Josefine Egekvist - DTU Orbit (15/01/2018)

Josefine Egekvist

Organisations

Senior consultant, National Institute of Aquatic Resources
25/01/2007 → present
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VIP

Section for Monitoring and Data
23/01/2013 → present
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Publications:

Fisheries Impact Evaluation Tool (FIT) with Application to Assess the Bottom Fishing Footprint in Western Baltic Sea (ICES Subdivisions 22-24)

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data, Centre for Ocean Life, Wageningen IMARES
Authors: Bastardie, F. (Intern), Eigaard, O. R. (Intern), Nielsen, J. R. (Intern), Egekvist, J. (Intern), Hintzen, N. T. (Ekstern), van Denderen, P. D. (Intern), Rijnsdorp, A. (Ekstern)
Number of pages: 25
Publication date: 2017

Publication information
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Main Research Area: Technical/natural sciences
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Publishers version
DOIs: 10.5281/zenodo.883054
Links: https://zenodo.org/record/883054#.WglXPTKWy70
Publication: Research - peer-review › Report – Annual report year: 2017

Lost in translation? Multi-metric macrobenthos indicators and bottom trawling

The member states of the European Union use multi-metric macrobenthos indicators to monitor the ecological status of their marine waters in relation to the Water Framework and Marine Strategy Framework Directives. The indicators translate the general descriptors of ecological quality in the directives into a single value of ecological status by combining indices of species diversity, species sensitivity and density. Studies and inter-calibration exercises have shown that the indicators respond to chemical pollution and organic enrichment, but little is known about their response to bottom trawling. We use linear mixed effects models to analyze how bottom trawling intensity affects the indicators used in the Danish (Danish Quality Index, DKI) and Swedish (Benthic Quality Index, BQI) environmental monitoring programs in the
Kattegat, the sea area between Sweden and Denmark. Using year and station as random variables and trawling intensity, habitat type, salinity and depth as fixed variables we find a significant negative relationship between the BQI indicator and bottom trawling, while the DKI is related significantly to salinity, but not to trawling intensity. Among the indicator components, the species diversity and sensitivity indices used in the DKI are not significantly linked to trawling, and trawling only affects the BQI when species sensitivities are derived from rarefied samples. Because the number of species recorded per sample (species density) is limited by the number of individuals per sample (density), we expect species density and density to be positively correlated. This correlation was confirmed by a simulation model and by statistical analysis of the bottom samples in which log species density was highly significantly related to log density ($r = 0.75$, df = 144, p)

**General information**

State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data
Authors: Gislason, H. (Intern), Bastardie, F. (Intern), Dinesen, G. E. (Intern), Egekvist, J. (Intern), Eigaard, O. R. (Intern)
Pages: 260-270
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Main Research Area: Technical/natural sciences

**Publication information**

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- BFI (2018): BFI-level 2
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2016): CiteScore 4.07 SJR 1.308 SNIP 1.756
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): SJR 1.481 SNIP 1.726 CiteScore 3.99
- BFI (2014): BFI-level 2
- Scopus rating (2014): SJR 1.463 SNIP 1.996 CiteScore 3.76
- BFI (2013): BFI-level 1
- Scopus rating (2013): SJR 1.353 SNIP 1.837 CiteScore 3.63
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 1
- Scopus rating (2012): SJR 1.257 SNIP 1.858 CiteScore 3.42
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 1
- Scopus rating (2011): SJR 1.21 SNIP 1.732 CiteScore 3.05
- ISI indexed (2011): ISI indexed yes
- BFI (2010): BFI-level 1
- Scopus rating (2010): SJR 1.239 SNIP 1.603
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 1.047 SNIP 1.769
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 0.907 SNIP 1.474
- Scopus rating (2007): SJR 0.774 SNIP 1.395
- Scopus rating (2006): SJR 0.677 SNIP 0.958
- Scopus rating (2005): SJR 0.465 SNIP 1.035
- Scopus rating (2004): SJR 0.731 SNIP 1.182
- Scopus rating (2003): SJR 0.465 SNIP 0.861
- Scopus rating (2002): SJR 0.185 SNIP 0.762
The footprint of bottom trawling in European waters: distribution, intensity, and seabed integrity

Mapping trawling pressure on the benthic habitats is needed as background to support an ecosystem approach to fisheries management. The extent and intensity of bottom trawling on the European continental shelf (0-1000 m) was analysed from logbook statistics and vessel monitoring system data for 2010-2012 at a grid cell resolution of 1 x 1 min longitude and latitude. Trawling intensity profiles with seabed impact at the surface and subsurface level are presented for 14 management areas in the North-east Atlantic, Baltic Sea and Mediterranean Sea. The footprint of the management areas ranged between 53-99% and 6-94% for the depth zone from 0 to 200 m (Shallow) and from 201 to 1000 m (Deep), respectively. The footprint was estimated as the total area of all grid cells that were trawled fully or partially. Excluding the untrawled proportions reduced the footprint estimates to 28-85% and 2-77%. Largest footprints per unit landings were observed off Portugal and in the Mediterranean Sea. Mean trawling intensity ranged between 0.5 and 8.5 times per year, but was less in the Deep zone with a maximum intensity of 6.4. Highest intensities were recorded in the Skagerrak-Kattegat, Iberian Portuguese area, Tyrrhenian Sea and Adriatic Sea. Bottom trawling was highly aggregated. For the Shallow zone the seabed area where 90% of the effort occurred comprised between 17% and 63% (median 36%) of the management area. Footprints were high over a broad range of soft sediment habitats. Using the longevity distribution of the untrawled infaunal community, the seabed integrity was estimated as the proportion of the biomass of benthic taxa where the trawling interval at the subsurface level exceeds their life span. Seabed integrity was low (< 0.1) in large parts of the European continental shelfs, although smaller pockets of seabed with higher integrity values occur. The methods developed here integrate official fishing effort statistics and industry-based gear information to provide high-resolution pressure maps and indicators, which greatly improve the basis for assessing and managing benthic pressure from bottom trawling. Further they provide quantitative estimates of trawling impact on a continuous scale by which managers can steer.
Kortlægning af fiskenes levesteder i den danske del af Øresund: Rapport til Miljø- og Fødevareministeriet

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data, University of Copenhagen
Authors: Sørensen, T. K. (Intern), Egekvist, J. (Intern), Brown, E. J. (Intern), Hansen, F. I. (Intern), Carl, H. (Ekstern), Møller, P. R. (Ekstern), Dinesen, G. E. (Intern), Vinther, M. (Intern), Støttrup, J. (Intern)
Number of pages: 104
Publication date: 2016

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Publisher: Miljø- og Fødevareministeriet
Original language: Danish
Main Research Area: Technical/natural sciences
Electronic versions:
Publisher's version
Discarding of cod in the Danish Fully Documented Fisheries trials

Denmark was the first nation in Europe to promote the use of Fully Documented Fisheries (FDF) through Remote Electronic Monitoring (REM) and CCTV camera systems, with pilot schemes in place since 2008. In theory, such a scheme could supplement and even potentially replace expensive control and monitoring programmes; and when associated with a catch quota management (CQM) system, incentivize positive changes in fishing patterns in a results-based management approach. New data flows are, however, required to ensure the practical implementation of such a scheme. This paper reviews the quality of the FDF data collected during 2008–2014 and their potential in strengthening information on cod discards. The analyses demonstrate the improved reporting of discards in logbooks and overall discard reductions, but they also show that some uncertainties around the absolute estimates of discard quantities have remained. Regular validation of weight estimation methods and close collaboration between scientific monitoring and control are important to support the use of reported discards as a reliable source of information. We discuss the potential of electronic monitoring in the context of the EU landing obligation.
Empowering fishermen towards the landing obligations, with their own technical solutions

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data
Authors: Mortensen, L. O. (Intern), Olesen, H. J. (Intern), Egekvist, J. (Intern), Rindorf, A. (Intern), Ulrich, C. (Intern)
Publication date: 2015
Event: Abstract from Conference of the European Association of Fisheries Economists, Salerno, Italy.
Main Research Area: Technical/natural sciences
Electronic versions:

Multidisciplinary mapping of fish habitats in the Sound, Denmark for maritime spatial planning

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data
Number of pages: 2
Publication date: 2015
Event: Abstract from ICES Annual Science Conference 2015, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:

Bibliographical note
ICES CM 2015/O:02

Relations
Press / Media items:
Tilstandsrapport fra havbunden
Relaxing technical regulations under the Landings Obligation – effects on the discard ratio

The landings obligation (LO), currently being implemented in the new CFP, puts major constraints on fishers, by making the landing of unwanted catch mandatory. Less restrictive technical rules (TR) in a results-based management frame have been suggested as a mechanism to release some of these constraints. To investigate the effects of the existing TR, some fishers were relaxed from TR during the trial and could freely choose and develop alternative gears, aiming to optimize annual catch value, while reducing discards. The study included 14 demersal fishing vessels, operating in the North Sea, Skagerrak and the Baltic Sea. Fishers used test and control gears interchangeably or in pairs and were required to sort and weight all discard of seven common target species on a haul by haul basis. All vessels were equipped for Fully Documented Fisheries, including cameras. Collected data were analyzed to investigate differences in landings, discards, discard ratio, CPUE, VPUE and DPUE, between conventional (control) and new gears (test). The results showed a varying degree of success, depending both on area and on choices made by the individual fisher. The best results were observed in the Baltic Sea, where relaxing technical rules led to major improvements in fishing patterns. But gear changes did not contribute much in fisheries where initial discards rates were already low.
General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Marine Ecology and Oceanography, Centre for Ocean Life, Section for Monitoring and Data
Authors: Støttrup, J. (Intern), Lund, H. S. (Ekstern), Munk, P. (Intern), Dutz, J. (Intern), Kindt-Larsen, L. (Intern), Egekvist, J. (Intern), Stenberg, C. (Intern), Nielsen, T. G. (Intern)
Number of pages: 21
Publication date: 2014

Publication information
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
Original language: Danish

Series: DTU Aqua-rapport
Number: 281-2014
ISSN: 1395-8216
Main Research Area: Technical/natural sciences
Electronic versions:
Publishers version
Links:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Publication: Research › Report – Annual report year: 2014

Målsetting, tilgang og effektivitet af et skævhedspolitisk indkøb i tendersystemet

General information
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Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Public Sector Consultancy, Section for Monitoring and Data, Section for Freshwater Fisheries Ecology
Number of pages: 83
Publication date: 2014

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Place of publication: Charlottenlund
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
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Original language: Danish

Series: DTU Aqua Report
Number: 279-2014
ISSN: 1395-8216
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Electronic versions:
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http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter
Publication: Commissioned › Report – Annual report year: 2014

Where have all the coast fish gone?

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Marine Ecology and Oceanography, Centre for Ocean Life, Section for Monitoring and Data
Authors: Støttrup, J. (Intern), Munk, P. (Intern), Lund, S. (Ekstern), Kindt-Larsen, L. (Intern), Dutz, J. (Intern), Egekvist, J. (Intern)
Publication date: 2014
Event: Poster session presented at Fisheries Dependant Information Conference, Rome, Italy.
Main Research Area: Technical/natural sciences
Publication: Research › Poster – Annual report year: 2014
Behind the shine: An appraisal of five years of Danish CCTV trials

Denmark has been the first nation in Europe to promote the use of Fully Documented Fisheries (FDF) through Remote Electronic Monitoring (REM) and CCTV camera systems, and some pilot schemes for monitoring cod catches have been in place since 2008. In theory, such a scheme could supplement and even potentially replace expensive control and monitoring programs; and, when associated to a Catch Quota management system, incentivize positive changes in fishing patterns in a results-based management approach. However, in practice, the technical and institutional challenges remain important hurdles to overcome for the system to be beneficial and reliable. In this paper we investigate the added value on catch information gained over the last five years, and discuss the future of REM as a monitoring program in the context of the future discards ban.

Dansk kystfiskeri: Struktur og økonomi

Evaluating the effect of fishery closures: lessons learnt from the Plaice Box

To reduce discarding of plaice Pleuronectes platessa in the North Sea flatfish fisheries, the major nursery areas were closed to large trawlers in 1995. The area closed was named the ‘Plaice Box’ (PB) and beam trawl effort fell by over 90% , while the exemption fleets of small flatfish beam trawlers, gill netters targeting sole (Solea solea) and shrimp (Crangon crangon) trawlers increased their effort. Contrary to the expectation, plaice landings and biomass declined. The initial support for the PB from the fisheries was lost, whereas other stakeholder groups claimed that any failure was due to the fact that fishing had never been completely prohibited in the area. To evaluate whether the PB has been an effective management measure, the changes in the ecosystem (plaice, demersal fish, benthos) and fisheries are analysed to test whether the observed changes are due to the PB or to changes in the environment unrelated to the PB. Juvenile growth rate of plaice decreased and juveniles moved to deeper waters outside the PB. Demersal fish biomass decreased, whereas the abundance of epibenthic predators (Asterias rubens and Cancer pagurus) increased in the PB. Endobenthos, in particular the main food items of plaice (polychaetes and small
bivalves) remained stable or decreased both inside and outside the PB. Currently catches of both plaice and sole from within the PB are lower than in the late 1980s and the exemption fleet often prefers to fish outside the Plaice Box alongside much larger competitors. It is concluded that the observed changes are most likely related to changes in the North Sea ecosystem, which may be related to changes in eutrophication and temperature. It is less likely that they are related to the change in fishing. This case study highlights the importance setting testable objectives and an appropriate evaluation framework including both ecological and socio-economic indicators when implementing closed areas.

Key words: Marine Protected Area, MPA, spatial management, fisheries management, discards, climate change, trawling impact, North Sea, benthos, ecosystem change, stakeholder perception

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Monitoring and Data, Section for Ecosystem based Marine Management, Wageningen IMARES, Johann Heinrich von Thünen-Institute, Alfred Wegener Institute for Polar and Marine Research
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BFI (2018): BFI-level 1
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.98 SJR 0.932 SNIP 0.931
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.008 SNIP 1.007 CiteScore 2.09
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.977 SNIP 1.024 CiteScore 2.15
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.928 SNIP 1.098 CiteScore 2
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.115 SNIP 1.06 CiteScore 2.18
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.371 SNIP 1.28 CiteScore 2.5
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.267 SNIP 1.242
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.261 SNIP 1.071
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.289 SNIP 1.156
Biologisk forstyrrelse: Selektiv udtagning af arter, herunder tilfældige fangster af ikke-målarter (f.eks. ved erhvervs- og fritidsfiskeri): Fagligt baggrundsnotat til den danske implementering af EU’s Havstrategidirektiv

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Public Sector Consultancy, Section for Coastal Ecology, Section for Monitoring
Authors: Dalskov, J. (Intern), Egekvist, J. (Intern), Vinther, M. (Intern), Sparrevohn, C. R. (Intern), Larsen, F. (Intern), Warnar, T. (Intern), Dolmer, P. (Intern), Sørensen, T. K. (Intern)
Number of pages: 31
Publication date: 2012

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Place of publication: Charlottenlund
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
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Original language: Danish

Series: DTU Aqua-rapport
Number: 255-2012
Main Research Area: Technical/natural sciences
Electronic versions: 255_2012_biologisk_forstyrrelse_baggrundsnотat_til_havstrategi.pdf
Links: http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Publication: Commissioned › Report – Annual report year: 2012

Danish sampling of commercial fishery: Overview with special attention to discards 2010 data
Utilization of our common marine reassures has in later years had an increasing focus among the EU member states, with societal demands to reduce discarding. Discards have for many years been an unavoidable component of most commercial fisheries due to management regulation and profit optimizing. However, the first step into reducing the discard problem is to investigate where discard is occurring in larger amounts, to highlight the pattern in different fleet components and to document the monitoring of the sampling program. In 2010 the total discard observed in Danish waters were 21500 t corresponding to 26% of the total catch from these fleets. In Denmark sampling onboard commercial vessels has been ongoing since 1995. In this report the aim has been to describe the Danish commercial at sea sampling strategy and results from 2010
VMStools: Open-source software for the processing, analysis and visualization of fisheries logbook and VMS data

VMStools is a package of open-source software, build using the freeware environment R, specifically developed for the processing, analysis and visualisation of landings (logbooks) and vessel location data (VMS) from commercial fisheries. Analyses start with standardized data formats for logbook (EFLALO) and VMS (TACSAT), enabling users to conduct a variety of analyses using generic algorithms. Embedded functionality handles erroneous data point detection and removal, métier identification through the use of clustering techniques, linking logbook and VMS data together in order to distinguish fishing from other activities, provide high-resolution maps of both fishing effort and -landings, interpolate vessel tracks, calculate indicators of fishing impact as listed under the Data Collection Framework at different spatio-temporal scales. Finally data can be transformed into other existing formats, for example to populate regional databases like FishFrame. This paper describes workflow examples of these features while online material allows a head start to perform these analyses. This software incorporates state-of-the-art VMS and logbook analysing methods standardizing the process towards obtaining pan-European, or even worldwide indicators of fishing distribution and impact as required for spatial planning.
Evaluation of effort and TAC quota uptake and capacity use by country as well as efficiency of effort measures according to fishing mortality and fishing power in the Western and Eastern Baltic cod fishery during 2005-2010 in relation to the multi-annual cod management plan

General information
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Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Publication date: 2011

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Publisher: Publications Office of the European Union
Main Research Area: Technical/natural sciences
Conference: EU STECF EWG-11-07a, Hamburg, Germany, 01/01/2011
Source: orbit
Source-ID: 278754
Publication: Research › Article in proceedings – Annual report year: 2011

Detailed mapping of fishing effort and landings by coupling fishing logbooks with satellite-recorded vessel geo-localisation

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Authors: Bastardie, F. (Intern), Nielsen, J. R. (Intern), Ulrich, C. (Intern), Egekvist, J. (Intern), Degel, H. (Intern)
Publication date: 2010
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 268926
Publication: Research › Poster – Annual report year: 2010
Publication information
Journal: Fisheries Research
Volume: 106
Issue number: 1
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Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.21 SJR 1.12 SNIP 1.136
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.067 SNIP 1.133 CiteScore 2.01
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.105 SNIP 1.312 CiteScore 2.17
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.037 SNIP 1.173 CiteScore 1.85
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.177 CiteScore 1.78
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.154 SNIP 1.135 CiteScore 1.7
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.041 SNIP 1.1
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.985 SNIP 1.065
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.938 SNIP 1.142
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.022 SNIP 1.075
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.025 SNIP 1.274
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.906 SNIP 1.134
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.944 SNIP 1.023
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.076 SNIP 1.314
FishFrame 5.0: A web based datawarehouse application for management, access and integration of fisheries and stock assessment data

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Monitoring, Institute Management
Authors: Jansen, T. (Intern), Degel, H. (Intern), Håkansson, K. B. (Intern), Egekvist, J. (Intern), Dalskov, J. (Intern), Köster, F. (Intern)
Pages: 1-137
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES Council Meeting
Volume: R:26
ISSN (Print): 1015-4744
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Web of Science (2003): Indexed yes
Original language: English
Source: orbit
Source-ID: 229073
Publication: Research › Conference article – Annual report year: 2008

Projects:

FishHab-II (39345)
The aim of the project is to map fish habitats to improve data and information for Maritime Spatial Planning. The project focuses on mapping the habitats for 9 commercially important fish species and one invertebrate species in the inner Danish waters. Within the project methods will be developed to map habitats in data-poor as well as data-rich areas. Data derived from different sources; surveys, fisheries, citizen science will be used and combined with information derived from fisher interviews. The mapping will include coastal habitats to provide the basis for advice on management of coastal fish nursery areas.

This project is coordinated by DTU Aqua.

The project is funded by the Ministry of Environment and Food of Denmark and the European Maritime and Fisheries Fund (EMFF).

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Danish Fishermen's Association

University of Copenhagen
Period: 01/03/2016 → 28/02/2018
Number of participants: 7
Research areas: Coastal Ecology & Ecosystem based Marine Management
Project participant:
  Wisz, Mary (Intern)
  Sørensen, Thomas Kirk (Intern)
  Vinther, Morten (Intern)
  Egekvist, Josefine (Intern)
  Svendsen, Jon Christian (Intern)
Phd Student:
  Brown, Elliot John (Intern)
Project Manager, academic:
  Støttrup, Josianne Gatt (Intern)

Relations
Press / Media items:
  Bønnerup og Grenaa: Små fisk – skal gerne blive større
  Fintælling af bugtens fisk
  Forskere undersøger fisk langs kysten
  An Expedition covering covering the Danish Coast's from the 18th July - 22nd August, 2016
  Indslag i 24NORDJYSKE

Supporting the national monitoring of Marine Strategy Framework Indicators (39304)
In support of the national implementation of EUs Marine Framework Strategy Directive, the project assembles a one-off monitoring of indicators of the following aspects:

- Quality of sandeel habitat
- Proportion of large top predatory fish
- Biomass of planktonic secondary producers
- Pressure on the sea bed from towed fishing gear
- Marine macro-litter
- Marine micro-litter in the food chain

The quality of sandeel habitat is measured as the fraction of sampling sites in known sandeel habitat which are unsuitable for sandeel due to excessive silt content. The proportion of large top predatory fish describes the proportion of large cod and saithe in Danish waters, and biomass of secondary producers is measured as the annual average biomass of zooplankton of three size categories in Skagerrak/Kattegat in summer.

Pressure on the seabed is measured from VMS data and the minimum area which sustains 90 % of all pressure estimated together with the effectively unfished area. Macro-litter is measured as the average catch of litter in fish trawl surveys, whereas micro-litter in the food chain is monitored as the amount and occurrence of microplastic particles in stomachs from pelagic and demersal fish.

This project was coordinated by DTU Aqua.

The project was funded by the Danish Nature Agency.

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management

Danish Fishermen's Association
Period: 15/05/2015 → 31/12/2015
Number of participants: 4
Research areas: Ecosystem based Marine Management & Oceanography
Project participant:
  Stedmon, Colin (Intern)
  Mortensen, Lars O. (Intern)
Mapping of fish habitats with Øresund as a case study (FISKEHAB) (39206)
Mapping of fish habitats in the Danish part of Øresund, based on existing data on fish and habitats, interviews with gillnet fishermen, anglers and workshop participants. The project was commissioned as a response to widespread protest over sand extraction activity in several designated sites in the area. Øresund is a relatively data poor sea area that is fished primarily by fishermen with vessels below 12 meters, i.e. vessels without satellite location data. The project succeeded in creating maps indicating the distributions of 7 key commercial fish species within Øresund with direct association to benthic habitats.

This project was coordinated by DTU Aqua.

The project was commissioned directly by the Danish Ministry of Food, Agriculture and Fisheries.

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
University of Copenhagen
Period: 03/12/2014 → 31/08/2015
Number of participants: 6
Research area: Ecosystem based Marine Management & Coastal Ecology
Project participant: Egekvist, Josefine (Intern)
Phd Student: Brown, Elliot John (Intern)
Project Coordinator: Sørensen, Thomas Kirk (Intern)

The effect of bottom trawling on marine bottom fauna and eelgrass (ØB Bundfauna) (39192)
The project provided input to the analysis of the impact of fishing on the ecological quality of the Danish marine environment to the Danish Nature Agency in relation to the water plans needed in connection with the implementation of the Water Framework Directive.

It contained three subprojects:
- Quantifying the area of seabed swept by Danish bottom trawl fisheries.
- Quantifying the impact of bottom trawling on marine benthos.
- Quantifying the possible interaction between bottom trawling and the depth distribution of eelgrass (Zostera marina).

This project was coordinated by DTU Aqua.
The Project was funded by the Danish Nature Agency.
Investigation of causes for declines in fish abundance in coastal areas (KYSTFISK-I) (39031)

Danish fishermen complained of drastic declines in coastal fish populations, negatively impacting their fisheries opportunities but the nature and magnitude of the problem was uncertain.

This project aimed to collate information from fishers to map the problem, including which species and geographical areas involved. In total 74 fishers were interviewed and the problem mapped in Støttrup et al. (2014a). The project further aimed to explore existing survey data that could support the observed changes in fish distribution (Støttrup et al. 2014b) and conduct a literature review to explore if similar trends had occurred in neighboring countries and potential causes for the developments had been identified (Dutz et al. in revision).

The project is coordinated by DTU Aqua.

The project was funded by the Danish Ministry of Food, Agriculture and Fisheries and the European Fisheries Fund (EFF).

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management

Danish Fishermen's Association
Period: 01/11/2012 → 01/10/2013
Number of participants: 7
Research areas: Coastal Ecology & Marine Populations and Ecosystem Dynamics
Project participant:
- Munk, Peter (Intern)
- Dutz, Jörg (Intern)
- Stenberg, Claus (Intern)
- Kindt-Larsen, Lotte (Intern)
- Egekvist, Josefine (Intern)
- Nielsen, Torkel Gissel (Intern)

EU preparatory action on maritime spatial planning in the North Sea (MASPNOSE) (38895)

Several EU member states had been working on spatial plans for their part of the North Sea. However, most marine spatial planning was carried out on a national level and largely ignored the possible benefits of cross-border cooperation. Joining forces with neighboring countries could have been an efficient way forward. A first step in this direction was the EU MASPNOSE project that brought together spatial planning practitioners, stakeholders and researchers in order to deal with these bottlenecks. MASPNOSE was an EU project on ecosystem based Maritime Spatial Planning (MSP) in the North Sea, focusing on cross-border areas. The project focused on the southern North Sea with Belgium, Denmark, Germany and the Netherlands as target countries.

To achieve this aim, MASPNOSE explored possibilities for cooperation among North Sea countries; established elements for a common agenda for cooperation of countries around the North Sea; tested the 10 key principles on Maritime Spatial Planning set up by the European Commission; and identified potential barriers and opportunities for cross border Maritime Spatial Planning.

The MASPNOSE project acknowledged the overarching importance of national authorities and other stakeholders (e.g. industries, NGO's) in Maritime Spatial Planning. National governments had an advisory role in the project. Stakeholder participation was one of the focus points of the project and took place in the different case studies on a local scale. MASPNOSE could be seen as an experiment on how cross-border Maritime Spatial Planning could be carried out. This was based on two cross-border case studies in the North Sea: the Dutch-Belgian border and the Dogger Bank.

The project was coordinated by Wageningen University, The Netherlands.

The project was funded by EU, Call for tender (Preparatory Action for Maritime Spatial Planning).
The main objective of the Norwegian-Swedish-Danish research project "Sustainable shrimp fishery in the Skagerrak" was to clarify whether there are one or more shrimp stocks in the Skagerrak. The management of shrimp fishing in the Skagerrak and Norwegian Deep is based on the perception of the shrimp resource as one large population. However, biological differences between shrimps (e.g. the size at sex change) indicate that there may be several stocks in the area. The question of one or more stocks was answered by collecting and genetically analyzing several thousand shrimp from Skagerrak and northern Kattegat, Norwegian Channel and the Norwegian fjords. The analyzed shrimps came both from research cruises and commercial fisheries. The kinship of the collected shrimp was examined with modern DNA technique and the results compared with existing knowledge of the biology of the species. This knowledge was obtained from scientific sources as well as from the fishing industry in terms of skipper interviews. The genetic analyses revealed that shrimps in Skagerrak and Norwegian Deep all belong to the same stock, but also that some of the fjord-populations are genetically distinct (can be considered separate stocks). These results are published in ICES Journal of Marine Science in 2015.

The fisher information collected in the project was not only focused on shrimp biology but also addressed economical and technical aspects of the shrimp fishery. In this way, scientists have gained an understanding of both how shrimp populations are structured and distributed in the Skagerrak and of the economic importance. The exchange of knowledge between researchers and fishers was an important aspect of the project and was facilitated by regular meetings and interview schemes in all three countries.

Another primary objective of the project was to improve the current assessment of the Skagerrak shrimp stock by developing a new length-based analytical model. DTU Aqua was in charge of this part of the project and in an assessment benchmark in 2012 the developed model was accepted.

The project was coordinated by Institute for Marine Research, Norway.

The project was funded by EU, InterReg (regional collaboration).
Period: 01/01/2010 → 31/12/2013
Number of participants: 6
Research areas: Fisheries Management & Marine Living Resources
Project participant:
Munch-Petersen, Sten (Intern)
Nielsen, Anders (Intern)
Andersen, Bo Selgaard (Intern)
Egekvist, Josefine (Intern)
Holm, Nina (Intern)
Project Manager, academic:
Eigaard, Ole Ritzau (Intern)

Development of tools for logbook and VMS data analysis (38751)

Objectives and Background
The project “Development of tools for logbook and VMS data analysis” was an EU project under studies for carrying out the common fisheries policy (No MARE/2008/10 Lot2). The aim of the project was to develop a set of standard protocols for coupling and simultaneous analyses of EU fisheries logbook and VMS satellite vessel record data.

Tasks and Deliverables
The process began with the construction of standardized data formats for logbook (EFLALO) and VMS (TACSAT). The software for analyzing the data took the form of a fully documented package called vmstools, built using the freeware package, R (http://cran.rproject.org/). Once the data have been imported into R in the correct format, a series of R programs or ‘functions’, linked by ‘scripts’ enable all tasks necessary to be completed in a single software environment. The software can ‘clean’ data and format input data, estimate distances between VMS positions, and métiers can be identified objectively from species assemblages in catch data using multivariate statistical techniques.

We have included a range of complimentary methods for determining fishing activity from VMS position registrations. Positions at sea, for example, can be distinguished from vessels in harbor or erroneous positions on land. Position registrations of vessels actually fishing can be separated from those engaged in other activities (e.g. steaming) using their speed in conjunction with other information such as vessel size and gear being used.

Logbook and VMS data can be merged such that high-resolution spatial maps of catches of various commercial species can be generated. Individual vessel tracks can be reconstructed for more realism through different interpolation techniques (both linear and non-linear, i.e. using Hermite spline functions). Further, all the fishing activity indicators required under the Data Collection Framework can be calculated using vmstools. The package can also be used to explore the impact of different spatial (grid size) and temporal aggregations (month, quarterly, annual) which need to be explicitly considered when assessing fishing impact on the sea floor. There are also scripts for displaying results using Google Earth which is a useful aid for dissemination.

The combination of all these routines ‘under one roof’ permitted and permits the construction of ‘Regional’ databases (i.e. FishFrame developed by DTU Aqua - a regional database hosted by one of the project partners) and scripts to produce output suitable for this are included with the vmstools package.

As proof of concept, all analyses performed within each work package have been tested, using the vmstools package, against national datasets with contributions from the French, Danish, Irish, UK and Dutch institutes. As an example, FishFrame has been populated with Dutch and Danish combined VMS and logbook data for 2005-2009. The project demonstrated emphatically that logbook and VMS data from disparate countries with often different data collection regimens can be combined and compared using generic tools and that the output can be sent to regional databases permitting more holistic assessments of fishing activity.

The project has built further on the networks and platforms produced under EU FP6 EFIMAS Project coordinated by DTU Aqua, and the DTU Aqua team associated with the project has produced several peer reviewed journal papers under Lot 2.

The project is coordinated by Institute for Marine Resources and Ecosystem Studies (IMARES), Wageningen UR, The Netherlands.
This project is funded by EU, Framework Programme 7.

Software Engineering
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Wageningen IMARES
Cefas
IFREMER
Marine Scotland
Sea Fisheries Institute

Marine Institute
Period: 01/01/2009 → 31/12/2012
Number of participants: 5
Research areas: Fisheries Management & Marine Living Resources

Project participant:
Bastardie, Francois (Intern)
Ulrich, Clara (Intern)
Egekvist, Josefine (Intern)
Degel, Henrik (Intern)

Project Manager, academic:
Nielsen, J. Rasmus (Intern)

Project:
Monitoring and evaluation of spatially managed areas (MESMA) (38871)
The MESMA project focused on marine spatial planning and aimed to produce integrated management tools (concepts, models and guidelines) for monitoring, evaluating and implementing Spatially Managed Areas (SMAs). The main tasks in the project were information analysis, the development of a generic framework, the testing and evaluation of this framework through case-studies and the development of a toolbox. A significant proportion of the effort was centered on the case studies within five geographical regions: the North Sea, Baltic, Mediterranean, Atlantic, and Black Sea. This approach made it possible to compare pressures on an inter-regional level (e.g. offshore wind farms in the North Sea, Black Sea and Baltic), or a multi-pressure level for a specific region (e.g. SMA in fishing, wind-energy, geo-hazards and tourism in the Black Sea).

The project was coordinated by IMARES, Wageningen UR, The Netherlands.

The project was funded by EU, Framework Programme 7.
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Wageningen IMARES
University College London
Senckenberg Gesellschaft für Naturforschung
Ghent University
Hellenic Centre for Marine Research
Bulgarian Academy of Sciences
Institute of Marine Research
University College Cork
National Research Council of Italy
Marine and Food Technological Centre
Polish Academy of Sciences
Ministry for Resources and Rural Affairs
Cefas
Heriot-Watt University
Deltares
Norwegian Institute for Water Research
Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek
Institute for Agricultural and Fisheries Research
Johann Heinrich von Thünen-Institute
Management Unit of the North Sea Mathematical Models and the Scheldt Estuary
Period: 01/01/2009 → 31/12/2013
Number of participants: 4
Research areas: Ecosystem based Marine Management & Marine Living Ressources & Coastal Ecology
Project participant:
Christensen, Asbjørn (Intern)
Dinesen, Grete E. (Intern)
Egekvist, Josefine (Intern)
Project Manager, academic:
Sørensen, Thomas Kirk (Intern)

Relations
Publications:
Ecosystem-based marine spatial management: Review of concepts, policies, tools, and critical issues
Project

Activities:

ICES - Working Group on Spatial Fisheries Data - WGSFD (External organisation)
Period: 2015
Josefine Egekvist (Chairman)
National Institute of Aquatic Resources
Section for Monitoring and Data
Degree of recognition: International

Related external organisation
ICES - Working Group on Spatial Fisheries Data - WGSFD
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - The Data and Information Group - DIG (External organisation)
Period: 2014
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Monitoring and Data
Degree of recognition: International

Related external organisation
ICES - The Data and Information Group - DIG
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - The Working Group on Commercial Carches - WGCATCH (External organisation)
Period: 2014
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Monitoring and Data
Degree of recognition: International

Related external organisation
ICES - The Working Group on Commercial Carches - WGCATCH
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar
ICES - Working Group on Spatial Fisheries Data - WGSFD (External organisation)
Period: 2014
Josefine Egekvist (Chairman)
National Institute of Aquatic Resources
Section for Monitoring and Data
Degree of recognition: International

Related external organisation
ICES - Working Group on Spatial Fisheries Data - WGSFD
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Data and Information Group - DIG (External organisation)
Period: 2013 → …
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Monitoring and Data
Degree of recognition: International

Related external organisation
ICES - Data and Information Group - DIG
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Study Group on Practical Implementation of Discard Sampling Plans - SGPIDS (External organisation)
Period: 2013 → …
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Monitoring and Data
Degree of recognition: International

Related external organisation
ICES - Study Group on Practical Implementation of Discard Sampling Plans - SGPIDS
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Spatial Fisheries Data - WGSFD (External organisation)
Period: 2013 → …
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Monitoring and Data
Degree of recognition: International

Related external organisation
ICES - Working Group on Spatial Fisheries Data - WGSFD
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Study Group on Practical Implementation of Discard Sampling Plans - SGPIDS (External organisation)
Period: 2012 → …
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation
ICES - Study Group on Practical Implementation of Discard Sampling Plans - SGPIDS
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Training Course on Analysing and visualization of VMS and EU logbook data using the VMStools R package
(External organisation)
Period: 2012 → …
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International
Related external organisation
ICES - Training Course on Analysing and visualization of VMS and EU logbook data using the VMStools R package
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Data and Information Management - WGDIM (External organisation)
Period: 2012 → …
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International
Related external organisation
ICES - Working Group on Data and Information Management - WGDIM
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Mixed Fisheries Advice for the North Sea - WGMIXFISH (External organisation)
Period: 2012 → …
Josefine Egekvist (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International
Related external organisation
ICES - Working Group on Mixed Fisheries Advice for the North Sea - WGMIXFISH
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar