BALANCE

Systematic Selection of a representative MPA network

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Political Frameworks

The importance of **representative and coherent** networks:

EC Habitats Directive (art. 3.2, Annex I):

"A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network…shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range"

HELCOM recommendation on BSPAs:

"By 2010, an ecologically coherent network of well-managed coastal and marine protected areas should be established which includes the Natura 2000 network"

A Representative Network

Representing a little bit of everything…

-All species, habitats and ecological processes

-The aim is to protect the entire ecosystem

- An accurate share of the broad scale variation in a region

- Likely include unknown biodiversity

The SAC Network

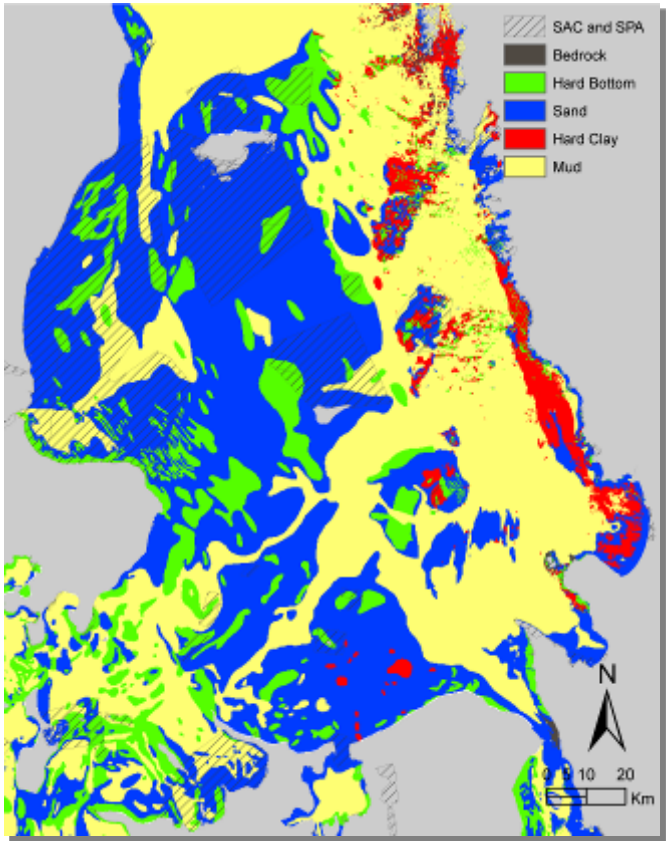
1. Heavily biased towards

   -coastal / shallow areas

   -certain bottom types, ex sand and hard bottoms

2. Two thirds of the BMLs

   - don't not reach the 20% representation target.



A Systematic Approach -to fill the gaps

1. Systematic Approach

   - selecting PAs site by site;

     inefficient / missed features

   - systematic site selection;

     spatially efficient

     represent all features

2. Coordinated regionally

   - nine countries

BALANCE - a First Step

1. Introduced a methodology
    - criteria and principles
    - a broad scale representative network
2. Case Study (Landscape level)
    - decision support tool
    - demonstrate systematic selection sites
    - using existing data

Case Study- criteria

1. Three different conservation target scenarios

- Rec. Min. representation: at least 20% benthic marine landscapes.
- 10% and 30% representation

2. Representation of some specific features

- Cold Water Coral 100%, Grey Seal 60%, IBAs 20/10/30%
- Representation of specific features limited by data availability
- The "wish-list" included many more features

Case Study- principles

1. All features represented to their targets

   a) Sub-region: natural range of variation/replication

   b) Political Unit: even distribution

2. Avoid areas with many conflicting interest/threat

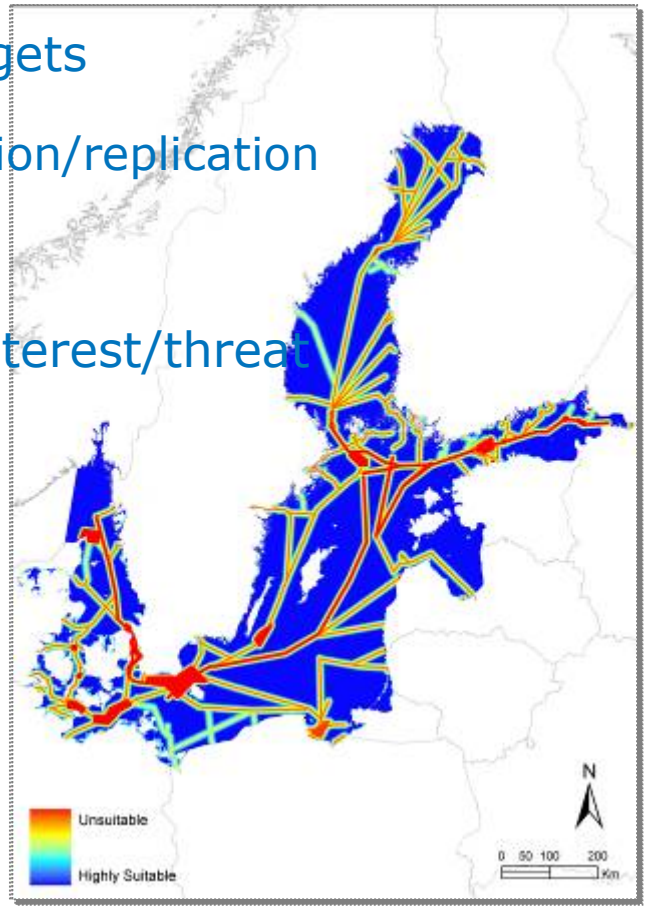
   -Suitability Map

   -Available broad scale SE data

3. Existing PA included

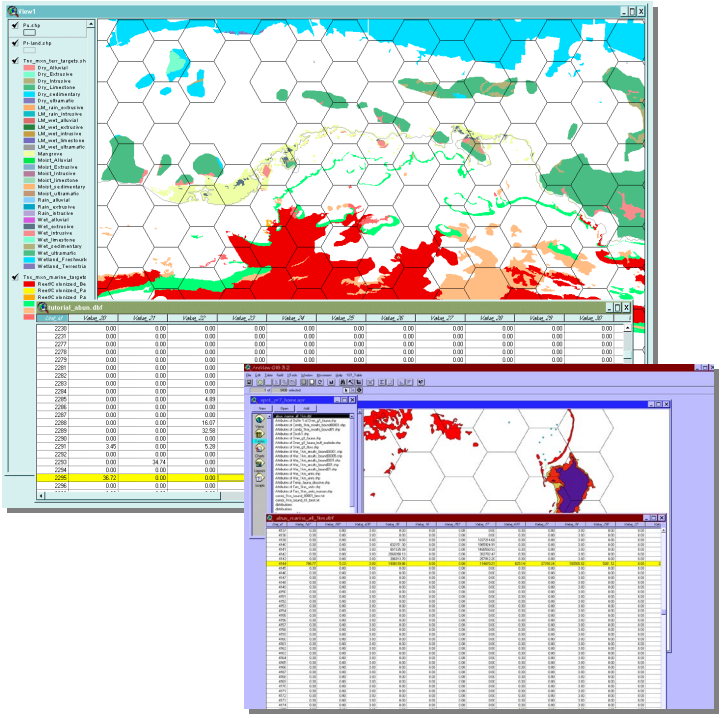
   -Select sites complementary

   to the Natura 2000 SACs



MARXAN- A Decision Support Tool

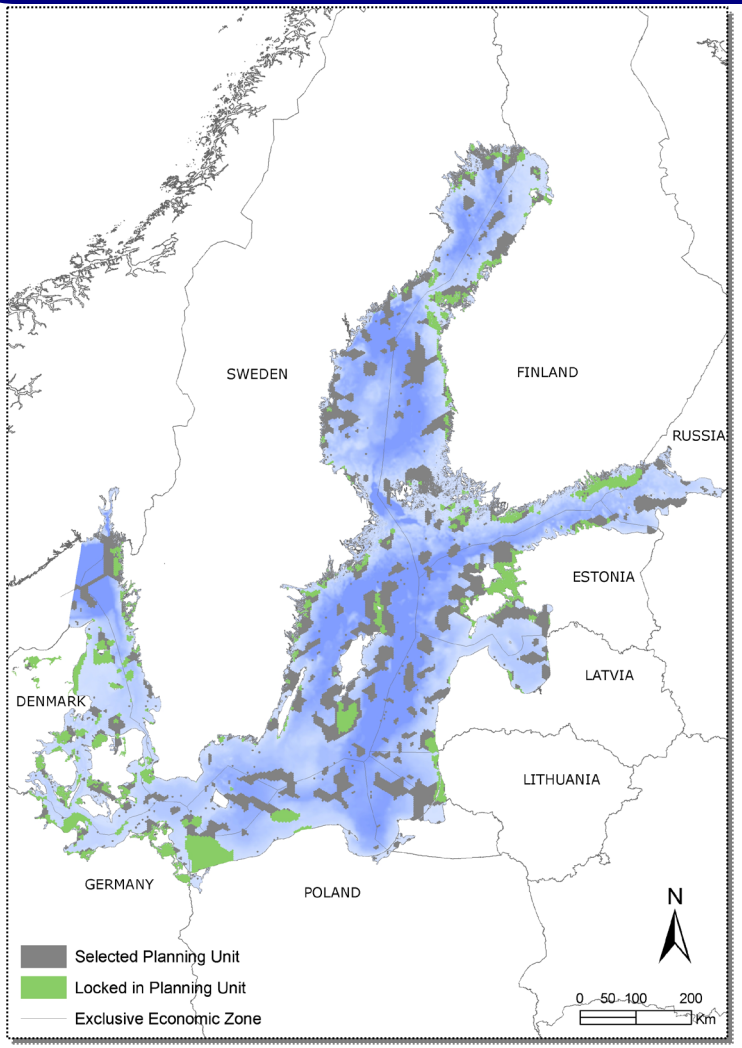
1. Portfolios – Networks
   - Clustered planning units
   - Spatial distribution of features
   - Suitability of sites



2. Evaluated in a spatial context
   - Optimization algorithm
   - Different scenarios

3. Many alternative portfolios
   -Spatial flexibility, important quality

MARXAN Outputs min. 20%



1. 100 alternative portfolios

   - the most efficient portfolio

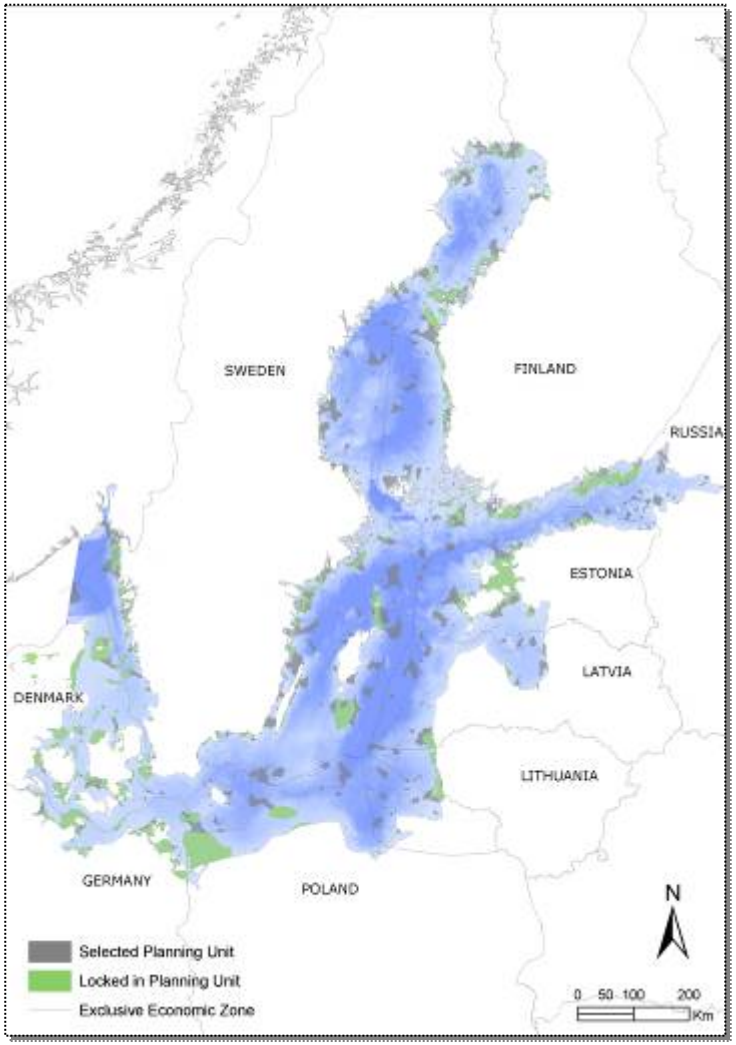
2. Starting point for discussion

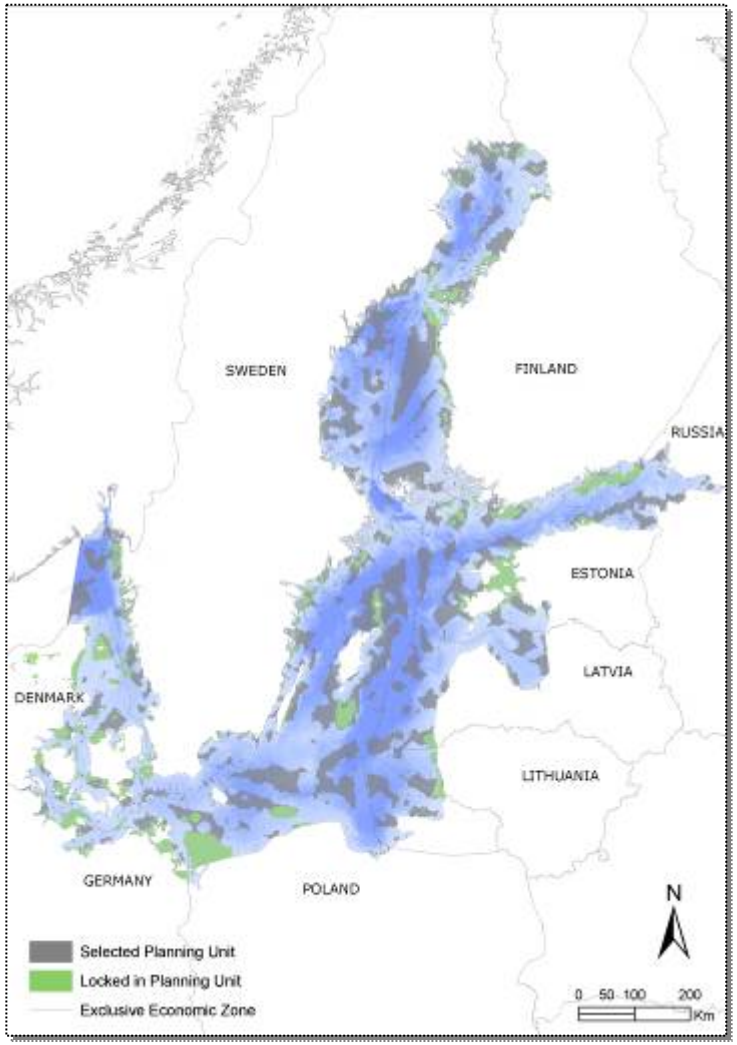
3. Indication of the amount of area needed to represent a certain amount of all BML

- existing sites (green)
- selected sites (grey)

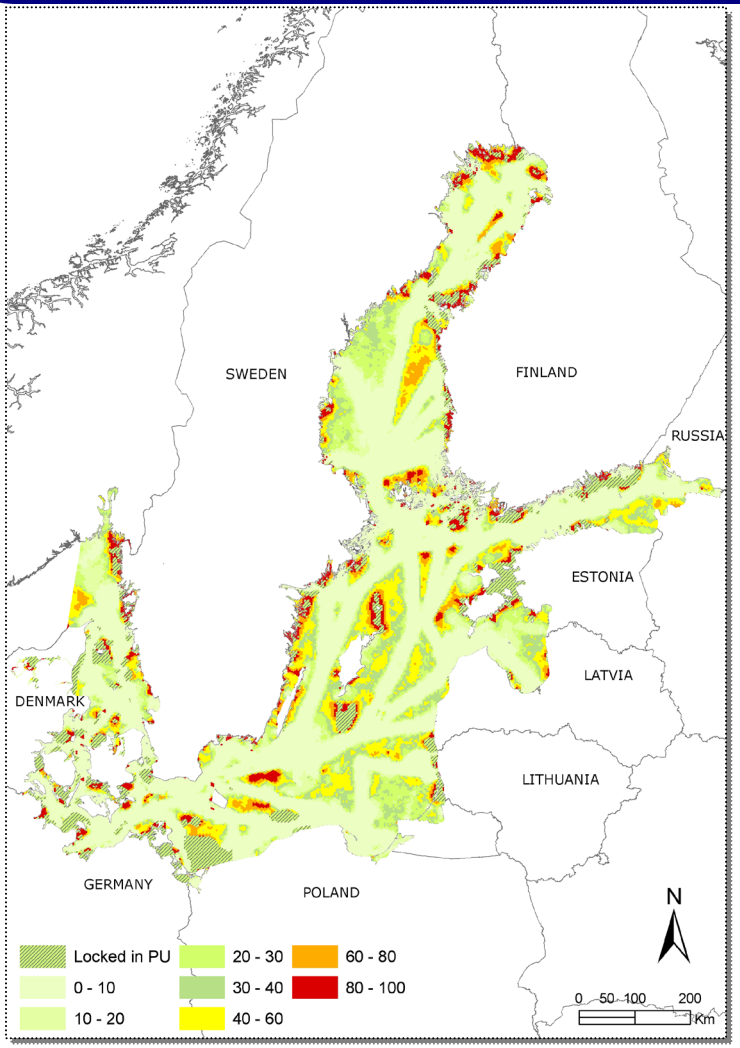
=30% of the study area

MARXAN Outputs 10% & 30%





MARXAN Outputs, 20% representation target



1. The Summed Solution

   -The number of times a planning units is selected (out of 100 runs)

2. PUs often selected (red):

   - many targets are met simultaneously / efficiently

   - suitability is high, i.e. close to already existing protected areas

3. PUs seldom selected (green):

   - in unsuitable sites (harbours, shipping lanes etc)

Conclusions

Key messages

1. It is possible to apply a systematic regional approach
   - we have taken the first steps
2. Decision support tools (MARXAN)
   - transparent and repeatable
   - spatially efficient
   - satisfies all ecological and S-E goals
   - many alternative spatial solutions
3. No reason to go back to selecting PAs site by site
   - at least not when the aim is to select a broad scale representative network at a regional scale…

Conclusions

Key messages

4. We can not select a network, that represent the whole range of species and habitats, without data…

-Today, most of the information we need is missing;

- Habitat forming species
- Rare and threatened species
- Estuaries, Lagoons etc…

5. Data on socio-economic activity and habitat quality

- e.g. Fisheries, Oxygen levels

6. Better scientific advice on how to set criteria for representation

Thank you

The following persons have contributed:

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Annette Huggins, The Nature Conservancy

Zack Ferdana and Mike Beck, The Nature Conservancy

Participants WP3 Workshops 15-16 September 2005, Stockholm & 28-29 March 2007, Helsinki

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