THE NORTH SEA, FIELD LAB FOR MARINE PROTECTION

WestBanks Symposium - Leuven 22/03/11

Weblink: http://www.vliz.be/projects/westbanks/symposium

The North Sea: from wild nature to a managed underwater mosaic landscape?

Short meeting report (annex: results of the survey)

Rationale

The North Sea has fundamentally changed. Big tuna fish and biologically rich seafloors including native oyster banks have largely disappeared during the last centuries and made room for all kind of human activities in a limited area (fisheries, shipping, sand and gravel extraction, pollution, energy etc.) and for highly impacted underwater landscapes. However, the tide seems to be turning and at present about 5.4% of the North Sea is designated as a Marine Protected Area (MPA).

Key Challenges

From early experience with these MPAs and with the newly installed management regulations that are being prepared in most of the North Sea countries, it appears how crucial scientific knowledge is in monitoring and underpinning a successful management.

For several years, maps and other informative tools have been produced by the scientific community: effective and concrete protection measures should now be implemented.

Aims and objectives

The symposium "The North Sea, field lab for marine protection" (Leuven, Belgium, 22 March 2011) provided the opportunity to review the current state of North Sea MPAs.

Experts gave an overview of the state of MPAs in their part of the North Sea and of the scientific efforts to underpin this policy: they identified the gaps, needs and opportunities related to the use of scientific data and knowledge in implementing MPAs on a regional scale. A survey on MPAs was also conducted during the Symposium.

Key recommendations

1- **The Marine Strategy Framework Directive is a major driver towards implementation of the Ecosystem Approach in the North Sea as it will facilitate to better planning and management of existing and future uses and activities (e.g. North Sea fisheries are still a major driver of regional ecosystem changes);**
2- **Protecting ecosystem functioning (e.g. as a buffer against eutrophication) in the North Sea is of high importance. This could be achieved through the protection of key ecosystem engineers (e.g. tube worm reefs) and the progressive resettlement of lost indigenous species (e.g. the native oyster *Ostrea Edulis*);**
3- **A coherent network of MPAs in the North Sea should:**
   - **Be represented by a system of no-take zones and MPAs with different levels of protection;**
   - **Be used to facilitate the achievement of Good Environmental Status;**
   - **Be used as an operational tool to better manage multiple and interacting human activities together in a sustainable way;**
4- **The North Sea MPAs network can only be coherent if a common (and trans-boundary) North Sea Marine Spatial Planning initiative is implemented;**
5- **To determine sustainability thresholds in the North Sea, the research community should develop scenarios for fishery closures in tandem with adequate percentages of different types of MPAs.**

Main Points of Discussion

1- The Ecosystem Approach

The EA is a new environmental paradigm which allows the stakeholders to prioritize management actions in the marine environment through the use of specific tools such as MPAs:

- It sets out a baseline from which one's can start harvesting biotic North Sea resources and exploiting the marine environment;
- It allows bringing in the process, new adaptive functions, regulatory measures etc.
- Abundant species can act as key stone species (e.g. aggregating ecosystem engineers) and are good indicators of the ecosystem approach and ecosystem health as their assure the integrity of the ecosystem;
- The Marine Strategy Framework Directive is a major driver towards implementation of the Ecosystem Approach in the North Sea as it will facilitate to better planning and management of existing and future uses and activities (e.g. North Sea fisheries are still a major driver of regional ecosystem changes);

2- Management and Governance

A key challenge is to ensure coherence between different national and pan-European instruments and to set out objectives taking into account all stakeholders needs.

Marine Spatial Planning (MSP) is the right mechanism to direct strategic choices and to manage current and future human activities in the North Sea:

- In the context of the EU Integrated Maritime Policy, MSP is seen as a very important tool for optimising use of maritime space, within which 'good environmental status' needs to be achieved generally (MSFD). MPAs are not the only possible option for reducing pressures from human activities, and in an MSP perspective it remains important to determine which activities remain spatially compatible with MPA conservation objectives;
- The European Commission facilitates common action: this will allow Member States to ensure that MSP plans are compatible on a regional (sea-basin) level and catalyses effective cross-border cooperation;
- There is a need to better design sea-basin MSP plans taking into account globalised markets (e.g. harvesting marine energy across different countries through grids);
- MPA are still considered as an important tool of MSP.

The mandate and level of actions of different EU policy instruments (e.g. Natura 2000, MSFD, Common Fisheries Policy (CFP)) should be clarified on a regional level:

- Investigations on the gaps and synergies of those instruments should be carried in relation to protection measures;
- International cooperation should be strengthened to integrate national MPAs within an regional (sea-basin) MPA network;
- International cooperation (e.g. joint projects, joint surveys) should be reinforced through the use of available European programmatic and financial tools (e.g. INTERREG funding scheme);
- Policy measures and requirements (e.g. CFP, MSFD) need to be better combined with current scientific knowledge (e.g. natural sciences, socioeconomics) to inform the MSP process and the design of MPAs (CFP measures for instance should be integrated in MSP initiatives in a more constructive way);

- Short and long term assessments of costs and benefits analysis should be carried out for each instruments;
- It is recommended to avoid the duplication of committees for the management of different types of MPAs in the same area.

Science needs

Marine Biology (habitats and species)

- Habitat mapping in the North Sea has revealed rocky areas with high biodiversity (idem for shallow sand banks and gravel beds): suitable protection measures should therefore be implemented;
- Besides biodiversity targets, an MPA should aim to protect ecosystem functions;
- North Sea common species such as ecosystem engineers (e.g. tube worm aggregation) create habitat complexity and provide very important ecosystem services (e.g. buffer against eutrophication);
- Existing biogenic structures and habitats of former structuring species such as indigenous oysters should be protected;
- Characterize and maintain viable fish habitats;
- Maintain old growth age structure in fish populations;
- MPAs should be monitored to detect changes in phenotypic diversity;
- Harvesting may cause evolutionary and ecological changes in wild populations: properly designed MPAs therefore could help to counter evolutionary change caused by (over)fishing;

Research on MPAs design and management

- A coherent network of MPAs in the North Sea should:
    - Be represented by a system of no-take zones and MPAs with different levels of protection;
    - Be used to facilitate the achievement of Good Environmental Status;
    - Be used as an operational tool to better manage multiple and interacting human activities together in a sustainable way;
- The use of appropriate reference areas is essential:
    - To carry out basic research;
    - To assess conservation measures;
    - To interpret the performance of networks of MPAs.
- Future climate regimes will necessitate adaptive management measures in order to accommodate changes in the capacity of coastal systems to deliver the desired objectives;
- To determine sustainability thresholds in the North Sea, the research community should develop scenarios for fishery closures in tandem with adequate percentages of different types of MPAs;
- The BACIP (Before-After-Control-Impact-Pairs) method seems useful to back up relevance of the management/assessment of the MPA;
- Multidisciplinary science should support marine environmental protection and highlight the benefits for implementing MPAs;
- MPAs could be very helpful for understanding causes of fish decline and potential for recovery;
- MPA design should be open for changes as new information becomes available;

- MPAs can contribute to a holistic and risk-averse management by protecting parts of ecosystems - depending on the actual regulations;
- An adaptive trial-and-error strategy suggests that MPA design should be open for changes as new information becomes available;
- Implement spatial management scenarios to assess potential environmental and economic consequences (conflict analyses methodologies);
- Replication of MPAs is important for research and it increases the ecosystem resilience to pressures (e.g. climate change);
- Establishing a coherent network of MPAs still deserves research but it is time now to concretely act and start implementing some management measures.

Connectivity

- A network should maximize connectivity between individual MPAs;
- Assess connectivity requires a multidisciplinary approach (= key emerging area of research);
- Connectivity should be better taken into account in designing a network of MPAs: such a design depends on the repartition of sessile and mobile sp. (and therefore habitats);
- Research on connectivity requires assessing gene flows but on a practical matter, acquisition of markers is quite expensive;

Economics

- Invent "new economics": internalise positive (e.g. free services) and negative (e.g. biodiversity loss) "externalities";
- Stop discounting interests of future generation;
- Controversial discussions on measurements of valuation: how to overcome this problem?
- Dispersal money (in space and time) is not taken into account in economics;
- "Pricing" is different to "valuing";

3- Partnerships & synergies

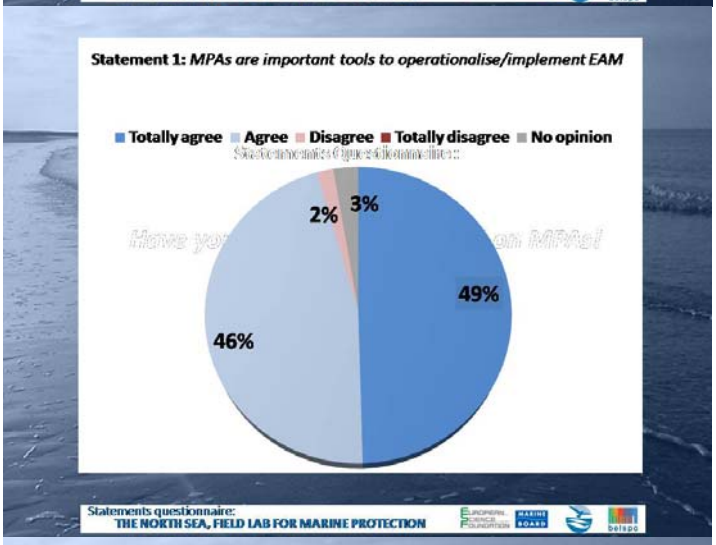
- Case studies (e.g. in Norway) have shown real stewardship of MPA management by local users (fishermen): the quantification of positive spillover effects from MPAs upon surrounding non protected areas provide good incentives to implement management plans with protection measures;
- Discuss with fishermen for implementing fishing measures;
- Local stakeholders' involvement in the design/management/monitoring processes is influenced by the size and location (coastal Vs offshore) of the MPA. Even though the creation of a MPA is a long-term process, commonly agreed sustainability targets should be fixed in a relatively short timeframe;
- Case studies of successful MPAs implementation should be promoted and disseminated.

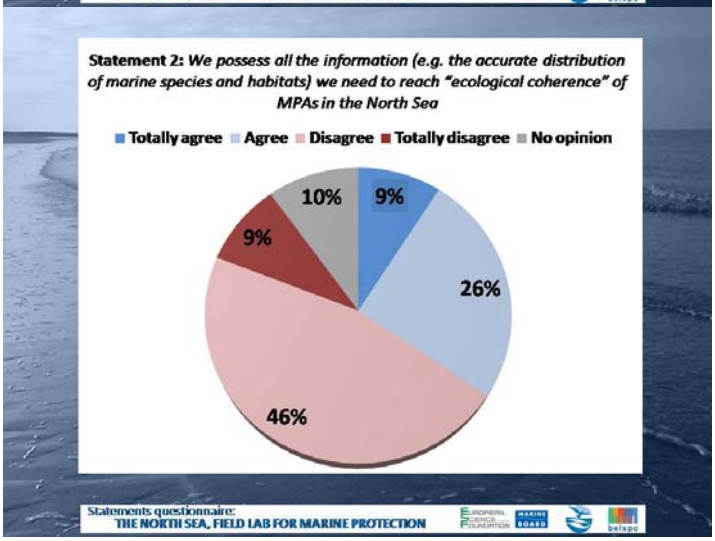
4- Monitoring

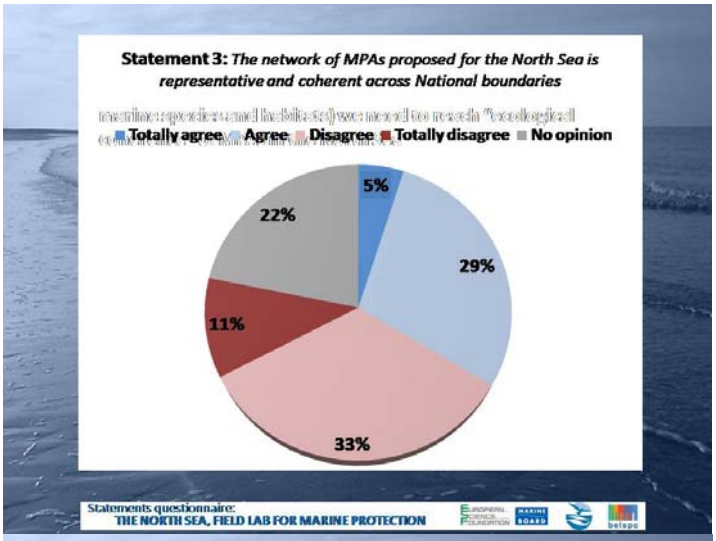
- Better share resources (across national agencies, Member States etc.) to implement and operate common MPAs monitoring programs;
- There is a need to ensure that all stakeholders are fully engaged in the process; more research (e.g. contribution of social sciences) and actions are needed to support MPAs management;

- MPAs are one tool to operationalise the Ecosystem Approach to Management: the research community should demonstrate the effectiveness of this tool through the use of relevant performance indicators.

Annex – Results of the Survey (conducted during the Symposium)






Statement 3: The network of MPAs proposed for the North Sea is representative and coherent across National boundaries
Totally agree
Agree
Disagree
Totally disagree
No opinion
5%
29%
33%
11%
22%
Statements questionnaire:
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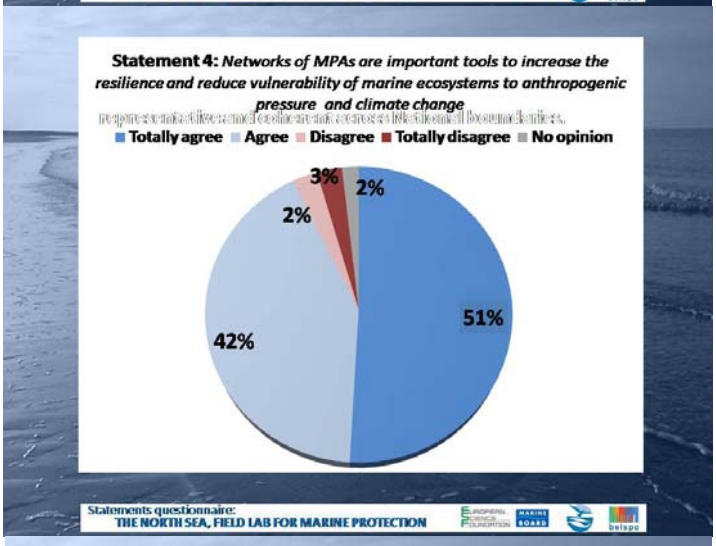
Statement 4: Networks of MPAs are important tools to increase the resilience and reduce vulnerability of marine ecosystems to anthropogenic pressure and climate change
Totally agree
Agree
Disagree
Totally disagree
No opinion
51%
42%
2%
3%
2%
Statements questionnaire:
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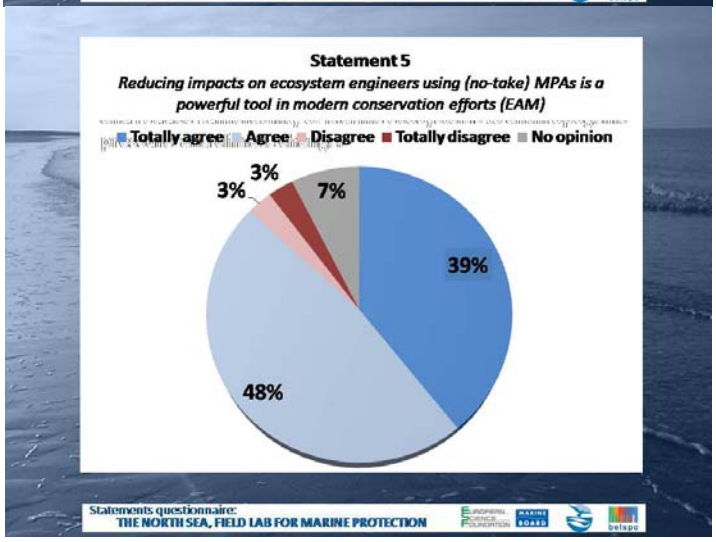
Statement 5
Reducing impacts on ecosystem engineers using (no-take) MPAs is a powerful tool in modern conservation efforts (EAM)
Totally agree
Agree
Disagree
Totally disagree
No opinion
39%
48%
3%
3%
7%
Statements questionnaire:
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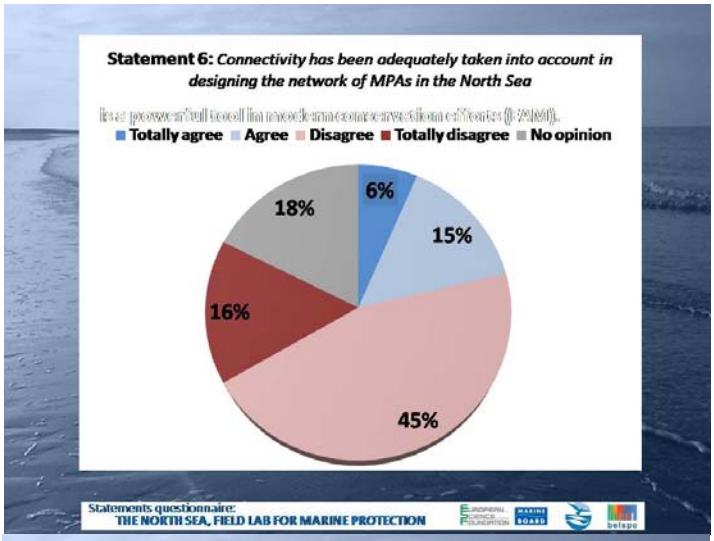
Statement 6: Connectivity has been adequately taken into account in designing the network of MPAs in the North Sea
Totally agree
Agree
Disagree
Totally disagree
No opinion
6%
15%
45%
16%
18%
Statements questionnaire:
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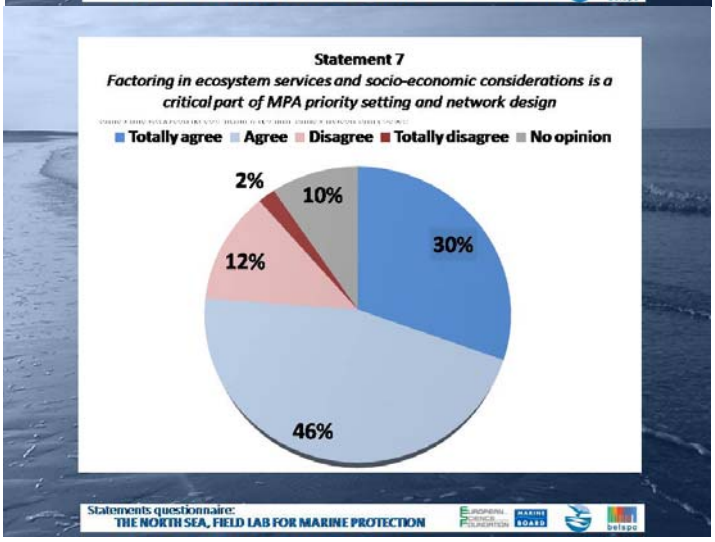
Statement 7
Factoring in ecosystem services and socio-economic considerations is a critical part of MPA priority setting and network design
Totally agree
Agree
Disagree
Totally disagree
No opinion
2%
10%
30%
12%
46%
Statements questionnaire:
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