

# International Science Collaboration for Ocean Climate

Anne Christine Brusendorff, ICES General Secretary

2nd Baltic Earth Conference

Helsingør, Denmark, 11-15 June 2018



Science for sustainable seas

# ICES in a nutshell



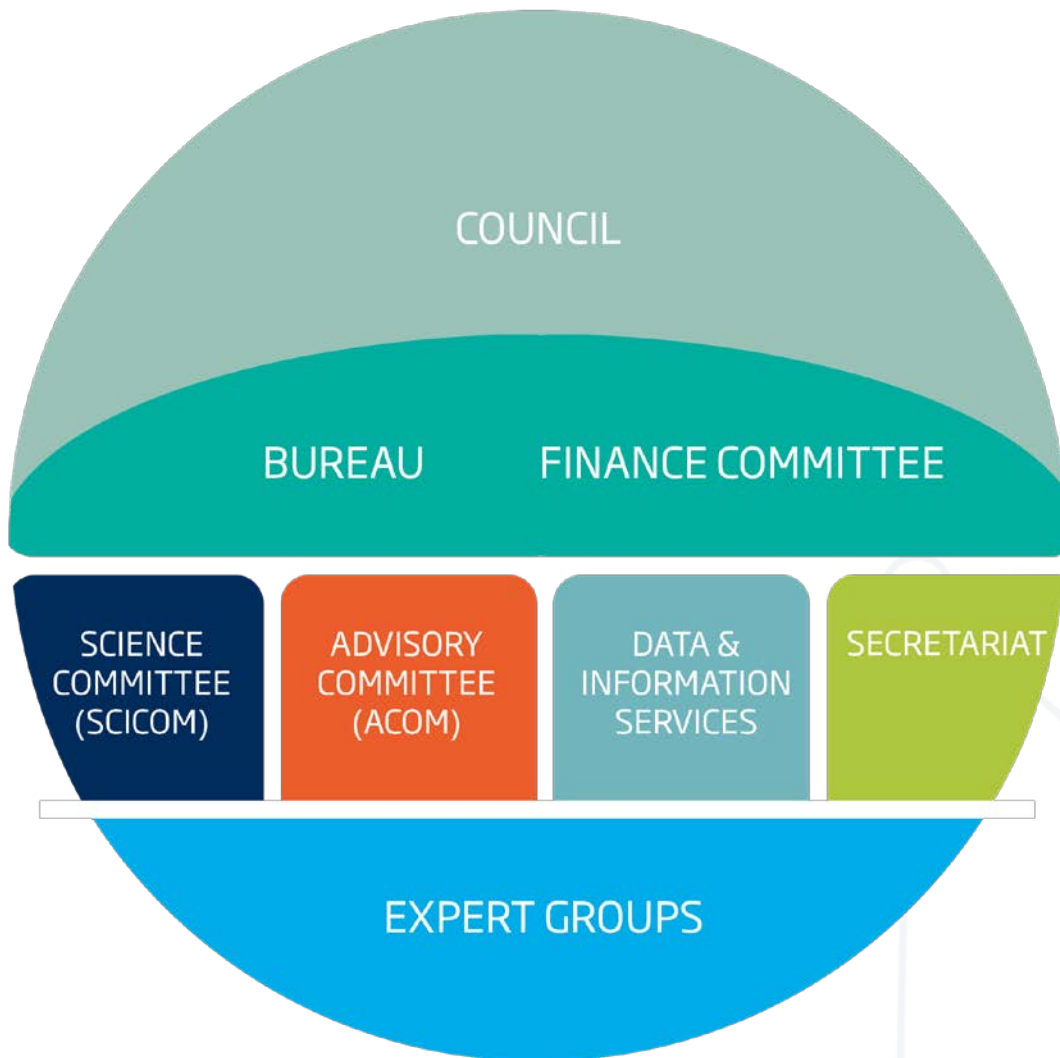
Marine Research &  
Cooperation since 1902

1964 Convention

20 Member Countries

Strategic global/regional  
partners

# ICES main responsibilities



1. Scientific research
2. Evidence platform
3. Scientific advice
4. Training
5. Dissemination

# ICES – an overview



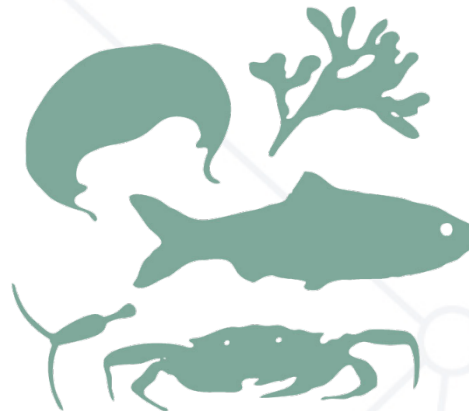
## A global scientific community

- 5000 scientists from nearly 60 countries
- 1500 active experts annually in over 160 working groups and workshops



## Products

- Annual recurrent advice on 200-250 fishing opportunities
- Special requests on broader ecosystem considerations, methodological standards and threshold values: ecosystem and fisheries overviews, vulnerable marine ecosystems, indicator development for healthy seas, evaluation of management plans
- Technical advice and international peer review
- Data used in science and advisory products
- Science highlights within areas of societal importance
- Identification of research needs
- Training
- Publications



## Geographic scope

- 20 member countries
- Strategic partnerships globally



# ICES scientific activities



Understanding ecosystems

Human interactions with the sea

Observation and exploration

Conservation and management

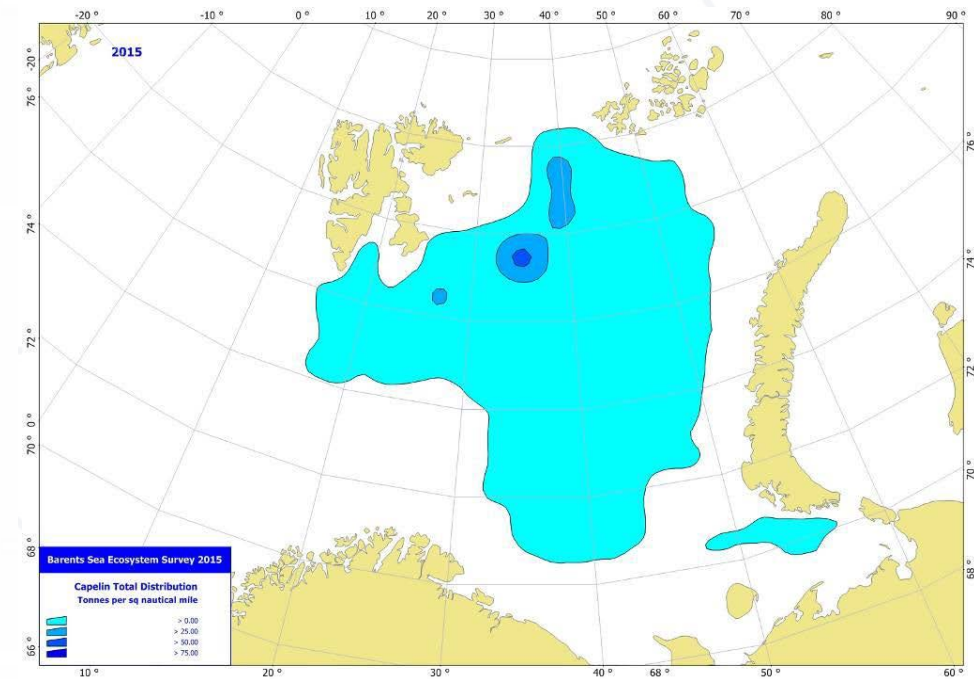
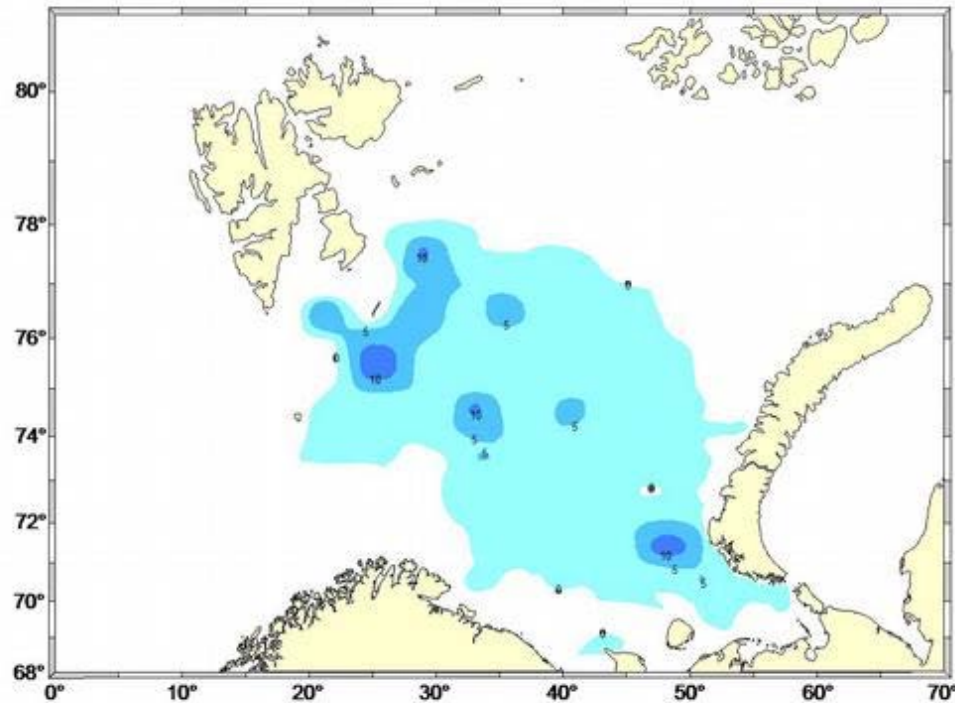
Cooperation on data collection and handling for managing human activities in the marine environment

Independent scientific advice

- Climate change impacts on marine ecosystems
- Links between society and the sea

# Scientific Advice – fishing opportunities

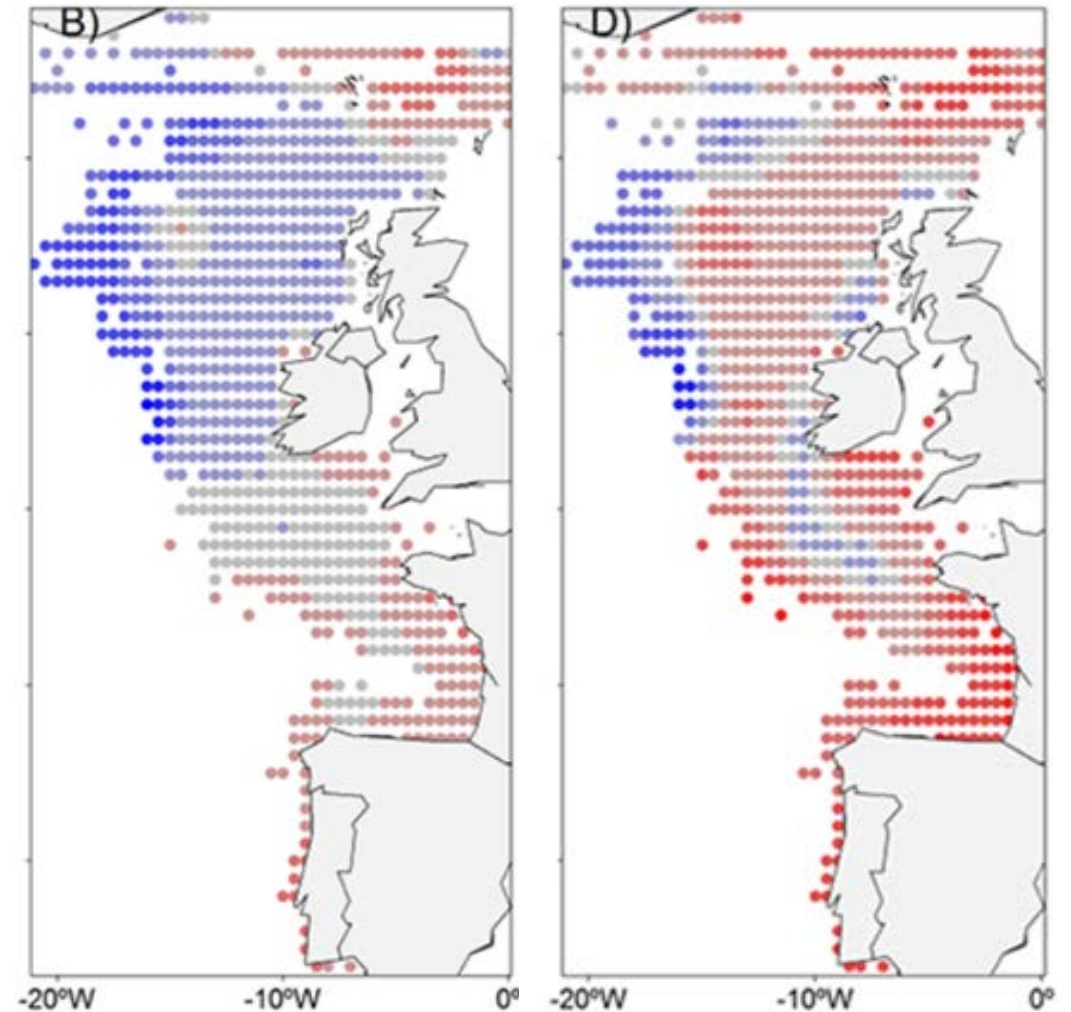
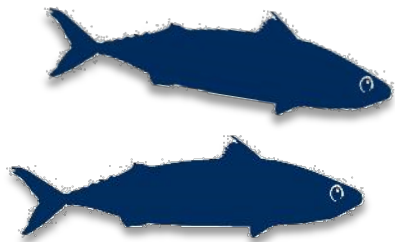
## Capelin distribution in the Barents Sea 2003 and 2015



# Changes in fish distribution

ICES 2017 advice on

- Changes observed
- Likely drivers of the change
- Ability to predict future change



*Scenarios of temperature change at 200m depth present–2090, Bruge et al. 2016*

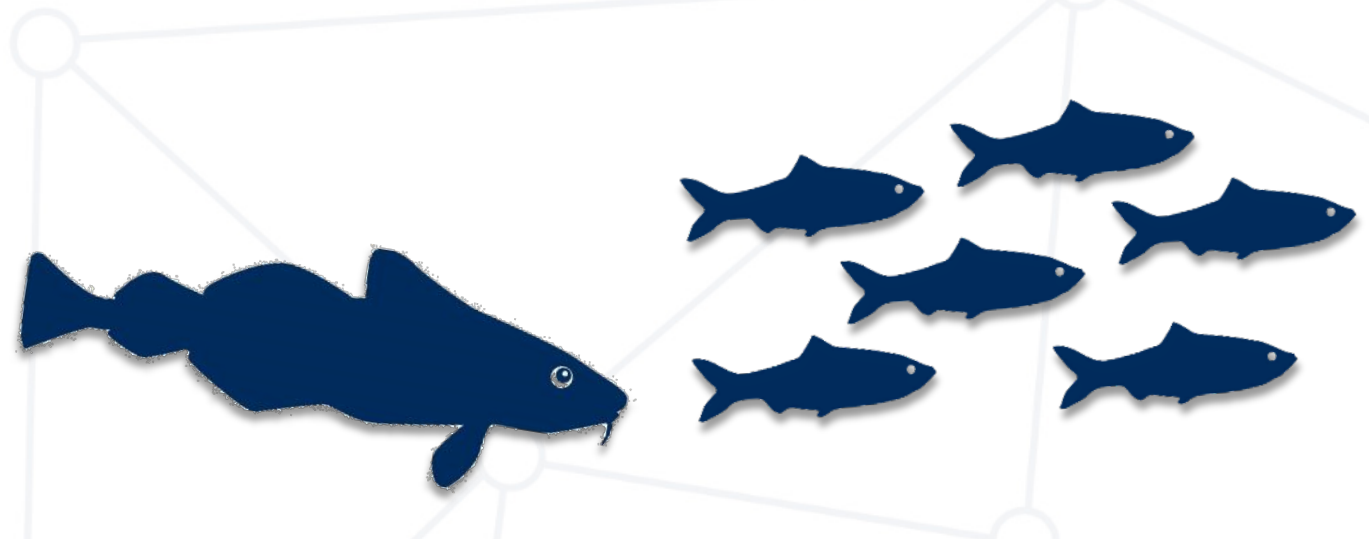
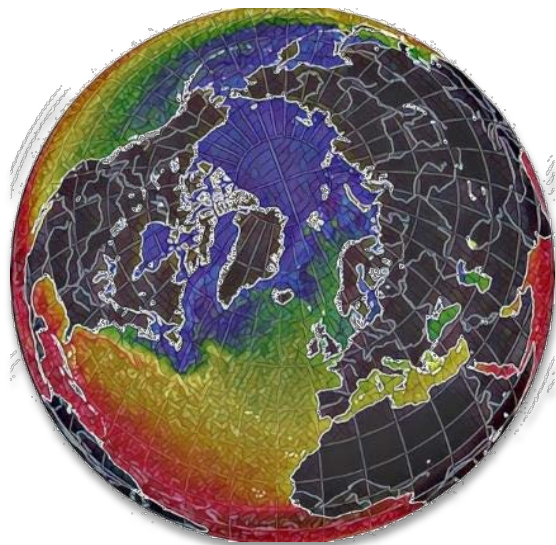
# Climate vulnerability assessments



Analysis of vulnerability of fish to climate change

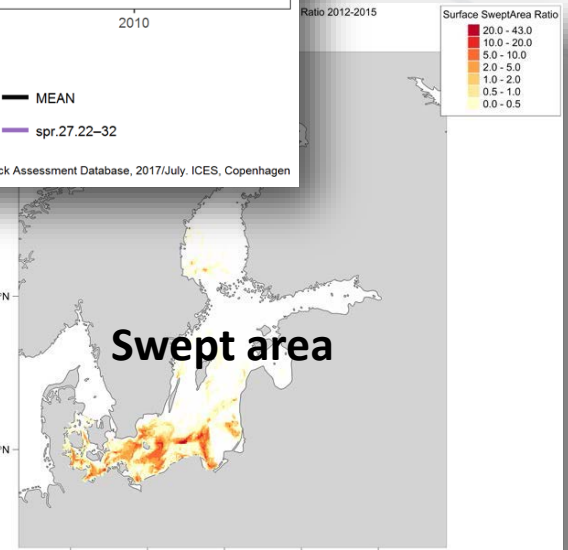
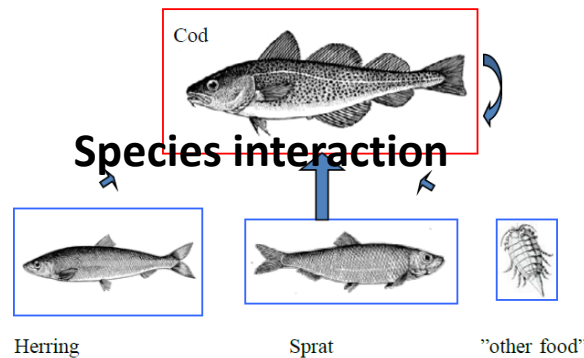
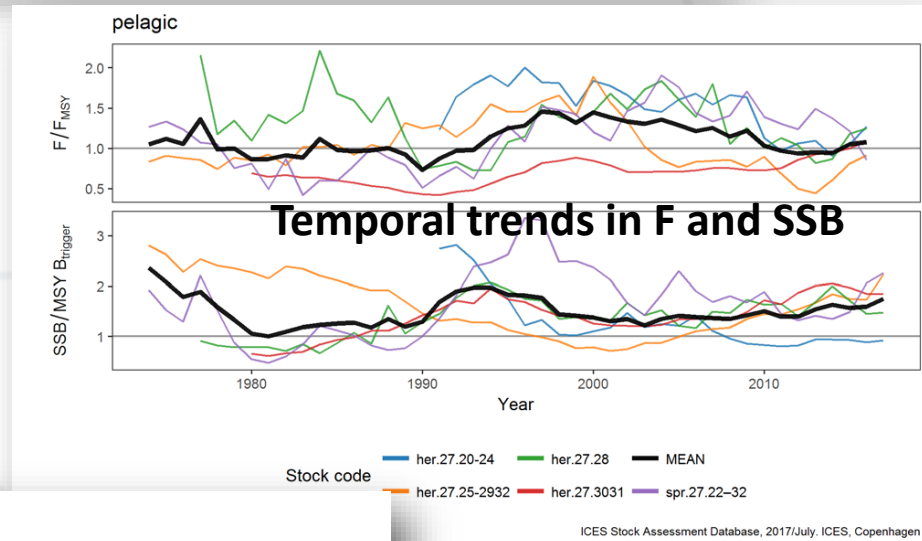
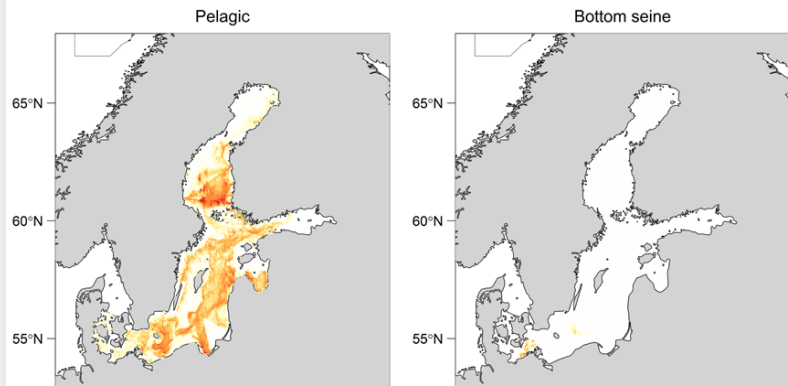
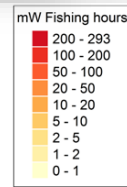
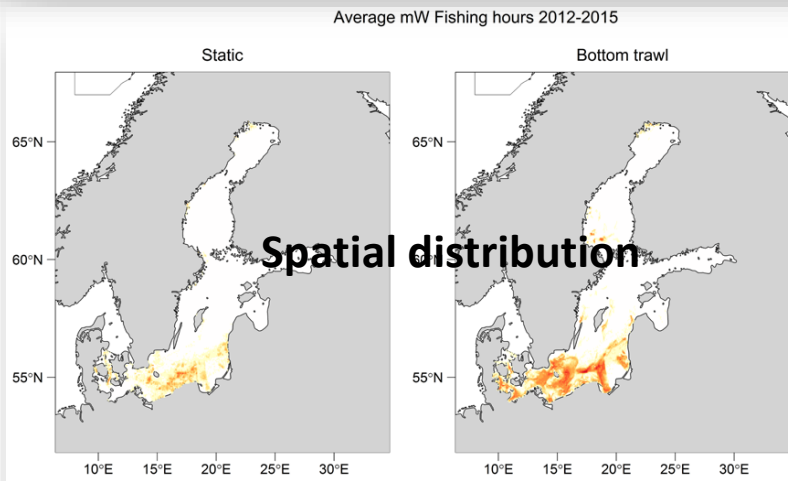
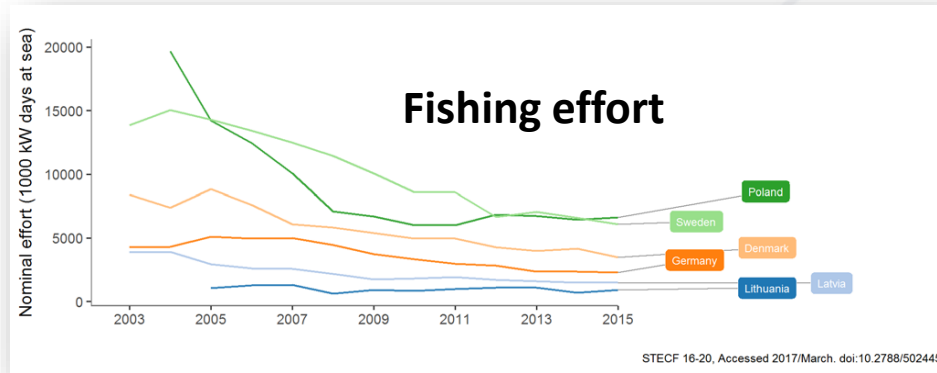
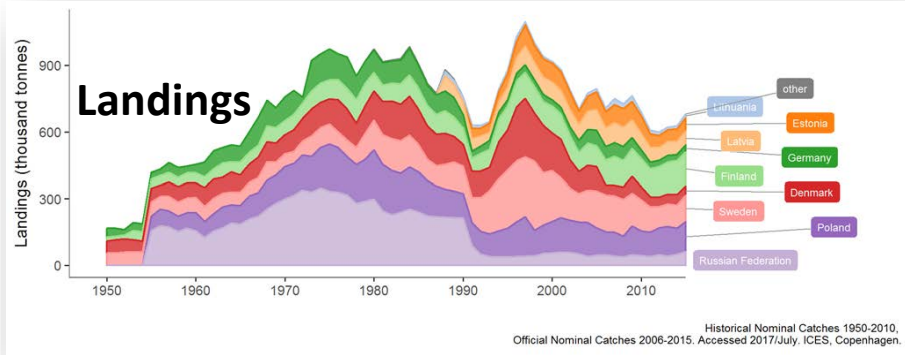
Working with partners from Pacific Ocean

Workshop July 2017



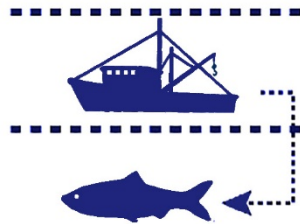


# ICES Fisheries Overviews

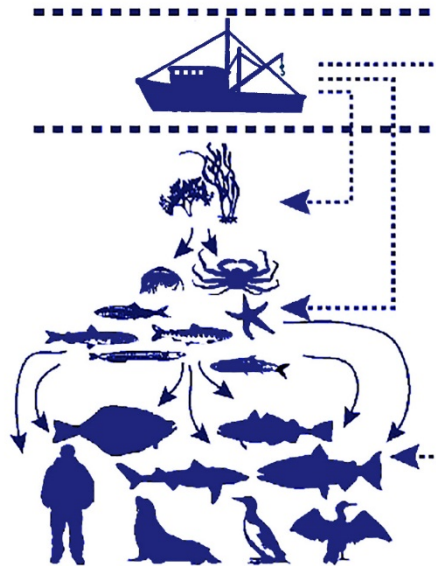


# Shifting arena for policy objectives

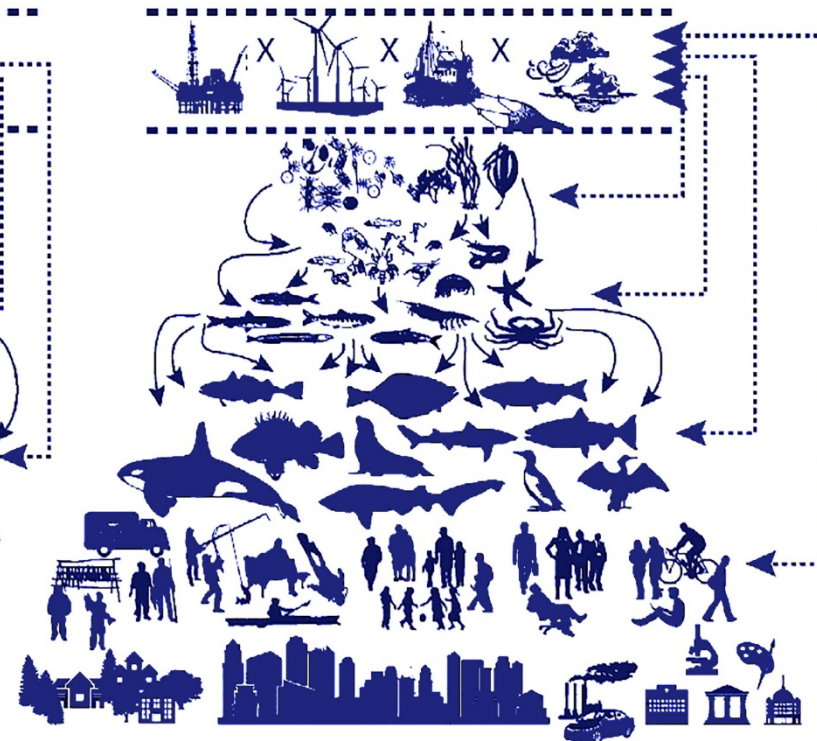
single pressure,  
single subject,  
direct goods



single pressure,  
multiple subjects,  
direct goods



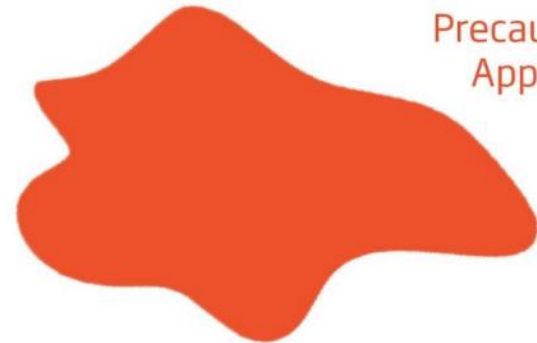
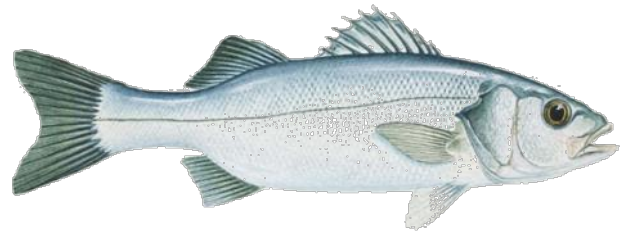
multiple pressures,  
multiple subjects,  
web of goods & services



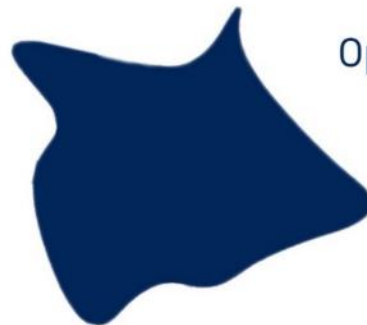
← direct interactions

direct + indirect interactions →

# Integrating different policy objectives – Ecosystem Based Approach



Precautionary  
Approach



Optimum  
Yield



Good  
Environmental  
Status



Describing the space  
for exploitation



Safe Operating  
Space

# Vulnerable Marine Ecosystems – ICES Portal and Scientific Advice



The screenshot shows the ICES VME Portal interface. At the top, there is a navigation menu with links for 'EXPLORE US', 'NEWS AND EVENTS', 'MARINE DATA', 'PUBLICATIONS', and 'COMMUNITY'. Below the menu is a search bar and a 'Vulnerable Marine EcoSystems' section with links for 'Download', 'Mapping', 'Web services', and 'manage (requires login)'. The main content area features a satellite map of the North Atlantic and Arctic. On the right side of the map, there is a 'VME DATA LAYER' panel with several sections: 'VME Indicator' (with checkboxes for Anemones, Black coral, Chemo-synthetic species, Cup coral, Gorgonian, Sea-pen, Soft coral, and Sponge), 'VME: Habitat Type', 'Years', and 'Data access'. Below these are buttons for 'Update VME layer' and 'OTHER LAYERS'. The 'OTHER LAYERS' section includes 'WGDEC VME Weighting' (with checkboxes for 'Weighting VME Algorithm', 'Uncertainty Low', 'Uncertainty Medium', and 'Uncertainty High'), 'NEAFC Closure', 'ICES Advice', and 'WGDEC Reference'. At the bottom of the browser window, the Windows taskbar is visible with various application icons and the system clock showing 23:17 on 07/11/2016.

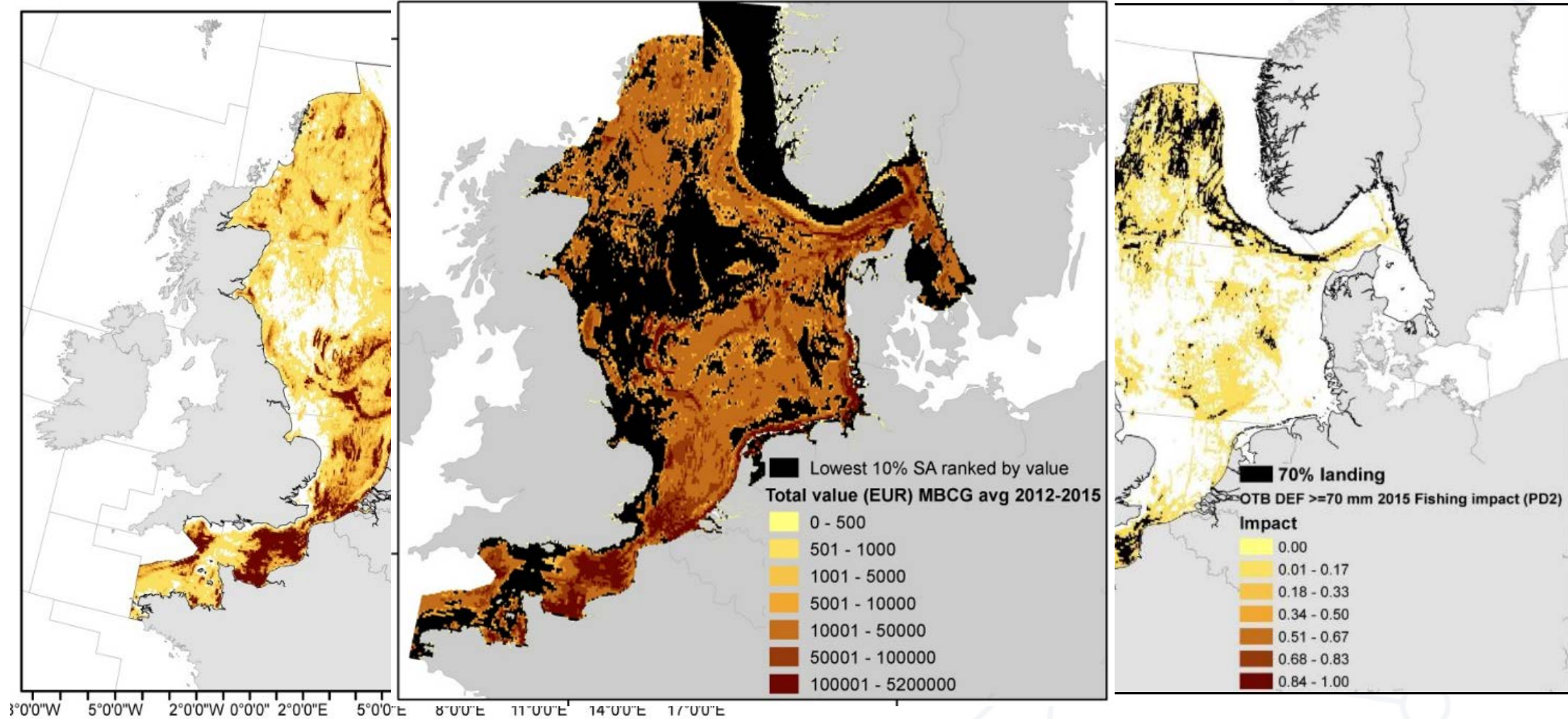
**VULNERABLE MARINE ECOSYSTEMS**  
ICES CIEM

**Distribution, abundance, VME habitats, VME indicators**  
North Atlantic, Arctic

**Records: 14 195**  
**Years with data: 38**  
**First year: 1958**  
**Latest year: 2014**

[vme.ices.dk](http://vme.ices.dk)

# Impact of Fisheries on the Seafloor – ICES Scientific Advice

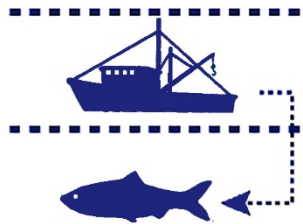


# Integrated Ecosystem Assessments and Ecosystem Overviews

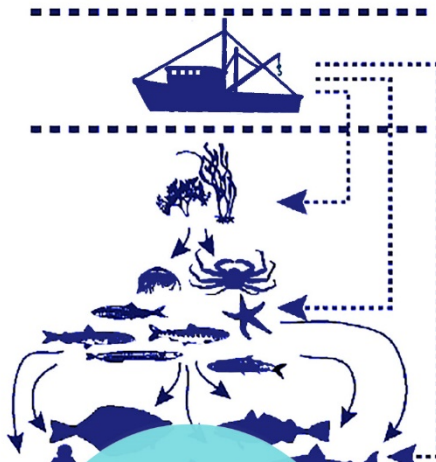


# Shifting arena for ICES advice & science

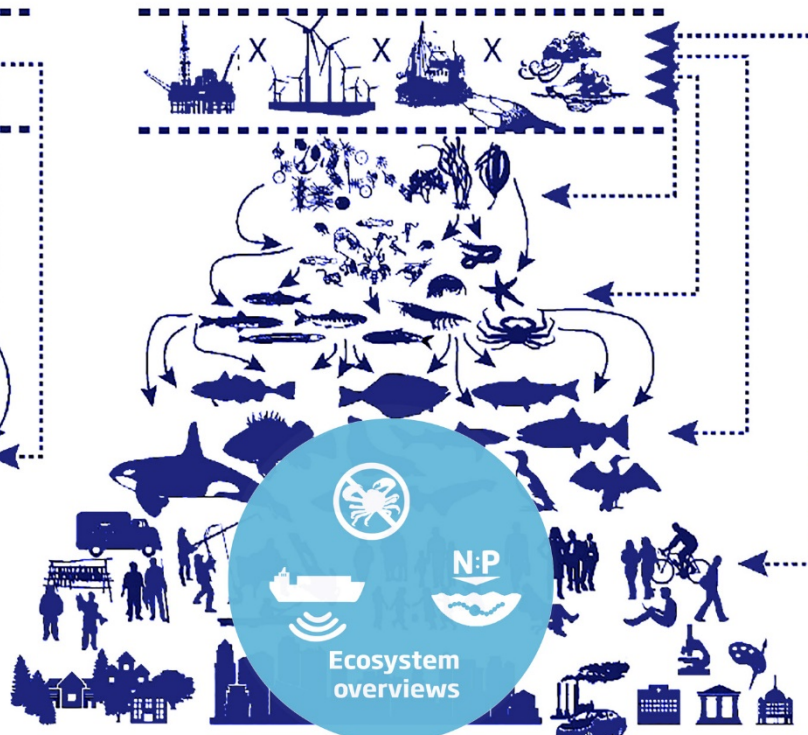
single pressure,  
single subject,  
direct goods



single pressure,  
multiple subjects,  
direct goods



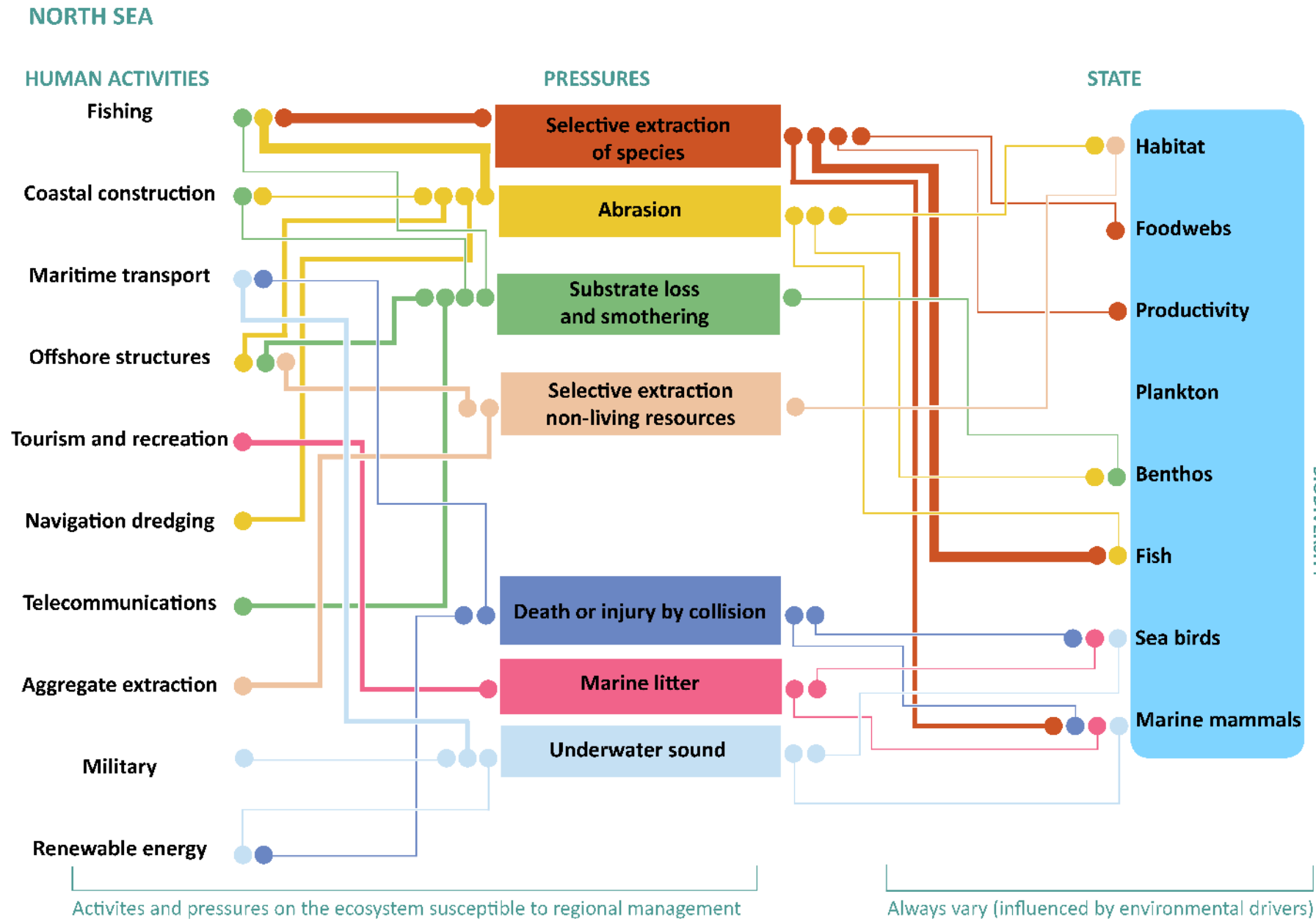
multiple pressures,  
multiple subjects,  
web of goods & services



direct interactions

direct + indirect interactions

# Prioritizing pressures in the system





# Data portals




**IMPULSIVE NOISE REGISTRY** 

Photo: Christian Aaslund

- Impulsive noise events, pile driving, seismic surveys, controlled explosions, naval operations
- Northeast Atlantic, Baltic Sea

**Events: 3244**  
**Years with data: 2**  
**First year: 2014**  
**Latest year: Present**

[underwaternoise.ices.dk](http://underwaternoise.ices.dk)










**VULNERABLE MARINE ECOSYSTEMS** 

Photo: Nils-Årvid

- Distribution, abundance, VME habitats, VME indicators
- North Atlantic, Arctic

**Records: 14 195**  
**Years with data: 38**  
**First year: 1958**  
**Latest year: 2014**


[vme.ices.dk](http://vme.ices.dk)

**Biodiversity**      

Seabirds and seals abundance and distribution


This portal assembles data supplied by contracting parties to OSPAR (North East Atlantic) as well as other data from the ICES area.

This database is specifically purposed with supporting OSPAR in providing information that will feed their regional assessments of biodiversity.



[UPLOAD SEABIRD DATA](#)

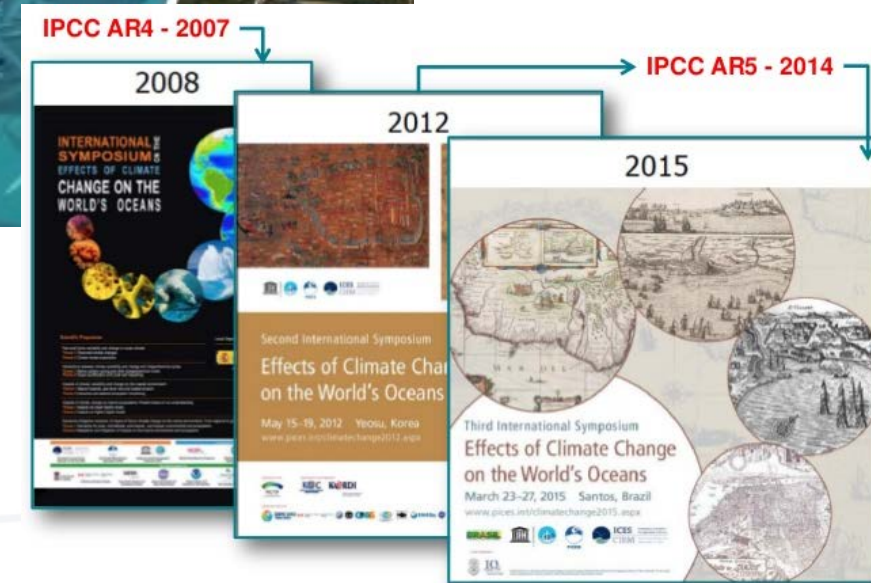
[BROWSE SUBMISSIONS](#)

 **OSPAR COMMISSION**

*Development of this portal was funded by the OSPAR Commission*



**Acoustic framework**



ICES-PICES Workshop on Political, Economic, Social, Technological, Legal and Environmental scenarios used in climate projection modelling (WKPESTLE)

To: Compile and compare future scenarios currently used by different research groups projecting the socio-ecological consequences of climate change on fisheries and aquaculture

ASC/2018 Theme session D – “The Nordic seas and the Arctic – climatic variability and its impact on marine ecosystems, fisheries and policymaking”,

# ICES Science online communication website/social media



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EXPLORE US NEWS AND EVENTS MARINE DATA PUBLICATIONS COMMUNITY



NEW ECOSYSTEM OVERVIEWS  
FOR THE NORWEGIAN SEAS  
AND ICELANDIC WATERS

JOIN  
A TRAINING  
COURSE

FOLLOW  
OUR ADVISORY  
PROCESS

EXPLORE  
MARINE DATA

GET  
INVOLVED



# Thank you for your attention



**More information**  
[www.ices.dk](http://www.ices.dk)

