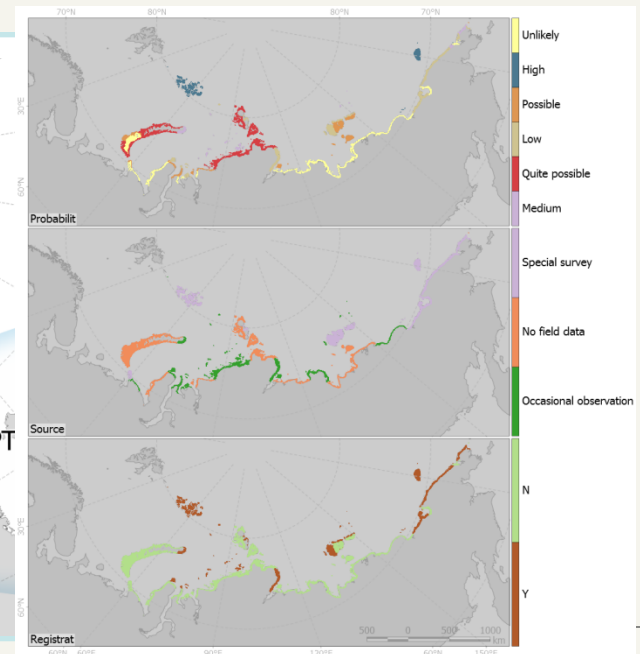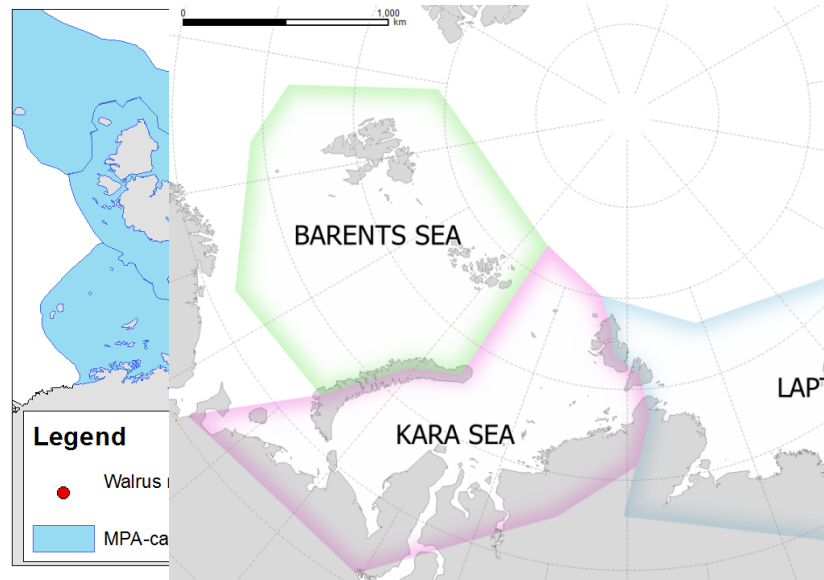### representation and sufficiency

- Biogeographical units

- Biological productivity / diversity

- Benthic/Pelagic biotopes

- Vulnerable marine ecosystems…

77 units

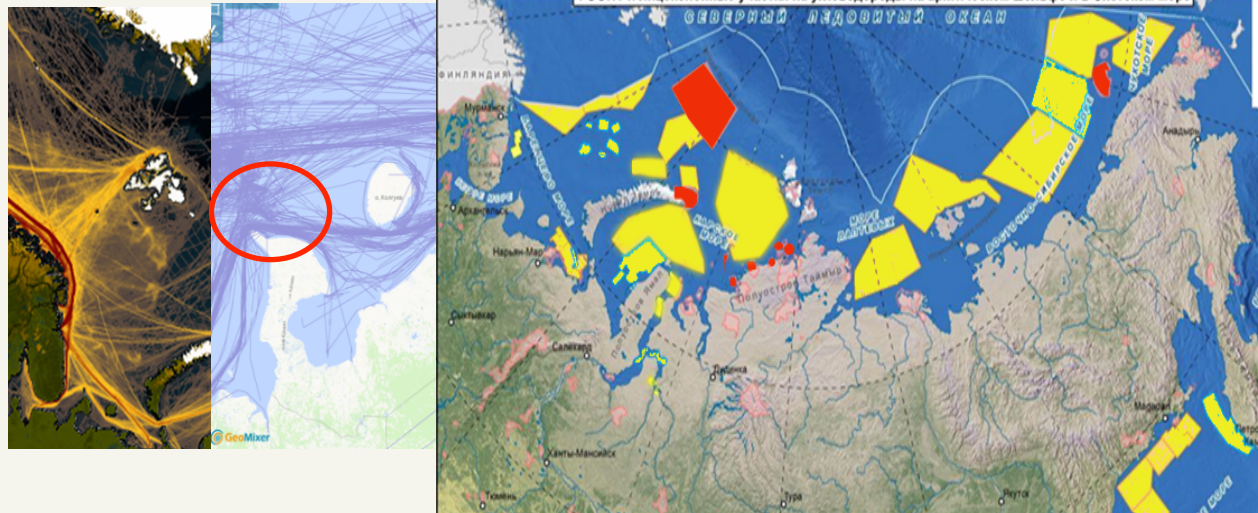# Resilient to/for Biodiversity loss

Processes/services

- Geographical connectivity

- Ecological (ecosystem) connectivity

- Special importance for life history stages of species …

Resilient to/for
Nature use and anthropogenic impact

- Local communities surviving

- Industrial fishing

- Current and potential threats and conflicts caused by development:
    - Oil & Gas industry and infrastructure
    - Shipping
    - Fishery and aquaculture

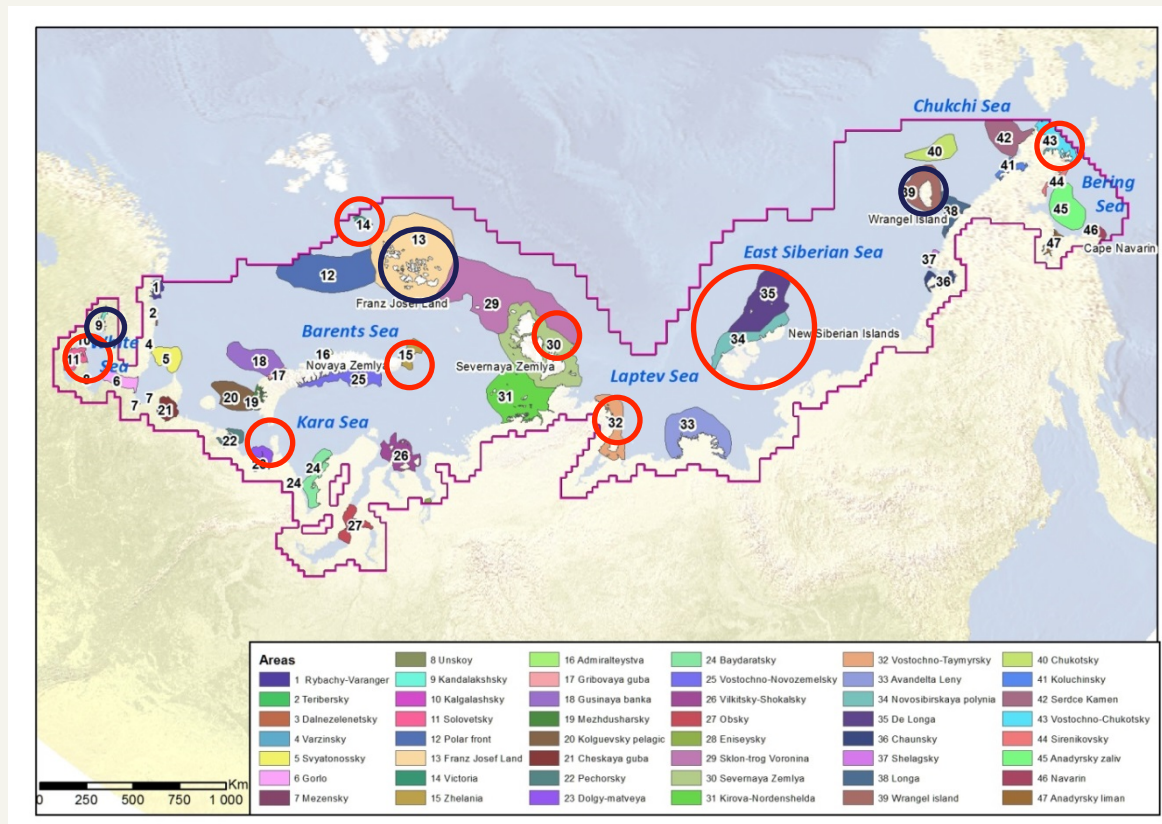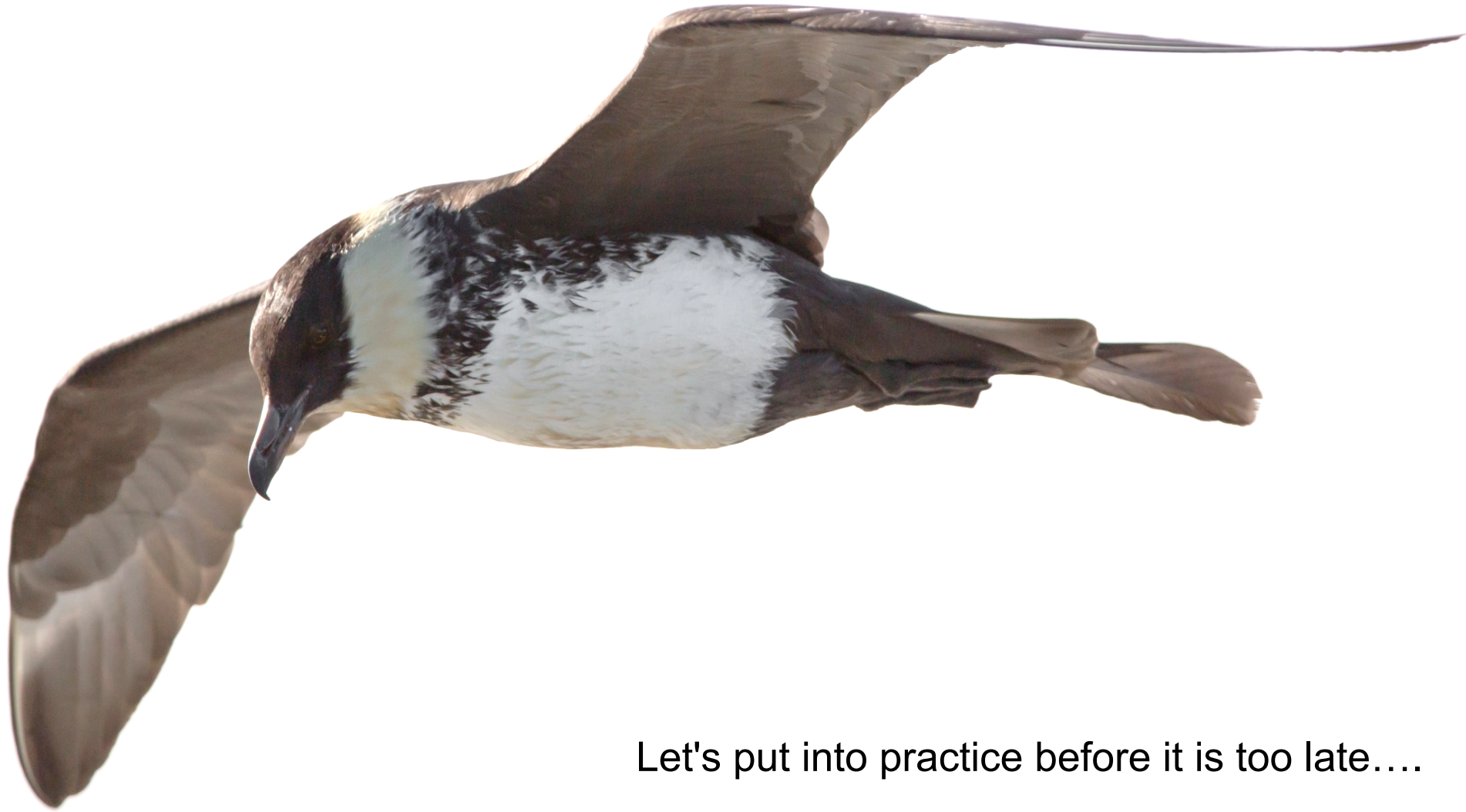- Tourism

- Military activities

Resilient to Governance

- Precautionary approach with MPA creation

- Be sure that a conservation feature is protected in more than one Protected Area

Resilient to Climate change

- Detect and protect nuclear parts of dynamic feature

- Protect stable biotopes, e.g. multiyear ice zones as conservation features

- Take maximum amplitude for dynamic features (marginal ice zone, polynyas, etc.)

- Defined Protected areas borders by the ecological/biological features (polynya, front zone, current, etc).

How to manage Network to support resilience

Thinking about Network management as a system:

representation, connectivity, sufficiency

and not only individual areas management

Let's put into practice before it is too late….