



MSP in Norway: Lessons learned from the Norwegian and Barents seas plans

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Background

- Norway is developing integrated area-based management plans for Norwegian EEZs in:
 - Barents Sea. Established in 2006
 - Norwegian Sea. Established in 2009
 - North Sea. Development strated
- Plans are ecosystem-based, use the precautionary approach
- Top-down process led by the Ministry of Environment with collaboration from 4 other ministries
 - Used underlying government institutes and agencies to develop the knowledge base



Organization – Barents Sea

Steering Committee 2003 - 2005

Ministry of the Environment (chair), Ministry of Petroleum and Energy, Ministry of Fisheries and Coastal Affairs and Ministry of Foreign Affairs. Ministry of Labour and Social Inclusion and Ministry of Trade and Industry joined in autumn 2005.

2003

Scientific Basis

Norwegian Polar Institute
Institute of Marine Research
Norwegian Coastal Administration
Directorate of Fisheries
Norut
Norwegian Institute for Nature Research
Institute of Transport Economics
Alpha Environmental Consultants
Agenda

2004

Sectoral studies

Petroleum

Group chaired by Ministry of Petroleum and Energy

Shipping

Norwegian Coastal Administration
Norwegian Maritime Directorate
Norwegian Pollution Control Authority
Institute of Marine Research
Navy

Fishery

Directorate of Fisheries
Institute of Marine Research

External pressures

Norwegian Polar Institute
Directorate for Nature Management
Norwegian Pollution Control Authority
Norwegian Radiation Protection Authority

2005

Overall Pressures

Expert Group

Norwegian Polar Institute
Directorate of Fisheries
Institute of Marine Research
Norwegian Petroleum Directorate
Norwegian Coastal Administration
Norwegian Pollution Control Authority
Directorate for Nature Management
Norwegian Maritime Directorate
Norwegian Radiation Protection Authority

Monitoring of Environmental Quality

Norwegian Polar Institute
Institute of Marine Research

Planning process

Phase 1

Scoping

Status reports:

- Environment and resources
- Valuable area
- Socioeconomic aspects
- Economic activities

Phase 2

Assments of impacts of:

- Oil and gas
- Shipping
- Fisheries
- External influences

Consulation with public on mandate and final reports

Development of Ecological Quality Objectives

Phase 3

Aggregated analyses:

- Total impact
- Management goals
- Gaps in knowledge
- Vulnerable areas and conflic of interests

Stakeholder conference

Management plan

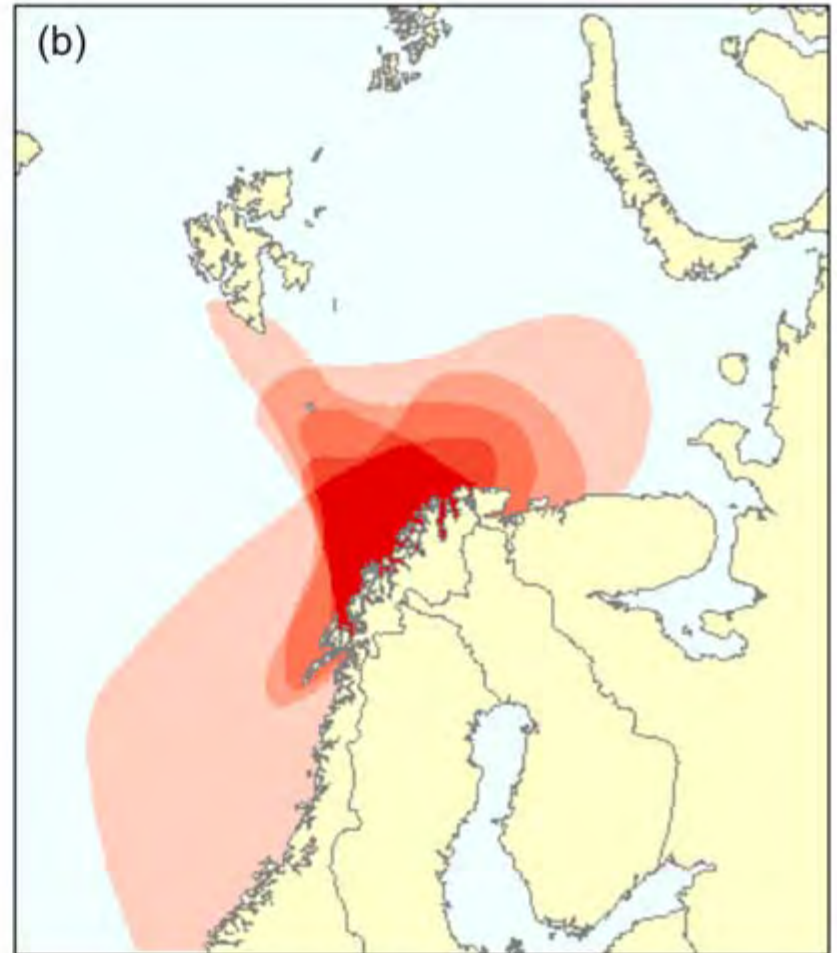


Areas of biological importance

Spawning Areas



Larvae areas



Valuable area Barents Sea

Ice edge (variable)

Production, biodiversitiy, feeding

Polar front

Production, feeding fish, birds + mammals

Bear Island

Retention area, benthos, seabirds

Coastal zone

Spawning, feeding seabirds and fish

Eggakanten (edge of cont. shelf)

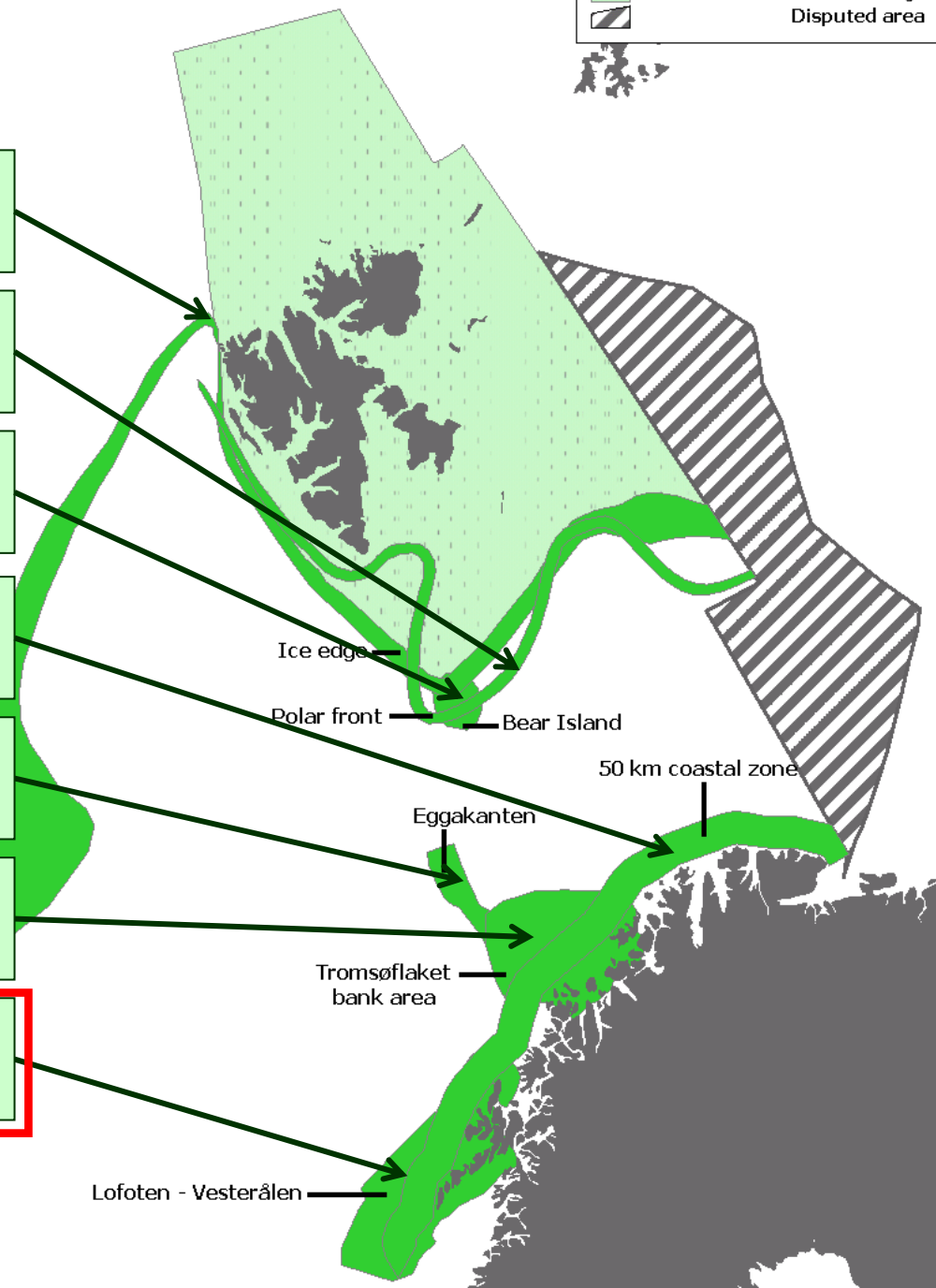
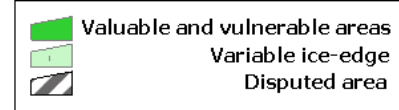
Spawning, feeding area birds + mammals

Tromsøflaket bank area

Retention area, spawning area, sponges

Lofoten – Vesterålen

Major spawning grounds, High Biodiversity



Barents Sea management framework 2006-2010

No Petroleum Activities

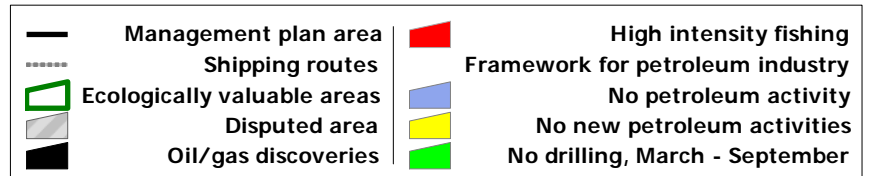
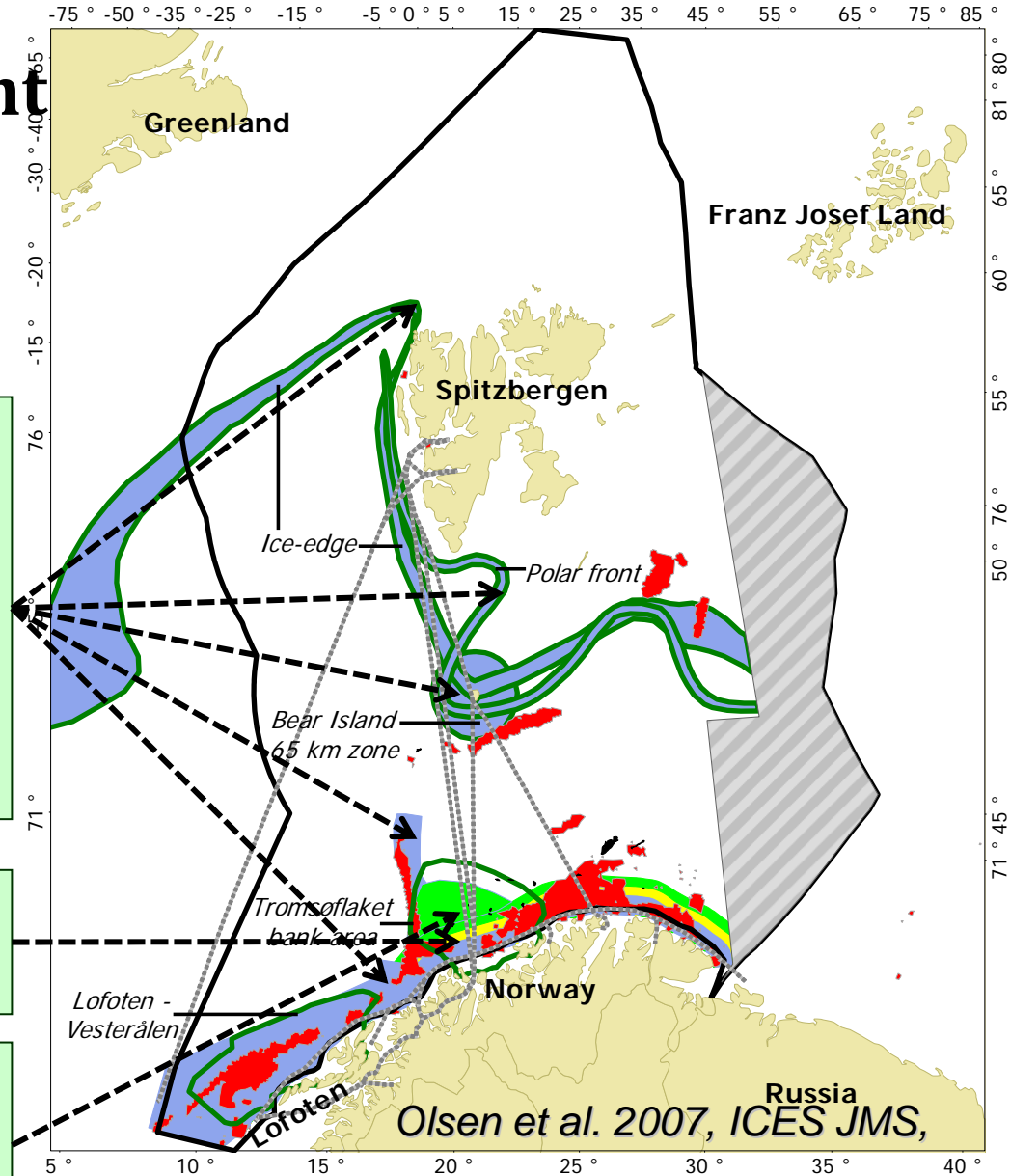
- Lofoten – Vesterålen
- Eggkanten
- Bear Island
- Polar front
- Ice-edge
- Coastal zone 0 – 35km

No NEW Petroleum Activities

- Coastal zone 35 – 50 km

No drilling March - August

- Coastal zone 50 - 65 km
- Tromsøflaket



The Norwegian Sea plan

- Similar organization to the Barents Sea plan
- Similar structure of development, 3 phases starting with describing the environment and conducting EIAs of the human impacts
- Started in 2006, ratified by Stortinget (parliament) in 2009



Arctic front

High production, seabirds, mammals

Jan Mayen

High production, seabirds, mammals

Coastal zone

Spawning area, seabirds, mammals, kelp

Eggakanten continental shelf break

Spawning, feeding fish, birds + mammals

Sklinna Bank

Spawning area, retention area

Iverryggen

Cold-water coral reefs, MPA(?)

Halten Bank

Spawning area, retention area

Sula and Froan

Cold-water coral reefs, seabirds, mammals

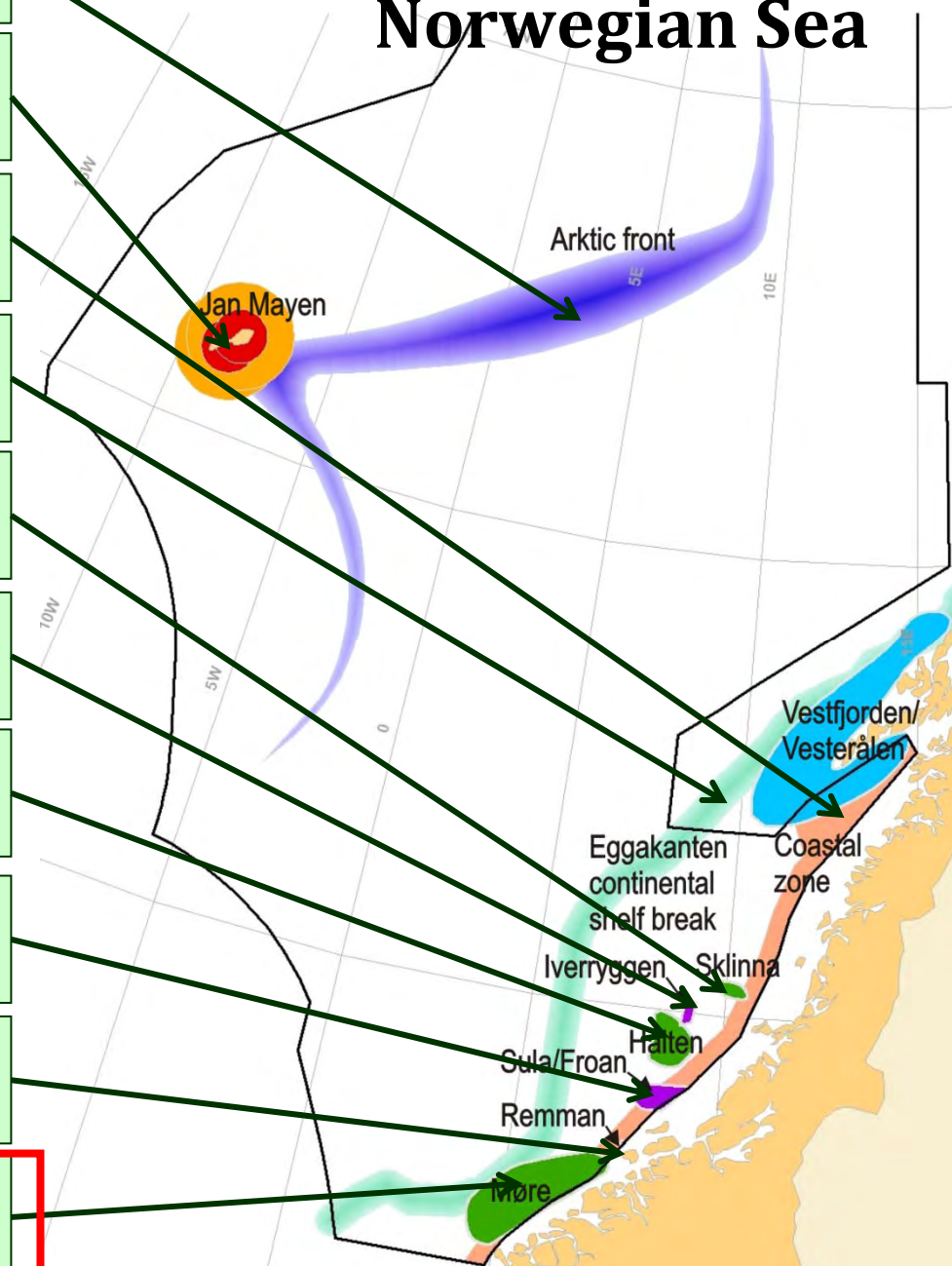
Remman

Kelp, MPA(?)

Møre bank area

Spawning, kelp, seabirds, whales, MPA(?)

Valuable areas Norwegian Sea



Something Fishy with how the oil industry analyzed the effects of large oil spills on the ecosystem....

Even a (modelled) worst case spill could only kill 5-6% of a year class.

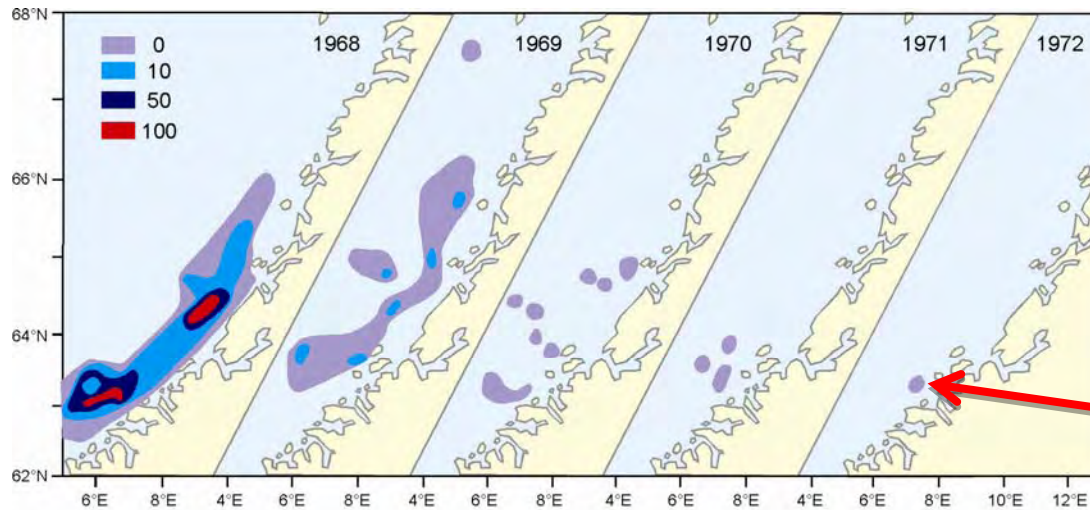


How are Environmental consequences of a spill evaluated?

- Current practice is through the use of ***Risk Assessment***:
 - Use best available knowledge to estimate a value of all parameters included in the analysis
 - Variability and heterogeneity is typically handled by using average values or multiple simulations
 - Uncertainty is not communicated directly, but handled by
 - Adding security factors
 - Choosing conservative values

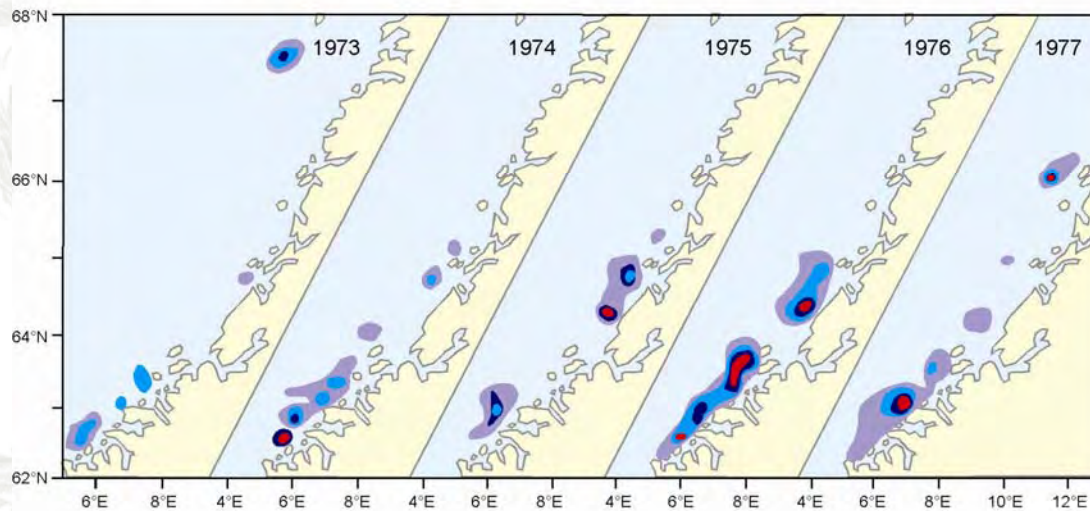


At low population sizes stock aggregate in core areas



Distribution of herring larvae 1968-77 (proxy for spawning grounds)

This is where **the entire** stock spawned in 1972.



A single large spill could have affected the whole year-class with dramatic longterm (decades) consequences..

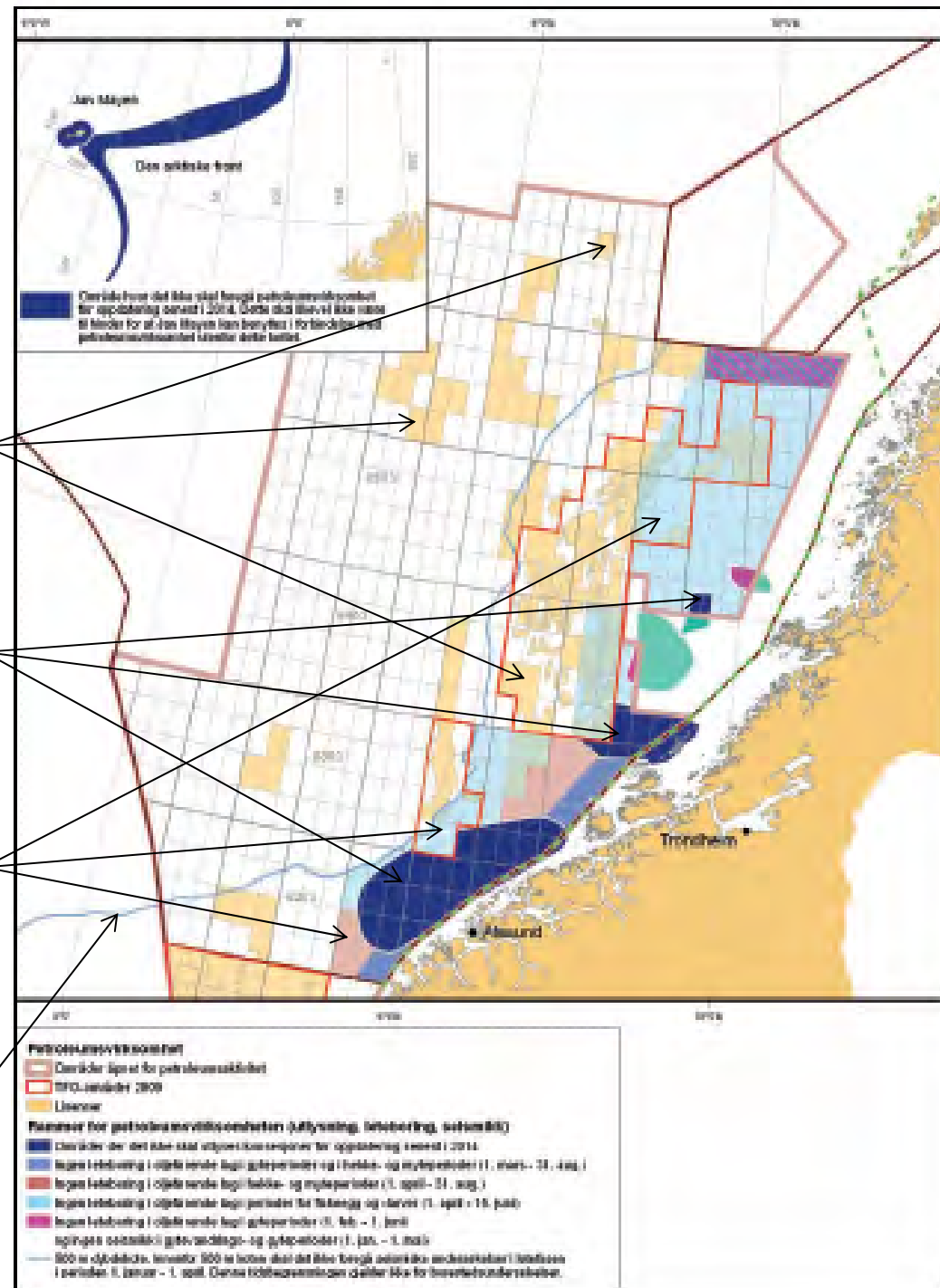
Norwegian Sea petroleum framework

Active petroleum licenses

No new petroleum activities (to be revised in 2014)

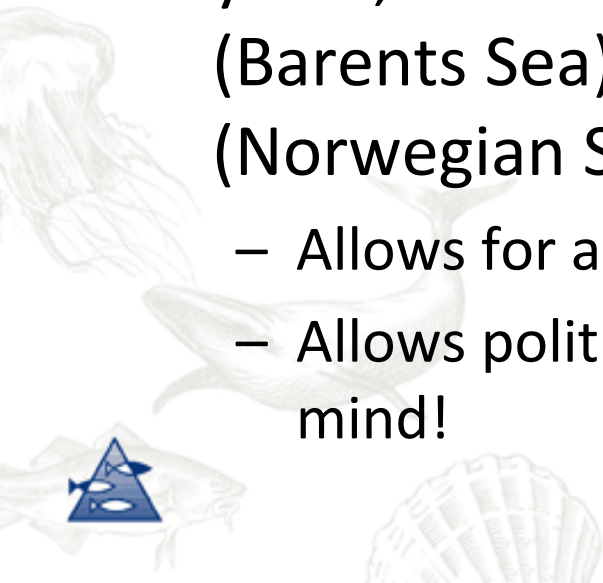
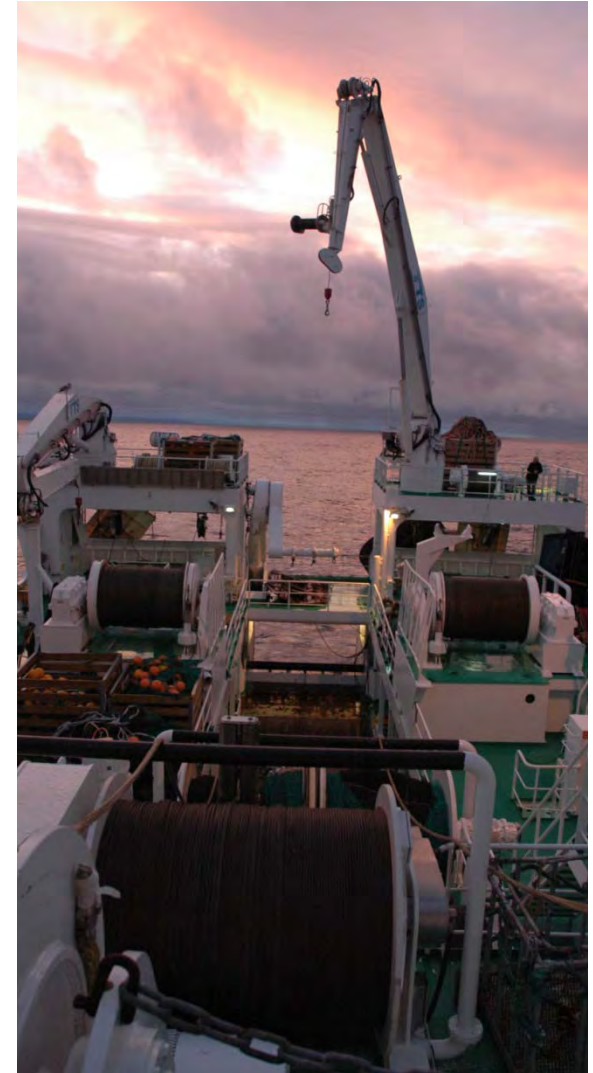
Seasonal restrictions on drilling

Seasonal restrictions on seismic exploration inshore of 500m



Implementation

- Annual reporting on:
 - State of the environment
 - Achievement of goals
 - Knowledge base
- Revision of the plan every 4 years, the first time in 2010 (Barents Sea) and 2014 (Norwegian Sea)
 - Allows for a changing environment
 - Allows politicians to change their mind!



Quantitative value-setting of areas

- In both plans to date value-setting has been based on expert judgement only
- A project is under way to map, quantify and integrate the value of the marine environment
 - Semi-quantitative process
 - Developing a web-based GIS application to be used for managers

