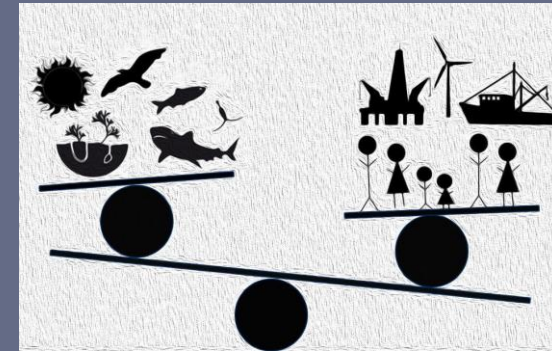




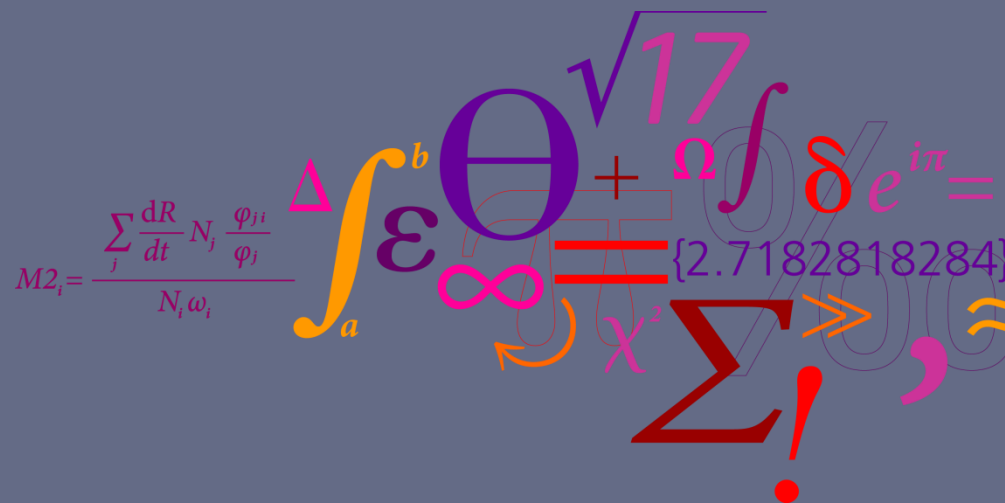
<http://nsrac.org/wp-content/uploads/2017/10/ICES-Ecosystem-Overview.pdf>





What are the advisory needs for an effective implementation of an EBFM?

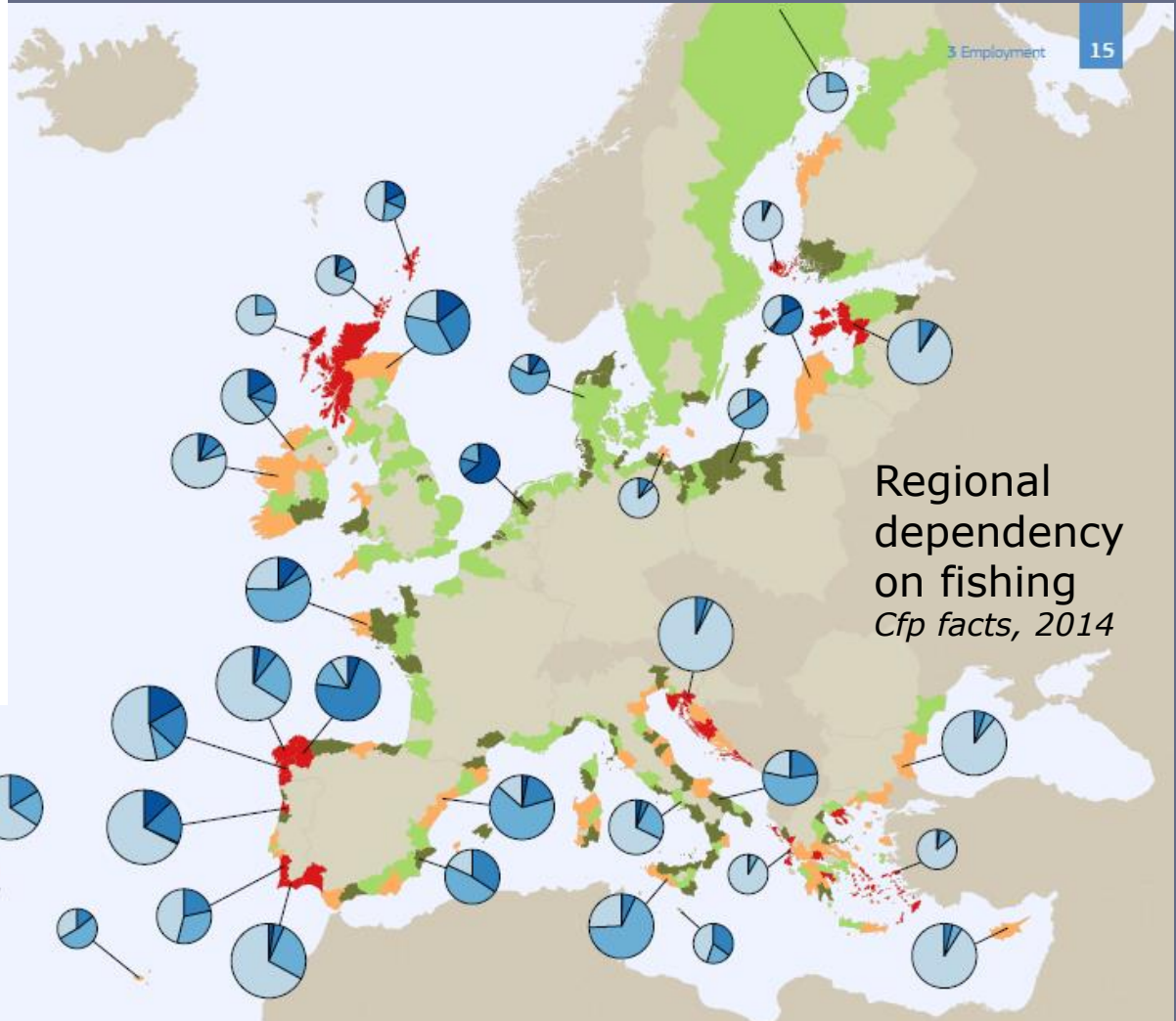
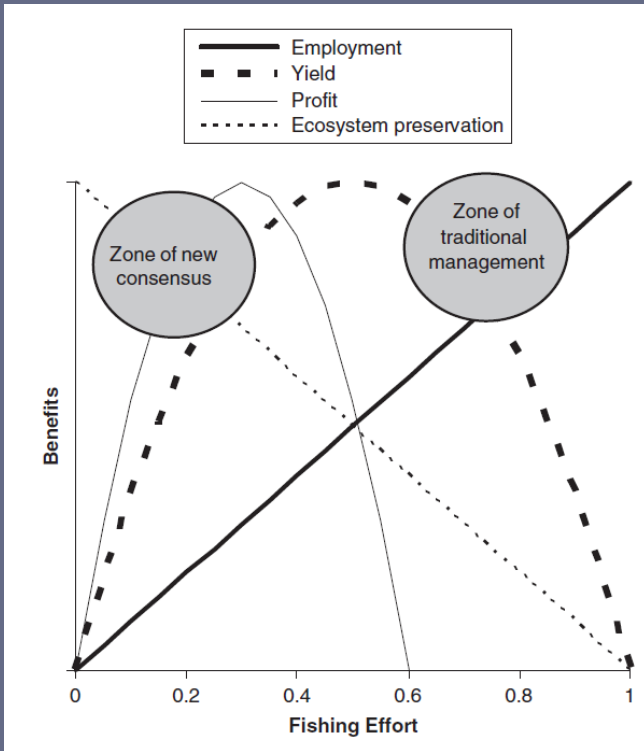
Prof. Clara Ulrich
DTU Aqua
STECF Chair

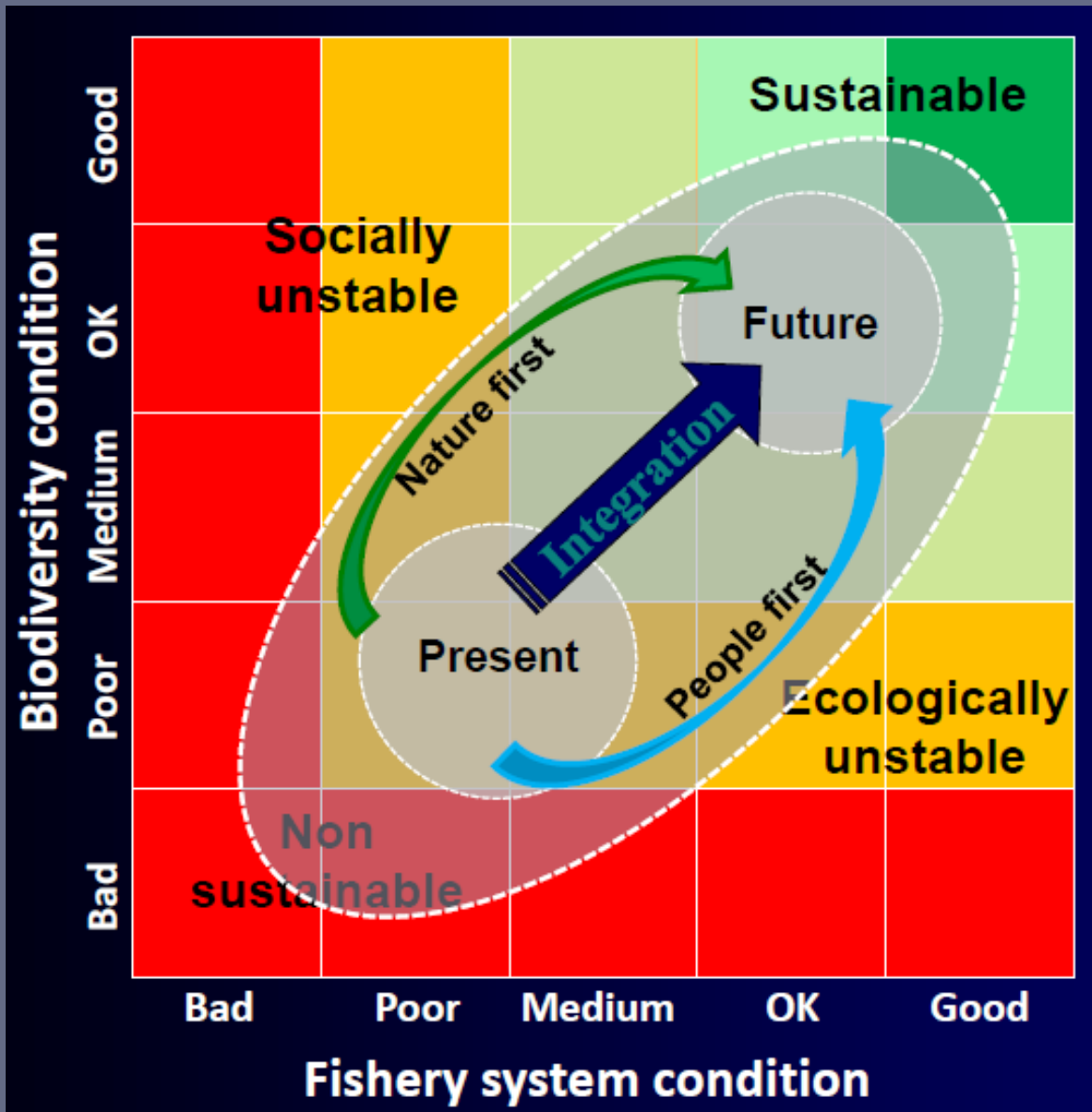


Socio-economic versus ecosystem?



Hilborn, 2006

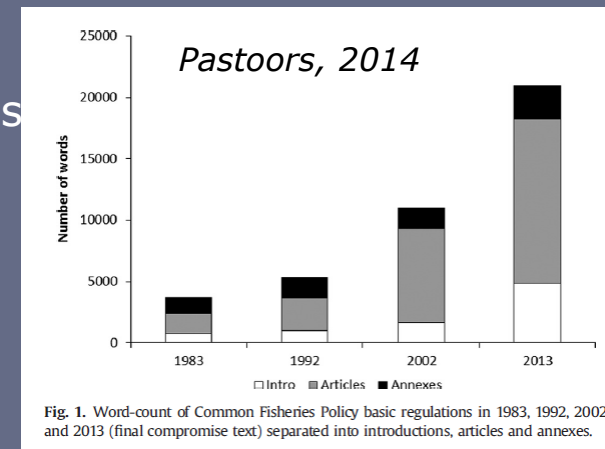




Charles, 2015

Ecosystem requirements of the CFP 1380/2013

- Objectives (Art. 2.3): “The CFP shall implement the EBFM so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimized”, [...] “shall avoid the degradation of the marine environment”
- Means (Art. 7, 8, 9):
 - Incentives to promote alternative fishing methods
 - Pilot projects
 - Specific measures to reduce unwanted catches
 - Protected areas
 - Multi-annual plans
- Monitoring
 - MS should provide data to assess the impact on ecosystem
 - Commission to report on protected areas



CFP and MSFD

- 11 MSFD descriptors, of which 5 directly impacted by fishery
- Overall ecosystem objectives linked, but some gaps remain:
 - National vs. EU level. Differences across Member States
 - Little regional integration
 - Many GES criteria are state metrics rather than pressure metrics
 - Fisheries impacts not always distinguished from other antropogenic impacts
 - Some fisheries aspects not well covered in MSFD (discards)
 - Indicators not always derived routine DCF data collection
 - Indicators not monitored/reported annually
- DGMare wishes a more CFP-oriented reporting on ecosystem aspects (STECF 2017)



No single model will provide all answers at the required scale of time and space!!

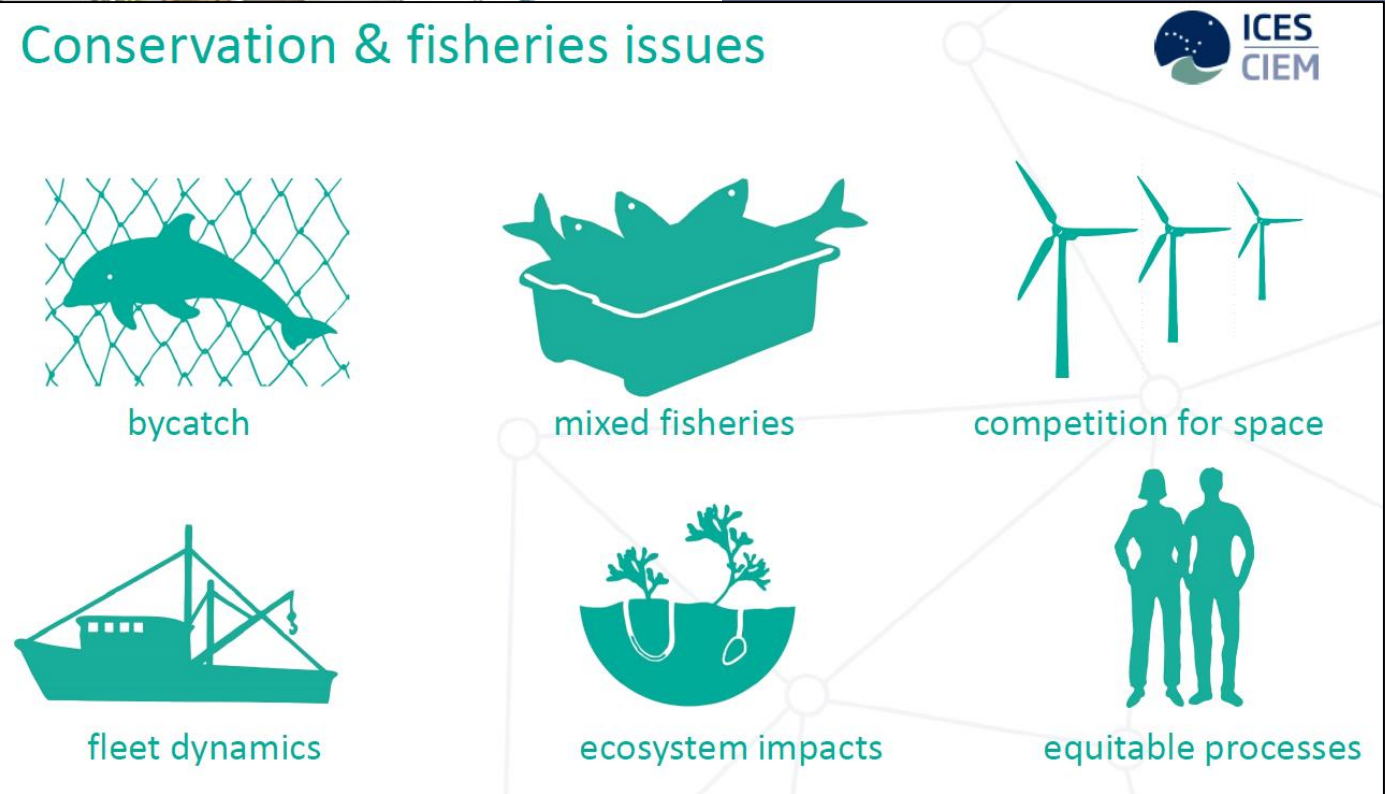
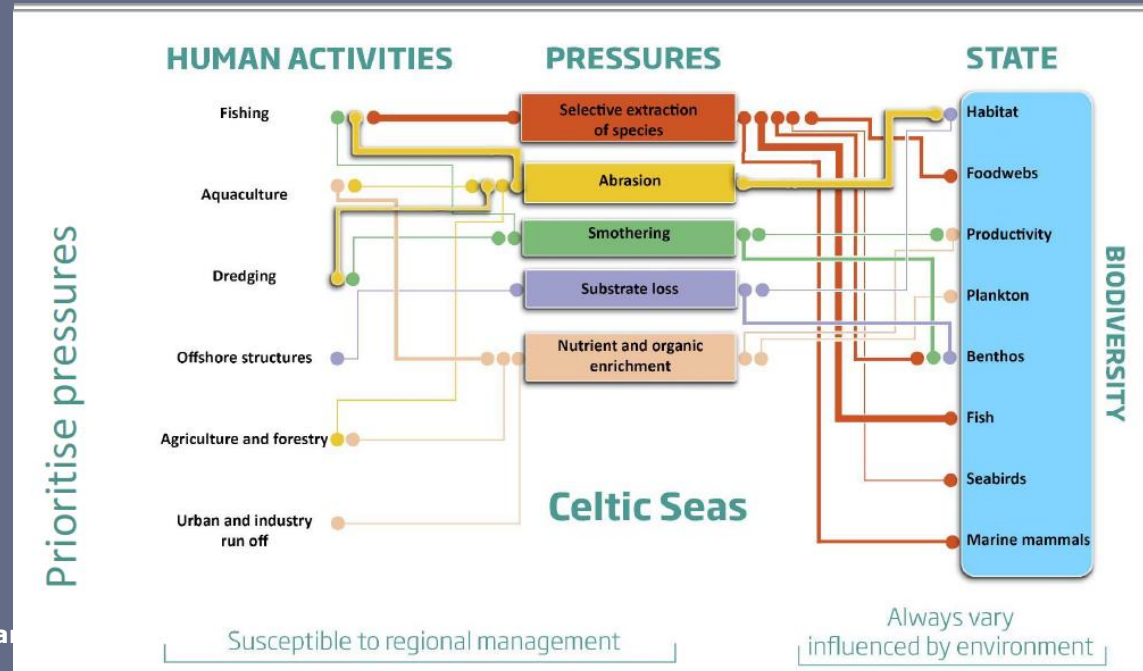


Figure M. Dickey-Collas

Who advises on what and to whom?

- ICES <http://www.ices.dk/community/advisory-process/Pages/Latest-advice.aspx>



Who advises on what and to whom?

• STECF/JRC

- Plenary Meeting Reports
- Data Collection Framework
- Economic Analysis
- Evaluation of Effort Regimes
- Management Plans
- Med. & Black Sea stock assesmt.
- Review of Scientific Advice
- Capacity and fishing opportunities
- Environmental Impacts
- Landing obligation
- Technical measures
- Strategic issues
- CFP monitoring
- Other

- Advice to EU Commission on CFP matters
- Member States requests to EU
- Recurrent work and case-by-case requests
- Fisheries database

- EU Aquaculture
- Fisheries Dependent Information
- Fleet Economic Performance
- Mediterranean and Black Sea
- Fish Processing Industry
- EMFF context indicators

<https://stecf.jrc.ec.europa.eu/reports>

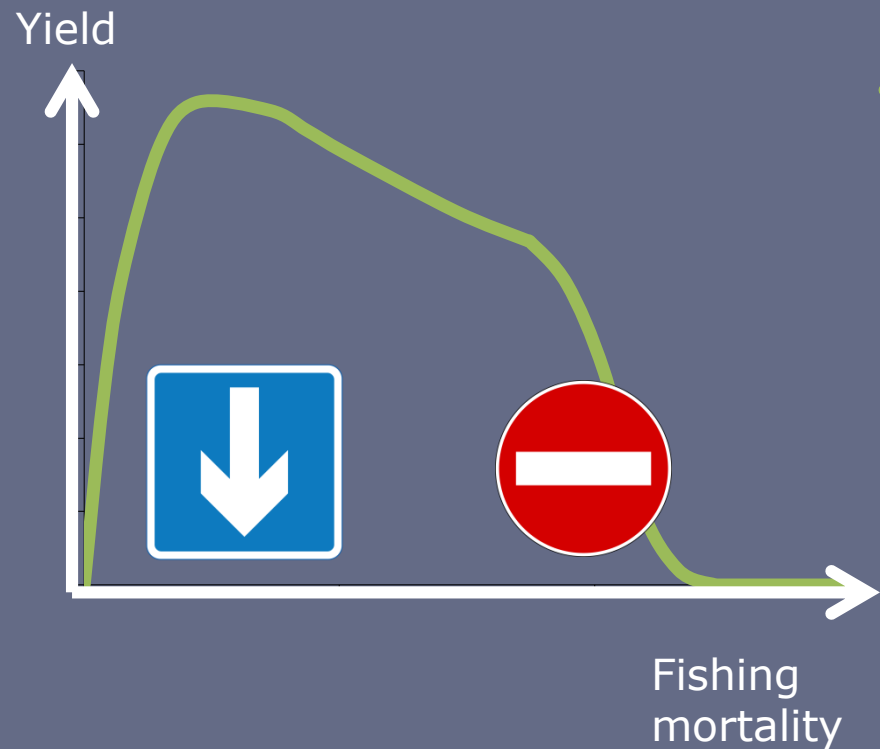
<https://stecf.jrc.ec.europa.eu/data-dissemination>

Managing fisheries, what does this implies:

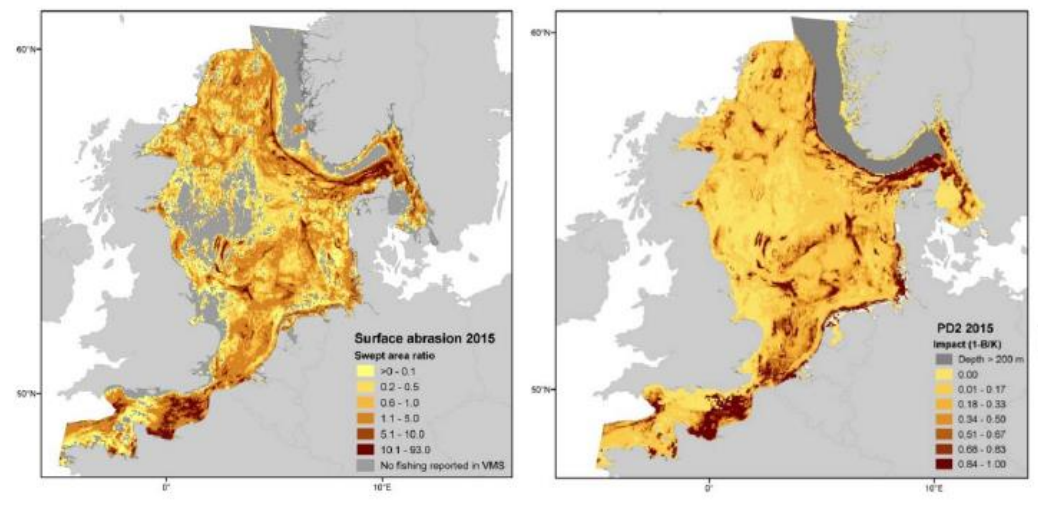
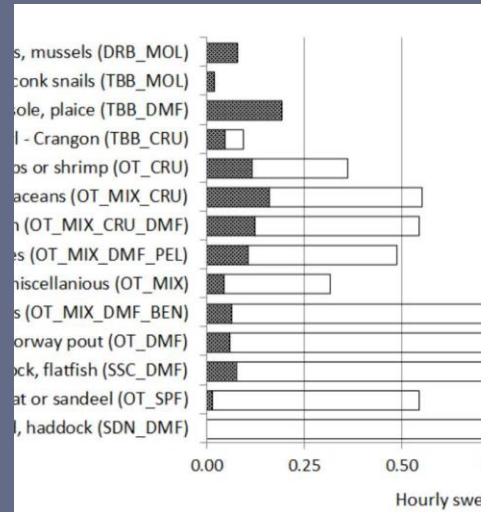
- Identify the pressure variable that can be quantified, monitored and controlled
- Know where you are
- Define where you want to go, and in how long
- Define where you do not want to go
- Agree in advance on which actions will be taken when the target or the limits are reached
- Clarify the role of the various actors and ensure transparency and legitimacy in the scientific advice / monitoring

The beautiful simplicity of MSY

- Principle easy (\sim) to convey
- Does not go against the industry's interest
- Some relationship between pressure (fishing) and state (biomass)
- Some consensus on methods
- Target and limit reference points
- Universal objective
- Transparency and legitimacy of the advisory frame



Applying this simplicity to EBFM: bottom impact



Comparing gears...

Mapping pressure, impact and trade-offs...

Explore alternatives...

Shifting from traditional to novel otterboards

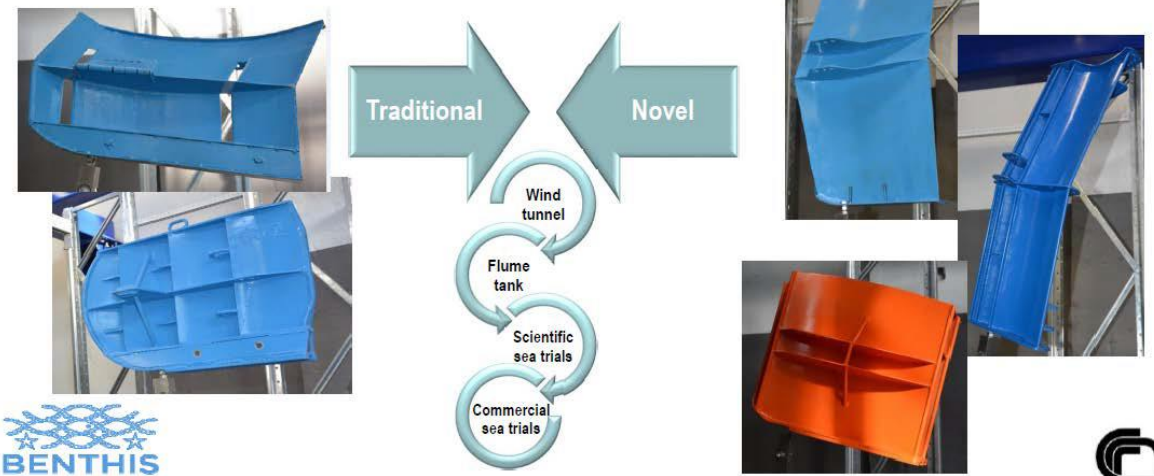


Figure A.1 Geographic (Euros) from demonstrat



Integrating EBFM in single-stock TAC management : Pretty Good Multidimensional Yield (PGMY)

Rindorf et al., 2017

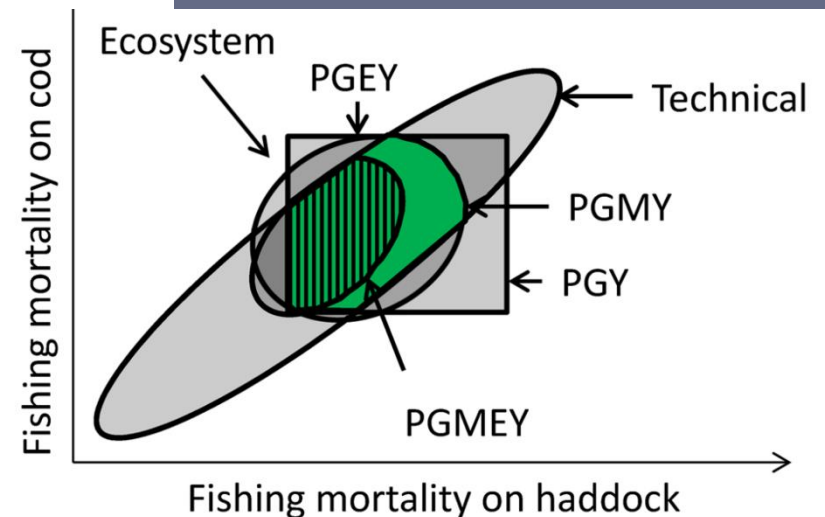
Combinations of fishing mortalities that provide >95% of the yield in a single stock analysis

Exclude combinations of fishing mortalities that are undesirable in an ecosystem context

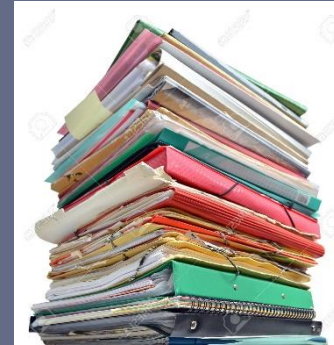
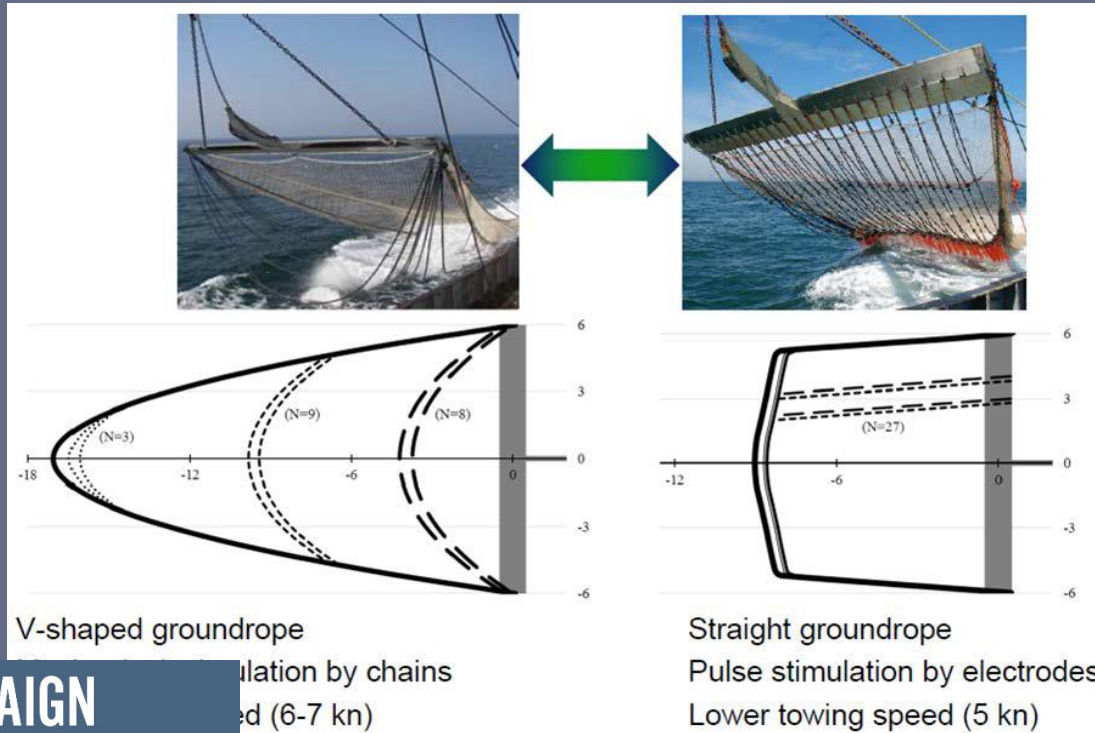
Exclude fishing mortalities known to be incompatible with technical interactions

Exclude fishing mortalities known to be incompatible with economic and social objectives

Pretty good multispecies yield space



How to integrate "feelings" in EBFM?



Scientific evidence: pulse trawling is "less worse" than beam trawling



of Denmark

How to advise about perceptions and integrate feelings in EBFM?

DTU Åbent



EBFM Advisory needs: take home messages

- Difficulty to find the right balance in the CFP between too loose or too prescriptive ecosystem objectives
- legitimate advisory bodies? International rather than national advice
- No unique model will answer all questions. Address one part of the elephant but do not ignore the others. Combine different sources of knowledge
- Consensus on ecosystem indicators require data, time series, good science and policy frame
- Feelings and social values play also a role in EBFM
- Integrate ecosystem objectives within single-stock advice
- Wicked problem.... Major progresses achieved in recent years, more to come!



As simple as possible,

As complicated as necessary

European Commission

INSEPARABLE

ec.europa.eu/fisheries/inseparable

Maritime Affairs and Fisheries