Fishing for MSY: using “pretty good yield” ranges without impairing recruitment
Pretty good yield (PGY) is a sustainable fish yield corresponding to obtaining no less than a specified large percentage of the maximum sustainable yield (MSY). We investigated 19 European fish stocks to test the hypothesis that the 95% PGY yield range is inherently precautionary with respect to impairing recruitment. An FMSY range was calculated for each stock as the range of fishing mortalities (F) that lead to an average catch of at least 95% of MSY in long-term simulations. Further, a precautionary reference point for each stock (FP.05) was defined as the F resulting in a 5% probability of the spawning-stock biomass falling below an agreed biomass limit below which recruitment is impaired (Blm) in long-term simulations. For the majority of the stocks analysed, the upper bound of the FMSY range exceeded the estimated FP.05. However, larger fish species had higher precautionary limits to fishing mortality, and species with larger asymptotic length were less likely to have FMSY ranges impairing recruitment. Our study shows that fishing at FMSY generally is precautionary with respect to impairing recruitment for highly exploited teleost species in northern European waters, whereas the upper part of the range providing 95% of MSY is not necessarily precautionary for small- and medium-sized teleosts.
Food for thought: pretty good multispecies yield

MSY principles for marine fisheries management reflect a focus on obtaining continued high catches to provide food and livelihoods for humanity, while not compromising ecosystems. However, maintaining healthy stocks to provide the maximum sustainable yield on a single-species basis does not ensure that broader ecosystem, economic, and social objectives are addressed. We investigate how the principles of a "pretty good yield" range of fishing mortalities assumed to provide >95% of the average yield for a single stock can be expanded to a pretty good multispecies yield (PGMY) space and further to pretty good multidimensional yield to accommodate situations where the yield from a stock affects the ecosystem, economic and social benefits, or sustainability. We demonstrate in a European example that PGMY is a practical concept. As PGMY provides a safe operating space for management that adheres to the principles of MSY, it allows the consideration of other aspects to be included in operational management advice in both data-rich and data-limited situations. PGMY furthermore provides a way to integrate advice across stocks, avoiding clearly infeasible management combinations, and thereby hopefully increasing confidence in scientific advice.

General information

State: Published
Emergence of a new predator in the North Sea: evaluation of potential trophic impacts focused on hake, saithe, and Norway pout

During the last 15 years, northern European hake (Merluccius merluccius) has increased in abundance, and its spatial distribution has expanded in the North Sea region in correlation with temperature. In a context of global warming, this spatial shift could impact local trophic interactions: direct impacts may affect forage fish through modified predator-prey interactions, and indirect impacts may materialize through competition with other resident predators. For instance, North Sea saithe (Pollachius virens) spatial overlap with hake has increased while saithe spawning-stock biomass has decreased recently notwithstanding a sustainable exploitation. In this context, we investigated the range of potential impacts resulting from most recent hake emergence in the North Sea, with a particular focus on saithe. We carried out a multispecies assessment of North Sea saithe, using the Stochastic MultiSpecies (SMS) model. In addition to top-down processes already implemented in SMS, we built in the model bottom-up processes, relating Norway pout (Trisopterus esmarkii) abundance and saithe weight-at-age. We simulated the effects, on all North Sea species being considered but focusing on Norway pout and saithe, of combining different hake abundance trends scenarios with the inclusion of bottom-up processes in SMS. North Sea saithe F-MSY was then evaluated in a multispecies context and contrasted with single-species value. The different scenarios tested revealed a negative impact of hake emergence on saithe biomass, resulting from an increase of predation pressure on Norway pout. These results confirm the competition assumption between saithe and hake in the North Sea and might partially explain the most recent decrease of saithe biomass. This study also highlighted that taking into account bottom-up processes in the stock assessment had a limited effect on the estimation of saithe FMSY which was consistent with single-species value.
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.32
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Web of Science (2008): Indexed yes
Web of Science (2007): Indexed yes
Web of Science (2006): Indexed yes
Web of Science (2005): Indexed yes
Web of Science (2004): Indexed yes
Web of Science (2003): Indexed yes
Web of Science (2002): Indexed yes
Web of Science (2001): Indexed yes
Web of Science (2000): Indexed yes

Original language: English
POLLACHIUS-VIRENS, MERLUCCIUS-MERLUCCIUS, MARINE ECOSYSTEMS, GADOID FISH, SPATIAL INTERACTIONS, REFERENCE POINTS, NORWEGIAN DEEP, FOOD-WEB, FISHERIES, ATLANTIC, hake, interspecific competition, maximum sustainable yield, multispecies stock assessment, Norway pout, predator-prey interactions, saithe, simple foodweb, SMS

Electronic versions:
Publishers version
DOIs:
10.1093/icesjms/fsw050
Source: FindIt
Source-ID: 2303833794
Publication: Research - peer-review › Journal article – Annual report year: 2016

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

Publication information
Publisher: Miljø- og Fødevareministeriet
Original language: Danish
Main Research Area: Technical/natural sciences
Electronic versions:
Publishers version
Links:
http://naturstyrelsen.dk/media/179105/fiskehabitater-oeresund-dtu-aqua-opdateret-2016.pdf

Relations
Press / Media items:
Tilstandsrapport fra havbunden
Publication: Research › Report – Annual report year: 2016

Myfish : Maximising yield of fisheries while balancing ecosystem, economic and social concerns: Legacy booklet
The MSY concept in a multi-objective fisheries environment – lessons learned from the North Sea

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Marine Living Resources, Hellenic Centre for Marine Research, AquaMarine Advisers, University of Copenhagen
Number of pages: 53
Publication date: 2016

Publication information
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
Publishers version
Links:
Publication: Communication › Book – Annual report year: 2016

Journal: Marine Policy
ISSN (Print): 0308-597X

Ratings:
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
Scopus rating (2016): CiteScore 2.7 SJR 1.335 SNIP 1.182
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.591 SNIP 1.397 CiteScore 3.07
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.438 SNIP 1.56 CiteScore 3.09
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.472 SNIP 1.635 CiteScore 2.71
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.339 SNIP 1.495 CiteScore 2.54
Tobis skrabetogtet viste lave forekomster af tobis

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Monitoring and Data, Section for Ecosystem based Marine Management
Authors: Olesen, H. J. (Intern), Vinther, M. (Intern), Rindorf, A. (Intern)
Pages: 6
Publication date: 2016

Publications information
Pages (from-to): 6
Newspaper: Fiskeritidende
Volume: 23
No.: 4
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Main Research Area: Technical/natural sciences
Publication: Communication › Newspaper article – Annual report year: 2016

Are 'pretty good yield' ranges precautionary?

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Queen's University Belfast, Lund University
Causes and consequences of technical, biological and spatial interactions in fisheries management modelled from the individual distribution of fishing effort

Our individual-vessel based bio-economic modeling approach (www.displace-project.org) evaluates the harvesting dynamics using information about fishing ground preferences and experienced vessel-specific catch rates. The assessment computes the daily decision-making of the fishing vessels and the individual or overall economic and stock status indicators together with the size-based spatial distribution dynamics of the main fishery resources. In this application to the western Baltic Sea sprat, herring and cod fisheries of Danish, Swedish and German commercial vessels (>12 m) the biological interactions (fish predation mortality) are included by a dynamic coupling to the Stochastic Multi Species model (SMS) on annual basis, under the mitigation from the "yet to be implemented" NATURA 2000 zonation in the area. The spatial technical interactions between vessels revealed to be the predominant factors affecting the fishery profit and the energy efficiency while species interactions play a minor role, albeit increasing the final profit estimates. Interestingly, the zonation affects the profit depending on the biological interactions from a spatial effect on the size composition of the stocks, therefore the fish size composition in the landings originating from different fishing areas. Such a model coupling contributes to the integration of different spatial activities in certain sea areas considering the combined effects of technical and biological interactions and dynamics for reducing potential inefficient management and use of space according to the aims of both EU CFP regulation (No 1380/2013) and EU MSP (2014/89/EU) directive.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Bastardie, F. (Intern), Nielsen, J. R. (Intern), Vinther, M. (Intern)
Number of pages: 3
Publication date: 2015
Event: Paper presented at ICES Annual Science Conference 2015, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:

Does recreational catch impact the TAC for commercial fisheries?
The western Baltic cod is one of the first fish stocks in Europe that, since 2013, includes recreational catches in stock assessment and fisheries management advice. In this paper, we investigate the sensitivity of the calculated commercial total allowable catch (TAC) to including recreational catches in stock assessment. Our results show that the most crucial aspect in terms of the impact on commercial TAC is the assumption on recreational catch dynamics relative to that of commercial fisheries used in forecast. The results were less sensitive to the information on the historical amount and age structure of recreational catch. Our study is intended to inform potential debates related to resource allocation between the commercial and recreational sectors and contribute to developing a general framework for incorporating recreational catches in fisheries management advice in ICES.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Thünen Institute of Baltic Sea Fisheries, University of Florida
Authors: Eero, M. (Intern), Strehlow, H. V. (Ekstern), Adams, C. M. (Ekstern), Vinther, M. (Intern)
Pages: 450-457
Publication date: 2015
Main Research Area: Technical/natural sciences
Eastern Baltic cod in distress: biological changes and challenges for stock assessment

The eastern Baltic (EB) cod (Gadus morhua) stock was depleted and overexploited for decades until the mid-2000s, when fishing mortality rapidly
declined and biomass started to increase, as shown by stock assessments. These positive developments were partly
assigned to effective management
measures, and the EB cod was considered one of the most successful stock recoveries in recent times. In contrast to this
optimistic view, the analytical stock assessment failed in 2014, leaving the present stock status unclear. Deteriorated
quality of some basic input data for stock assessment in combination with changes in environmental and ecological
conditions has led to an unusual situation for cod in the Baltic Sea, which poses new challenges for stock assessment and
management advice. A number of adverse developments such as low nutritional condition and disappearance of larger
individuals indicate that the stock is in distress. In this study, we (i) summarize the knowledge of recent changes in cod
biology and ecosystem conditions, (ii) describe the subsequent challenges for stock assessment, and (iii) highlight the key
questions where answers are urgently needed to understand the present stock status and provide scientifically solid
support for cod management in the Baltic Sea

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for
Marine Ecology and Oceanography, Institute Management, Section for Monitoring and Data, Swedish University of
Agricultural Sciences, University of Skövde, International Council for the Exploration of the Sea, University of Kiel, Lund
University, Johann Heinrich von Thünen-Institute
Authors: Eero, M. (Intern), Hjelm, J. (Ekstern), Behrens, J. (Intern), Buckmann, K. (Ekstern), Cardinale, M. (Ekstern),
Casini, M. (Ekstern), Gasyukov , P. (Ekstern), Holmgren, N. (Ekstern), Horbowy, J. (Ekstern), Hüussy, K. (Intern),
Kirkegaard, E. (Intern), Kornilovs, G. (Ekstern), Krumme, U. (Ekstern), Köster, F. (Intern), Oeberst, R. (Ekstern), Plikss, M.
(Ekstern), Radtkes, K. (Ekstern), Raid, T. (Ekstern), Schmidt, J. O. (Ekstern), Tomczak, M. (Ekstern), Vinther, M. (Intern),
Zimmermann, C. (Ekstern), Storr-Paulsen, M. (Intern)
Pages: 2180-2186
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES Journal of Marine Science
Volume: 72
Issue number: 8
ISSN (Print): 1054-3139
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.63
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.18
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.62
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.46
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.35
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.32
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Web of Science (2010): Indexed yes
Management of fishery: Importance of fish food web dynamics in coupling of multispecies and bio-economic fisheries management evaluation models

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Marine Ecology and Oceanography
Authors: Ross, S. D. (Intern), Nielsen, J. R. (Intern), Gislason, H. (Intern), Andersen, N. G. (Intern), Vinther, M. (Intern), Bastardie, F. (Intern)
Publication date: 2015
Event: Abstract from 18. Danske Havforskermøde, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Publication: Research › Conference abstract for conference – Annual report year: 2015

MSY ranges in a multispecies stochastic model environment

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Vinther, M. (Intern), Rindorf, A. (Intern), Kempf, A. (Ekstern)
Publication date: 2015
Event: Abstract from ICES MYFISH Symposium, Athens, Greece.
Main Research Area: Technical/natural sciences
Links:
Publication: Research › Conference abstract for conference – 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
Event: Abstract from ICES Annual Science Conference 2015, Copenhagen, Denmark.
Main Research Area: Technical/natural sciences
Optimal bæredygtig udnyttelse af tilgængelige torskebestande for dansk fiskeri

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Marine Living Resources, Section for Marine Ecology and Oceanography, Centre for Ocean Life
Authors: Eero, M. (Intern), Hansen, J. H. (Intern), Hüssy, K. (Intern), Huwer, B. (Intern), Berg, C. W. (Intern), Mariani, P. (Intern), Mosegaard, H. (Intern), Nielsen, A. (Intern), Eg Nielsen, E. (Intern), Rindorf, A. (Intern), Ulrich, C. (Intern), Vinther, M. (Intern), Worsøe Clausen, L. (Intern)
Number of pages: 52
Publication date: 2015

Sustainability, fuel use, and profitability: interlinked consequences of stock dynamics and choices of individual vessel spatial effort allocation within the Western Baltic

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Publication date: 2015
Event: Abstract from SOCIOEC EU-FP7-SYMPOSIUM: the socio-economic impacts of management measures of the new Common Fisheries Policy, Brussels, Belgium.
Main Research Area: Technical/natural sciences
Publication: Research › Conference abstract for conference – Annual report year: 2015

The MSY concept in a multi-objective fisheries environment – lessons learned from the North Sea

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Wageningen IMARES, University of St Andrews, University of Copenhagen
Authors: Kempf, A. (Ekstern), Mumford, J. (Ekstern), Levontin, P. (Ekstern), Leach, A. (Ekstern), Hoff, A. (Ekstern), Hamon, K. (Intern), Bartelings, H. (Ekstern), Vinther, M. (Intern), Staebler, M. (Ekstern), Poos, J. J. (Ekstern), Smout, S. (Ekstern), Frost, H. (Ekstern), van den Burg, S. (Ekstern), Ulrich, C. (Intern), Rindorf, A. (Intern)
Publication date: 2015
Event: Abstract from ICES MYFISH Symposium, Athens, Greece.
Main Research Area: Technical/natural sciences
Publication: Research › Conference abstract for conference – Annual report year: 2015

What is MSY when stock productivity shifts? A worked example from the North Sea

General information
Importance of food web dynamics in coupling of multispecies models and bio-economic fisheries management evaluation models

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Marine Living Resources, Section for Ecosystem based Marine Management
Authors: Worsøe Clausen, L. (Intern), Rindorf, A. (Intern), Deurs, M. V. (Intern), Vinther, M. (Intern), Dickey-Collas, M. (Ekstern), Hintzen, N. (Ekstern)
Publication date: 2015
Event: Abstract from ICES MYFISH Symposium, Athens, Greece.
Main Research Area: Technical/natural sciences
Links:
Publication: Research › Conference abstract for conference – Annual report year: 2015

Integrated assessment of marine biodiversity status using a prototype indicator-based assessment tool

Integrated assessment of the status of marine biodiversity is and has been problematic compared to, for example, assessments of eutrophication and contamination status, mostly as a consequence of the fact that monitoring of marine habitats, communities and species is expensive, often collected at an incorrect spatial scale and/or poorly integrated with existing marine environmental monitoring efforts. The objective of this Method Paper is to introduce and describe a simple tool for integrated assessment of biodiversity status based on the HELCOM Biodiversity Assessment Tool (BEAT), where interim biodiversity indicators are grouped by themes: broad-scale habitats, communities, and species as well as supporting non-biodiversity indicators. Further, we report the application of an initial indicator-based assessment of biodiversity status of Danish marine waters where we have tentatively classified the biodiversity status of Danish marine waters. The biodiversity status was in no areas classified as "unaffected by human activities." In all the 22 assessment areas, the status was classified as either "moderately affected by human activities" or "significantly affected by human activities." Spatial variations in the biodiversity status were in general related to the eutrophication status as well as fishing pressure

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, NIVA Denmark Water Research, Aarhus University, DHI Denmark, Finnish Environment Institute
Publication date: 2014
Main Research Area: Technical/natural sciences
Publication information
Journal: Frontiers in Marine Science
Volume: 1
Article number: 55
Ratings:
BFI (2018): BFI-level 1
BFI (2017): BFI-level 1
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.53 SJR 0.173 SNIP 0.109
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.145 SNIP 0.05
BFI (2014): BFI-level 1
Trading yield against precautionarity and the need for stability in the fishing sector

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Marine Living Resources, Section for Ecosystem based Marine Management
Authors: Deurs, M. V. (Intern), Rindorf, A. (Intern), Vinther, M. (Intern), Mosegaard, H. (Intern), Worsøe Clausen, L. (Intern)
Publication date: 2014
Main Research Area: Technical/natural sciences

Bibliographical note
ICES CM 2014/G:48
Publication: Research › Conference abstract for conference – Annual report year: 2014

Dokumentation af selektiv effekt af SELTRA 180: Slutrapport til Ministeriet for Fødevarer, Landbrug og Fiskeri

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Krag, L. A. (Intern), Poulsen, M. (Ekstern), Vinther, M. (Intern), Herrmann, B. (Ekstern), Madsen, N. (Intern), Frandsen, R. (Intern), Karlsen, J. D. (Intern)
Number of pages: 48
Publication date: 2013

Publication information
Original language: Danish
Main Research Area: Technical/natural sciences
Publication: Commissioned › Report – Annual report year: 2013

Evaluations of management strategies for Norway pout in the North Sea and Skagerrak

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Vinther, M. (Intern), Nielsen, J. R. (Intern)
Publication date: 2013
Event: 
Main Research Area: Technical/natural sciences
Publication: Research › Conference abstract for conference – Annual report year: 2013

Indvandrer torsk overtager den vestlige Østersø

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Eero, M. (Intern), Vinther, M. (Intern)
Pages: 5
Publication date: 2013

Publication information
Pages (from-to): 5
Lessons for fisheries management from the EU cod recovery plan

The performance of the EU long-term management plan for cod stocks, in force since 2009, is analysed focusing on the human and institutional factors. The plan operates through landings quotas (TACs) and effort restrictions following a Harvest Control Rule, and deploys a novel instrument allowing Member States to ‘buy back’ or increase fishing effort for fleet segments engaged in cod-avoidance measures. The stipulated fishing mortality reductions have not been achieved.

On the positive side, the ‘buy-back’ instrument has led to increased uptake of selective gear and implementation of permanent and real-time temporary closures. On the negative side, ignoring the dimension of fishers as reactive agents in the design, the impact assessment, and the annual implementation of the measures has contributed to the failure to adequately implement the plan and achieve its objectives. The main problem is that the landings quotas taken in a mixed fishery did not limit catches because fishers were incentivised to continue fishing and discard overquota catch while quota for other species was available. The effort limitations intended to reduce this effect were insufficient to adequately limit fishing mortality in targeted fisheries, although fishers experienced them as prohibiting the full uptake of other quotas.

Recommendations for future plans include (i) management through catch rather than landings quotas, (ii) the internalisation of the costs of exceeding quotas, (iii) use of more selective gear types, (iv) the development of appropriate metrics as a basis for regulatory measures and for evaluations, (v) participatory governance, (vi) fishery-based management, (vii) flexibility in fishing strategy at vessel level.

General information

State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Institute Management, Section for Public Sector Consultancy
Pages: 200-213
Publication date: 2013
Main Research Area: Technical/natural sciences
Quantifying relative fishing impact on fish populations based on spatio-temporal overlap of fishing effort and stock density

Evaluations of the effects of management measures on fish populations are usually based on the analyses of population dynamics and estimates of fishing mortality from stock assessments. However, this approach may not be applicable in all cases, in particular for data-limited stocks, which may suffer from uncertain catch information and consequently lack reliable estimates of fishing mortality. In this study we develop an approach to obtain proxies for changes in fishing mortality based on effort information and predicted stock distribution. Cod in the Kattegat is used as an example. We use GAM analyses to predict local cod densities and combine this with spatio-temporal data of fishing effort based on VMS (Vessel Monitoring System). To quantify local fishing impact on the stock, retention probability of the gears is taken into account. The results indicate a substantial decline in the impact of the Danish demersal trawl fleet on cod in the Kattegat in recent years, due to a combination of closed areas, introduction of selective gears and changes in overall effort.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Vinther, M. (Intern), Eero, M. (Intern)
Pages: 618-627
Publication date: 2013
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES Journal of Marine Science
Volume: 70
Issue number: 3
Rapport om konsekvenser for fiskeriet ved udpegning af lukkede områder i Kattegat til beskyttelse af den bløde bund

**General information**

State: Published

Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data, Public Sector Consultancy
Rekreativt fiskeri påvirker ikke kvoten i den vestlige Østersø

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Eero, M. (Intern), Vinther, M. (Intern)
Pages: 4
Publication date: 2013

Publications information
Pages (from-to): 4
Newspaper: Fiskeritidende
Volume: 20
No.: 22
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Main Research Area: Technical/natural sciences
Publication: Communication › Newspaper article – Annual report year: 2013


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

Publication information
Place of publication: Charlottenlund
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
ISBN (Electronic): 978-87-7481-159-6
Original language: Danish
Series: DTU Aqua-rapport
Number: 255-2012
Main Research Area: Technical/natural sciences
Electronic versions:
255_2012_biologisk_forstyrrelse_baggrundsnoteat_til_havstrategi.pdf
Links:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Publication: Commissioned › Report – Annual report year: 2012

Do Norway pout (Trisopterus esmarkii) die from spawning stress?: Mortality of Norway pout in relation to growth, maturity and density in the North Sea, Skagerrak and Kattegat
The mortality patterns of Norway pout (NP) are not well understood. It has been suggested that NP undergo heavy spawning mortality, and this paper summarizes and provides new evidence in support of this hypothesis. The very low–absent fishing activity in recent years provides a unique opportunity to analyse the natural life-history traits of cohorts
in the NP stock in the North Sea. Based on the ICES trawl survey abundance indices, cohort mortality is found to significantly increase with age. We argue that this cannot be explained by selectiveness in the fishery, potential size-specific migrations out of the area, higher predation pressure on older individuals, or differences in survey catchability by NP age from before to after spawning and that it is higher in the main spawning areas than outside. We found that natural mortality (M) is significantly correlated with sexual maturity, sex, growth, and intraspecific stock density. All of this is consistent with a greater mortality occurring mainly from the first to the second quarter of the year, i.e. spawning mortality, which is discussed as being a major direct and indirect cause of stock mortality.

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Authors: Nielsen, J. R. (Intern), Lambert, G. (Ekstern), Bastardie, F. (Intern), Sparholt, H. (Ekstern), Vinther, M. (Intern)
Pages: 197-207
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES Journal of Marine Science
Volume: 69
Issue number: 2
ISSN (Print): 1054-3139
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.63
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.18
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.62
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.46
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.35
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.32
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Web of Science (2008): Indexed yes
Web of Science (2007): Indexed yes
Web of Science (2006): Indexed yes
Web of Science (2005): Indexed yes
Web of Science (2004): Indexed yes
Evaluations of Management strategies for Norway pout in the North Sea and Skagerrak Report (NOP-MSE)

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Public Sector Consultancy, Section for Management Systems
Authors: Vinther, M. (Intern), Nielsen, J. R. (Intern)
Number of pages: 41
Publication date: 2012

Publication information
Place of publication: Copenhagen
Publisher: International Council for the Exploration of the Sea (ICES)
Original language: English
Series: ICES CM
Volume: ACOM:69
Main Research Area: Technical/natural sciences
Publication: Research › Report – Annual report year: 2012

Identification of potential target levels for Central Baltic Sea fishing mortalities, taking multispecies interactions into account: Extended abstract
The main biological interactions between Baltic cod, herring and sprat have been modelled in a stochastic multispecies (SMS) model. Based on this, a simple approach has been developed to quantify candidates for FMSY proxies (fishing mortalities).
mortality that produces the maximum sustainable yield) in a multispecies context. Multispecies FMSY is higher for cod than single-species FMSY values, due to cannibalism. The actual FMSY for herring and sprat, and cod's influence on prey yield, depend on assumptions about density-dependent growth and spatial overlap between predator and prey. The results are ready for implementation in management, however, the multispecies aspects depend on predation data mainly from the 1980s and there is an urgent need to update the information base. The current productivity regime and spatial distribution of fish stocks in the Baltic is different from the earlier period when predation data was collected. Also, prey-to-predator feedback mechanisms should be more understood before implementation in management.

**General information**

State: Published

Organisations: National Institute of Aquatic Resources, Section for Public Sector Consultancy, Section for Population Ecology and Genetics, Section for Management Systems

Authors: Vinther, M. (Intern), Neuenfeldt, S. (Intern), Eero, M. (Intern), Casini, M. (Ekstern), Sparholt, H. (Ekstern)

Publication date: 2012

Event:

Main Research Area: Technical/natural sciences

Electronic versions:

K2212.pdf

Links:

http://ices.dk/products/CMdocs/CM-2012/K/K2212.pdf

Publication: Research › Conference abstract for conference – Annual report year: 2012

**Impact assessment (IA) of alternative HCRs to the current multiannual Baltic Sea plan on the bio-economy of fleets – coupling the SMS model to the FLR Baltic model**

**General information**

State: Published

Organisations: National Institute of Aquatic Resources, Section for Management Systems, Section for Public Sector Consultancy

Authors: Bastardie, F. (Intern), Vinther, M. (Intern), Nielsen, J. R. (Intern)

Pages: 85-118

Publication date: 2012

**Host publication information**

Title of host publication: Scientific, Technical and Economic Committee for Fisheries. Multispecies management plans for the Baltic (STECF-12-06)

Place of publication: Luxembourg

Publisher: Publications Office of the European Union

Main Research Area: Technical/natural sciences

Links:


Publication: Research - peer-review › Report chapter – Annual report year: 2012

**Spatial management of marine resources can enhance the recovery of predators and avoid local depletion of forage fish**

The eastern Baltic cod stock has recently started to recover, after two decades of severe depletion, however with unexpected side effects. The stock has not re-occupied its former wide distribution range, but remains concentrated in a limited area in the southern Baltic Sea. The biomass of forage fish, i.e., sprat and herring, is historic low in this area, which in combination with increasing cod stock results in locally high predation mortality of forage fish and cannibalism of cod. In line with low prey availability, body weight and nutritional condition of cod drastically declined. In the southern Baltic Sea, cod competes with pelagic fisheries for the limited resources of sprat and herring, while the largest biomass of these species is currently found outside the distribution range of cod. Accounting for spatial overlap between species is crucial in developing ecosystem based fisheries management to enhance the recovery of predator stocks.

**General information**

State: Published

Organisations: National Institute of Aquatic Resources, Section for Management Systems, Section for Public Sector Consultancy, Section for Population Ecology and Genetics, Section for Monitoring, Institute Management

Authors: Eero, M. (Intern), Vinther, M. (Intern), Haslob, H. (Ekstern), Huwer, B. (Intern), Casini, M. (Ekstern), Storppaulsen, M. (Intern), Köster, F. (Intern)

Pages: 486-492

Publication date: 2012
Torsk og klima: Hvordan påvirker klimaændringerne torsken i Nordsøen?

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Population Ecology and Genetics, Section for Ocean Ecology and Climate, Section for Public Sector Consultancy
Authors: Rindorf, A. (Intern), Brøgger Pedersen, J. (Ekstern), Christensen, A. (Intern), Grønkjær, P. (Ekstern), Höffle, H. (Intern), Jonasdottir, S. (Intern), Mariani, P. (Intern), Munk, P. (Intern), Møller, E. F. (Ekstern), Maar, M. (Ekstern), She, J. (Ekstern), Tirsgaard, B. (Ekstern), Vinther, M. (Intern), Gislason, H. (Intern)
Number of pages: 22
Publication date: 2012

Publication information
Original language: English
Place of publication: Charlottenlund
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
Main Research Area: Technical/natural sciences
Electronic versions:
Torskogklima_web.pdf
Links:
Publication: Education › Other contribution – Annual report year: 2012
Why is the Eastern Baltic cod recovering?

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Authors: Eero, M. (Intern), Köster, F. (Intern), Vinther, M. (Intern)
Pages: 235-240
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Marine Policy
Volume: 36
Issue number: 1
ISSN (Print): 0308-597X
Ratings:
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
Scopus rating (2016): CiteScore 2.7 SJR 1.335 SNIP 1.182
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.591 SNIP 1.397 CiteScore 3.07
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.438 SNIP 1.56 CiteScore 3.09
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.472 SNIP 1.635 CiteScore 2.71
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.339 SNIP 1.495 CiteScore 2.54
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.406 SNIP 1.263 CiteScore 2.07
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.289 SNIP 1.483
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.947 SNIP 1.142
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.838 SNIP 1.417
Scopus rating (2007): SJR 0.927 SNIP 1.377
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.961 SNIP 2.043
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.84 SNIP 1.229
Scopus rating (2004): SJR 0.793 SNIP 1.116
Scopus rating (2003): SJR 0.506 SNIP 1.11
Consumption of fish by top predators in the North Sea

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Authors: Smout, S. (Ekstern), Rindorf, A. (Intern), Vinther, M. (Intern), Hoff, A. (Ekstern), Frost, H. (Ekstern), Northridge, S. (Ekstern), Garthe, S. (Ekstern), Hammond, P. (Ekstern)
Publication date: 2011
Event: Abstract from ICES Council Meeting 2011, Gdansk, Poland.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 314458
Publication: Research › Conference abstract for conference – Annual report year: 2011

Spatial differences in natural mortality of North Sea gadoids

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Authors: Rindorf, A. (Intern), Andersen, N. G. (Intern), Vinther, M. (Intern)
Number of pages: 25
Publication date: 2010
Main Research Area: Technical/natural sciences
Temperature effects, Spatial pattern, North Sea gadoids, Natural mortality
Links:
http://www.ices.dk/products/CMdocs/CM-2010/C/C1810.pdf
Source: orbit
Source-ID: 267570
Publication: Research › Paper – Annual report year: 2010

Stock-based vs. fleet-based evaluation of the multi-annual management plan for the cod stocks in the Baltic Sea

This study evaluated the EU 2008 multi-annual plan for Baltic cod stock recovery. The plan combines harvest control rules that set TACs with reductions in direct effort (E) and fishing mortality (F). Performance and robustness of the plan are tested with a management strategy evaluation model (MSE). Stochastic simulations are carried out under different scenarios of recruitment and sources of uncertainties. Under the different magnitudes of errors investigated, the plan in its current design is likely to reach precautionary targets for the Eastern and the Western Baltic cod stocks by 2015. It is, however, more sensitive to implementation errors (e.g. catch misreporting) than to observation errors (e.g. data collection) when the (i) current settings of the ICES single-stock assessment model are maintained, (ii) intended fishing effort reduction is fully complied with, and (iii) biological parameters are assumed constant. For the Eastern Baltic stock, additional sources of uncertainties from fishery adaptation to the plan are tested using a fleet-based and spatially explicit version of the model which leads to higher reductions in F and no significant change in management robustness. The relative difference between both approaches is mainly due to differences in exploitation patterns in catching the same amount of fish. The effort control is demonstrated to be more efficient when supplemented with a TAC and avoids unintended effects from fishery responses, e.g. spatial effort reallocation. Medium term economic evaluation of fishery performance shows an initial reduction in profit with effort and TAC reductions, but profit is always positive. (C) 2009 Elsevier B.V. All rights reserved.

General information
The importance of overlap-predicting North Sea cod recovery with a multispecies fishery assessment model

General information
State: Published
Organisations: Section for Public Sector Consultancy, National Institute of Aquatic Resources
Authors: Kempf, A. (Ekstern), Dingsør, G. G. (Ekstern), Huse, G. (Ekstern), Vinther, M. (Intern), Floeter, J. (Ekstern), Temming, A. (Ekstern)
Number of pages: 126
Publication date: 2010

Host publication information
Title of host publication: ICES Annual Science Conference : 20-24 September 2010
Place of publication: Copenhagen
Publisher: International Council for the Exploration of the Sea
Main Research Area: Technical/natural sciences
Links:
http://www.ices.dk/products/CMdocs/CM-2010/C/C1110.pdf
Source: orbit
Source-ID: 267834
Publication: Research › Conference abstract in proceedings – Annual report year: 2010

The importance of overlap-predicting North Sea cod recovery with a multispecies fishery assessment model

The overlap between predator and prey is known as a sensitive parameter in multispecies assessment models for fish, and its parameterization is notoriously difficult. Overlap indices were derived from trawl surveys and used to parametrize the North Sea stochastic multispecies model. The effect of time-invariant and year- and quarter-specific overlap estimates on the historical (1991–2007) and predicted trophic interactions, as well as the development of predator and prey stocks, was investigated. The focus was set on a general comparison between single-species and multispecies forecasts and the sensitivity of the predicted development of North Sea cod for the two types of overlap implementation. The spatial–temporal overlap between cod and its predators increased with increasing temperature, indicating that foodweb processes might reduce the recovery potential of cod during warm periods. Multispecies scenarios were highly influenced by assumptions on future spatial overlap, but they predicted a considerably lower recovery potential than single-species predictions did. In addition, a recovery of North Sea cod had strong negative effects on its prey stocks. The consequences of these findings for management are discussed.

General information
State: Published
Organisations: Section for Public Sector Consultancy, National Institute of Aquatic Resources
Authors: Kempf, A. (Ekstern), Dingsør, G. G. (Ekstern), Huse, G. (Ekstern), Vinther, M. (Intern), Floeter, J. (Ekstern), Temming, A. (Ekstern)
Pages: 1989-1997
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES Journal of Marine Science
Environmental effects on recruitment and implications for biological reference points of Eastern Baltic cod (Gadus morhua)

The decline of the Eastern Baltic cod (Gadus morhua) stock from highest to lowest stock levels on record throughout the 1980s and early 1990s was caused by a combination of recruitment failure and increasing fishing pressure at declining stock sizes. The processes driving the reproductive success are largely understood, but the consequences of these changes for fisheries management are far less evident. This includes doubts about the adequacy of the biological reference points presently used to advise on the stock status, and the need of their revision given that environmental changes have affected stock productivity. Long-term projections suggest that under adverse environmental conditions for
reproduction, harvesting at fishing mortality determined as precautionary may not lead to a recovery of the stock to a biomass level considered precautionary. Thus, a revision of either the limit fishing mortality or the limit biomass reference point is indicated. However, an accepted methodology to determine these reference points in situations of changing stock productivity or system carrying capacity does not exist. Environmental conditions affecting recruitment matter not only for the determination of limit reference points, but according to long-term simulations also for target fishing mortalities, being central parts of harvest control rules in several management plans.

General information
State: Published
Organisations: Institute Management, National Institute of Aquatic Resources, Section for Fisheries Advice, Section for Population- and Ecosystem Dynamics, Section for Management Systems
Authors: Köster, F. (Intern), Vinther, M. (Intern), MacKenzie, B. (Intern), Eero, M. (Intern), Plikshs, M. (Ekstern)
Pages: 205-220
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Northwest Atlantic Fishery Science
Volume: 41
ISSN (Print): 0250-6408
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.317 SNIP 0.442 CiteScore 0.83
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.831 SNIP 1.67 CiteScore 1.33
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.448 SNIP 0.634 CiteScore 0.91
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.246 SNIP 0.566 CiteScore 0.75
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.199 SNIP 0.423 CiteScore 0.33
ISI indexed (2012): ISI indexed no
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.646 SNIP 0.816 CiteScore 2.24
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.81 SNIP 0.747
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.609 SNIP 0.467
Web of Science (2009): Indexed yes
Scopus rating (2008): SJR 0.515 SNIP 0.514
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.656 SNIP 0.568
Scopus rating (2006): SJR 0.791 SNIP 0.722
Scopus rating (2005): SJR 0.676 SNIP 0.843
Scopus rating (2004): SJR 0.345 SNIP 0.314
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.519 SNIP 0.337
Web of Science (2003): Indexed yes
Evaluation of the multiannual plan for the cod stocks in the Baltic Sea

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy, Section for Monitoring
Authors: Bastardie, F. (Intern), Vinther, M. (Intern), Nielsen, J. R. (Intern), Ulrich, C. (Intern), Storr-Paulsen, M. (Intern)
Number of pages: 29
Publication date: 2009

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Links:
Source: orbit
Source-ID: 314574
Publication: Research › Conference abstract in proceedings – Annual report year: 2010

Recovering stocks of predators: what can managers learn from multi-species model?

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources
Authors: Temming, A. (Ekstern), Kempf, A. (Ekstern), Floeter, J. (Ekstern), Vinther, M. (Intern)
Publication date: 2009
Event: Abstract from ICES/PICES/UNCOVER Symposium 2009 on Rebuilding Depleted Fish Stocks, Warnemünde/Rostock, Germany.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 252458
Publication: Research › Conference abstract for conference – Annual report year: 2009

The importance of overlap – predicting North Sea cod recovery with a multi-species fisheries assessment model

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources
Authors: Kempf, A. (Ekstern), Huse, G. (Ekstern), Dingsør, G. (Ekstern), Floeter, J. (Ekstern), Temming, A. (Ekstern), Vinther, M. (Intern)
Publication date: 2009
Event: Abstract from ICES/PICES/UNCOVER Symposium 2009 on Rebuilding Depleted Fish Stocks, Warnemünde/Rostock, Germany.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 252459
Assessment of the population dynamics and conservation status of harbour porpoise in the North Sea using a population model to synthesize information on life history, abundance and bycatch

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: Winship, A. (Ekstern), Berggren, P. (Ekstern), Deaville, R. (Ekstern), Jepson, P. (Ekstern), Kinze, C. (Ekstern), Larsen, F. (Intern), Learmonth, J. (Ekstern), Northridge, S. (Ekstern), Pierce, G. (Ekstern), Reid, R. (Ekstern), Vinther, M. (Intern), Hammond, P. (Ekstern)
Publication date: 2007

Host publication information
Title of host publication: 17th Biennial Conference on the Biology of Marine Mammals, Cape Town, South Africa, November 29-December 3, 2007
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 227808
Publication: Research › Conference abstract in proceedings – Annual report year: 2007

Et flerårigt grundlag for dansk industrifiskeri: Biologisk vurdering af ressourcegrundlaget og analyse af forvaltningsmodeller

General information
State: Published
Organisations: Institute Management, National Institute of Aquatic Resources, Section for Population- and Ecosystem Dynamics, Section for Fisheries Advice, Section for Management Systems, Section for Monitoring
Authors: Kirkegaard, E. (Intern), Jensen, H. (Intern), Mosegaard, H. (Intern), Vinther, M. (Intern), Payne, M. (Intern), Nielsen, J. R. (Intern), Dalskov, J. (Intern)
Number of pages: 63
Publication date: 2007

Publication information
Place of publication: Charlottenlund
Publisher: Danmarks Tekniske Universitet. Danmarks Fiskeriundersøgelser
Original language: Danish
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 226192
Publication: Research › Report – Annual report year: 2007

Grey gurnard (Eutrigla gurnadus) in the North Sea: an emerging key predator?
Grey gurnard (Eutrigla gurnadus) is a widely distributed demersal species in the North Sea that has been ranked frequently among the 10 dominant species. Since the late 1980s, grey gurnard catch rates in the international bottom trawl surveys showed a pronounced increase and it was included as an "other predator" in the North Sea multispecies virtual population analysis (MSVPA) in 1997. The MSVPA results estimated grey gurnard to be responsible for approximately 60% of the total predation mortality on age-0 Atlantic cod (Gadus morhua). Long-term MSVPA predictions led to the extinction of North Sea cod. As a possible technical reason, the Holling type II functional response implemented in the model was discussed. In the current analysis, it was demonstrated that the Holling type II functional response was not responsible for the extinction of cod in the model, which was rather a true effect of high grey gurnard predation. Further, it was shown that grey gurnard predation had a significant top-down effect on whiting (Merlangius merlangus) and potentially also on cod recruitment, which was linked to the spatial distribution of the three species. Eventually, the implications of the results for North Sea cod stock recovery plans were discussed

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources
Authors: Floeter, J. (Ekstern), Kempf, A. (Ekstern), Vinther, M. (Intern), Schrum, C. (Ekstern), Temming, A. (Ekstern)
Pages: 1853-1864
Publication date: 2005
Main Research Area: Technical/natural sciences
From single-species advice to mixed-species management: taking the next step

Fishery management advice has traditionally been given on a stock-by-stock basis. Recent problems in implementing this advice, particularly for the demersal fisheries of the North Sea, have highlighted the limitations of the approach. In the long term, it would be desirable to give advice that accounts for mixed-fishery effects, but in the short term there is a need for approaches to resolve the conflicting management advice for different species within the same fishery, and to generate catch or effort advice that accounts for the mixed-species nature of the fishery. This paper documents a recent approach used to address these problems. The approach takes the single-species advice for each species in the fishery as a starting point, then attempts to resolve it into consistent catch or effort advice using fleet-disaggregated catch forecasts in combination with explicitly stated management priorities for each stock. Results are presented for the groundfish fisheries of the North Sea, and these show that the development of such approaches will also require development of the ways in which catch data are collected and compiled. (C) 2004 International Council for the Exploration of the Sea. Published by Elsevier Ltd. All rights reserved.
Modelling stochastic age-length-structured multi-species stock dynamics

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: Lewy, P. (Intern), Vinther, M. (Intern)
Pages: 1-33
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES C.M. 2004/
Volume: FF:20
Original language: English
Source-ID: 227739
Publication: Research - peer-review › Journal article – Annual report year: 2004

Updated estimates of harbour porpoise by-catch in the danish bottom set gillnet fishery

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources, Section for Management Systems
Authors: Vinther, M. (Intern), Larsen, F. (Intern)
Pages: 19-24
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Cetacean Research and Management
Volume: 6
Issue number: 1
Using AMOEBA’s to display trade-offs in multispecies fisheries

General information
State: Published
Organisations: University of Rhode Island, University of Copenhagen, Danish Institute for Fisheries Research
Authors: Collie, J. S. (Ekstern), Gislason, H. (Intern), Vinther, M. (Intern)
Number of pages: 489
Publication date: 2004

Host publication information
Editor: Coleman, F. C.
Series: Bulletin of Marine Science
Number: 74:3
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 282330
Publication: Research › Article in proceedings – Annual report year: 2004
Fish stock development in the Central Baltic Sea (1976-2000) in relation to variability in the environment

**General information**

**State:** Published

**Organisations:** Institute Management, National Institute of Aquatic Resources, Section for Population- and Ecosystem Dynamics, Section for Fisheries Advice, Section for Population Ecology and Genetics

**Authors:** Köster, F. (Intern), Möllmann, C. (Ekstern), Neuenfeldt, S. (Intern), Vinther, M. (Intern), St. John, M. (Intern), Tomkiewicz, J. (Intern), Voss, R. (Ekstern), Hinrichsen, H. (Ekstern), Kraus, G. (Intern), Schnack, D. (Ekstern)

**Pages:** 294-306

**Publication date:** 2003

**Main Research Area:** Technical/natural sciences

**Publication information**

**Journal:** ICES Marine Science Symposia

**Volume:** 219

**ISSN (Print):** 0906-060X

**Ratings:**

- Web of Science (2018): Indexed yes
- Web of Science (2017): Indexed yes
- Scopus rating (2016): CiteScore 2.63
- Web of Science (2016): Indexed yes
- Scopus rating (2015): CiteScore 2.18
- Web of Science (2015): Indexed yes
- Scopus rating (2014): CiteScore 2.62
- Web of Science (2014): Indexed yes
- Scopus rating (2013): CiteScore 2.46
- Web of Science (2013): Indexed yes
- Scopus rating (2012): CiteScore 2.35
- ISI indexed (2012): ISI indexed no
- Web of Science (2012): Indexed yes
- Scopus rating (2011): CiteScore 2.32
- ISI indexed (2011): ISI indexed no
- Web of Science (2011): Indexed yes
- Web of Science (2010): Indexed yes
- Web of Science (2009): Indexed yes
- Web of Science (2008): Indexed yes
- Web of Science (2007): Indexed yes
- Web of Science (2006): Indexed yes
- Web of Science (2005): Indexed yes
- Web of Science (2004): Indexed yes
- Web of Science (2003): Indexed yes
- Web of Science (2002): Indexed yes
- Web of Science (2001): Indexed yes
- Web of Science (2000): Indexed yes

**Original language:** English

**Source:** orbit

**Source-ID:** 226372

**Publication:** Research - peer-review › Journal article – Annual report year: 2003

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From single-species advice to mixed-species management: taking the next step

**General information**

**State:** Published

**Organisations:** Section for Fisheries Advice, National Institute of Aquatic Resources

**Authors:** Vinther, M. (Intern), Reeves, S. (Ekstern), Patterson, K. (Ekstern)

**Pages:** 1-15

**Publication date:** 2003


**Main Research Area:** Technical/natural sciences
Using AMOEBAs to display multispecies, multifleet fisheries advice

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: Collie, J. (Ekstern), Gislason, H. (Intern), Vinther, M. (Intern)
Pages: 709-720
Publication date: 2003
Main Research Area: Technical/natural sciences
A comparative analysis of the North Sea based on Ecopath with Ecosim and multi-species virtual population analysis

General information
State: Published
Organisations: Danish Institute for Fisheries and Marine Research, University of Copenhagen
Authors: Christensen, V. (Ekstern), Beyer, J. (Intern), Gislason, H. (Intern), Vinther, M. (Intern)
Number of pages: 48
Publication date: 2002

Host publication information
Title of host publication: Proceedings of the INCO-DC Conference Placing Fisheries in their Ecosystem Context
Main Research Area: Technical/natural sciences
Conference: INCO-DC Conference on Placing Fisheries in their Ecosystem Context, Galápagos, Ecuador, 01/01/2000
Source: orbit
Source-ID: 282334
Publication: Research › Conference abstract in proceedings – Annual report year: 2002

Multi Species Virtual Population Analysis for assessment of marine mammals and fisheries interactions

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources
Authors: Vinther, M. (Intern)
Pages: 1-8
Publication date: 2002
Conference: 54th Annual Meeting of the International Whaling Commission, Shimonoseki, Japan, 20/05/2002 - 20/05/2002
Main Research Area: Technical/natural sciences

Publication information
Journal: IWC/SC/J02/
Volume: FW13
Original language: English
Source: orbit
Source-ID: 227741
Publication: Research › Conference article – Annual report year: 2002

Updated estimates of harbour porpoise by-catch in the Danish bottom set gillnet fishery

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources, Section for Management Systems
Authors: Vinther, M. (Intern), Larsen, F. (Intern)
Use of pingers in the Danish North Sea wreck net fishery

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: Larsen, F. (Intern), Vinther, M. (Intern), Krog, C. (Ekstern)
Pages: 1-7
Publication date: 2002
Conference: 54th Annual Meeting of the International Whaling Commission, Shimonoseki, Japan, 20/05/2002 - 20/05/2002
Main Research Area: Technical/natural sciences

Evaluation of market sampling strategies for a number of commercially exploited stocks in the North Sea and development of procedures for consistent data storage and retrieval (EMAS). Final Report of the EU study no 98/075. Rivo (the Netherlands), CEFAS (UK), DFU (Denmark), SOAEFD (Scotland), CLO-DZ (Belgium)

General information
State: Published
Organisations: Section for Monitoring, National Institute of Aquatic Resources, Section for Fisheries Advice
Publication date: 2001


General information
State: Published
Organisations: Institute Management, National Institute of Aquatic Resources, Section for Fisheries Advice, Section for Fisheries- and Monitoring Technology
Number of pages: 45
Scientific expert meeting on future research in relation to additional improvement of the exploitation pattern of demersal species in the North Sea, 9-10 October, 2001, Brussels

General information
State: Published
Organisations: Section for Fisheries- and Monitoring Technology, National Institute of Aquatic Resources, Section for Fisheries Advice
Number of pages: 12
Publication date: 2001

The precision of international market sampling for North Sea herring and its influence on assessment

General information
State: Published
Organisations: Section for Monitoring, National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: Simmonds, E. (Ekstern), Needle, C. (Ekstern), Degel, H. (Intern), Flatman, S. (Ekstern), O´Brian, C. (Ekstern), Pastoors, M. (Ekstern), Robb, A. (Ekstern), Vinther, M. (Intern)
Pages: 1-22
Publication date: 2001
Main Research Area: Technical/natural sciences

The precision of international market sampling for North Sea stock (Gadus morhua) and its influence on stock assessment

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: O´Brian, C. (Ekstern), Darby, C. (Ekstern), Rackham, B. (Ekstern), Maxwell, D. (Ekstern), Degel, H. (Intern), Flatman, S. (Ekstern), Mathewson, M. (Ekstern), Pastoors, M. (Ekstern), Simmonds, E. (Ekstern), Vinther, M. (Intern)
Pages: 1-17
Publication date: 2001
The precision of international market sampling for North Sea stock (Pleuronectes platessa L.) and its influence on stock assessment

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: O’Brian, C. (Ekstern), Darby, C. (Ekstern), Maxwell, D. (Ekstern), Rackham, B. (Ekstern), Degel, H. (Intern), Flatman, S. (Ekstern), Pastoors, M. (Ekstern), Simmonds, E. (Ekstern), Vinther, M. (Intern)
Pages: 1-15
Publication date: 2001
Main Research Area: Technical/natural sciences

Using AMOEBAs to integrate multispecies, multifleet fisheries advice

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: Collie, J. (Ekstern), Gislason, H. (Intern), Vinther, M. (Intern)
Pages: 1-25
Publication date: 2001
Conference: Theme Session on the Use and Information Contenet of Ecosystem Metrics and Reference Points, 01/01/2001
Main Research Area: Technical/natural sciences

Betydning af skarvens prædation på torsk vurderet ved hjælp af flerartsmodellen (MSVPA)

General information
State: Published
Organisations: Section for Coastal Ecology, National Institute of Aquatic Resources, Section for Fisheries Advice
Bycatch of harbour porpoises (Phocoena phocoena) in Danish set-net fisheries

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources
Authors: Vinther, M. (Intern)
Pages: 123-135
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Cetacean Research and Management
Volume: 1
Issue number: 2
ISSN (Print): 1561-0713
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.318 SNIP 0.483 CiteScore 0.62
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.639 SNIP 0.402 CiteScore 0.62
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.684 SNIP 0.642 CiteScore 0.68
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.491 SNIP 0.376 CiteScore 0.54
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.401 SNIP 0.605 CiteScore 0.56
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.372 SNIP 0.497 CiteScore 0.58
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.309 SNIP 0.399
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.273 SNIP 0.116
BFI (2008): BFI-level 1
Scopus rating (2007): SJR 0.122 SNIP 0
Specification and documentation of the 4M package containing multispecies, multi-fleet and multi-area models

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Section for Population- and Ecosystem Dynamics
Authors: Vinther, M. (Intern), Thomsen, L. (Intern), Lewy, P. (Intern)
Number of pages: 65
Publication date: 1998

Publication information
Place of publication: Copenhagen
Publisher: ICES
Original language: English
Series: ICES Study Group on Multispecies Model Implementation in the Baltic
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 227743
Publication: Research › Report – Annual report year: 1998

Feeding ecology of North Sea fish with emphasis on the database of "Stomach Sampling Project 1991" for use in multispecies assessment. Final progress report, EU financed study

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources, Section for Population- and Ecosystem Dynamics
Authors: Vinther, M. (Intern), Gislason, H. (Intern)
Number of pages: 91
Publication date: 1997

Publication information
Publisher: [s.n.]
Original language: English
Series: Contract AIR3-CT94-2410
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 227737
Publication: Research › Report – Annual report year: 1997

Investigations on the North Sea gillnet fisheries

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources
Authors: Vinther, M. (Intern)
Publication date: 1995

Publication information
Place of publication: Charlottenlund
Publisher: Danish Institute for Fisheries Research
Original language: English
Specification and documentation of the 4M package containing multi-species, multi-fleet and multi-area models

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources, Section for Population- and Ecosystem Dynamics, Section for Freshwater Fisheries Ecology
Authors: Vinther, M. (Intern), Lewy, P. (Intern), Thomsen, L. (Intern), Petersen, U. (Ekstern)
Publication date: 1995
Conference: ICES W.G. on Multispecies Assessment of Baltic Fish, 01/01/1995
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES W.G. on Multispecies Assessment of Baltic Fish
Original language: English

Bibliographical note
Arbejdspapir til ICES W.G. on Multispecies Assessment of Baltic Fish
Source: orbit
Source-ID: 227742
Publication: Research › Conference article – Annual report year: 1995

Standardisation of national databases for fisheries research data

General information
State: Published
Organisations: Section for Fisheries Advice, National Institute of Aquatic Resources
Authors: Vinther, M. (Intern)
Publication date: 1995

Publication information
Publisher: [s.n.]
Original language: English
Main Research Area: Technical/natural sciences

Bibliographical note
Bidrag til rapport
Source: orbit
Source-ID: 227744
Publication: Research › Report – Annual report year: 1995

ECHOANN: An analyzer for echosounder signals
ECHOANN is an instrument for collection, analysis and storage of data from hydroacoustic instruments and navigational information. The instrument can be operated on several levels of complexity, integrating information from several data sources or as a portable system collecting information from just a single echo sounder. The analysis and storage includes counting and integration. Schools are identified and integrated separately. Integration results are stored as distributions over signal level. Single fish echoes are stored with TS estimates when split beam information is available. The data stored by the system enables analysis of the shape and parameters of the echo amplitude distribution by depth as needed for evaluation of the degree of single echo overlaps and for isolating the echo integral of larger targets in an environment of small scatterers. The instrument is PC based, but includes separate hardware for signal preprocessing and parallel processing. The system is designed as a "white box" open to user modifications as software is written in high level languages and modular.

General information
State: Published
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

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:
Støtrup, 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

Project
A systems approach framework for coastal research and management in the Baltic (BaltCoast) (39201)
The ultimate objective of this project is a coherent and systematic management approach that encompasses multiple impacts in a spatially heterogeneous context.

In BaltCoast we tackle this complex task using the Systems Approach Framework (SAF). The SAF is an issue oriented investigation and methodology that applies a holistic perspective. It investigates and quantifies the functions of systems in order to simulate specific questions concerning their functions or policies. It comprises the process from issue identification through system analyses to policy implementation.

This Systems Approach can, hence, competently address implementation of international directives (e.g. Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD)). In BaltCoast we address multiple issues through case studies that reflect current regional management challenges and develop a generic tool for integrated system assessment.

This project is coordinated by Leibniz-Institute for Baltic Sea Research (IOW).

The project is funded by EU, BONUS (Science for a Better Future of the Baltic Sea Region), ERA-NET.

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Leibniz-Institute for Baltic Sea Research
Klaipeda University
Tallinn University
University of Latvia
Polish Academy of Sciences
Swedish University of Agricultural Sciences
Period: 01/04/2015 → 31/03/2018
Number of participants: 8
Research areas: Coastal Ecology & Marine Populations and Ecosystem Dynamics & Marine Living Resources & Ecosystem based Marine Management
Contact person:
Støttrup, Josianne Gatt (Intern)
Project participant:
Dinesen, Grete E. (Intern)
Wisz, Mary (Intern)
Neuenfeldt, Stefan (Intern)
Hüssy, Karin (Intern)
Kristensen, Kasper (Intern)
Vinther, Morten (Intern)
Sørensen, Thomas Kirk (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
Maximizing yield of fisheries while balancing ecosystem, economic and social concerns (MYFISH) (38850)

The European Common Fisheries Policy has made a commitment to direct management of fish stocks towards achieving Maximum Sustainable Yield (MSY) by 2015 (or no later than 2020 in special cases). Attaining this goal is complicated by lack of common agreement on the interpretation of both ‘sustainability’ and ‘yield’, and because achieving MSY for one stock may affect the possibility of achieving MSY for other stocks and compromise ecological, environmental, economic, or social aims.

The objective of MYFISH was to face these difficulties and provide definitions of MSY variants, evaluations of the effect on ecosystems, economy and social aspects of attaining these variants, their social desirability and an operational framework for their implementation.

This was achieved through cases addressing a range of fisheries in all European regional areas. The cases cover situations ranging from data-poor to the most studied and well-understood marine ecosystems in EU waters. The suggested implementation of MSY builds on the existing ecosystem and fisheries models in the cases, modified to perform the maximization of the relevant yield measure operationally. Social aspects were integrated throughout the project by active involvement of stakeholders in the definition and evaluation of MSY variants. Global experience was engaged through associated partners and communication of results was enhanced through two major events, a dedicated MYFISH/ICES symposium in 2015 and a targeted policy meeting in 2016. More details can be found at www.myfishproject.eu.

The project was coordinated by DTU Aqua.

The project was funded by EU, Framework Programme 7.

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Period: 01/01/2012 → 29/02/2016
Number of participants: 10
Research areas: Ecosystem based Marine Management & Fisheries Management & Marine Living Resources
Project participant:
Ulrich, Clara (Intern)
Eigaard, Ole Ritzau (Intern)
Mortensen, Lars O. (Intern)
Nielsen, J. Rasmus (Intern)
Worsøe Clausen, Lotte (Intern)
Nielsen, Anders (Intern)
v d Deurs, Mikael (Intern)
Vinther, Morten (Intern)
Neuenfeldt, Stefan (Intern)
Project Manager, academic:
Rindorf, Anna (Intern)
Project

Operational ecology: Ecosystem forecast products to enhance marine GMES applications (OPEC) (38864)

The primary goal of OPEC was to improve the quality of operational services for biogeochemical and ecological parameters and hence, improve our ability to project the future status of European marine ecosystems, by delivering a suite of error quantified indicators which describe changes in ecosystem function suitable for implementation in operational centers.
In order to advance our understanding and predictive capacities for the response of marine ecosystems to global change, OPEC employed a combination of numerical simulations, data assimilation of satellite and in situ data, observational strategy evaluation and cross-disciplinary synthesis. The MSFD takes a regional approach to the development of strategies for environmental status, identifying four main regions: NE Atlantic, Baltic, Mediterranean and Black Seas. The MSFD also identifies a number of high level descriptors of environmental status (e.g. biodiversity, commercial fish, eutrophication, food webs, and invasive species) each of which has a defined set of indicators. Using the regional approach as framework we implemented and tested a suite of indicators in each region. These descriptors along with the ECVs provided a framework for the definition of new environmental applications (e.g. habitat for biodiversity, oxygen depletion/eutrophication, fisheries and marine climate change research). A common set of descriptors with associated GES indicators and ECVs were defined across the four regions, to ensure a commonality of approach and the development of a consistent capacity across Europe. Auditable quality is essential for GMES environmental applications, and OPEC emphasized the assessment of predictability of key indicators. The R&D of the project included development of coupled end to end ecosystem models, where DTU Aqua implemented the coupling between the SMS model for higher trophic levels and HBM-ERGOM for physics and biogeochemistry. The project had nine partners from the EU and was coordinated by Plymouth Marine Laboratory, UK. The project was funded by EU. Framework Programme 7.

National Institute of Aquatic Resources
Section for Marine Living Resources
Period: 01/01/2012 → 31/12/2014
Number of participants: 4
Research areas: Marine Living Resources & Marine Populations and Ecosystem Dynamics & Ecosystem based Marine Management
Project participant:
Vinther, Morten (Intern)
Neuenfeldt, Stefan (Intern)
St. John, Michael (Intern)
Project Manager, academic:
Christensen, Asbjørn (Intern)

Development and demonstration of Marine Strategy Framework Directive (MSFD) tools for harmonization of the initial assessment in the eastern parts of the Greater North Sea sub-region (HARMONY) (38894)
The HARMONY project has developed and made available a toolbox supporting national MSFD implementation with special focus on issues of a transnational relevance and importance. It builds on cooperation among member states sharing the Greater North Sea sub-region through active involvement in several OSPAR groups. The tools are based on respecting the needs for national flexibility, while ensuring the necessary regional harmonization of key elements under the marine strategies.

The project partnership met these challenges through four development/harmonization activities and a coordination and information activity:
1) To develop and demonstrate a tool supporting an analysis of essential features and characteristics leading towards an integrated assessment building upon the criteria identified in the Commission Decision, while ensuring the necessary linkage to existing work under the Regional Sea Conventions as well as existing EU legislation (WFD, Natura 2000).
2) To develop and demonstrate a tool (a pressure and an impact index) supporting an analysis of the predominant pressures and impacts on the ecosystems, including those impacts of human activities for the Greater North Sea Marine sub-region.
3) Provide examples on the linkage of effects and human pressures to informed ecosystem-based marine strategies (based on activities 1 and 2).
4) To establish and support the active cooperation among member states sharing the Greater North Sea sub-region enabling comparisons and harmonization, where relevant and possible, between national efforts in preparing the initial assessment, elaborate the criteria including identification of indicators and target setting, and further on, the preparation of the monitoring program and the program of measures within the Greater North Sea sub-region.

DTU Aqua has focused on biodiversity of fish and fish populations, mapping fishing pressures and ecosystem components of the project working area (North Sea).

The project was coordinated by Department of Bioscience, Aarhus University, Denmark.
The project was funded by the Danish Ministry of Environment.
National Institute of Aquatic Resources
European basin-scale analysis, synthesis and integration (EURO-BASIN) (38899)

EURO-BASIN was designed to advance our understanding on the variability, potential impacts, and feedbacks of global change and anthropogenic forcing on the structure, function and dynamics of the North Atlantic and associated shelf sea ecosystems as well as the key species influencing carbon sequestration and ecosystem functioning. Like the entire biosphere, marine ecosystems such as the North Atlantic and its associated shelf sea ecosystems can be characterized by emergent properties controlled by a dynamic network of interactions and relationships and not static entities. This system complexity is what Martin Luther King Jr. called "an inescapable network of mutuality" scientists today define as complex adaptive systems (CASs).

EURO-BASIN has represented the first attempt of creating future prognosis of marine ecosystem states sensitive to CAS dynamics using as its test case the North Atlantic. Long-term prediction of the status of these CAS systems, population dynamics of key species and hence management of marine systems requires the implementation and advancement of an ecosystem approach for the management of marine resources sensitive to CAS dynamics. What is the ecosystem approach? Unlike a single species approach, the ecosystem approach takes into account population and ecosystem responses to changes in the Earth's climate, fisheries, and interactions between them. In EURO-BASIN not only did we monitor and assess how North Atlantic marine ecosystems behaved in the past, but also predict how they will respond under possible future climate change scenarios. Hence, the results of this project have provided important recommendations for better marine resource management in the European Union.

The project had participants from 23 European universities and research institutions as well as collaborations with key institutions and Universities in the US and Canada.

The project was coordinated by DTU Aqua.

The project was funded by EU, Framework Programme 7.

National Institute of Aquatic Resources

Section for Marine Ecology and Oceanography

Period: 01/01/2010 → 31/12/2014

Number of participants: 12

Research areas: Marine Populations and Ecosystem Dynamics & Oceanography & Marine Living Resources

Acronym: EURO-BASIN

Number of related Ph.D. students: 4

Contact person:

Grigorov, Ivo (Intern)

Project participant:

Andersen, Ken Haste (Intern)
Relations

Activities:

40th CIESM Mediterranean Science Commission Congress: Mediterranean Science Commission, Annual Congress

Publications:

Acclimation, adaptation, traits and trade-offs in plankton functional type models – seeking clarity in terminology
Size structures sensory hierarchy in ocean life
Gut evacuation rate and grazing impact of the krill Thysanoessa raschii and T. inermis
Long-term retrospective analysis of mackerel spawning in the North Sea
Winter–spring transition in the subarctic Atlantic: microbial response to deep mixing and pre-bloom production
Challenges in integrative approaches to modelling the marine ecosystems of the North Atlantic: Physics to fish and coasts to ocean
Fishing out collective memory of migratory schools
Interactive effects of temperature and light during deep convection: a case study on growth and condition of the diatom Thalassiosira weissflogii
Identifying marine pelagic ecosystem management objectives and indicators
Effects of temperature and food availability on feeding and egg production of Calanus hyperboreus from Disko Bay, Western Greenland
The rise and fall of the NE Atlantic blue whiting (Micromesistius poutassou)
Physiological constrains on Sverdrup's Critical-Depth-Hypothesis: the influences of dark respiration and sinking
Effects of a future warmer ocean on the coexisting copepods Calanus finnarchicus and C. glacialis in Disko Bay, Western Greenland
Long-term changes of euphausiids in shelf and oceanic habitats southwest, south and southeast of Iceland
Pseudocollapse and rebuilding of North Sea mackerel (Scomber scombrus)
Distributions and seasonal abundances of krill eggs and larvae in the sub-Arctic Godthåbsfjord, SW Greenland
Distribution of phytoplankton functional types in high-nitrate low-chlorophyll waters in a new diagnostic ecological indicator model
A resolution to the blue whiting (Micromesistius poutassou) population paradox?
Effects of climate-induced habitat changes on a key zooplankton species
Patchy zooplankton grazing and high energy conversion efficiency: ecological implications of sandeel behavior and strategy
A cascade of warming impacts brings bluefin tuna to Greenland waters
Migration and fisheries of North East Atlantic mackerel (Scomber scombrus) in autumn and winter
Spatially explicit estimates of stock sizes, structure and biomass of herring and blue whiting, and catch data of bluefin tuna
Krill diversity and population structure along the sub-Arctic Godthåbsfjord, SW Greenland
Spatial segregation within the spawning migration of North Eastern Atlantic mackerel (Scomber scombrus) as indicated by juvenile growth patterns
Trophic position of coexisting krill species: a stable isotope approach
Marine snow, zooplankton and thin layers: indications of a trophic link from small-scale sampling with the Video Plankton Recorder
Bridging the gap between marine biogeochemical and fisheries sciences; configuring the zooplankton link
Comparative ecology of widely distributed pelagic fish species in the North Atlantic: Implications for modelling climate and fisheries impacts
Population structure of Atlantic Mackerel (Scomber scombrus)

Data sharing: An open mind on open data: The move to make scientific findings transparent can be a major boon to research, but it can be tricky to embrace the change.

**Project**

**Developing fisheries management indicators and targets (DEFINEIT) (38763)**

DEFINEIT constructed operational models of fish stock dynamics explicitly taking into account exploitation and climatic conditions and combine these models with basic economic models. To ensure an outstanding scientific level in each of these areas, the project brought together key competences in operational multispecies modelling, stock recruitment relationships, population dynamics of non-target fish species and economic modelling of fisheries from a wide geographic area ranging from the Barents Sea to the North Sea. The project used multispecies models to investigate changes in predation induced by differences in the distribution and the amount of alternative food. Effects of technical interactions in the fishing process were considered to avoid delivering management advice for different stocks which is mutually inconsistent. Integrating the knowledge gained, the project suggested methods for estimating reference points. The project identified the main causes of variation in recruitment patterns between stocks as well as the key processes from spawning to recruitment of selected stocks. The consequences of using proxies to describe stock reproductive potential were determined and survival during early life stages was investigated in order to identify the role of the physical and biological environment. The improved understanding of recruitment variability was used in individual stock assessment and included in multispecies models to provide reliable predictions. The maximum level of fishing effort consistent with sustainment of susceptible species was estimated along with the effect of discard of by-catch on economic yield. The project developed resource indicators that combine economic, social and biological indicators and relate directly to the benefit for the society. Future stock dynamics limits to sustainable ecosystem exploitation and the fishing levels delivering maximum sustainable economic yield under selected climatic scenarios were analyzed in unison to ensure the delivery of mutually consistent management advice. General properties of the ecosystems were used to suggest rules of thumb for management in areas where the amount of data available is insufficient to construct similar models.

The project was coordinated by DTU Aqua.

The project was funded by EU, MariFish, ERA-NET.

**National Institute of Aquatic Resources**

**Section for Ecosystem based Marine Management**

**Cefas**

**Institute of Marine Research**

**Hellenic Centre for Marine Research**

**Marine Research Institute**

**University of Copenhagen**

**University of St Andrews**

**University of Southern Denmark**

**Wageningen IMARES**

**Imperial College of Science, Technology and Medicine**

**Period:** 01/01/2009 → 30/06/2012

**Number of participants:** 9

**Research areas:** Ecosystem based Marine Management & Marine Living Ressources & Marine Populations and Ecosystem Dynamics & Population Genetics

**Project participant:**

Gislason, Henrik (Intern)
Payne, Mark (Intern)
Worsøe Clausen, Lotte (Intern)
Mosegaard, Henrik (Intern)
Bekkevold, Dorte (Intern)
Eg Nielsen, Einar (Intern)
Vinthor, Morten (Intern)
Lewy, Peter (Intern)

**Project Manager, academic:**
Establishment and testing of area-based management models for North Sea sandeel fisheries (ETOMTOBIS) (38588)
The goal of this project is to investigate the effects of area-based management for sandeel stocks and the fisheries. Objectives include developing for optimal area-based management of sandeel fisheries in the North Sea. The tools will first be tested through computer simulations and the experience gained will be used to develop a revised management model at the end of the project.
The project will also help fisheries managers to act proactively to other marine management initiatives. In connection with the implementation of the EU Habitat Directive in the North Sea, EU coastal states appoint Natura 2000 areas by 2010. Area based analysis of population dynamics is therefore necessary to quantify the effect of fishing at the local level, and subsequently assess whether fisheries are affecting the habitat. Additional field-based analysis will be valuable in assessing interaction of the sandeel fishery with potential Natura 2000 areas. Spatial management is not only intended to restrict fishing. A description of the consequences for fisheries and sandeel population dynamics are important in assessing the benefits and drawbacks of introducing area-based management of sandeel fisheries in the North Sea. Currently the sandeel fishery is managed under the assumption that there is one population of the sandeel (Ammodites marinus) in the North Sea, in spite of this, the North Sea sandeel stock can be divided into several sub-populations. Based on recent research there is now a strong wish from ICES (see eg. ICES 2007 and 2008) and from the EU (see eg. STECF 2005), to introduce area based management of the sandeel fisheries, in order to adjust fishing to a level defined as sustainable for each of the local sub-populations.
Sandeel stocks in the North Sea will be divided into separate management units, each of which can be regarded as sub-populations who have little or no mutual exchange of both sand eel fry and adult sandeels, as presented in the final report of the project TORTN (project 38128). An assessment model will be developed to analyze sandeel population dynamics for each of the identified management units. A forecast model based on the relevant scientific surveys will predict the actual size of the sandeel recruitment in each of the management areas. Finally a tool will be developed that calculates the catch of sandeels in each of the management areas in a number of scenarios that include output of maximum sustainable yield, the most stable catches, and optimal fisheries management.
The project also includes a field sampling module, using two different methods, pelagic larval and demersal 0-group sampling, associated with a tool technological module for this collection to measure the size of the sandeel recruitment. The purpose of the field collection is to continue and analyze existing time series of field data to further develop area based recruitment indices. Field data should also be used as a fishery independent index of the sandeel stock size in the developed assessment model.
The project is coordinated by DTU Aqua.
National Institute of Aquatic Resources
Section for Marine Living Resources
Danish Fishermen's Association
Period: 01/01/2008 → 31/12/2010
Number of participants: 5
Research area: Marine Living Resources
Project Manager, academic:
Mosegaard, Henrik (Intern)
Vinther, Morten (Intern)
Rindorf, Anna (Intern)
Christensen, Asbjørn (Intern)
Jensen, Henrik (Ekstern)
Project

Marine ecosystem evolution in a changing environment (MEECE) (38131)
In order to advance our understanding and the predictive capacities necessary to resolve how marine ecosystems will respond to global change MEECE employed a combination of data synthesis, numerical simulation and targeted experimentation to further our knowledge of how marine ecosystems will respond to combinations of these climate change and anthropogenic drivers.
A key objective of MEECE was to advance model coupling across trophic levels and create concepts and infrastructure to enable end-to-end modeling, from physics to fish, which has empirically been difficult due to different space and time scales involved, as well as relative emphasis of statistical and mechanistic aspects. Finally MEECE integrated modeling advancements with fishery management perspectives.
The project was coordinated by Plymouth Marine Laboratory, UK, and had 21 partners from the EU.
The project was funded by EU, Framework Programme 7.
National Institute of Aquatic Resources
Section for Marine Living Resources
Period: 01/01/2008 → 15/10/2012
Number of participants: 11
Research areas: Marine Living Resources & Marine Populations and Ecosystem Dynamics & Fisheries Management
Acronym: MEECE
Contact person:
Christensen, Asbjørn (Intern)
Project participant:
Vinther, Morten (Intern)
Neuenfeldt, Stefan (Intern)
MacKenzie, Brian (Intern)
Nielsen, J. Rasmus (Intern)
Eero, Margit (Intern)
Andersen, Ken Haste (Intern)
Bastardie, Francois (Intern)
Neumann, Viola (Intern)
Grigorov, Ivo (Intern)
Project Manager, academic:
Köster, Fritz (Intern)

Relations
Publications:
Should “Citizen Scientists” play with climate & ecosystem models?

Project

Spatially-explicit management methods for North Sea cod – a Danish fishermen-science collaboration (REX, REX II, REX III) (38430, 38431, 38541)
The REX project started in 2006 as a protest from the Danish Fishermen Association because fishers had a less pessimistic perception of the status of the cod stock in the North Sea than ICES, and they considered the agreed TAC levels far too low. In particular the fishers considered the scientific surveys as inappropriate due to extremely low catches of large cod because of wrong gear and fishing on smooth bottom only. This seemed to call for more spatially-explicit oriented approaches and REX was born with an aim of getting closer to a common understanding of the true number of adult cod in the North Sea by focusing on communication and collaboration in developing and implementing a scientifically sound and robust survey strategy with commercial ships in a north-eastern area selected by the Danish Fishermen Association using three vessels presenting different fishing methods (flyshooter, trawler and gillnetter).

The development of the fishermen-scientists collaboration with mutual respect has increased the understanding on both sides. In particular the emphasis on defining common goals, facing and solving conflicts immediately and extending thorough collaboration from survey planning, conducting of field work to interpretation of results during workshops have contributed to bridging the communication gab.

A better understanding of cod biology has also been a focal point in these projects through the new field studies incorporating fishermen’s knowledge. This includes distribution and migration, feeding behavior and importance of Hot-Spots (e.g. ship wrecks). Electronic tags were applied to learn about migration also in the Baltic. Together with the aim of continuing to obtain better assessments of the stocks such more mechanistically oriented studies are needed to answer two apparently simple questions “Where are the cod and why?”

The REX projects have strengthened the scientific collaboration with fishermen and produced several results and types of knowledge that will influence future work on developing spatial explicit management tools. REX also represents capacity building for DTU Aqua’s interdisciplinary field research and monitoring towards the spatial dynamics of cod.

The project is coordinated by DTU Aqua.

National Institute of Aquatic Resources
Section for Marine Living Resources
Danish Fishermen's Association
Period: 01/01/2006 → 31/01/2010
Number of participants: 17
Research area: Marine Living Resources
Understanding the mechanisms of stock recovery (UNCOVER) (38104)
The UNCOVER project has produced a rational scientific basis for developing Long-Term Management Plans (LTMP) and recovery strategies for 11 of the ecologically and socioeconomically most important fish stocks/fisheries in the Norwegian and Barents Seas, the North Sea, the Baltic Sea and the Bay of Biscay and Iberian Peninsula.

UNCOVER’s objectives were to:
(i) identify changes experienced during stock depletion/collapses,
(ii) to understand prospects for recovery,
(iii) to enhance the scientific understanding of the mechanisms of fish stock/fishery recovery, and
(iv) to formulate recommendations how best to implement LTMPs/recovery plans.

The project recommends that such plans ideally should include:
(i) Consideration of stock-regulating environmental processes,
(ii) Incorporation of fisheries effects on stock structure and reproductive potential,
(iii) Consideration of changes in habitat dynamics due to global change,
(iv) Incorporation of biological and technological multispecies interactions,
(v) Integration of economically optimized harvesting,
(vi) Exploration of the socio-economic implications and political constraints from existing and alternative recovery plans,
(vii) Investigations on the acceptance of plans by stakeholders and specifically incentives for compliance by the fishery,
(viii) Agreements with and among stakeholders.

UNCOVER has provided imperative policy support underpinning the following fundamental areas:
(i) Evolution of the Common Fisheries Policy with respect to several aims of the ‘Green Paper’;
(ii) Contributing to the Marine Strategy Framework Directive with respect to fish stocks/communities;
(iii) achieving Maximum Sustainable Yield (MSY) for depleted fish stocks. This has been done by contributing to LTMPs/recovery plans for fish stocks/fisheries, demonstrating how to shift from scientific advice based on limit reference points towards setting and attaining targets such as MSY, and furthering ecosystem-based management through incorporating multispecies, environmental and habitat, climate variability/change, and human dimensions into these plans.

The project was coordinated by Institut für Ostseefischerei, Bundesforschungsanstalt für Fischerei, Germany.

National Institute of Aquatic Resources
Section for Marine Living Resources
Bundesforschungsanstalt für Fischerei
Marine Research Unit, Marine and Food Technological Centre
Cefas
Critical interactions between species and their implications for a precautionary fisheries management in a variable environment – a modeling approach (BECAUSE) (38613)

Across Europe, the population of predatory fish has fallen dramatically in recent years. This has reduced the predation rate and the prey species has remained fairly stable. Therefore the balance between predators and prey species has been radically changed. No accurate scientific picture of the exact interactions between these species and their effects on non-commercial top predators is available. To maintain biodiversity and make recovery plans more effective, such an understanding is vital.

The sustainable management of European fisheries requires an adaptive approach that takes into account the long term dynamics of the entire marine ecosystem so as to protect the biodiversity of our seas. BECAUSE investigated the interaction between predator and prey, and the shifts in their relative populations and looked into how fishing affects the balance of the marine food chain. The interactions targeted for investigation included sandeel/predator fish, predators and prey of cod, and hake/prey fish.

Contributions to the policy development aimed at integrating a sustainable ecosystem approach into the EU’s Common Fisheries Policy (CFP) thereby helping the EU to meet its global fishing commitments and underwrite the sustainability of ecosystem services. Multi-species fisheries assessment were improved and enhanced policy and management measures to replenish fish stocks and ensure high yields were proposed.
The was coordinated by Universität Hamburg, Germany.
National Institute of Aquatic Resources
Section for Marine Ecology and Oceanography
Universität Hamburg
Marine and Food Technological Centre
Cefas
Finnish Game and Fisheries Research Institute
Marine Scotland
Marine Research Institute
Leibniz Institute of Marine Sciences
IFREMER
Consejo Superior de Investigaciones Científicas
Institute of Marine Research
National Centre for Marine Research
Sea Fisheries Institute
Sapienza University of Rome
University of St Andrews
Latvian Fish Resources Agency
Instituto Español de Oceanografía
Period: 01/01/2004 → 31/12/2007
Number of participants: 6
Research area: Marine Living Resources
Contact person:
Köster, Fritz (Intern)
Project participant:
Tomkiewicz, Jonna (Intern)
Neuenfeldt, Stefan (Intern)
Rindorf, Anna (Intern)
Christensen, Asbjørn (Intern)
Project Manager, organisational:
Vinther, Morten (Intern)
Project

Activities:

**ICES - Herring Assessment Working Group for the Area South of 62ºN - HAWG (External organisation)**
Period: 2015
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

**Related external organisation**

**ICES - Herring Assessment Working Group for the Area South of 62ºN - HAWG**
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**ICES - Working Group on Elasmobranch Fishes - WGEF (External organisation)**
Period: 2015
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

Related external organisation
ICES - Working Group on Elasmobranch Fishes - WGEF
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Widely Distributed Stocks - WGWIDE (External organisation)
Period: 2015
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

Related external organisation
ICES - Working Group on Widely Distributed Stocks - WGWIDE
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Joint ICES-MYFISH Workshop to consider the basis for Fmsy ranges for all stocks - WKMSYREF3 (External organisation)
Period: 2014
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

Related external organisation
ICES - Joint ICES-MYFISH Workshop to consider the basis for Fmsy ranges for all stocks - WKMSYREF3
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - The ACOM Workshop to develop recommendations for potentially useful Food Web Indicators - WKFOOWI (External organisation)
Period: 2014
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

Related external organisation
ICES - The ACOM Workshop to develop recommendations for potentially useful Food Web Indicators - WKFOOWI
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Elasmobranch Fishes - WGEF (External organisation)
Period: 2014
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

Related external organisation
ICES - Working Group on Elasmobranch Fishes - WGEF
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Widely Distributed Stocks - WGWIDE (External organisation)
Period: 2014
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

Related external organisation

ICES - Working Group on Widely Distributed Stocks - WGWIDE
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Workshop to consider reference points for all stocks - WKMSYREF (External organisation)
Period: 2014
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Degree of recognition: International

Related external organisation

ICES - Workshop to consider reference points for all stocks - WKMSYREF
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Advisory Committee - ACOM (External organisation)
Period: 2012 → ...
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation

ICES - Advisory Committee - ACOM
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Benchmark Workshop on Pelagic Stocks - WKPELA (External organisation)
Period: 2012 → ...
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation

ICES - Benchmark Workshop on Pelagic Stocks - WKPELA
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Third Workshop on Implementing the ICES FMSY Framework - WKFRAME3 (External organisation)
Period: 2012
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation

ICES - Third Workshop on Implementing the ICES FMSY Framework - WKFRAME3
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Elasmobranch Fishes - WGEF (External organisation)
Period: 2012 → …
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation

ICES - Working Group on Elasmobranch Fishes - WGEF
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Fish Ecology - WGFE (External organisation)
Period: 2012 → …
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation

ICES - Working Group on Fish Ecology - WGFE
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak - WGNSSK (External organisation)
Period: 2012 → …
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation

ICES - Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak - WGNSSK
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Widely Distributed Stocks - WGWIDE (External organisation)
Period: 2012 → …
Morten Vinther (Participant)
National Institute of Aquatic Resources
Section for Public Sector Consultancy
Degree of recognition: International

Related external organisation

ICES - Working Group on Widely Distributed Stocks - WGWIDE
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar