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Creating a Network of Knowledge for biodiversity and ecosystem services
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Marine case:
Increasing policy awareness of kelp beds

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Structure

- *1. The question addressed and why*
- *2. The stakeholders and actors in the case study*
- *3. The methodologies used*
- *4. The experience/challenges, strengths and weaknesses of our approach*
- *5. Concluding remarks*

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Question addressed

General question identified by the scientific community

- What are the current trends in kelp forests in Europe and what is the evidence that these trends will affect the ecosystem's biodiversity and the provision of ecosystem services?

Why ?

- Kelp forests are very important ecosystems
- There are evidence of changes/decrease in kelp forests
- There was no clear picture at European or national level
- There is no sufficient attention from policy side

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Relevance of the question - what is known

KELPS - key species for the functioning of the kelp forests

REEFS

Shelter
Habitat   FOR
Food

Fish
Mammals
Invertebrates
Epibiota
Other algae

Other ecosystem services

Coastal protection

Carbon sequestration

Water quality

Products: fertilizers, health, etc

O_2 production and pH increase

Relevance of the question for managers/policy makers

Different level of interest/awareness:

- No knowledge of the relevance of KE

- Knowledge of relevance but not aware of problems

- Knowledge of relevance and having measure specific for some KE

- Management of conflicts regarding kelp management

  - Organizing meetings with all relevant stakeholders to debate management options for kelp

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Potential stakeholders and actors for the case stud

Stakeholders:

• DG Environment and DG Mare

• National and regional marine protected area managers (protected areas)

• National and regional fisheries management agencies

• National and regional coastal managers

Knowledge holders: all of the above + Researchers + NGOs + divers + kelp harvesters + kelp industry

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Actual stakeholders and actors in the case study

Stakeholders:

- DG Environment and DG Mare

- National and regional marine protected area managers (protected areas)

- National and regional coastal managers

Knowledge holders:

- Researchers

- NGOs

Methodologies used

Strategy - Divide the main question in 3 smaller relevant questions and use 3 different methodologies one after the other

- **EXPERT CONSULTATION**

- What are the trends of kelp forests in Europe

- **SYSTEMATIC REVIEW**

- What is the impact of changes in kelp forest density and/or area on fisheries

- **ADAPTIVE MANAGMENT**

- Main drivers of changes in kelp forests in Europe and management options

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Methodologies used

- ID experts by requesting knowledge hubs for nominations.

- 69 experts were nominated, mostly by a single knowledge hub: Euromarine.(Marbef)

- A questionnaire addressing their knowledge on trends, effects and drivers of changes observed in kelp forests was send.

- 52 replies were received with different degree of detail in the responses

- Expert invited for workshop to analyse results

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Strengths and weaknesses of our approach

EXPERT CONSULTATION – our experience

Question **-** What are the status and trends of kelp forests in Europe

• Decision of producing a map with status and trens of kelp forests around Europe

• First map was produced but many gaps were identified:

– gaps of knowledge - lack of <u>data</u> on trends

– gaps of retrival of existing information – expert involved didn't cover full area

• Decided that we should do a more focused search to identify

–More expert to close geographycal gaps

–More research to retrieve existing data not provided by experts

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EXPERT CONSULTATION – our experience

<u>Strenghts</u>

• Able to assemble and get collaboration from key experts – mostly scientists – ID by marine network

• Short time necessary to have resuls – map of trends in kelp forests in Europe

<u>Weaknesses</u>

• Important gaps identified in this map– mainly geographic and historical but also knowledge gaps

• Some experts were not confortable publishing opinions without supporting data

   -<u>Way forward </u>– fill these gaps with focused search,:ID other experts (geographical cover), recover   published results and databases (historical data), propose/conduct further research

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SYSTEMATIC REVIEW – our experience

Question - What is the impact of changes in kelp forest density and/or area on fisheries?

• Experts that responded to questionai re invited for workshop

• Results from questionaire presented and discussed

• Question and protocol for systematic review was discussed and agreed taking in consideration feedback from some stakeholders

• Key experts agreed to participate in this review

• Most of the review was done by ciimar with help from some these researchers

  - Protocol published

  - 78 papers selected and first analysis after retreving data from 44.

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SYSTEMATIC REVIEW- our experience

<u>Strenghts</u>

• Robust methodology – trustable results

• Some key experts identified promised to collaborate

<u>Weaknesses</u>

• Very time/resource consuming

• Dificulties to include some data/knowledge not published in peer reviewed papers

<u>Way forward :</u>

   – updatable protocol – can be sone already

   - Combine with other methods

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ADAPTIVE MANAGMENT – our experience

Question - Main drivers of changes and management options

• Workshop brought together of different stakeholders, preceded by interviews

• AM session prepared by presentation of results from previous exercises (EC and SR) + 2 keynote presentations by the main data and knowledge holders from Europe (Norway and UK).

• A first set of recommendations was drafted, to be reviewed during the second part of the workshop.

• Second, a keynote presentation on adaptive management and a card-sorting exercise on uncertainties was used to set the framework for the collaborative modelling exercise that took place on the second day.

• Third, we used techniques of collaborative modelling to build conceptual model to establish key steps to achieve a set goals

-Final set of recommendations drafted

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ADAPTIVE MANAGMENT- our experience

Strengths

• Deals directly with the management questions – more direct input for management

• Brings to the table all the relevant players at the same time – builds trust in the results

Weaknesses

• Very hard to organise

• Time and resource consuming – also for managers and policy makers (hard to find)

•   Tends to be more usefull/feasible for more local problems

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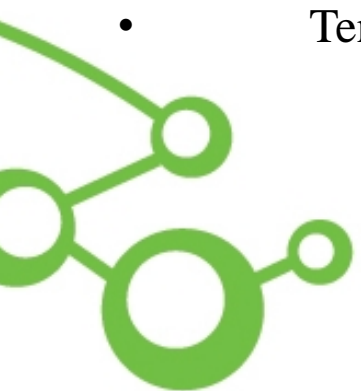
Concluding remarks

- Combination of methods is a good option for this case study

- Awareness raising is an important function for the NOK

  > Is there a link between fisheries
  > production and changes in the extent of
  > mangrove and seagrass habitat?

- Resources/visibility (not enough) was a problem to increase participation

- There were many knowledge gaps (more than anticipated)

- This exercise is also important to identify key gaps in knowledge for further research

A review of mangrove and seagrass ecosystems and their linkage to fisheries and fisheries management

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