

# Ecosystem-related monitoring, assessments and management advices for the Norwegian, Barents and North Seas



Meld. St. 10 (2010–2011) Report to the Storting (white paper)

First update of the Integrated Management Plan for the Marine Environment of the Barents Sea–Lofoten Area



Meld. St. 37 (2012–2013) Report to the Storting (white paper)

Integrated Management of the Marine Environment of the North Sea and Skagerrak (Management Plan)



**Meld. St. 35**

(2016–2017)

Melding til Stortinget

Oppdatering av forvaltningsplanen for Norskehavet



27-28 NOVEMBER 2017  
CAPE TOWN, SOUTH AFRICA

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Elena Eriksen, Mette Skern-Mauritzen, Lidvard Grønnevet  
Institute of Marine Research  
NORWAY  
Session 4



  
BUILDING INTERNATIONAL PARTNERSHIP TO ENHANCE SCIENCE-BASED  
ECOSYSTEM APPROACHES IN SUPPORT OF  
REGIONAL OCEAN GOVERNANCE

**Overview**

**Monitoring**

**Approach and  
Objectives**

**Indicators, Measures,  
and Reports**

**Status and Advices**

**Experiences**

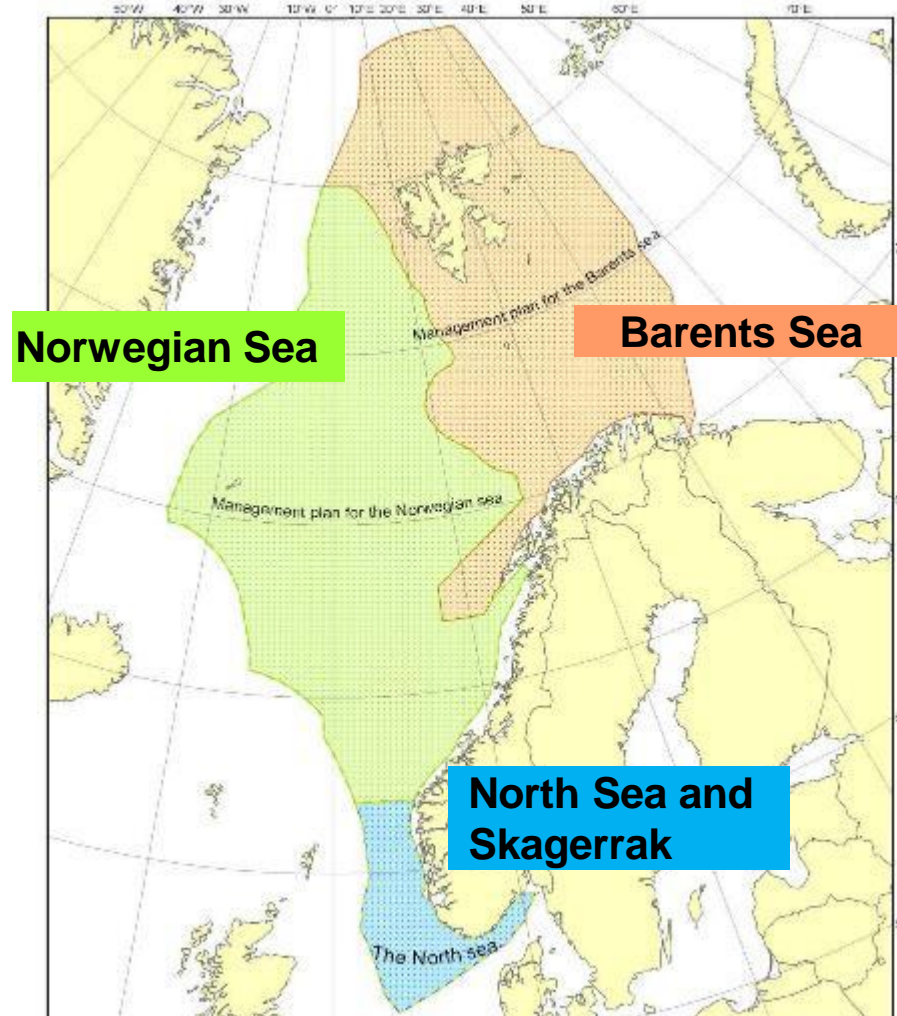
**Improvement?**





# Ecosystem-related Monitoring, Assessments, Advices and Management for the Norwegian, Barents and North Seas

- Initiated in 2001 to implement integrated and ecosystem-based management for Nor. EEZs
- Barents Sea: 2006 (updated in 2011)
- Norwegian Sea: 2009 (updated 2017)
- North Sea and Skagerrak: 2013



# Monitoring

- International collaboration and arrangements
- Ecosystem surveys
- Single species surveys
- Fixed stations and transects

ICES Working Groups: stock assessment, regional seas and ecosystem etc., Russian-Norwegian Commissions on Fisheries and on Environment, NEAFC, ICCAT, NASCO, ACCOBANS, OSPAR, NAMCCO, IMO, Arctic Council, EU MP, EU CFP



# ICES Regional Sea Programme



WGIBAR 2017 REPORT

ICES SSGIEA COMMITTEE

ICES CM 2017/SSGIEA:04

REF. ACOM AND SCICOM

Report of the Working Group on the  
Integrated Assessments of the Barents Sea

16-18 March 2017

Murmansk, Russia



ICES  
CIEM

International Council for  
the Exploration of the Sea

Conseil International pour  
l'Exploration de la Mer





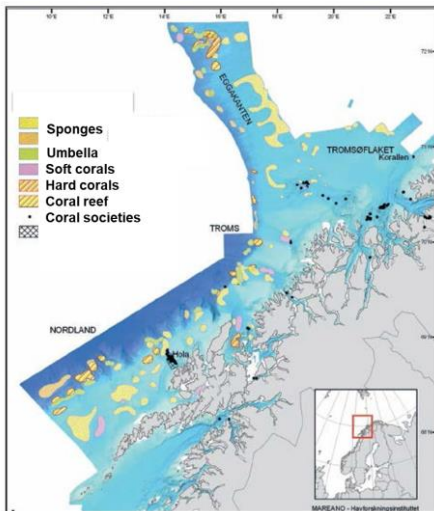
# Monitoring the Barents Sea: Joint Russian-Norwegian Ecosystem Survey



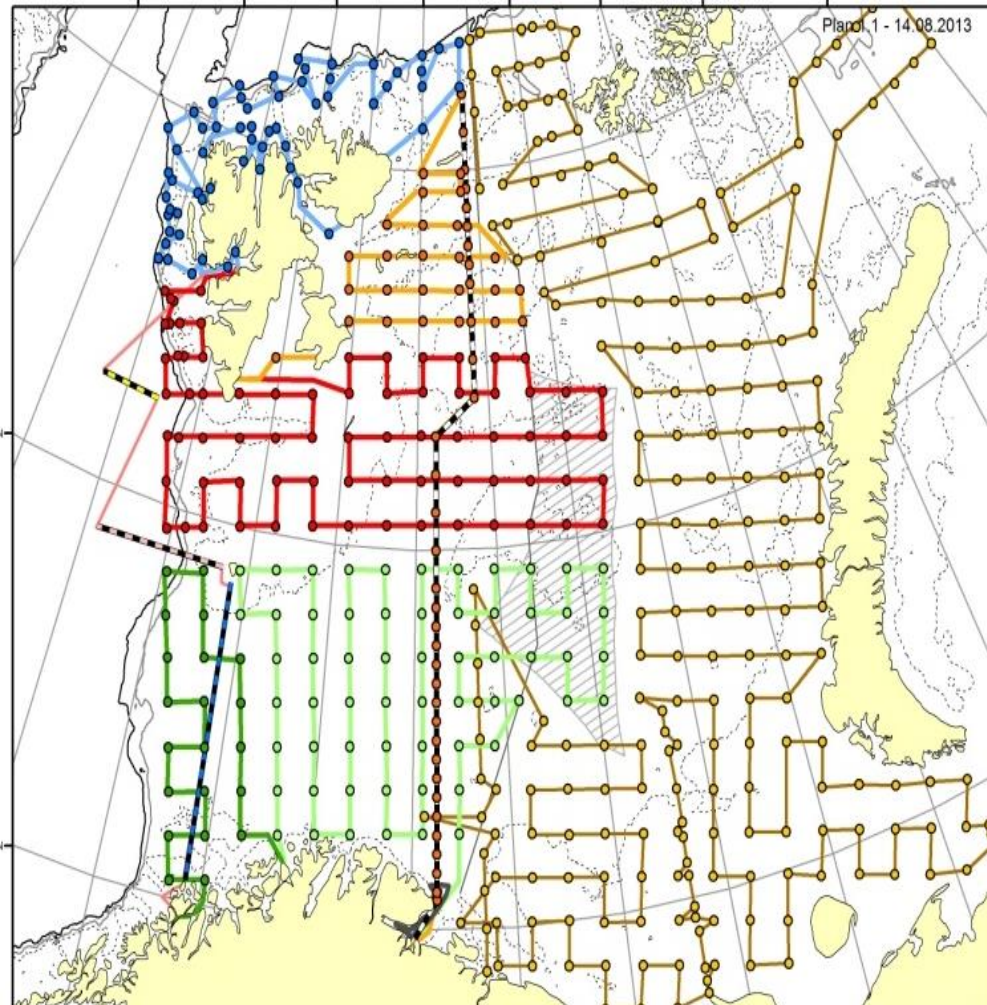
## Seabed Mapping



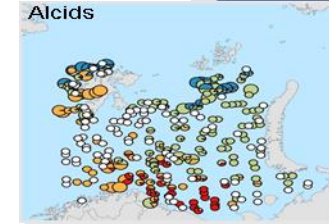
**mareano**  
collecting marine knowledge



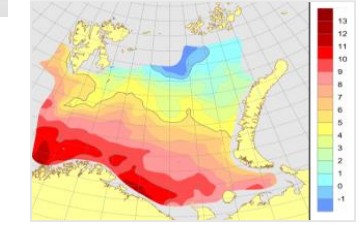
Lofoten-Vesterålen- Troms



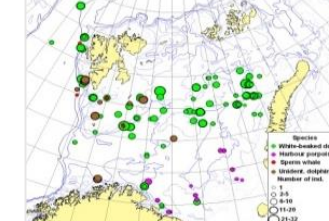
Sea birds



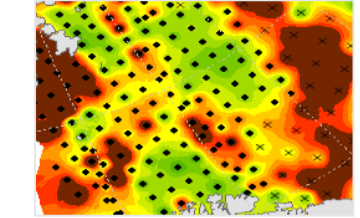
Temperature



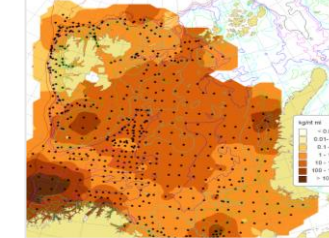
Marine mammals



Plankton



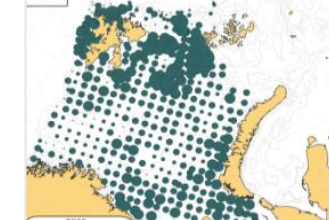
Benthos



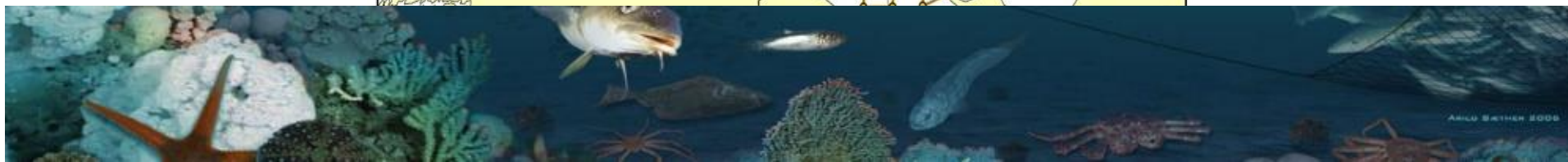
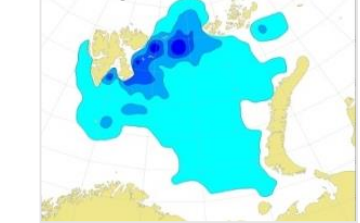
0-group fish



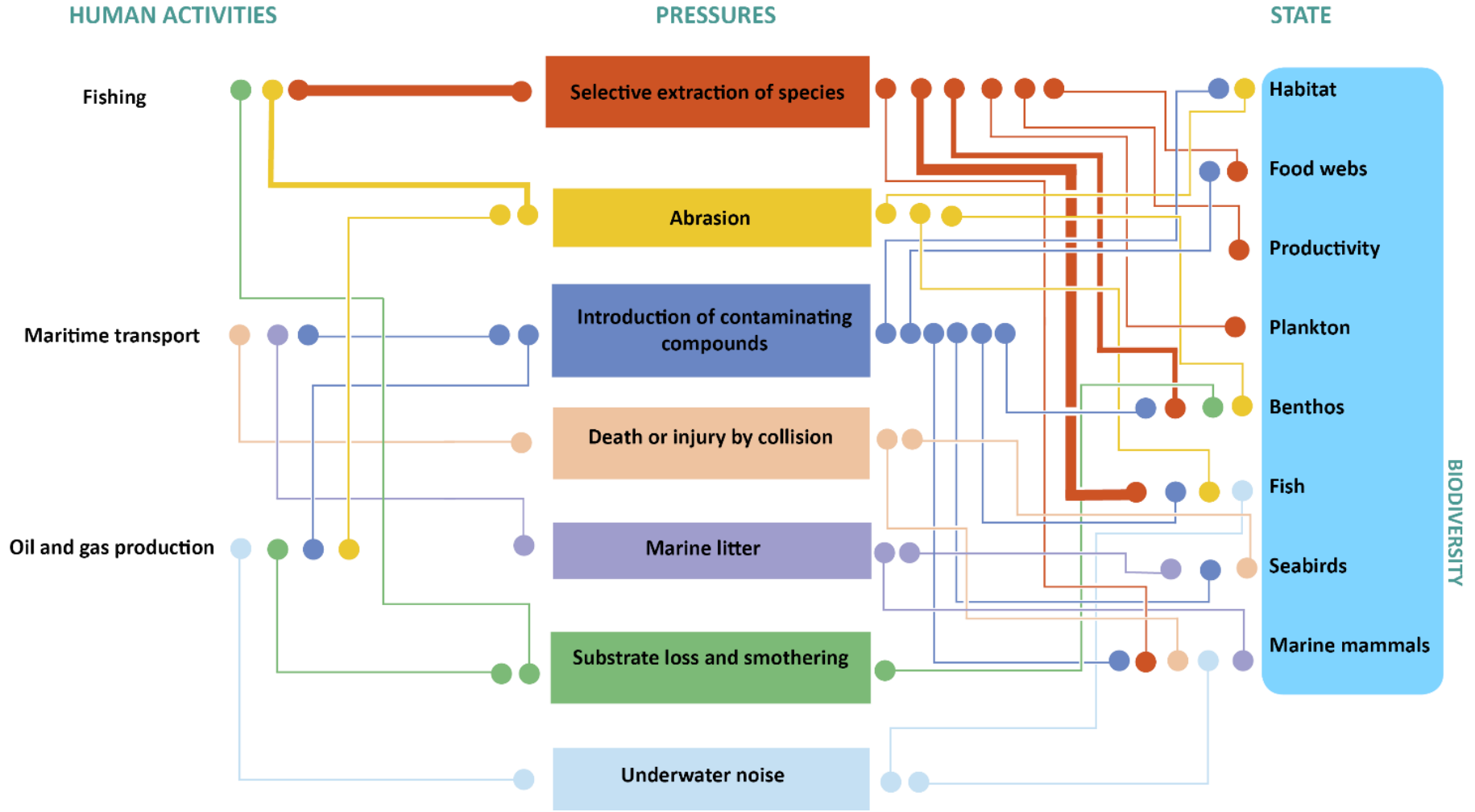
Demersal fish



Pelagic fish



# ICES Regional Sea Barents Sea Pressure Chart 2016:



Activities and pressures on the ecosystem susceptible to regional management

Always vary (influenced by environmental drivers)





# Strategic Objective

## Sustainable Use and Maintenance of the Health of the Marine Ecosystem

### Indicators

**24** *Ecosystem status, 4 Pressure and 1 Effect indicators:*

**82** *Status parameters on biodiversity and physical-chemical states*

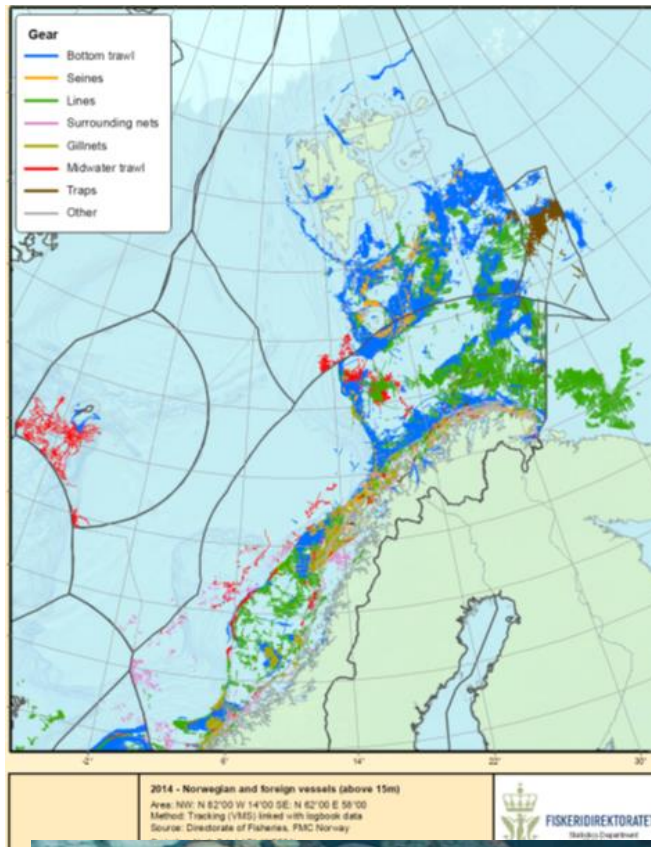
**13** *Activity-related indicators: 70 different parameters on pressure level*



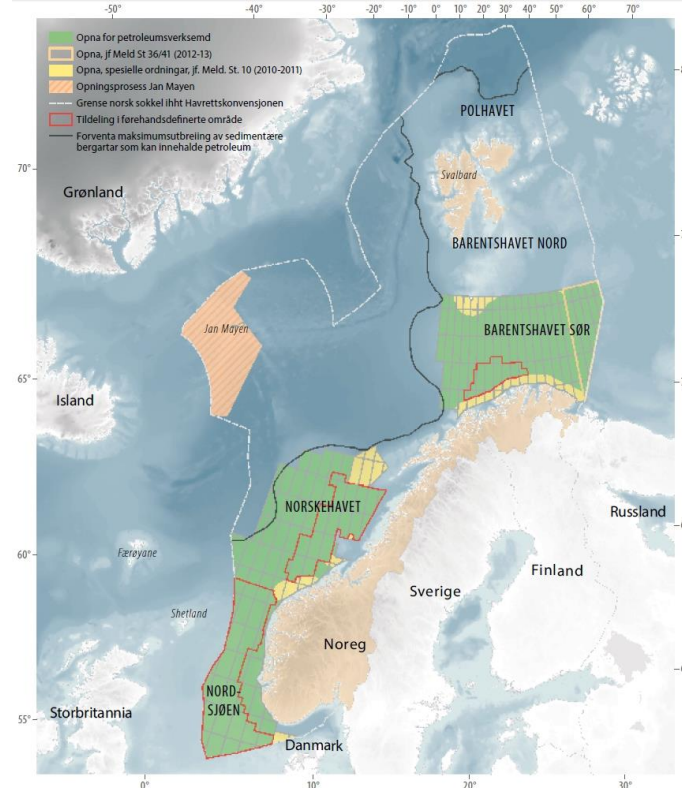


# Norwegian Ecosystem-based Management Plans: Anthropogenic activities in the Barents and Norwegian Seas

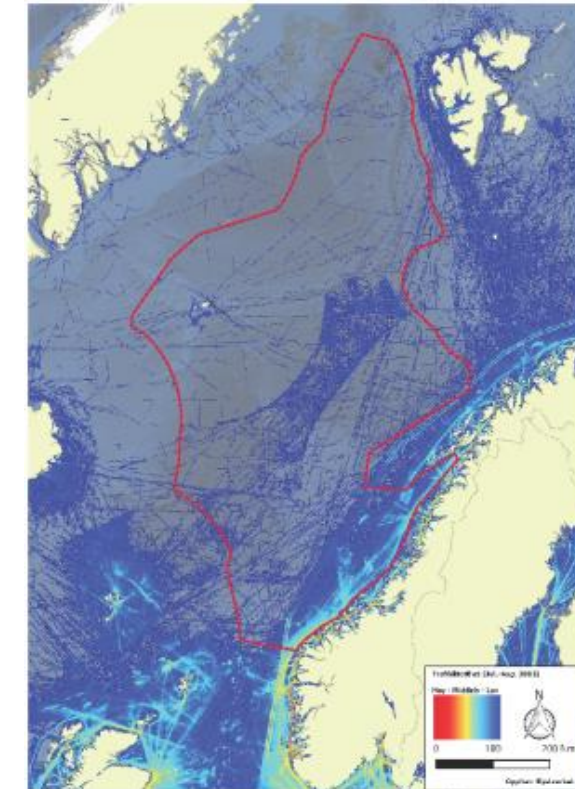
Fisheries activity 2015  
(vessels > 21 m)



Oil and gas fields, opened and planned 2010

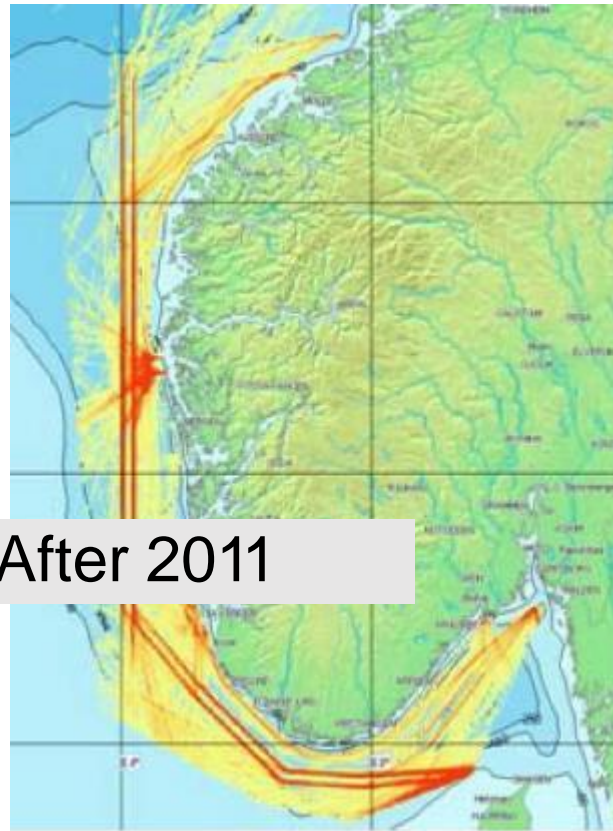


Ship traffic, tracked August 2013, Norwegian Sea

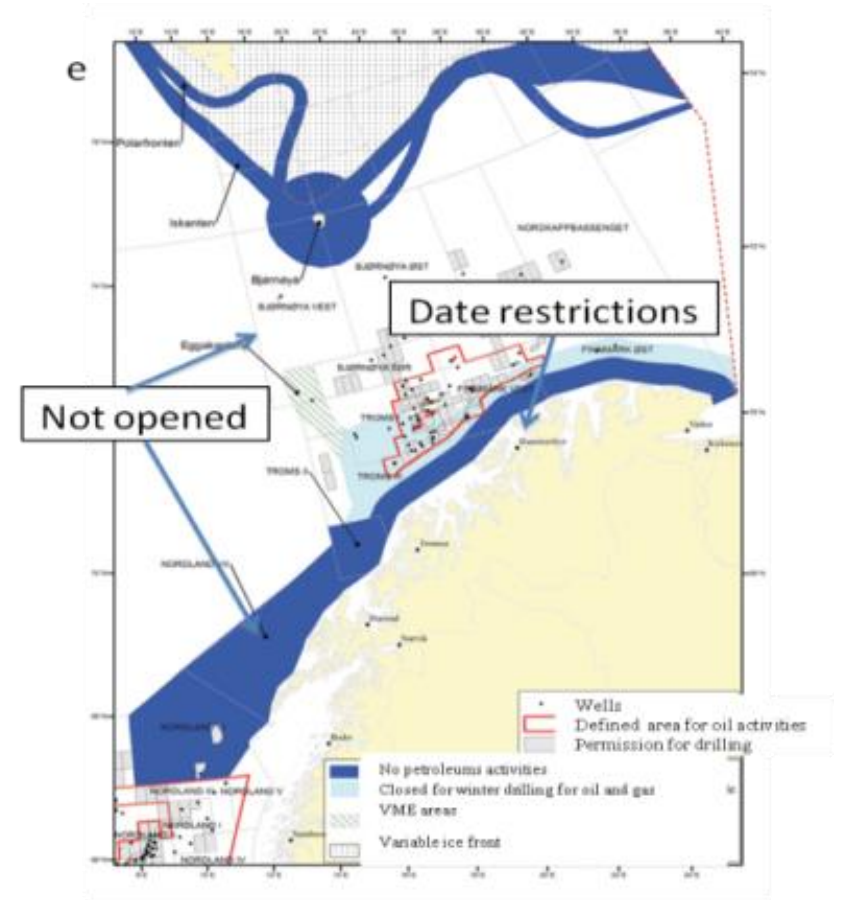




# Change in North Sea Shipping lanes

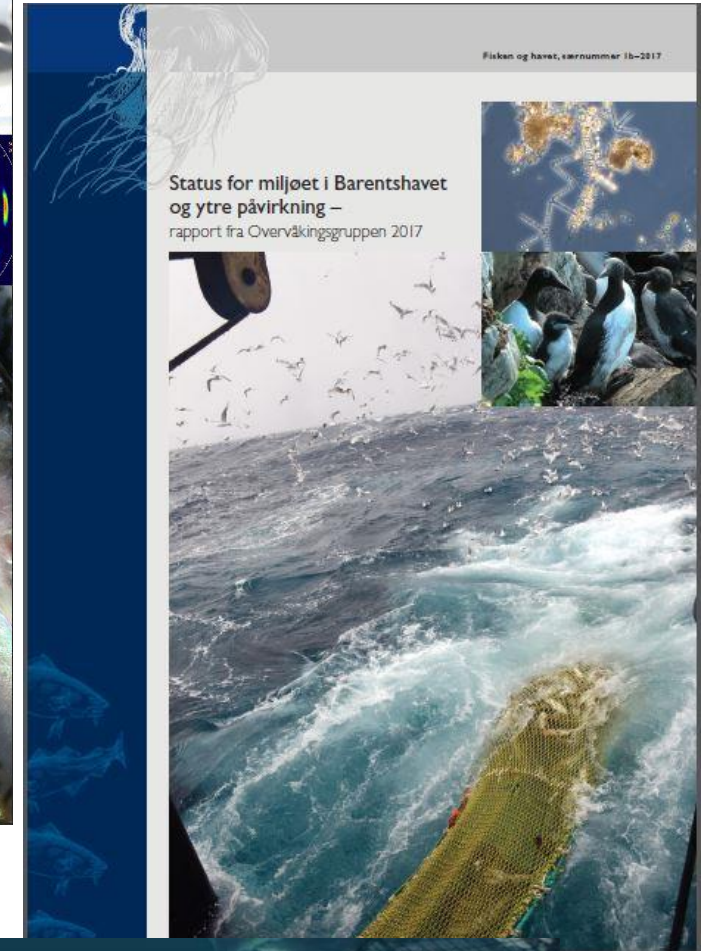


# Particular Valuable Areas





# Annual Reports

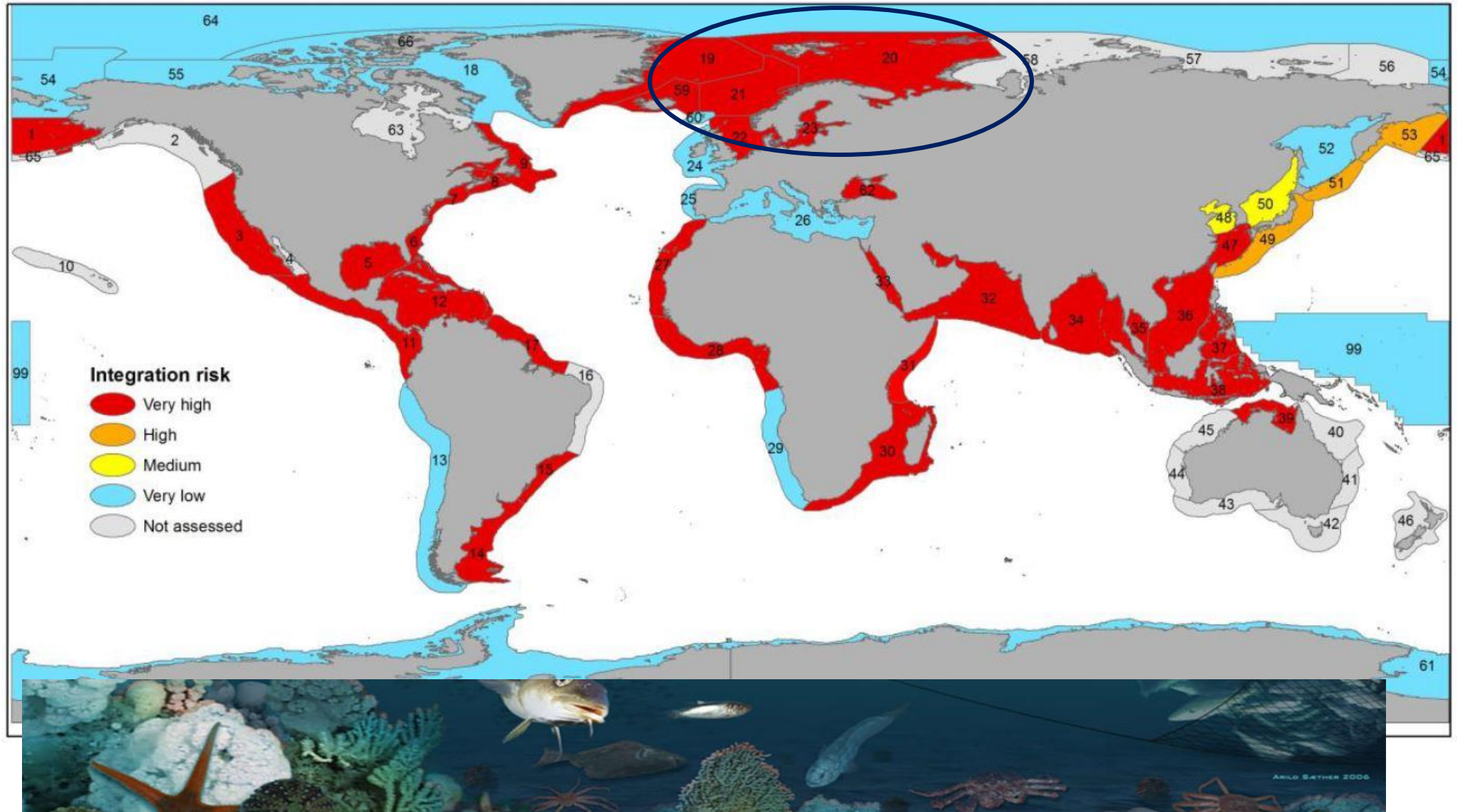


Every three years  
for each large marine ecosystem



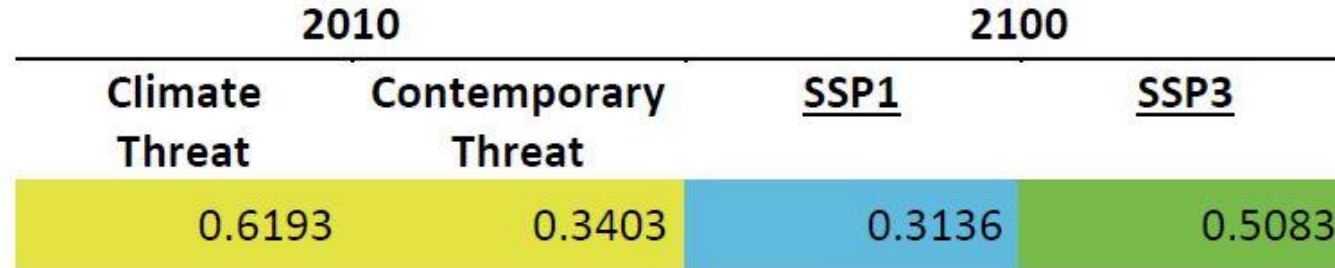


# TWAP LME 2015: Perceived Risk

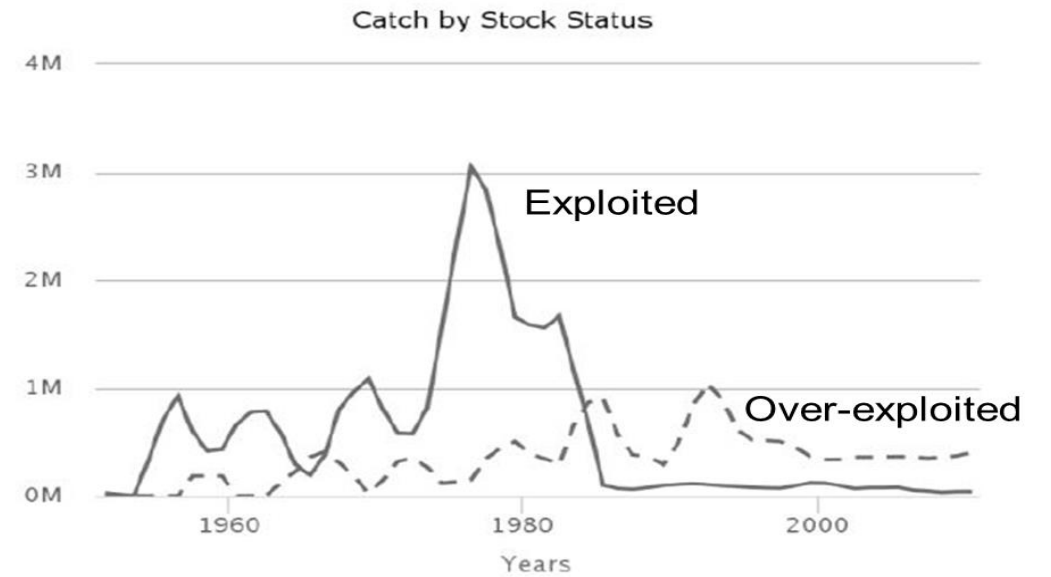
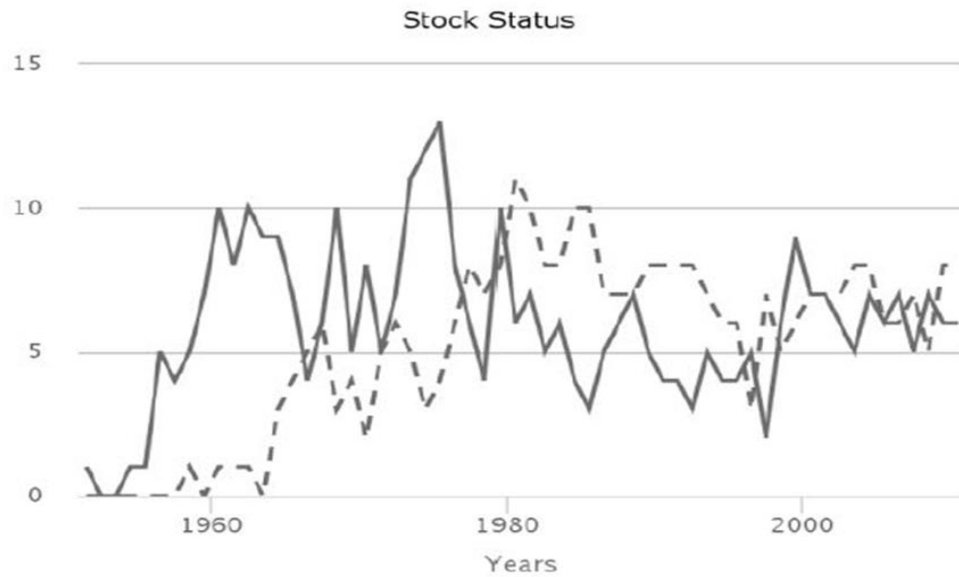




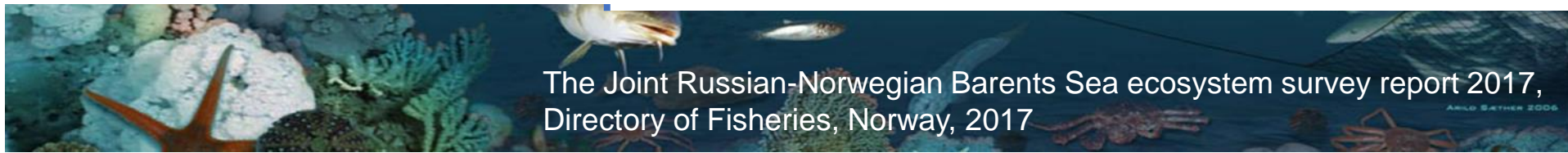
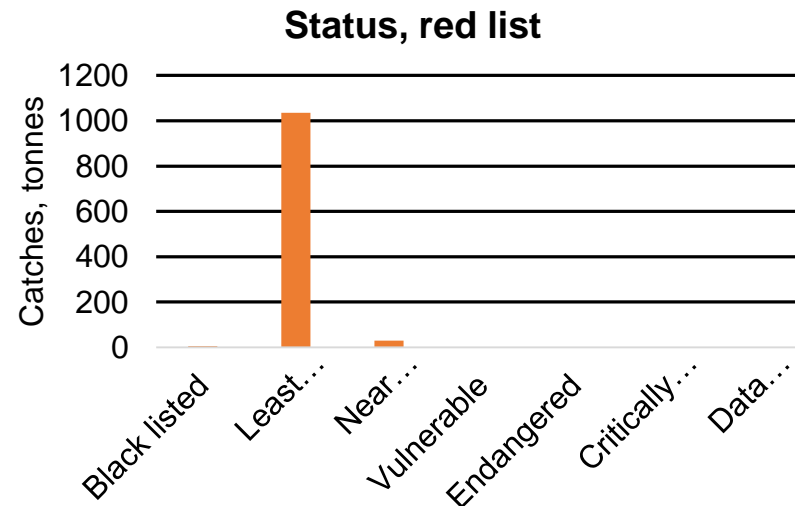
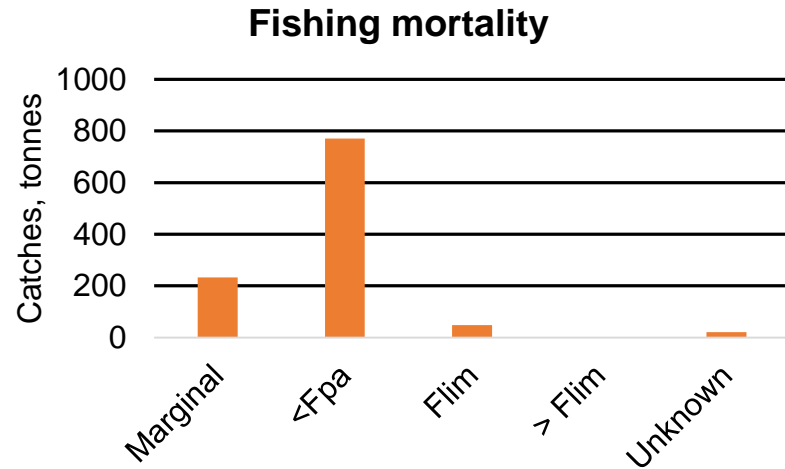
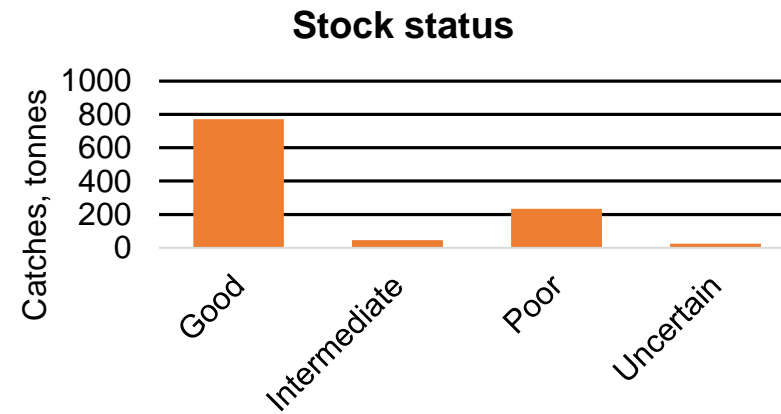
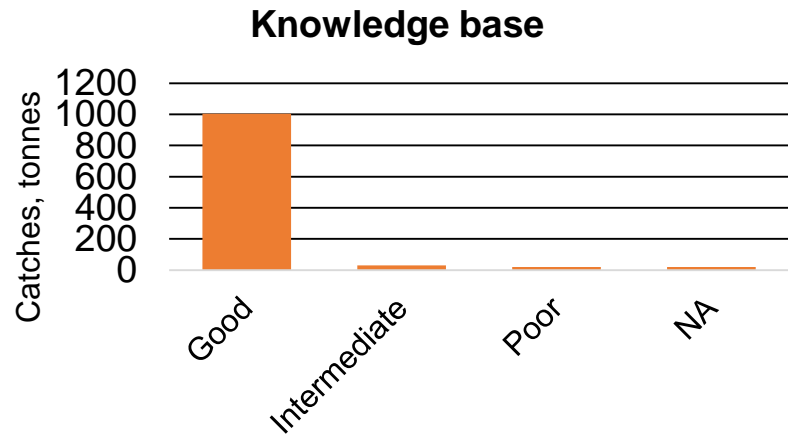
# TWAP Fact Sheet Barents Sea 2016: Climate Related Threats and Stock Status



Legend:



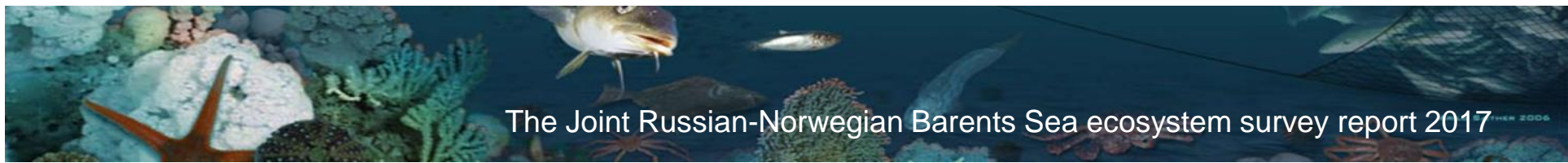
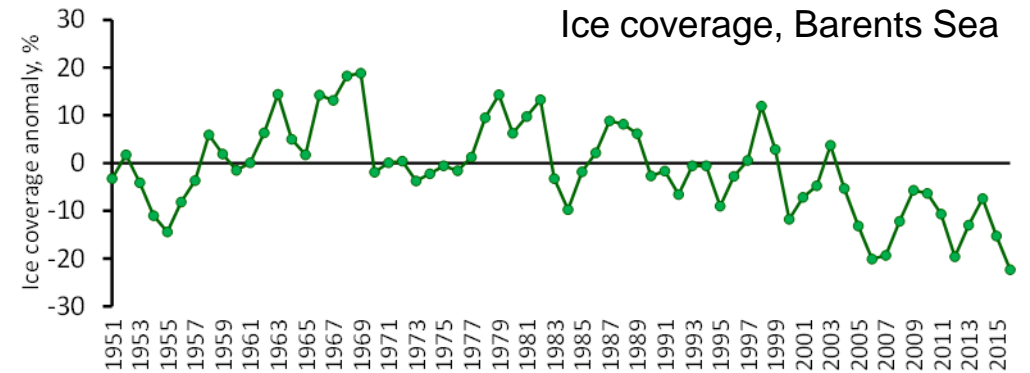
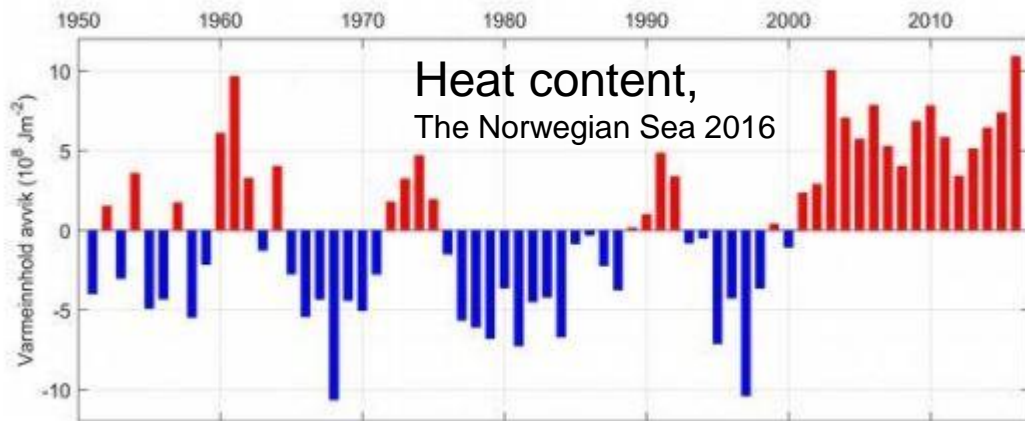
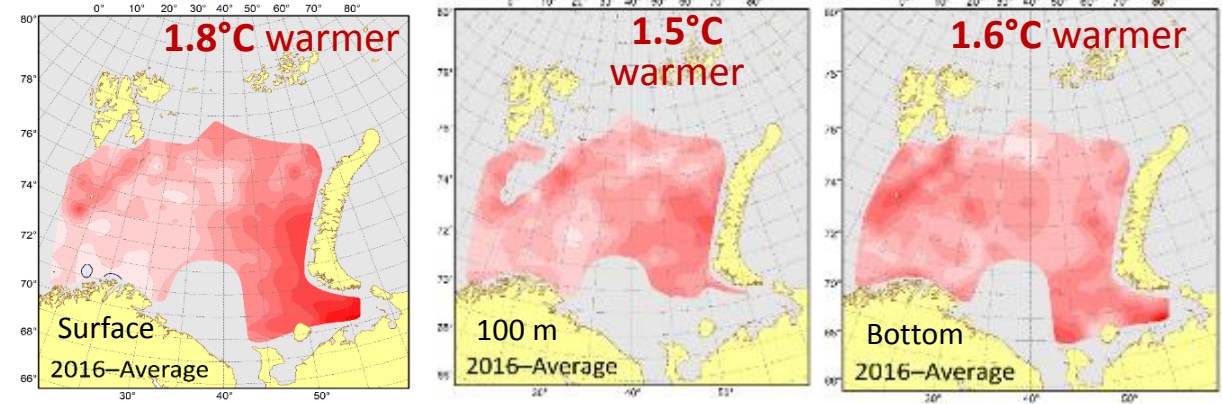
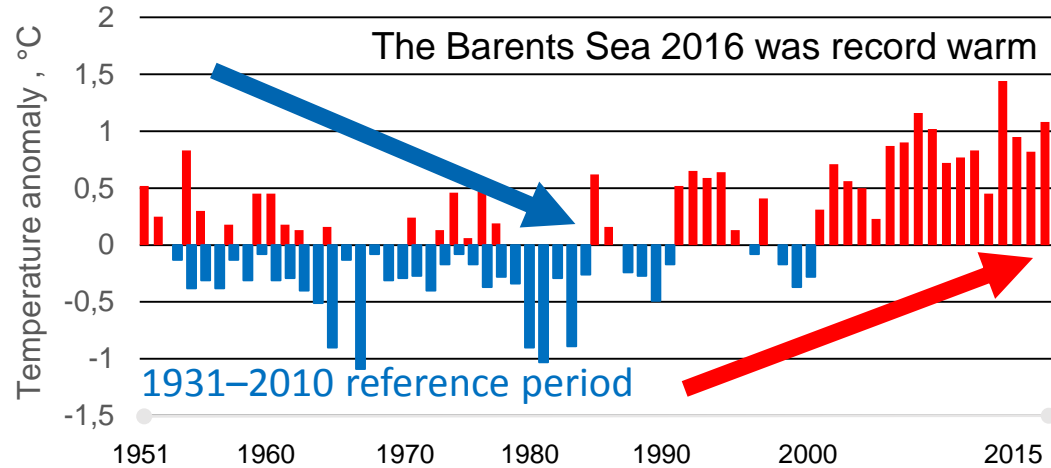
# Regional Assessment 2017: Stock status for the Barents and Norwegian Seas





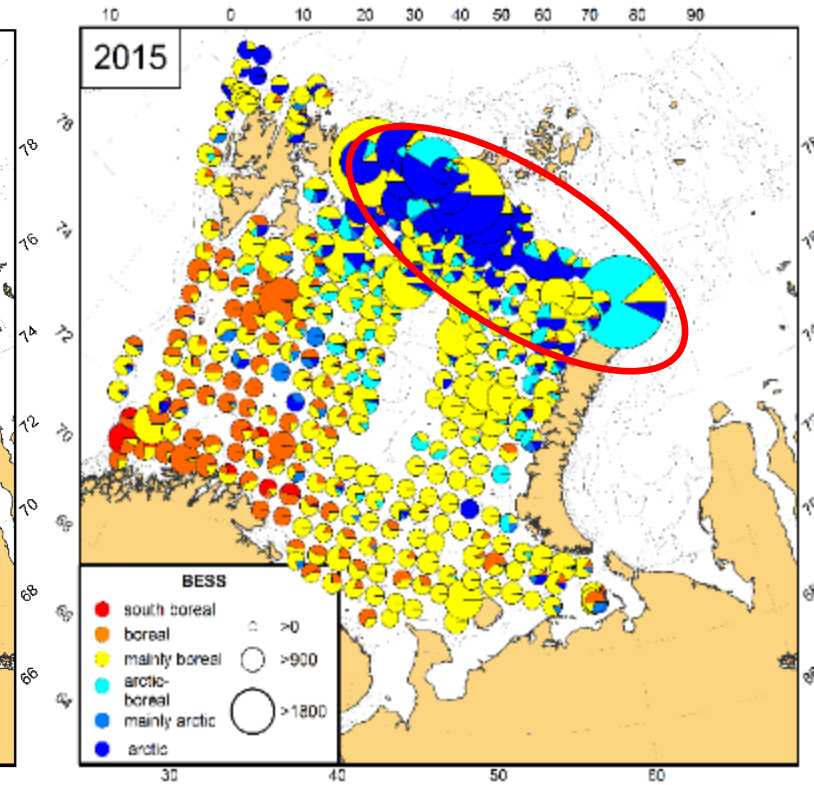
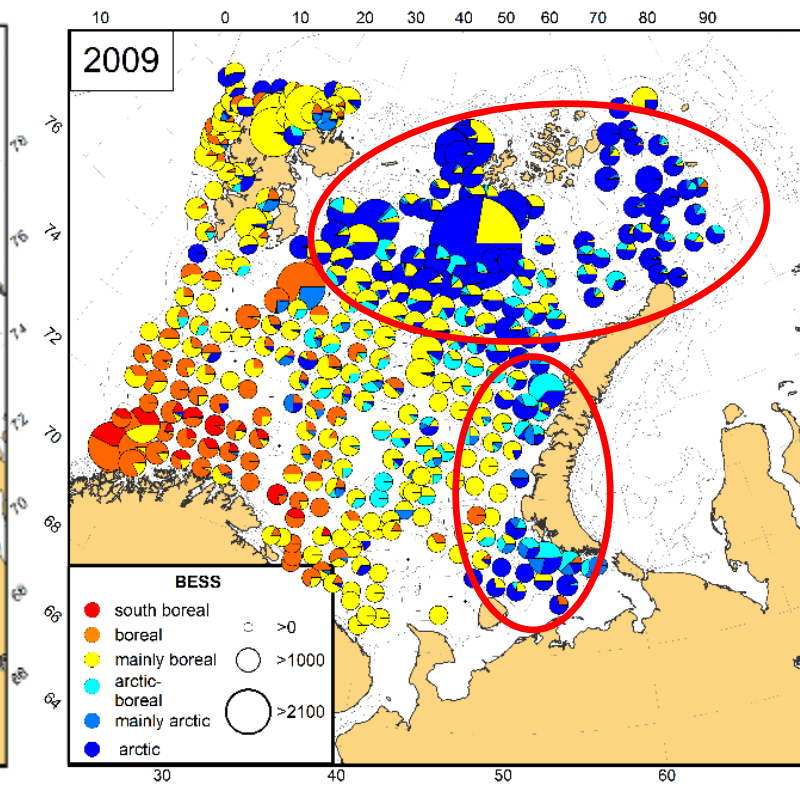
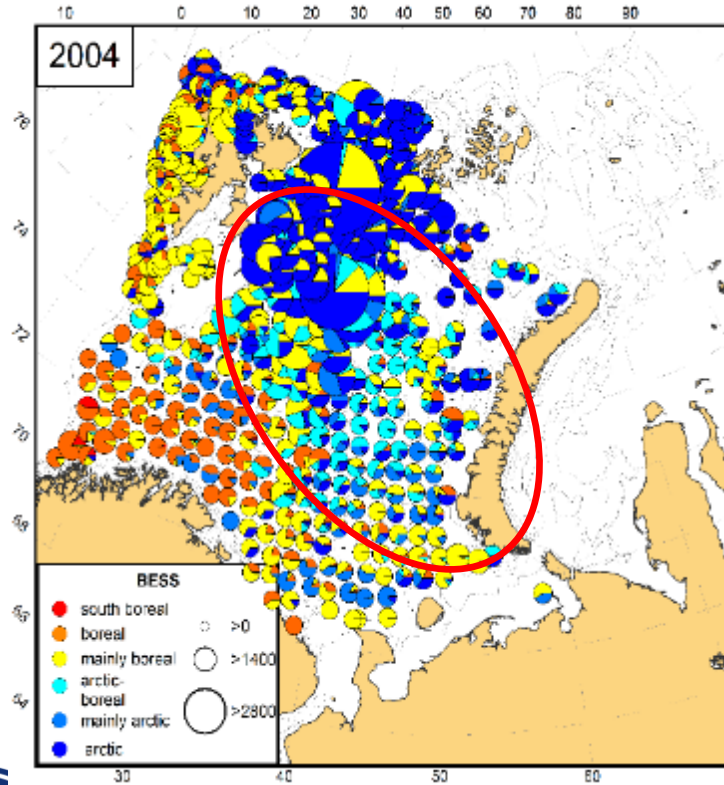
# ICES WGIBAR 2017, WGINOR 2016: *long term climate changes*

## Sea Temperature Anomalies



The Joint Russian-Norwegian Barents Sea ecosystem survey report 2017

# ICES WGIBAR 2017: Stock Distributions





# Other Long-term Results

- Improved access to scientific data and assessments
- Increased focus on environmental indicators
- Improved communication between governmental agencies



## Fields for Improvement

1. Management units have different perspectives and run regulatory processes separately
2. Ecosystem state and trends are reported by natural scientists but these advices lack inclusion of legal, social or economic research and unified measures across management bodies
3. **When doing global assessments; Always include local expertise involved in regional LME assessments**







Thank you



## Reports and White Papers referred to:

Arneberg, P og Jelmert, A. (red) 2017. Arneberg P. og van der Meeren G.I. (red) 2016. Status for miljøet i Barentshavet – rapport fra Overvåkingsgruppen 2017. Fisken og havet, særnr. 1b-2017. 85 pp. (Holistic Status report on the Barents Sea, in Norwegian)

Arneberg, P og van der Meeren, G. (red) 2016. Arneberg P. og van der Meeren G.I. (red) 2016. Status for miljøet i Norskehavet – rapport fra Overvåkingsgruppen 2016. Fisken og havet, særnr. 1b-2016. 85 pp. (In Norwegian). 40 pp. Holistic Status Report on the Norwegian Sea, in Norwegian)

Arneberg P., van der Meeren G., Johansson J., Frie A.K., Jelmert A., Grøsvik B.E., Pettersen C.F., Storeng A.B., Skotte G., Frantzen S., Lorentsen S.-H., Selvik I. og Svensen H.I. 2015. Status for miljøet i Nordsjøen og Skagerrak – rapport fra Overvåkingsgruppen 2015. Fisken og havet, særnr. 1b-2015. 35 pp (Holistic Status Report on the North Sa and Skagerrak, in Norwegian)

Fanning, L., Robin Mahon, Kimberly Baldwin and Selicia Douglas. 2015. *Transboundary Waters Assessment Programme (TWAP) Assessment of Governance Arrangements for the Ocean, Volume 1: Transboundary Large Marine Ecosystems*. IOC-UNESCO, Paris. IOC Technical Series, 119: 80 pp.

ICES.2015. Report of the Workshop on Regional Seas Commissions and Integrated Ecosystem Assessment Scoping, 17-20 November 2014, ICES Headquarters, Denmark. ICES CM 2014\SSGBENCH:01. 55 pp.

ICES. 2016. Final Report of the Working Group on the Integrated Assessments of the Barents Sea (WGIBAR), 22-26 February 2016, Murmansk, Russia. ICES CM 2016/SSGIEA:04. 126 pp.

ICES. 2017. Interim Report of the Working Group on Integrated Ecosystem Assessments for the Norwegian Sea (WGINOR), 28 November - 2 December 2016, Bergen, Norway. ICES CM 2016/SSGIEA:10. 28 pp.

IOC-UNESCO. 2017. Global Ocean Science Report - The current status of ocean science around the world. L. Valdés et al. (eds), Paris, UNESCO Publishing.

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Norwegian Ministry of the Environment 2009. Integrated Management of the Marine Environment of the Norwegian Sea. Report No. 37 (2008–2009) to the Storting. 151 pp.

Norwegian Ministry of the Environment 2011. First update of the Integrated Management Plan for the Marine Environment of the Barents Sea–Lofoten Area. Meld. St. 10 (2010–2011) Report to the Storting (white paper). 151 pp.

Norwegian Ministry of the Environment 2013. Integrated Management of the Marine Environment of the North Sea and Skagerrak (Management Plan). Meld. St. 37 (2012 – 2013) Report to the Storting (white paper). 145 p.

Norwegian Ministry of the Environment 2017. Oppdatering av forvaltningsplanen for Norskehavet. Meld.St.35 (2016-2017) (White Paper). 100 pp. (Revised White Paper on the Norwegian Sea, in Norwegian)

