Marine spatial planning

Examples

Anne E. Langaas Gossé Senior Adviser, Coordination of Marine Management



Organization and process in Norway - from knowledge to decision



Question:

What could be the advantages with such a system?

What do you think are the disadvantages?



The Management forum

- All participating institutions to contribute to the work, and deliver reports that are preferably consensus reports.
- Any professional disagreement or different interpretations of academic results / questions can be made visible in the forum's reports.



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| | | Foto: Kim Abel/Naturarkivet.no. | | | | | |
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| | | Her på havforum.no finner du all ir norske havforvaltningsplanene. | nformasjon om arbeide | et med de samtid miljøti sikre vi | ig. For å ivareta god stand, og samtidig erdiskaping, er det | | |
| | | Pågående arbeid | | nødver | ndig å forvalte | | |
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| | | Forvaltningsplaner i alle nor | ske havområder | belastr | lingen på miljøet. | | |
| | | De ti siste årene har Norge etabler Barentshavet og Lofoten, Norskeh Fongaltninger langen er Meldinger | t forvaltningsplaner for avet og Nordsjøen -Ska il Storringet som utari | r Igerrak. beides av en | | | |

omfattende faglig kunnskapsgrunnlag som leveres av:

Faglig forum for norske havområder og
 Gruppen for overvåking av de marine økosystemene

(Overvåkingsgruppen)

The Management forum

On the open website

Information on mandates, participants, time schedules, meeting summaries, coming meetings and arrangements etc

All assessments, reports, white papers etc \rightarrow knowledge base

http://www.miljodirektoratet.no/no/Havforum/



- Pågående arbeid
- Forvaltningsplanområder (samlet faggrunnlag)

Forvaltningsplaner i alle norske havområder

De ti siste årene har Norge etablert forvaltningsplaner for Barentshavet og Lofoten, Norskehavet og Nordsjøen -Skagerrak. Forvaltningsplanene er Meldinger til Stortinget, som utarbeides av en departemental styringsgruppe. Bak forvaltningsplanene ligger et omfattende faglig kunnskapsgrunnlag som leveres av:

- Faglig forum for norske havområder og
- Gruppen for overvåking av de marine økosystemene (Overvåkingsgruppen)

nødvendig å forvalte økosystemene med utgangspunkt i den samlede belastningen på miljøet.

The Monitoring group

- The monitoring group contributes to coordination and development of surveillance in Norwegian marine areas, and to an overall assessment of the state and development of the ecosystems.
- Outcome of the work in the he Monitoring group informs status reports and are used as basis for environmental information. Every year, there is a status report for one of the plan areas, that means that it is a report every three years for each area

https://www.imr.no/overvakingsgruppen/nb-no

miliøstatus.no TEMA V NASJONALE MÁL MILJØDATA V KART OM OSS ENGLISH SKRIV DITT SØKEORD HER HJEM > TEMA > HAV OG KYST > BARENTSHAVET > MILJØTILSTANDEN I BARENTSHAVET FORURENSENDE STOFFER > FORURENSNING I BLÅSKJELL LANGS KYSTEN AV BARENTSHAVET Forurensning i blåskjell langs kysten av Nordland, Troms og Finnmark Publisert 27.06.2017 av Duerväkingsgruppen (sekretariat hos Hauforskningsbutti Last ruppor Blåskjell langs kysten av Nordland, Troms og Finnmark er stort sett lite forurenset av (f) Indikator for Barentshavet miljøgifter. I den grad forskerne ser noen trend for de siste 20 årene går den nedover. Dette er en av mange indikatorer for miliotilstanden i Barentshavet. HOPP TH Det finnes indikatorer for havklima. EAKTA STATUS OG TREND ÅRSAKER KONSEKVENSER OM INDIKATOREN plankton, bunndyr, fisk, sløfugl, forurensning og menneskelig aktivitet. Vi kan ikke overvåke alt. Overvåkingsgruppen for de norske havområdene har derfor valgt ut et sett indikatorer, som gir viktig kunnskapsgrunnlag om miljøtilstanden i Barentshavet.



FARTA

Fakta om blåskjell

Blåskiell (Mutilus edulis) sitter fast på hardbunn i fjæra, ned til ca. ti meters dvp. Blåskiell lever av å filtrere vannet for fine næringspartikler og planteplankton. Arten er utbredt over hele Europa, fra Spania til Arktis. Blåskiell er særkiennede og formerer seg ved å gyte egg og melke ut i vannet. Ett blåskiell kan gyte 5-10 millioner egg.

Blåskjellets levemåte gjør at det passer godt som indikator på forurensning. Nettopp fordi blåskjell filtrerer vannet, vil blåskiellet speile den belastningen av miljøgifter som har vært i vannmassene på et gitt sted i løpet av blåskiellets levetid.

STATUS OG TREND

Status og trender for miljøgifter i blåskjell

Målinger av miljøgifter i blåskjell

Siden 1992 er det gjort målinger av følgende miljøgifter i blåskjell langs norskekysten:

· metaller: herunder bly, kadmium, kobber, kvikksølv og den organiske

Roles and actors at different work stages



A good knowledge base benefits blue growth

Examples

- Bioprospecting
- Offshore aquaculture
- Deep sea mining
- Offshore energy develpment
- ...?









Question: How accurate do you think that the knowledge needs to be, in order to put into the knowledge base?

Why does a good knowledge base benefit blue growth?



Implementation - Measures based on needs

- Reduce risk; frames for petroleum, mandatory shipping lanes
- Improve fisheries, e g measures against bottom trawling in vulnerable areas
- Common, cross-sector knowledge base
- Research programs to improve knowledge <u>www.mareano.no</u>, <u>www.seapop.no</u>
- Improve methods, e g for risk assessments
- Develop tools; ecosystem valuation <u>www.oceanvalues.org</u>, and a new spatial management tool to be developed
- Status reports from monitoring, every 3 years





Example on knowledge need: Pelagic diving seabirds, a vulnerable group



Atlantic puffin, Redlist VU and «responsibility species» for Norway

30-50% reduction last 10 years, and the reduction or its cause has not been terminated or understood or reversible



Common guillemot. Redlist CR

«for the period 1980-2009 a 99% decline in the Norwegian Sea and a somewhat smaller decline in the Barents Sea»





Implementation - Measures based on needs - seabirds

<u>The Integrated Management plan for Lofoten and the Barents</u> <u>Sea, 2005-2006</u>

The Government will:

- contribute to long-term build-up of the knowledge base on seabird populations through the SEAPOP seabird monitoring programme. This will give the various sectors which affect the marine environment, including seabirds, a better basis for implementing any necessary measures.
- make suitable arrangements to obtain better documentation of the bycatch problem.





Implementation - Measures based on needs - seabirds

<u>The Integrated Management plan for the Nowegian Sea, 2009</u> The Government will:

- improve knowledge about seabirds through the SEAPOP mapping and monitoring programme;
- •
- ensure that resource management is based on ecosystem considerations, including the food supplies needed by seabirds;
- give priority to efforts to find the causes of the decline in seabird populations in the western part of the Nordic region;
- continue the development of an action plan for seabirds;





Implementation - Measures based on needs - seabirds

The Integrated Management plan for Lofoten and the Barents Sea, 2010-2011

The Government will:

- .
- ensure that management of living marine resources is based on ecosystem considerations;
- establish a working group of seabird experts and marine scientists to investigate the links between the decline in many seabird populations and their food supplies, and suggest measures to improve food availability for seabirds;
- review methods and technological solutions for reducing bycatches of seabirds and the extent to which they are being used;

SEATRACK grew out from a defined knowledge need and is connected to SEAPOP. Funding for SEATRACK is provided by the Norwegian Government (Ministry of Climate and Environment, Ministry of Foreign Affairs), the Norwegian Oil and Gas Association and seven oil companies



(g) values of the balance of the second s



A complex world...





Question: What can be managed?

How can marine spatial planning help?



Identifying important biological and ecological areas

The EBSA criteria

- Uniqueness or Rarity
- Special importance for life history stages of species
- Importance for threatened, endangered or declining species and/or habitats
- Vulnerability, Fragility, Sensitivity, or Slow recovery
- Biological Productivity
- Biological Diversity
- Naturalness



https://www.cbd.int/ebsa/



EBSA criteria (modified) are used

Two levels of valuation:

- 1) *«Particularly valuable and vulnerable areas» -* qualitative approach, excisting knowledge
- 2) Environmental value semiquantitative and more detailed, knowledge from new mapping programs, e. g. <u>www.mareano.no</u> and <u>www.seapop.no</u>





Particularly valuable and vulnerable areas

Strength:

- -Strong status in the management plans
- -Qualitatively identified by highly competent scientists

- Big, stable areas, useful for «big decisions

Weakness:

- -No temporal differentiation
- -Large scale
- -No value differentiation
- -Vulnerable for what?



Framework for petroleum acticities

(excluded or restricted in the most valuable areas)



Routeing system (IMO) for ships



As extensive mapping programs were established, the Ministry of the Environment said that:

"There is a need to strengthen the basis for decisions on all activities in the oceans, to ensure that the activities carried out in Norwegian waters are adapted to the features of the areas.

11

Environmental values with differentiation in value, time and space, more suitable for current management <u>www.oceanvalues.org</u>



| Criteria | | N-E Arctic cod | Nor. s-s herring | Capelin | Sand- eels |
|--|---|-------------------|---------------------|---------|---------------|
| 1 a) Rarity b) Uniqueness | This criterion is only used for concentrated spawning grounds which have decisive functions for the rest of the ecosystem 3 points: "Key species", where the spawning ground has been sufficiently well demarcated (herring, cod & sandeels) 2 points: "Key species", where the spawning ground is somewhat less well demarcated (capelin) | 3 | 3 | 2 | 3 |
| 2. important areas for life-history stages | 3 points: by far the most important spawning grounds 2 points: important spawning grounds 1 point: important spawning grounds, where information is too poor to provide a more detailed solution | 3/2/1 | 3/2/1 | 3/2/1 | 3 |
| 3. Threatened, vulnerable or declining species | Not used | | | | |
| 5. Important for biological productivity | 3 points: the most important spawning grounds 2 points: important spawning grounds 1 point: less important spawning grounds 0 points: unimportant, but sporadic spawning | 3/2/1/0 | 3 | 3 | 3 |











Marine Spatial Management Tool

A cross-sector project through an intergovernmental cooperation

Governmental initiative based on the need for a more coherent and uniform geographic information content, suitable for underpinning tasks attached to marine spatial planning and marine management

- More effective updates of the management plans
- Better overview over political decisions and actions related to marine management
- Contribute to more transparancy, openness and increased involvment from the stakeholders



Marine Spatial Management Tool

A cross-sector project through an intergovernmental cooperation

Service based approach

Key elements:

- Thematic geospatial information services offered from relevant sectorial authorities
- Standardized network based services enabling real time use of geospatial data content in user client (e.g. MSMT)
- Standardized and harmonized data content and user adapted presentation rules / cartography
- Real time access to associated metadata through network based services consumable in user client



Marine Spatial Management Tool

A cross-sector project through an intergovernmental cooperation

Status at the moment:

- 30 main categories of thematic data available through corresponding geospatial services
- 11 governmental agencies and research institutes serving their respective thematic datasets and geospatial services

Offshore wind farm assessments ♣ + Petroleum activities ♣ + Commercial fishing ₩ + Valuable marine areas ➡ + Base map ►





Backdrop - Trends in GIS development





Spatial Data Infrastructure (SDI)

From isolated GIS-solutions to a common concept for sharing and re-using data and services

- Improved availability and access to geospatial data
- Cost-efficiency (collect once use many times, for different purposes)
- A platform for connecting geospatial information services across sectors and levels of administrations









The core elements of an SDI

Policy & framework

Organization & cooperation





Spatial Data Infrastructure (SDI)

User orientation

SDI success is dependent upon those geospatial data that is in real use.

Development of geospatial content and geospatial services based upon user dialogues, e.g. through user surveys, user stories, and/or product specifications, enhances the possibilities of meeting the users needs

Integration capabilities are essential regarding efficient combinations of various geospatial datasets into harmonized chart models and/or geospatial information kits

User communities plays a vital role in SDI development



Question:

Access to data is important in spatial planning – do you know initiatives for sharing data in your own country?



Management performance - Evaluating objectives

- Example from Norway: General objectives for all sectors
- Goals, status and trends are defined for 1) pollution, 2) safe seafood, 3) acute pollution and 4) biodiversity

Example: Objective for biodiversity

Management of the Barents Sea–Lofoten area will ensure that diversity at ecosystem, habitat, species and genetic levels, and the productivity of ecosystems, are maintained. Human activity in the area will not damage the structure, functioning, productivity or dynamics of ecosystems.

Under this objective, targets for particularly valuable and vulnerable areas and habitats, Species management, Conservation of marine habitats



Management performance - Evaluating objectives

Example: Targets for the management of particularly valuable and vulnerable areas and habitats

- Activities in particularly valuable and vulnerable areas will be conducted in such a way that the ecological functioning and biodiversity of such areas are not threatened.
- Damage to marine habitats that are considered to be threatened or vulnerable will be avoided.
- In marine habitats that are particularly important for the structure, functioning, productivity and dynamics of ecosystems, activities will be conducted in such a way that all ecological functions are maintained.



Management performance - Evaluating objectives

Activities in particularly valuable and vulnerable areas will be conducted in such a way that the ecological functioning and biodiversity of such areas are not threatened

| What is evaluated? | Is the goal reached? | Reason | If goal is not reached, is development to the better↑ worse↓ status quo → | How lan uncertai evaluati Degree | ge is the nty in the on? Reason | Evluation from the expert group | |
|-----------------------|----------------------------|-----------------------------------|--|---|--|---|--|
| Lophelia reefs | no | Damaged because of trawling | → | Low | Observed damage | As only a small part of the benthic ecosystem is mapped, it is probably need for stronger protection of coral reefs than the current regulation provides. •Research on gear types that are gentle on benthic fauna must continue. • See objective 1 for knowledge needs | |

Evaluated under this target: Lophelia reefs, larger sponge colonies in deep water, mussels, Umbellula

Photos: MAREANO. Norwegian Institute for Marine Research

Question:

How can you measure performance or evaluate objectives in datapoor areas?



Adaptive management

- 1. Political decision
- 2. Goals (direction), and action tresholds
- 3. Initiate monitoring, research programs, action plans
- 4. Implementation by sector regulations, among others
- 5. Monitor by indicators, scientific overviews and advices
- 6. Cross-sector status reports and assessments → acceptable development?






UNESCO – a step-by-step approach to MSP

- (1) Need & authority
- (2) Financial support
- (3) Pre-planning
- (4) Stakeholders
- (5) Existing conditions
- (6) Future conditions
- (7) Preparing & approving
- (8) Implementing & enforcing
- (9) Monitoring & evaluating
- (10) Adapting





Thank you for your attention!

Common guillemot colony, Bear Island, Barents Sea Photo: Hallvard Strøm, Norwegian polar institute



www.miljødirektoratet.no

Marine spatial planning

Examples

Anne E. Langaas Gossé Senior Adviser, Coordination of Marine Management



Organization and process in Norway - from knowledge to decision

Management plans - from knowledge to decision

Update every 4 years Revision every 12 years

Must be rooted in a thorough understanding of the traditions and structures of the existing governance system in the areas. Not necessarily the same in other countries as in Norway...

In the Norwegian system, the spatial and integrated management plan goes as a Recommendation from the Ministry of Climate and Environment (as they lead the Ministry group), approved in the Council of State (parliament)

This means that the Ministry of Climate and Environment has to organize a cooperation between all related Ministries and negotiate and come to agreements about management measures and zoning.

It may be a challenge that strength may differ between sector ministries, as the White paper is based on political negotiations.



Roe ned arbeidet, mindre motsetninger blant de som utarbeider fakta Opparbeider stor faktabase der det meste er consensus

The Management forum

- All participating institutions to contribute to the work, and deliver reports that are preferably consensus reports.
- Any professional disagreement or different interpretations of academic results / questions can be made visible in the forum's reports.

http://www.miljodirektoratet.no/no/Havforum/

- It is a knowledge and information base. The knowledge base is much more extensive than the White papers, it includes all reports that have been worked out
- Wise to create structure for the knowledge base early. It must be accessible to all if we want to facilitate stakeholder partcipation! Take our structure at sea forums like ex. This is not a perfect structure, but can be a starting point. Remember: nothing is perfect, it must always be possible to further develop!

Fortell hva siden inneholder

The Management forum

On the open website

- Information on mandates, participants, time schedules, meeting summaries, coming meetings and arrangements etc
- All assessments, reports, white papers etc → knowledge base

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The Monitoring group

- The monitoring group contributes to coordination and development of surveillance in Norwegian marine areas, and to an overall assessment of the state and development of the ecosystems.
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Outcome of the work in the he Monitoring group informs status reports and are used as basis for environmental information. Every year, there is a status report for one of the plan areas, that means that it is a report every three years for each area.

The web-page miljostatus.no shows the indicators and what they tell about the situation

facts, status and trend, causes, consequences, about the indicator Only in Norwegian, but ...

Blåskjell Dragana

Roles and actors at different work stages

Gå gjennom

A good knowledge base benefits blue growth

Examples

- Bioprospecting
- Offshore aquaculture
- Deep sea mining
- Offshore energy develpment
- ...?

If you have a good knowledge base, there is much more predictability for what various forms of human activities that can be accepted in different areas, and what degree of protection the ecosystems need. It is also more predictable what or if mitigation measures are possible to protect the ecosystem.

Avoid conflicts with other activities?

Maila... Report from the Environment Agency: Environmental-challenges-related-tooffshore- **mining**-and-gas-hydrate-extraction



depends upon how much you have, little is more than nothing. New knowledge can be added from a staring point

Depends also of what kind of activities that are being planned

Implementation - Measures based on needs

Here are soma examples of needs that should result in measures and actions in the management plan

It is a need to reduce risk It's a need to improve fisheries

....

....les opp It's a need

Example on knowledge need: Pelagic diving seabirds, a vulnerable group

Atlantic puffin, Redlist VU and «responsibility species» for Norway 30-50% reduction last 10

years, and the reduction or its cause has not been terminated or understood or reversible

Common guillemot. Redlist CR

«for the period 1980-2009 a 99% decline in the Norwegian Sea and a somewhat smaller decline in the Barents Sea»

It is also a need to reduce the alarming decline of certain groups of seabirds

Implementation - Measures based on needs - seabirds

The Integrated Management plan for Lofoten and the Barents Sea, 2005-2006

The Government will:

 contribute to long-term build-up of the knowledge base on seabird populations through the SEAPOP seabird monitoring programme. This will give the various sectors which affect the marine environment, including seabirds, a better basis for implementing any necessary measures.

• ...

• make suitable arrangements to obtain better documentation of the bycatch problem.

Les opp Many more measures and actions for seabirds than this

Implementation - Measures based on needs - seabirds

The Integrated Management plan for the Nowegian Sea, 2009 The Government will:

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- ...
- ensure that resource management is based on ecosystem considerations, including the food supplies needed by seabirds;
- give priority to efforts to find the causes of the decline in seabird populations in the western part of the Nordic region;
- · continue the development of an action plan for seabirds;
- ...

This is much about research

Implementation - Measures based on needs - seabirds

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The Government will:

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- ...

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This is technology, mapping and research

A complex world...

A short translate:

predation, environmental pollutants, disturbances, climate change, ski traffic, nutrition access, fishing, long-term ecosystem changes, change of regime, bycatch, habitat loss, offshore industry, oil spill

What can be managed?

Question: What can be managed?

How can marine spatial planning help?

Identifying important biological and ecological areas

The EBSA criteria

- Uniqueness or Rarity
- Special importance for life history stages of species
- Importance for threatened, endangered or declining species and/or habitats
- Vulnerability, Fragility, Sensitivity, or Slow recovery
- Biological Productivity
- Biological Diversity
- Naturalness

https://www.cbd.int/ebsa/

In 2008, the Convention on Biological Diversity (COP 9) adopted the following scientific criteria for identifying ecologically or biologically significant marine areas in need of protection in open-ocean waters and deep-sea habitats.

In Europe, only areas beyond national jurisdiction, while many regions have identified also inside national jurisdiction



Norway was a bit ahead of the EBSA criteria, as we identified our Particularly valuable and vulnerable

areas in 2002-03. But the criteria have very much in common.

Later, we also saw a need to develop a system for more detailed information - neste

| Particularly valuable and vulnerable areas Strength: -Strong status in the management plans -Qualitatively identified by highly competent scientists - Big, stable areas, useful for «big decisions | Framework for petroleum acticities (excluded or restricted in the most valuable areas) |
|--|---|
| <u>Weakness:</u> -No temporal differentiation -Large scale -No value differentiation -Vulnerable for what? | Routeing system (IMO) for ships |

As extensive mapping programs were established, the Ministry of the Environment said that:

"There is a need to strengthen the basis for decisions on all activities in the oceans, to ensure that the activities carried out in Norwegian waters are **adapted to the features of the areas**.

Environmental values with differentiation in value, time and space, more suitable for current management <u>www.oceanvalues.org</u>

What features? The ecologic features

| Criteria | | N-E Arctic cod | Nor. s-s herring | Capelin | Sand- eels |
|--|--|-------------------|---------------------|---------|---------------|
| I a) Rarity b) Uniqueness | I his criterion is only used for concentrated spawning grounds which have decisive functions for the rest of the ecosystem 3 points: "Key species", where the spawning ground has been sufficiently well demarcated (herring, cod & sandeels) 2 points: "Key species", where the spawning ground is somewhat less well demarcated (capelin) | 3 | 3 | 2 | 3 |
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We predetermined which criteria were relevant for the different groups and did the scorings separately for fish, seabirds, sea mammals and benthos

No exploration drilling in oil-bearing formations 1 March – 31 August

www.oceanvalues.org



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- More effective updates of the management plans
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- Contribute to more transparancy, openness and increased involvment from the stakeholders

| ne Spatial Mana [,] project through an inte | lanagement T 11 intergovernmental c | `ool ooperation | |
|---|---|-------------------------------------|------------------------|
| Thematic data | data Geospatial services (WMS, WFS, API) | Registers & catalogue services | Applications (MSMT) |
| ces ties | | P | |
| enabling t in user | | References Metadata Discovery | |
| ntent and graphy | | | |
| a through user Sectorial a | Sectorial authorities | | Dissemination |
| user Sectorial a | Sectorial authorities | | |

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Status at the moment:

- 30 main categories of thematic data available through corresponding geospatial services
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Backdrop - Trends in GIS development

Technology advances - demands for matureness and new direction in organizing and utilizing GIS and geospatial data A majority are still developing with a coordinated level approach, while technology enables a cloud level approach



One of the major tasks for an SDI, is to make it easier to discover, access and make use of geospatial data, whenever - for whatsoever

- There are an increasingly number of SDI initiatives around the world, both on a national, regional and global level:
- National SDI: More and more countries are building their national spatial data infrastructure to support major tasks in society with easy accessible and reliable geographic information. Most countries will also make use of their National SDIs in an international (regional / global) cooperation. Example; Norway Digital - The national

| Organization & cod | operation | | |
|--------------------|-------------|-----------------|----------|
| Discovery | Access | Process | Download |
| | Se | rvices | |
| | Metadat | a | |
| Technolog | ах | Geospatial data | a |
| | Standards 8 | specifications | |

An SDI is a coordinated series of agreements on technology, standards and specifications, policies, human resources and related activities, necessary to acquire, process, distribute, use, maintain, and preserve geospatial data on a local, national and international level.

Policy & framework: Regulations, directives, policies, guidelines, etc., with relationship to different aspects of SDI and geospatial information (ref. business models, financial models, technological framework, data policies, etc.)

Organization & cooperation: SDI is all about collaboration between organizations. A cooperation model has assignments of roles and responsibilities related to the SDI-processes. A strategic document with accompanying work plans, are important for the definition of the ambition level.

standards: Interoperability is the foundation for efficient use of data, achievable only

Spatial Data Infrastructure (SDI)

User orientation

SDI success is dependent upon those geospatial data that is in real use.

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Integration capabilities are essential regarding efficient combinations of various geospatial datasets into harmonized chart models and/or geospatial information kits

User communities plays a vital role in SDI development



Question:

Access to data is important in spatial planning – do you know initiatives for sharing data in your own country?

Management performance - Evaluating objectives

Example from Norway: General objectives for all sectors

Goals, status and trends are defined for 1) pollution, 2) safe seafood, 3) acute pollution and 4) biodiversity

Example: Objective for biodiversity

Management of the Barents Sea–Lofoten area will ensure that diversity at ecosystem, habitat, species and genetic levels, and the productivity of ecosystems, are maintained. Human activity in the area will not damage the structure, functioning, productivity or dynamics of ecosystems.

Under this objective, targets for particularly valuable and vulnerable areas and habitats, Species management, Conservation of marine habitats

Management performance - Evaluating objectives

Example: Targets for the management of particularly valuable and vulnerable areas and habitats

- Activities in particularly valuable and vulnerable areas will be conducted in such a way that the ecological functioning and biodiversity of such areas are not threatened.
- Damage to marine habitats that are considered to be threatened or vulnerable will be avoided.
- In marine habitats that are particularly important for the structure, functioning, productivity and dynamics of ecosystems, activities will be conducted in such a way that all ecological functions are maintained.
Management performance - Evaluating objectives

Activities in particularly valuable and vulnerable areas will be conducted in such a way that the ecological functioning and biodiversity of such areas are not threatened



It is difficult, knowledge must be built up...

- When for example a new industry applies for concession, first of all the applicant must submit enough knowledge through the impact assessment to make it possible to make an informed decision.
- If a license is granted, there may be requirements for mapping, monitoring, research. Stricter requirements, the weaker the knowledge base is.

Remember also that objectives can be related to ecosystem, but also for instance to the socioeconomic situation.

Adaptive management

- 1. Political decision
- 2. Goals (direction), and action tresholds
- 3. Initiate monitoring, research programs, action plans
- 4. Implementation by sector regulations, among others
- 5. Monitor by indicators, scientific overviews and advices
- 6. Cross-sector status reports and assessments → acceptable development?

To quote UNESCO: MSP does not lead to a one-time plan. It is a continuing, iterative process that learns and adapts over time

The Norwegian model from 2006 did not really illustrate the progress, although it was not intended, it looked like a wheel that went around and around in the same place. Unesco's model, on the other hand, shows that each revision takes into account what has been learned from the previous round, thus bringing the situation forward. It gives a good example of that everything can be improved! ©

UNESCO – a step-by-step approach to MSP

- (1) Need & authority
- (2) Financial support
- (3) Pre-planning
- (4) Stakeholders
- (5) Existing conditions
- (6) Future conditions
- (7) Preparing & approving
- (8) Implementing & enforcing
- (9) Monitoring & evaluating
- (10) Adapting

To sum up:

- Before and after the break, we have seen examples on
- Need started the work, remember the discussions about oil development and fisheries.....
- How the planning can be organised.....and how stakeholders can be involved
-what a knowledge base can contain
-a tool for adapting the at the miljøverdi
-example on collecting all data and
- And examples on how to work with objectives

And also that msp is a system of continuous improvement

My ambition – which I presented for you in the very beginning - was that you would to see the possibilities that lies in this tool, and also that you have a clearer understanding of what role you can play.



