Josefine Egekvist - DTU Orbit (15/10/2018)

Organisations

Senior consultant, National Institute of Aquatic Resources
25/01/2007 → present
jsv@aqua.dtu.dk
VIP

Section for Monitoring and Data
23/01/2013 → present
VIP

Research outputs:

Analysis of marine protected areas – in the Danish part of the North Sea and the Central Baltic around Bornholm: Part 1: The coherence of the present network of MPAs

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Oceans and Arctic, Section for Ecosystem based Marine Management, Section for Marine Living Resources, Section for Monitoring and Data, DHI Denmark, Geological Survey of Denmark and Greenland, Aarhus University, University of Copenhagen
Number of pages: 105
Publication date: 2017

Publication information
Publisher: National Institute of Aquatic Resources, Technical University of Denmark
ISBN (Electronic): 978-87-7481-245-6
Original language: English
(DTU Aqua Report; No. 325-2017).
Electronic versions:
Publishers version
URLs:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008

Analysis of marine protected areas – in the Danish part of the North Sea and the Central Baltic around Bornholm: Part 2: Ecological and economic value, human pressures, and MPA selection

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Oceans and Arctic, Section for Ecosystem based Marine Management, Section for Marine Living Resources, Section for Monitoring and Data, DHI Denmark, Geological Survey of Denmark and Greenland, Aarhus University, University of Copenhagen
Number of pages: 120
Publication date: 2017

Publication information
Publisher: National Institute of Aquatic Resources, Technical University of Denmark
ISBN (Electronic): 978-87-7481-245-6
Original language: English
(DTU Aqua Report; No. 325-2017).
Electronic versions:
Publishers version
URLs:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
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
Contributors: Bastardie, F., Eigaard, O. R., Nielsen, J. R., Egekvist, J., Hintzen, N. T., van Denderen, P. D., Rijnsdorp, A.
Number of pages: 25
Publication date: 2017

Publication information
Publisher: International Council for the Exploration of the Sea (ICES)
Original language: English
Electronic versions:
Publishers version
DOIs: 10.5281/zenodo.883054
URLs: https://zenodo.org/record/883054#.WglXPTKWy70

Hvordan påvirker bundtrawlfiskeriet Kattegats bundfauna? En analyse af ændringer i densitet og artsrigdom og en diskussion af potentielle indikatorer

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data
Contributors: Gislason, H., Dinesen, G. E., Bastardie, F., Egekvist, J., Eigaard, O. R.
Publication date: 2017
Peer-reviewed: No
Event: Abstract from Dansk Havforskermøde, Helsingør, Denmark.
Source: PublicationPreSubmission
Source-ID: 128598616
Research output: 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
Contributors: Gislason, H., Bastardie, F., Dinesen, G. E., Egekvist, J., Eigaard, O. R.
Pages: 260-270
Publication information
Journal: Ecological Indicators
Volume: 82
ISSN (Print): 1470-160X
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 4.42 SJR 1.406 SNIP 1.643
Web of Science (2017): Impact factor 3.983
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.07 SJR 1.35 SNIP 1.784
Web of Science (2016): Impact factor 3.898
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 3.99 SJR 1.478 SNIP 1.727
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 3.76 SJR 1.464 SNIP 1.974
Web of Science (2014): Impact factor 3.444
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 3.63 SJR 1.347 SNIP 1.825
Web of Science (2013): Impact factor 3.23
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 3.42 SJR 1.252 SNIP 1.845
Web of Science (2012): Impact factor 2.89
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 3.05 SJR 1.223 SNIP 1.73
Web of Science (2011): Impact factor 2.695
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.26 SNIP 1.603
Web of Science (2010): Impact factor 2.967
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.059 SNIP 1.756
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.925 SNIP 1.518
Scopus rating (2007): SJR 0.783 SNIP 1.364
Scopus rating (2006): SJR 0.688 SNIP 0.947
Scopus rating (2005): SJR 0.466 SNIP 1.009
Scopus rating (2004): SJR 0.715 SNIP 1.154
Scopus rating (2003): SJR 0.464 SNIP 0.835
Scopus rating (2002): SJR 0.185 SNIP 0.751
Original language: English
Keywords: Water Resources, Environmental Engineering, Chemistry, Chemical Products Generally, Physical Properties of Gases, Liquids and Solids, Bottom trawling, Density, Macro benthos indicators, Marine strategy framework directive, Species richness, Water framework directive, Biodiversity, Density (specific gravity), Ecology, Environmental regulations, Forestry, Indicators (chemical), Pollution control, Water conservation, Macro benthos, Marine strategy framework directives, Water Framework Directives, Fisheries
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 shelves, 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
Number of pages: 104
Publication date: 2016
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
Contributors: Mortensen, L. O., Olesen, H. J., Egekvist, J., Rindorf, A., Ulrich, C.
Publication date: 2015
Peer-reviewed: No
Event: Abstract from Conference of the European Association of Fisheries Economists, Salerno, Italy.
Research output: Research - peer-review › Journal article – Annual report year: 2015

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, Natural History Museum of Denmark
Number of pages: 2
Publication date: 2015
Peer-reviewed: No
Event: Abstract from ICES Annual Science Conference 2015, Copenhagen, Denmark.
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.
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.
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
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
Number of pages: 31
Publication date: 2012

Publication information
Place of publication: Charlottenlund
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
ISBN (Electronic): 978-87-7481-159-6
Original language: Danish
(DTU Aqua-rapport; No. 255-2012).
Electronic versions:
255_2012_biologisk_forstyrrelse_baggrundsnotat_til_havstrategi.pdf
URLs:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Research output: 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

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Monitoring, Section for Public Sector Consultancy
Contributors: Storr-Paulsen, M., Håkansson, K. B., Egekvist, J., Degel, H., Dalskov, J.
Number of pages: 84
Publication date: 2012

Publication information
Place of publication: Charlottenlund
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.

General Information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Pages: 31-43
Publication date: 2012
Peer-reviewed: Yes

Publication Information
Journal: Fisheries Research
Volume: 115-116
ISSN (Print): 0165-7836
Ratings:
BFI (2018): BFI-level 1
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
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Contributors: Nielsen, J. R., Bastardie, F., Egekvist, J., Jantzen, K., Raid, T., Goldmanis, E., Radtke, K., Pallisgaard, B., Eero, M.
Publication date: 2011

Host publication information
Place of publication: Luxembourg
Publisher: Publications Office of the European Union
Source: orbit
Source-ID: 278754
Research output: 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
Contributors: Bastardie, F., Nielsen, J. R., Ulrich, C., Egekvist, J., Degel, H.
Publication date: 2010
Peer-reviewed: No
Event: Poster session presented at Conference on Making the Most of Fisheries Information - Underpinning Policy, Management and Science, 23-26 Aug, Galway, Ireland
Source: orbit
Source-ID: 268926
Research output: Research › Poster – Annual report year: 2010

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

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Contributors: Bastardie, F., Nielsen, J. R., Ulrich, C., Egekvist, J., Degel, H.
Pages: 41-53
Publication date: 2010
Peer-reviewed: Yes
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
Contributors: Jansen, T., Degel, H., Håkansson, K. B., Egekvist, J., Dalskov, J., Köster, F.
Pages: 1-137
Publication date: 2008
Peer-reviewed: No

Publication information
Journal: I C E S 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
Research output: Research › Conference article – Annual report year: 2008

Projects:

Sand banks and fisheries impact in relation to EU fisheries and environmental policy (39519)
Objective of the project: The project will improve the knowledge base for ongoing and upcoming Natura 2000 and MSFD implementations in the North Sea. For nature-type ‘sand banks’, in particular Danish sandeel and plaice fishing will be affected. Activities in the project: The key activities of the project are targeted method developments and knowledge production in relation to EU fisheries and environmental policy: 1) Development of a gear and sediment-specific model for bottom impact from all types of mobile bottom-contacting fishing gears in the North Sea. 2) Field trials to document short-term impact on sandbank fauna from demersal seine fishery. 3) Analyses of data from the seine gear field trials and of existing data for the impact of sandbanks from trawlers, including impact differences between bottom and floating trawl doors. 4) Estimation of sediment impact from natural disturbance on sand banks (e.g. tide and wave impact) as well as scaling of these in relation to physical effects of different types of gear. 5) Integrated analysis of the impact of different fisheries and other pressure factors on sand banks. 6) Dissemination. Project Expected Effects: The project’s results and method developments can be used directly in the management to separate different fisheries with regard to bottom impact; e.g. by nature conservation via area restrictions. Activity 4 and 5 will generate management tools that can quantitatively address descriptor 6 under the Marine Strategy Framework Directive relative to sand banks. The project is
The future modular fishing vessel (FMF) 39454

The FMF project (the future modular fishing vessel) is a development project aiming at developing an innovative fishing vessel for coastal fishing, which is multi-functional and optimized in terms of operation, maintenance and energy consumption. JOBI VÆRFT A/S, together with ShipCon ApS (Frederikshavn) and SafeEx ApS (Nørresundby) plan to design an innovative fishing vessel in the size range somewhere between 15-30 meters for coastal fishing. DTU Aqua participates as a knowledge institution in the project and will support the project by supplying knowledge on fishing gear and catch handling, including improved processing and storage facilities on board fishing vessels. The project is coordinated by and is funded by the North Jutland Regional Fund and JOBI VÆRFT A/S.

Development and demonstration project for ecosystem based marine spatial planning (ØKOMAR) (39530)

Following the decision of the EU Marine Framework Directive in 2014, Denmark has to transpose the Directive into Danish legislation. By 2021, a strategy for the Danish marine areas needs to be implemented to achieve the objectives including how to obtain the goals for growth and exploitation of the territorial sea taking into account the interaction between land and sea, environmental and economic aspects and organizes the use of the best available data. The ØKOMAR project will develop and test data-based tools for ecosystem-based marine planning in the Danish waters, partly to explore the use of these tools, partly to make these tools available to relevant users and authorities. The project is coordinated by NIVA Denmark and funded by the VELUX Foundation.

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.
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.

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).

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.
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).

Sustainable shrimp fishery in Skagerrak (38994)

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 projected was funded by EU, InterReg (regional collaboration).

Eigaard, O. R., Project Manager, National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Munch-Petersen, S., Project Participant, National Institute of Aquatic Resources
Nielsen, A., Project Participant, National Institute of Aquatic Resources
Andersen, B. S., Project Participant
Egekvist, J., Project Participant, National Institute of Aquatic Resources
Holm, N., Project Participant, National Institute of Aquatic Resources
01/01/2010 → 31/12/2013
Keywords: Research areas: Fisheries Management & Marine Living Resources
Collaborators: Norwegian Directorate of Fisheries, Lund University, Norwegian Fishermen’s Association, Ministry of Environment and Food of Denmark, Institute of Marine Research, University of Gothenburg, Danish Fishermen's Association
Project: Research
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.

Sørensen, T. K., Project Manager, National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Christensen, A., Project Participant, National Institute of Aquatic Resources
Dinesen, G. E., Project Participant, National Institute of Aquatic Resources
Egekvist, J., Project Participant, National Institute of Aquatic Resources

Project: Research

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).

Sørensen, T. K., Project Manager, National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Dinesen, G. E., Project Participant, National Institute of Aquatic Resources
Egekvist, J., Project Participant, National Institute of Aquatic Resources

Project: Research

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.r-project.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.

Nielsen, J. R., Project Manager, National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Bastardie, F., Project Participant, National Institute of Aquatic Resources
Ulrich, C., Project Participant, National Institute of Aquatic Resources
Egekvist, J., Project Participant, National Institute of Aquatic Resources
Degel, H., Project Participant, National Institute of Aquatic Resources

01/01/2009 → 31/12/2012
Keywords: Research areas: Fisheries Management & Marine Living Resources
Collaborators: Wageningen IMARES, Sea Fisheries Institute, Marine Institute, Marine Scotland, Cefas Weymouth Laboratory, IFREMER
Project: Research

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 Catches - 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 Catches - 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