Bioenergetics modeling of the annual consumption of zooplankton by pelagic fish feeding in the Northeast Atlantic

The present study uses bioenergetics modeling to estimate the annual consumption of the main zooplankton groups by some of the most commercially important planktivorous fish stocks in the Northeast Atlantic, namely Norwegian spring-spawning (NSS) herring (Clupea harengus), blue whiting (Micromesistius poutassou) and NEA mackerel (Scomber scombrus). The data was obtained from scientific surveys in the main feeding area (Norwegian Sea) in the period 2005–2010. By incorporating novel information about ambient temperature, seasonal growth and changes in the diet from stomach content analyses, annual consumption of the different zooplankton groups by pelagic fish is estimated. The present study estimates higher consumption estimates than previous studies for the three species and suggests that fish might have a greater impact on the zooplankton community as foragers. This way, NEA mackerel, showing the highest daily consumption rates, and NSS herring, annually consume around 10 times their total biomass, whereas blue whiting consume about 6 times their biomass in zooplankton. The three species were estimated to consume an average of 135 million (M) tonnes of zooplankton each year, consisting of 53–85 M tonnes of copepods, 20–32 M tonnes of krill, 8–42 M tonnes of appendicularians and 0.2–1.2 M tonnes of fish, depending on the year. For NSS herring and NEA mackerel the main prey groups are calanoids and appendicularians, showing a peak in consumption during June and June–July, respectively, and suggesting high potential for inter-specific feeding competition between these species. In contrast, blue whiting maintain a low consumption rate from April to September, consuming mainly larger euphausiids. Our results suggest that the three species can coexist regardless of their high abundance, zooplankton consumption rates and overlapping diet. Accordingly, the species might have niche segregation, as they are species specific, showing annual and inter-annual variability in total consumption of the different prey species. These estimates and their inter-annual and interspecific variation are fundamental for understanding fundamental pelagic predator-prey interactions as well as to inform advanced multispecies ecosystem models.
62 years of population dynamics of European perch (Perca fluviatilis) in a mesotrophic lake tracked using angler diaries: The role of commercial fishing, predation and temperature

Standardised angler diaries could produce useful proxy data for assessing fish population density and size distribution, but few rigorous studies about their utility exist. We use 62 years of angling diary data (1949–2010), from a large mesotrophic lake, to investigate population structure (abundance, mean size and record size) of European perch (Perca fluviatilis L.) in relation to the impact of three commercial fishers with different fishing strategies, pike (Esox lucius L.) predation and temperature. We found that anglers’ harvest rates of perch varied by a factor of 10 over time, indicating large variation in population abundance over decadal time scales. Our statistical analysis revealed that the anglers’ harvest rates of perch were related to pike CPUE (proxy of pike predation), temperature and commercial fishing directly through the harvest of perch and indirectly through the harvest of pike, the top predator of the lake. The size distribution and growth rates of perch caught by anglers also changed substantially during the study period, most likely controlled by density-dependent mechanisms as well as size-selective commercial harvest. The effect of selective harvest on size-structure was stronger...
than ecological density dependence. We conclude that commercial harvesting may exert strong impacts on the quality of
the angling experiences, at least in the studied case. Moreover, our work showcases the value of detailed angler diaries to
study and monitor changes in freshwater fish populations, but it also underlines the need for supplementary data on biotic
and abiotic factors to reach the full potential of angler diary data

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Optimal and sustainable management of fish resources cannot be ensured without a thorough understanding of the migration patterns and population (demographic stock) structure. Recent studies suggest that these aspects of the economically and ecologically important deepwater hake Merluccius paradoxus are not reflected in the current assessment and management practices for the Benguela Current Large Marine Ecosystem. In this study, we compiled data from multiple demersal trawl surveys from the entire distribution area and applied state-of-the-art geostatistical population modelling (GeoPop) to estimate growth rate, mortality, and spatial and temporal distribution patterns of M. paradoxus. The data and the model enabled us to follow temporal and spatial changes in the distribution and infer movements from the recruitment/nursery areas, through the juvenile phase and the adults’ migration to the spawning areas outside/upstream of the nursery areas. The results indicated one primary recruitment/nursery area on the west coast of South Africa and a secondary less-productive recruitment/nursery area on the south coast near Port Elizabeth. Juveniles initially migrated away from the main recruitment area, followed by natal homing by larger individuals. This pattern was highly consistent through the time-series of the study. This perception of a, primarily, panmictic population that performs transboundary migrations between Namibia and South Africa corresponds largely to the hypothesis and data plots given in recent studies. We recommend that fisheries assessment, advice and management take into consideration these aspects of the distribution and population (stock) structure of M. paradoxus.
Udbredelsen af blåhvilling (Micromesistious poutassou) omkring Grønland

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When in life does density dependence occur in fish populations?

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First-year survival of North East Atlantic mackerel (Scomber scombrus) from 1998 to 2012 appears to be driven by availability of Calanus, a preferred copepod prey

Mackerel (Scomber scombrus) is one of the ecologically and economically most important fish species in the Atlantic. Its recruitment has, for unknown reasons, been exceptional from 1998 to 2012. The majority (75%) of the survivors in the first winter were found north of an oceanographic division at approximately 52°N, despite the fact that mackerel spawns over a wide range of latitudes. Multivariate time series modelling of survivor abundance in the north revealed a significant correlation with the abundance of copepodites (stage I–IV) of Calanus sp. in the spawning season (April to June). The copepodites were a mix of C. helgolandicus (dominating) and C. finmarchicus. The growth of mackerel larvae is known to be positively related to the availability of nauplii and copepodites of preferred prey species, namely, large calanoid copepod species such as Calanus. The statistical relationship between mackerel survivors and abundance of Calanus, therefore, most likely, reflected a causal relationship: high availability of Calanus probably reduced starvation, stage-specific predation and cannibalism (owing to prey switching). The effects of other abundant, but less preferred zooplankton taxa, (Acartia sp., Branchiopoda spp. and Echinodermata spp. larvae), as well as stock size, temperature and wind-induced turbulence were not found to be significant. However, stock size was retained in the final model because of a significant interaction with Calanus in oceanic areas west of the North European continental shelf. This was suggested to be a consequence of a density driven expansion of the spawning area that increased the overlap between early life stages of mackerel and food (Calanus) in new areas.
Migration, distribution and population (stock) structure of shallow-water hake (Merluccius capensis) in the Benguela Current Large Marine Ecosystem inferred using a geostatistical population model

Shallow-water hake (Merluccius capensis) is of considerable ecological and economic importance in the Benguela Current Large Marine Ecosystem in South Africa and Namibia. Optimal management of the resource is currently constrained by the limited understanding of migration patterns and population (stock) structure. We combined data from multiple demersal trawl surveys from the entire distribution area to estimate growth rate, mortality and spatial and temporal patterns of M. capensis. Analyses were conducted using the geostatistical model GeoPop. The complexity of the model and the amount of data required a new level of soft- and hardware performance. This was achieved by utilizing Template Model Builder and high-end computational hardware (Amazon Elastic Compute Cloud, EC2). The data and the model enabled us to follow the distribution and infer movements of M. capensis from the recruitment/nursery areas, through the juvenile phase and the adults' migration to the spawning areas outside/upstream of the nursery areas. This revealed some previously unknown migration patterns and indicated natal homing and the existence of three primary population components in the region, namely the Walvis (central and northern Namibia), the Orange (Southern Namibia-Northern SA) and the Agulhas...
(Southern part of SA) components. Our results also indicated substantial regional differences in mortality. We recommend that fisheries assessment, advice and management take consideration of these aspects of the distribution and population (stock) structure of M. capensis in the Benguela Current Large Marine Ecosystem.
Ocean warming expands habitat of a rich natural resource and benefits a national economy

Geographic redistribution of living natural resources changes access and thereby harvesting opportunities between countries. Internationally shared fish resources can be sensitive to shifts in the marine environment and this may have great impact on the economies of countries and regions that rely most heavily on fisheries to provide employment and food supply. Here we present a climate change-related biotic expansion of a rich natural resource with substantial economic consequences, namely the appearance of northeast Atlantic mackerel (Scomber scombrus) in Greenlandic waters. In recent years, the summer temperature has reached record highs in the Irminger Current, and this development has expanded the available and realized mackerel habitat in time and space. Observations in the Irminger Current in east Greenland in 2011 of this temperature-sensitive epipelagic fish were the first records so far northwest in the Atlantic. This change in migration pattern was followed by a rapid development of a large-scale fishery of substantial importance for the national economy of Greenland (23% of Greenland’s export value of all goods in 2014). A pelagic trawl survey was conducted in mid-summer 2014 and the results showed that the bulk of similar to 1 million Mg (=t) of mackerel in the Irminger Current in southeast Greenland were located in the relatively warm (>8.5 degrees C) surface layer. Mackerel was also observed in southwest Greenland. Finally, 15 CMIP5 Earth System Model projections of future marine climate were used to evaluate the epipelagic environment in Greenland. These projections for moderate and high CO2 emission scenarios (representative concentration pathways [RCP] 4.5 and 8.5) suggest how the available mackerel habitat may expand further in space and time. Overall, our results indicate that, if the stock remains large, productive, and continues its current migration pattern, then climate change has provided Greenland with a new unique opportunity for commercial exploitation. However, positive cases like this should not be cherry-picked and misused as arguments against timely and effective mitigation of climate change.
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Quantifying changes in abundance, biomass and spatial distribution of Northeast Atlantic (NEA) mackerel (Scomber scombrus) in the Nordic Seas from 2007 to 2014

The Northeast Atlantic (NEA) mackerel (Scomber scombrus) is a widely distributed pelagic fish species that plays a key role in the marine ecosystem.

In recent years, there has been a large fishery targeting mackerel in the NEA. At the same time as the geographic range of the mackerel fishery has expanded and the spatial distribution of the stock been defectively determined, the stock assessment has been considered to be highly uncertain by ICES. Limited tuning data, with only a triennial egg survey, have created challenges for the assessment and management of NEA mackerel, and ICES has repeatedly stated the need for an annual age-disaggregated abundance index of this stock. These were the motivations for establishment of an international pelagic trawl survey in 2007, the International Ecosystem Summer Surveys in the Nordic Seas (IESSNS).

The estimated total biomass indices for NEA mackerel based on coordinated and standardized swept-area surface trawling in July–August from IESSNS increased from 1.96 million t [relative standard error (RSE) ¼ 30.35%] in 2007 to 8.77 million t (RSE ¼ 7.95%) in 2014. Simultaneously, the mackerel stock expanded its geographic range during the feeding season from 1.3 million km2 in 2007 to at least 2.9 million km2 in 2014, mainly towards western and northern regions of the Nordic seas. Estimates of abundance indices by age group were fairly precise (RSE 20%) for ages 3–12, while the precision was poorer for ages 1 and 2 and for age groups 13 and older (RSE > 50%). Furthermore, evaluation of the performance of the estimated abundance indices by age for this time-series, based on internal consistency and catch curves, suggest that the abundance indices of ages 3–12 track the temporal variation in abundance reasonably, and thus is applicable for stock assessments.
Density dependent growth changes through juvenile and early adult life of North East Atlantic Mackerel (Scomber scombrus)

Density dependence of somatic growth has an important, but overlooked, impact on fisheries management advice. We therefore examined how growth relates to abundance in a case where growth has been observed to vary substantially in recent years, namely North East Atlantic mackerel, one of the most widespread and commercially important fish stocks in the North Atlantic. Growth of juvenile and early adult North East Atlantic mackerel was found to be decreasing since the late 1990s. Modelling showed that growth was related to density. Mean growth rate during the first year was tightly correlated with the density of juveniles and especially with juveniles from the previous cohort. This putative effect of juvenile density could be tracked in the length-at-age up to adult mackerel at commercially targeted sizes. However, as the mackerel grew towards adulthood, the effects of the same cohort became dominant. The effect of adult density was minor, but increasing with age. The ontogenetic progression in density dependant regulation of growth appeared to reflect the spatial dynamics (migration patterns) in the feeding season. This is the first time growth patterns quantified in the adult mackerel population have been linked to density related processes occurring within the nursery areas during the first year. These aspects of mackerel production have a substantial and direct impact on the management plan evaluations used when fisheries scientists provide advice for fisheries management.

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Nursery areas and recruitment variation of Northeast Atlantic mackerel (Scomber scombrus)

There are currently no dedicated recruitment survey data available in support of the assessment of the abundance and distribution of Northeast Atlantic (NEA) mackerel (Scomber scombrus), one of the most widespread and commercially important fish stocks in the North Atlantic. This is despite the fact that an estimate of recruitment is an important requirement for the provision of advice to fishery managers.

The work here addresses this by compiling catch rates of juvenile mackerel from bottom-trawl surveys conducted between October and March during 1998–2012 and applying a log Gaussian Cox (LGC) process geostatistical model incorporating spatio-temporal correlations. A statistically significant correlation between the modelled catch rates in adjacent quarters 4 and 1 (Q4 and Q1) demonstrates that bottom-trawl surveys in winter are an appropriate platform for sampling juvenile mackerel, and that the LCG model is successful in extracting a population abundance signal from the data. In this regard, the model performed appreciably better than a more commonly used raising algorithm based on survey swept-area estimates. Therefore, the LCG model was expanded to include data from the entire survey time-series, and a recruitment index was developed for use in the annual ICES stock assessment. We hypothesize that catchability is positively density-dependant and provides supporting evidence from acoustic observations. Various density-dependant transformations of the modelled catch rates were furthermore found to improve the correlation between the derived annual recruitment index and recruitment estimated by backcalculation of adult mackerel data. Square root transformation led to the strongest correlation, so this is recommended for further analysis of mackerel abundance. Finally, we provide maps of spatial distributions, showing that the most important nursery areas are around Ireland, north and west of Scotland, in the northern North Sea north of 59°Nand, to some extent, also in the Bay of Biscay.

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Spawning patterns of shallow-water hake (Merluccius capensis) and deep-water hake (M. paradoxus) in the Benguela Current Large Marine Ecosystem inferred from gonadosomatic indices

We use gonad- and body-weight data from 54,000 samples of Merluccius capensis and Merluccius paradoxus collected in all months of the years between 1991 and 2013 to infer peak spawning periods and areas in the Benguela Current Large Marine Ecosystem. We develop and apply a new gonadosomatic index threshold for identification of spawning individuals. Spawning M. capensis were observed throughout the study area, mainly in areas of about 100 m bottom depth. The highest proportions of spawning M. capensis females in the northern Benguela region were observed off central Namibia between 24.0 and 26.0°S. In the southern Benguela, peaks in the proportions of spawning M. capensis were observed in two areas off the South African West Coast (31.0-32.5°S and 34.5-36.0°S), whereas spawning females off the South African South Coast (east of 20°E) appeared to be more evenly distributed in space. Seasonality differed between areas. In the northern Benguela, the main spawning season of M. capensis appeared to be the austral winter (July-September, peaking in August), while off the South African South Coast, the main spawning season is suggested to be in summer (around January). Between these two extremes, on the western Agulhas bank in the southern Benguela, spawning peaks were observed in both summer and winter. These peaks largely coincided with peaks in phytoplankton production that are linked to upwelling conditions in the region. Hake condition decreased subsequent to the development of the gonads. The annual spawning cycle differed between small and large M. capensis. The current October-closure of the fishery in Namibia may not match the peak spawning in August/September and may need to be shifted to earlier in the year. Spawning M. paradoxus were mainly found in areas of 200-650 m bottom depths. In the northern Benguela, spawning M. paradoxus were observed as far north as 25°S in August. The proportion of spawning females peaked between 34.5°S and 36.5°S off the West Coast, and between 23.0°E and 26.5 °E off the South Coast. It was suggested that M. paradoxus spawn throughout the year off the South African coast, with increased intensity around March and August-October. The finding of multiple spawning seasons and areas of both M. capensis and M. paradoxus strongly suggest multiple stocks (reproductive units).
The impact of environmental variability on Atlantic mackerel Scomber scombrus larval abundance to the west of the British Isles

The value of the Continuous Plankton Recorder (CPR) fish larvae dataset, with its extensive spatiotemporal coverage, has been recently demonstrated with studies on long-term changes over decadal scales in the abundance and distribution of fish larvae in relation to physical and biological factors in the North Sea. We used a similar approach in the west and southwest area of the UK shelf and applied a principal component analysis (PCA) using 7 biotic and abiotic parameters, combined with Hierarchical Cluster Analysis (HCA), to investigate the impact of environmental changes in the west and southwest area of the UK shelf on mackerel larvae during the period 1960-2004. The analysis revealed 3 main periods of time (1960-1968; 1969-1994; 1995-2004) reflecting 3 different ecosystem states. The results suggest a transition from an ecosystem characterized by low temperature, high salinity, high abundances of zooplankton and the larger phytoplankton groups, to a system characterized by higher temperature, lower salinities, lower abundances of zooplankton and larger phytoplankton and higher abundances of the small phytoplankton species. Analysis revealed a very weak positive correlation between the Second principal component and mackerel larvae yearly abundance, attributed to the North Atlantic Oscillation (NAO). The results presented here are in broad accord with recent investigations that link climatic variability and dynamics of mackerel reproduction. However, the growing body of literature that documents statistical correlations between environment and mackerel needs to be supplemented by local process studies, to gain more insight and to be able to predict mackerel response to climate change scenarios. Utilising the strength of the CPR dataset, namely its unique temporal coverage, in an analysis where other data (such as egg surveys) are drawn in to compensate for the spatial issues could prove to be the way forward. Crown Copyright (C) 2015 Published by Elsevier Ltd.

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Comparative ecology of widely distributed pelagic fish species in the North Atlantic: Implications for modelling climate and fisheries impacts

This paper reviews the current knowledge on the ecology of widely distributed pelagic fish stocks in the North Atlantic basin with emphasis on their role in the food web and the factors determining their relationship with the environment. We consider herring (Clupea harengus), mackerel (Scomber scombrus), capelin (Mallotus villosus), blue whiting (Micromesistius poutassou), and horse mackerel (Trachurus trachurus), which have distributions extending beyond the continental shelf and predominantly occur on both sides of the North Atlantic. We also include albacore (Thunnus alalunga), bluefin tuna (Thunnus thynnus), swordfish (Xiphias gladius), and blue marlin (Makaira nigricans), which, by
contrast, show large-scale migrations at the basin scale. We focus on the links between life history processes and the environment, horizontal and vertical distribution, spatial structure and trophic role. Many of these species carry out extensive migrations from spawning grounds to nursery and feeding areas. Large oceanographic features such as the North Atlantic subpolar gyre play an important role in determining spatial distributions and driving variations in stock size. Given the large biomasses of especially the smaller species considered here, these stocks can exert significant top-down pressures on the food web and are important in supporting higher trophic levels. The review reveals commonalities and differences between the ecology of widely distributed pelagic fish in the NE and NW Atlantic basins, identifies knowledge gaps and modelling needs that the EURO-BASIN project attempts to address. © 2014 Elsevier Ltd. All rights reserved.
Cormorant predation on PIT-tagged lake fish
The present study uses data from recovered PIT (Passive Integrated Transponder) tags to explore species- and size-specific annual predation rates by cormorants on three common lacustrine fishes (size range 120-367 mm) in a European lake; roach (Rutilus rutilus), common bream (Abramis brama) and perch (Perca fluviatilis). In addition, we quantify the level of age/size truncation that cormorant predation could introduce in a population of perch, an important fish for recreational angling as well as for trophic interactions and ecosystem function in European lakes. Based on three years of PIT tagging of fish in Lake Viborg and subsequent recoveries of PIT tags from nearby cormorant roosting and breeding sites, we show that cormorants are major predators of roach, bream and perch within the size groups we investigated and for all species larger individuals had higher predation rates. Perch appear to be the most vulnerable of the three species and based on a comparison with mortality estimates from lakes without significant avian predation, this study suggests that predation from cormorants can induce age/size truncation in Lake Viborg, leaving very few larger perch in the lake. This truncation reduces the likelihood of anglers catching a large perch and may also influence lower trophic levels in the lake and thus turbidity as large piscivorous perch often play an important structuring role in lake ecosystem functioning.
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.574 SNIP 0.861 CiteScore 1.66
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.704 SNIP 0.833 CiteScore 1.62
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.437 SNIP 0.586 CiteScore 1.14
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.547 SNIP 0.934 CiteScore 1.4
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.718 SNIP 0.998 CiteScore 1.39
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.562 SNIP 0.728 CiteScore 1.29
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.411 SNIP 0.735
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.335 SNIP 0.592
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.401 SNIP 0.794
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.592 SNIP 0.617
Scopus rating (2006): SJR 0.845 SNIP 1.091
Scopus rating (2005): SJR 0.456 SNIP 0.814
Scopus rating (2004): SJR 0.283 SNIP 0.519
Scopus rating (2003): SJR 0.475 SNIP 1.072
Scopus rating (2002): SJR 0.649 SNIP 0.768
Scopus rating (2001): SJR 0.384 SNIP 0.706
Scopus rating (2000): SJR 0.187 SNIP 0.284
Scopus rating (1999): SJR 0.153 SNIP 0
Original language: English
Electronic versions:
Publishers version
DOIs:
10.4081/jlimnol.2014.715
Source: FindIt
Source-ID: 260733898
Publication: Research - peer-review › Journal article – Annual report year: 2014

Genudsætning og erhvervsfiskeristop: Vejen til et bedre geddefiskeri

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Section for Marine Living Resources
Pseudocollapse and rebuilding of North Sea mackerel (Scomber scombrus)
The largest observed change in mackerel (Scomber scombrus) abundance in the North Atlantic happened when the so-called "North Sea mackerel" collapsed due to overfishing. Despite protection, it has remained in a depleted state. Central to this interpretation was that the "North Sea mackerel" was considered to be a distinct spawning component. However, a recent study has shown that this is not likely. In the light of this study, a review of the history of mackerel spawning in the North Sea found that the traditional explanation of the collapse did not account for a range of unfavourable environmental changes: high fishing pressure was followed by decreasing temperatures that reduced the spawning migration into the North Sea. This was further supplemented by unfavourable changes in food and windinduced turbulence. On the population level, this was, therefore, not a local stock collapse, but a southwest shift in spawning distribution combined with a reduction in that portion of the population cline with an affinity for spawning in the northeastern part of the spawning area, including the North Sea. No indication of irreversible genetic or behavioural losses caused by the events was found. The previously unexplained lack of rebuilding of spawning in the North Sea consequently seems related to two environmental factors that have remained unfavourable: (i) zooplankton concentration, and (ii) wind-induced turbulence. Furthermore, the large commercial autumn–winter fishery in the North Sea continues to land unknown quantities of mackerel that have an affinity for spawning in the northeastern part of the spawning area, including the North Sea.
Population structure of Atlantic Mackerel (Scomber scombrus)

Atlantic mackerel (Scomber scombrus) occurs on both sides of the north Atlantic and has traditionally been grouped into 5 spawning components, some of which were thought to be isolated natal homing stocks. Previous studies have provided no evidence for cross Atlantic migration and no or weak support for isolated spawning components within either side of the North Atlantic. We question the de-facto accepted hypothesis of isolation between spawning components on the basis of spawning and age distribution data. The spawning intensities, proxied by larval abundances, are negatively correlated between the North Sea and Celtic Sea, which indicates that the two spawning components may be connected by straying individuals. This finding is based on unique larvae samples collected before the collapse of North Sea component, thus showing that the exchange is not a recent phenomenon due to the collapse. The analyses of old as well as more recent age distributions show that strong year classes spread into other areas where they spawn as adults (“twinning”). Our findings are in accordance with the lack of solid evidence for stock separation from previous analyses of tagging data, genetics, ectoparasite infections, otolith shapes, and blood phenotypes. Because no method has been able to identify the origin of spawning mackerel unequivocally from any of the traditional spawning components, and in the light of our results, we conclude that straying outweighs spatial segregation. We propose a new model where the population structure of mackerel is described as a dynamic cline, rather than as connected contingents. Temporal changes in hydrography and mackerel behavior may affect the steepness of the cline at various locations. The new interpretation of the population structure of Atlantic mackerel has important implications for research, assessment and management.
Spatial segregation within the spawning migration of North Eastern Atlantic mackerel (Scomber scombrus) as indicated by juvenile growth patterns

A comparison of growth data (fish length) with latitude shows that southern juvenile mackerel attain a greater length than those originating from further north before growth ceases during their first winter. A similar significant relationship was found between the growth in the first year (derived from the otolith inner winter ring) and latitude for adult mackerel spawning between 44°N (Bay of Biscay) and 54°N (west of Ireland). These observations are consistent with spatial segregation of the spawning migration; the further north that the fish were hatched, the further north they will tend to spawn. No such relationship was found in mackerel spawning at more northerly latitudes, possibly as a consequence of increased spatial mixing in a more energetic regime with stronger currents. This study provides previously lacking support for spawning segregation behaviour among North East Atlantic mackerel – an important step towards understanding the migratory behaviour of mackerel and hence the spatiotemporal distribution dynamics around spawning time.

General information

State: Published
Organisations: National Institute of Aquatic Resources, Section for Marine Living Resources, Marine Institute, Centre for Agriculture research – Sea Fisheries Department
Authors: Jansen, T. (Intern), Campbell, A. (Ekstern), Brunel, T. (Ekstern), Worsøe Clausen, L. (Intern)
Pages: e58114
Publication date: 2013
Main Research Area: Technical/natural sciences

Publication information

Journal: P L o S One
Volume: 8
Issue number: 2
ISSN (Print): 1932-6203
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 3.11 SJR 1.201 SNIP 1.092
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Voluntary angler logbooks reveal long-term changes in a lentic pike, *Esox lucius*, population

Sixty-two years of voluntarily collected angling logbook data from a large natural Danish lake were used to study variation in pike, *Esox lucius* L., CPUE (expressed as no. of captured per boat trip) as an index of stock size. Pike CPUE was positively related to pike release rate by anglers and negatively affected by certain commercial shers. The stocking of young-of-the-year pike and a shery-dependent index of perch, *Perca uvialilis* L., abundance (which may be pike prey or predator depending on size) did not correlate with pike CPUE. Analyses of the size distribution of pike, based on sizes of annual record trophy pike captured by anglers, confirmed the negative impact of commercial pike shing and revealed a positive influence of air temperature. It is concluded that high-quality angler logbooks that record effort and catch can be a cost-effective tool to inform lake fisheries management by revealing long-term population trends. Further, state space modelling, a statistical technique not yet seen in recreational fisheries science, is recommended as a tool to model proxies for population dynamics from angler logbook data.
Bottom-up effects of climate on fish populations: data from the Continuous Plankton Recorder

The Continuous Plankton Recorder (CPR) dataset on fish larvae has an extensive spatio-temporal coverage that allows the responses of fish populations to past changes in climate variability, including abrupt changes such as regime shifts, to be investigated. The newly available dataset offers a unique opportunity to investigate long-term changes over decadal scales in the abundance and distribution of fish larvae in relation to physical and biological factors. A principal component analysis (PCA) using 7 biotic and abiotic parameters is applied to investigate the impact of environmental changes in the North Sea on 5 selected taxa of fish larvae during the period 1960 to 2004. The analysis revealed 4 periods of time (1960–1976; 1977–1982; 1983–1996; 1997–2004) reflecting 3 different ecosystem states. The larvae of clupeids, sandeels, dab and gadoids seemed to be affected mainly by changes in the plankton ecosystem, while the larvae of migratory species such as Atlantic mackerel responded more to hydrographic changes. Climate variability seems more likely to influence fish populations through bottom-up control via a cascading effect from changes in the North Atlantic Oscillation (NAO) impacting on the hydro dynamic features of the North Sea, in turn impacting on the plankton available as prey for fish larvae. The responses and adaptability of fish larvae to changing environmental conditions, particularly to changes in prey availability, are complex and species-specific. This complexity is enhanced with fishing effects interacting with climate
effects and this study supports furthering our understanding of such interactions before attempting to predict how fish populations respond to climate variability.

**General information**

State: Published
Organisations: National Institute of Aquatic Resources, Section for Ocean Ecology and Climate
Authors: Pitois, S. (Ekstern), Lynam, C. (Ekstern), Jansen, T. (Intern), Halliday, N. (Ekstern), Edwards, M. (Ekstern)
Pages: 169-186
Publication date: 2012
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Marine Ecology - Progress Series
Volume: 456
ISSN (Print): 0171-8630
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 2.4
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): CiteScore 2.56
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): CiteScore 2.75
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): CiteScore 2.79
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): CiteScore 2.9
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 2
- Scopus rating (2011): CiteScore 2.85
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 2
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 2
- 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
Long-term retrospective analysis of mackerel spawning in the North Sea: A new time series and modeling approach to CPR data

We present a unique view of mackerel (Scomber scombrus) in the North Sea based on a new time series of larvae caught by the Continuous Plankton Recorder (CPR) survey from 1948-2005, covering the period both before and after the collapse of the North Sea stock. Hydrographic backtrack modelling suggested that the effect of advection is very limited between spawning and larvae capture in the CPR survey. Using a statistical technique not previously applied to CPR data, we then generated a larval index that accounts for both catchability as well as spatial and temporal autocorrelation. The resulting time series documents the significant decrease of spawning from before 1970 to recent depleted levels. Spatial distributions of the larvae, and thus the spawning area, showed a shift from early to recent decades, suggesting that the central North Sea is no longer as important as the areas further west and south. These results provide a consistent and unique perspective on the dynamics of mackerel in this region and can potentially resolve many of the unresolved questions about this stock.
It has been suggested that observed spatial variation in mackerel fisheries, extending over several hundreds of kilometers, is reflective of climate-driven changes in mackerel migration patterns. Previous studies have been unable to clearly demonstrate this link. In this paper we demonstrate correlation between temperature and mackerel migration/distribution as proxied by mackerel catch data from both scientific bottom trawl surveys and commercial fisheries. We show that mackerel aggregate and migrate distances of up to 500 km along the continental shelf edge from mid-November to early March. The path of this migration coincides with the location of the relatively warm shelf edge current and, as a consequence of this affinity, mackerel are guided towards the main spawning area in the south. Using a simulated time series of temperature of the shelf edge current we show that variations in the timing of the migration are significantly correlated to temperature fluctuations within the current. The proposed proxies for mackerel distribution were found to be significantly correlated. However, the correlations were weak and only significant during periods without substantial legislative or technical developments. Substantial caution should therefore be exercised when using such data as proxies for mackerel distribution. Our results include a new temperature record for the shelf edge current obtained by embedding the available hydrographic observations within a statistical model needed to understand the migration through large parts of the life of adult mackerel and for the management of this major international fishery.
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.201 SNIP 1.092
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.414 SNIP 1.131 CiteScore 3.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.545 SNIP 1.141 CiteScore 3.54
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.74 SNIP 1.147 CiteScore 3.94
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.945 SNIP 1.142 CiteScore 4.15
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.369 SNIP 1.23 CiteScore 4.58
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.631 SNIP 1.161
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.473 SNIP 0.985
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.323 SNIP 0.96
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.289 SNIP 0.525
Web of Science (2007): Indexed yes
Original language: English
Electronic versions: journal.pone.0051541.pdf
DOI:
10.1371/journal.pone.0051541

Relations
Projects:
Migration and fisheries of North East Atlantic mackerel (Scomber scombrus) in autumn and winter
Publication: Research - peer-review › Journal article – Annual report year: 2012

North Sea mackerel or mackerel in the North (Sea)?

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ocean Ecology and Climate, Section for Population Ecology and Genetics
Authors: Jansen, T. (Intern), Gislason, H. (Intern)
Number of pages: 129
Publication date: 2012
Temperature affects the timing of spawning and migration of North Sea mackerel

Climate change accentuates the need for knowing how temperature impacts the life history and productivity of economically and ecologically important species of fish. We examine the influence of temperature on the timing of the spawning and migrations of North Sea Mackerel using data from larvae CPR surveys, egg surveys and commercial landings from Danish coastal fisheries in the North Sea, Skagerrak, Kattegat and inner Danish waters. The three independent sources of data all show that there is a significant relationship between the timing of spawning and sea surface temperature. Large mackerel are shown to arrive at the feeding areas before and leave later than small mackerel and the sequential appearance of mackerel in each of the feeding areas studied supports the anecdotal evidence for an eastward post-spawning migration. Occasional commercial catches taken in winter in the Sound N, Kattegat and Skagerrak together with catches in the first quarter IBTS survey furthermore indicate some overwintering here. Significant relationships between temperature and North Sea mackerel spawning and migration have not been documented before. The results have implications for mackerel resource management and monitoring. An increase in temperature is likely to affect the timing and magnitude of the growth, recruitment and migration of North Sea mackerel with subsequent impacts on its sustainable exploitation.
LF's fangster gennem 94 år i Esrum Sø bruges i videnskabelig undersøgelse

General information
State: Published
Organisations: Section for Ocean Ecology and Climate, National Institute of Aquatic Resources
Authors: Jansen, T. (Intern)
Number of pages: 568
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: Lystfiskeritidende
Volume: 122
Issue number: 1194
ISSN (Print): 0904-5414
Original language: Danish
Source: orbit
Source-ID: 269464
Publication: Research › Journal article – Annual report year: 2010

Lystfiskeri og fiskebestande i Esrum Sø gennem 94 år

General information
State: Published
Organisations: Section for Ocean Ecology and Climate, National Institute of Aquatic Resources
Authors: Jansen, T. (Intern)
Number of pages: 568
Pages: 146-153
Publication date: 2010
Definition of standard data exchange format for samplings, landings and effort data from commercial fisheries

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Authors: Jansen, T. (Intern), Degel, H. (Intern), Vigneau, J. (Ekstern), Jardim, E. (Ekstern)
Number of pages: 44
Publication date: 2009

Publication information
Publisher: International Council for the Exploration of the Sea
Original language: English
Series: ICES Cooperative Research Report
Number: 296
Main Research Area: Technical/natural sciences
Links:
http://www.ices.dk/pubs/crr/crr296/CRR%20296.pdf
Source: orbit
Source-ID: 238537
Publication: Research › Report – Annual report year: 2009

IBTS bottom trawl survey CPUE index for sprat (Sprattus sprattus) abundance estimation evaluated by simultaneous acoustic observations

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources
Authors: Jansen, T. (Intern), Verin, Y. (Ekstern), Payne, M. (Ekstern)
Publication date: 2009

Host publication information
Title of host publication: ICES CM : ACOM:WKSHORT
Publisher: International Council for the Exploration of the Sea
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 249915
Publication: Research › Article in proceedings – Annual report year: 2009

Northeast Atlantic mackerel - Quality handbook for assessment

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources
Authors: Jansen, T. (Intern), Brunel, T. (Ekstern), Campbell, A. (Ekstern), Main, C. (Ekstern), Readdy, L. (Ekstern), Nøttestad, L. (Ekstern)
Pages: 1-21
Publication date: 2009

Host publication information
Title of host publication: ICES CM
Volume: ACOM:12, Stock Annex A
Publisher: International Council for the Exploration of the Sea
Report from the international meeting on mackerel distribution and migration in the northeast Atlantic, Bergen 31 March – 2 April 2009

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources
Publication date: 2009

FishFrame 5.0: A web based datawarehouse application for management, access and integration of fisheries and stock assessment data

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

IBTS Q1 Sprat (Sprattus sprattus) index calculation algorithm. Implementation in R and comparison with the index used in assessment

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Fisheries Advice
Authors: Jansen, T. (Intern), Payne, M. (Intern)
Publication date: 2008
FishFrame: Fisheries and stock assessment data framework
Many research and advisory tasks need quality assured data on a disaggregated level to make the re-stratification needed to answer a specific question. It is a slow process to gather international datasets for these analyses, because the raw data are spread between labs. Even when gathering data for fixed reoccurring tasks like assessment working groups, data are often late and the quality can be unsatisfactory. The current situation of this "semi-manual distributed datawarehouse" can be improved technically. Methods for quality control, raising and calculation can be discussed and unified. Development and test of software modules can be done once and reused by all. The biggest challenge in this is not technical – it is in organisation, coordination and trust. This challenge has been addressed by FishFrame - a web-based datawarehouse application. The "bottom-up" approach with maximum involvement of end users from as many labs and user groups as possible has been rather slow but quite successful in building international trust and cooperation around the system. This is mandatory prerequisites when our primary goal is not the programming project itself, but the creation of a tool that adds real value to users and in the end improves the way we work with our data. FishFrame version 4.2 is presented and the lessons learned from the process are discussed.
InterCatch - a tool for fish stock assessment, status and methods

InterCatch is a web-based system for handling fish stock assessment data focusing on documenting characteristics of the catches. These national fish stock data are uploaded to InterCatch by national data submitters. After all data are uploaded the stock coordinators (working for the fish stock assessment group) can then check and set up allocation schemes for unsampled catches. After applying the best allocation scheme to the unsampled catches, the catch data are aggregated as required and exported for analysis, e.g. XSA or ICA.

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Software and GIS development, Secretariat for Management and Communication
Authors: Kjems-Nielsen, H. (Ekstern), Larsen, L. I. (Ekstern), Zarecki, M. (Ekstern), Jansen, T. (Intern), Cowan, B. J. (Intern), Sandbeck, P. (Intern), Dueholm, M. (Intern), Skov, O. (Intern)
Pages: 1-9
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES Council Meeting
Volume: M:29
ISSN (Print): 1015-4744
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Web of Science (2003): Indexed yes
Original language: English
Links:
http://www.ices.dk/products/CMdocs/2006/M/M2906.pdf
Source: orbit
Source-ID: 226231
Publication: Research › Conference article – Annual report year: 2006

Akustik til bestemmelse af bestandstørrelse af sild

General information
State: Published
Organisations: Section for Fisheries- and Monitoring Technology, National Institute of Aquatic Resources, Section for Population- and Ecosystem Dynamics
Authors: Lundgren, B. (Intern), Jansen, T. (Intern)
Publication date: 2005
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 238572
Publication: Research › Poster – Annual report year: 2005

FishFrame Baltic Sea.: Status and documentation of web application, tests and calculations

General information
State: Published
Organisations: Section for Ocean Ecology and Climate, National Institute of Aquatic Resources, Section for Public Sector Consultancy
InterCatch – New fisheries and stock assessment data processing and documentation system

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Software and GIS development, Secretariat for Management and Communication
Authors: Jansen, T. (Intern), Larsen, L. (Ekstern), Cowan, B. J. (Intern), Kjems-Nielsen, H. (Ekstern), Sandbeck, P. (Intern), Dueholm, M. (Intern), Skov, O. (Intern), Silberg, S. (Intern), Gillin, J. (Ekstern)
Pages: P:14
Publication date: 2005
Main Research Area: Technical/natural sciences

BaltCom Datawarehouse: Online data mining using MS Analysis Services

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Software and GIS development
Authors: Jansen, T. (Intern), Degel, H. (Intern), Heilmann, J. (Intern)
Pages: 153-162
Publication date: 2004
Main Research Area: Technical/natural sciences
FishFrame - Fisheries Stock Assessment Framework. Description of web application, calculations and use.

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Monitoring
Authors: Jansen, T. (Intern), Degel, H. (Intern)
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES CM 2004/
Volume: ACFM:22
Issue number: WD3
Original language: English
Source: orbit
Source-ID: 231436

Use of XML technology in the Baltic Sea fisheries database

General information
State: Published
Organisations: Secretariat for Management and Communication, National Institute of Aquatic Resources, Section for Software and GIS development, Section for Population- and Ecosystem Dynamics
Authors: Sandbeck, P. (Intern), Cowan, B. J. (Intern), Jansen, T. (Intern)
Pages: 187-193
Publication date: 2004

Host publication information
Title of host publication: IOC Workshop Report : VLIZ Special Publication
Volume: 188
Publisher: UNESCO
Main Research Area: Technical/natural sciences
Conference: IOC Workshop, 01/01/2009
Source: orbit
Source-ID: 250458

BaltCom - Baltic Sea Commercial Catch Database: Description of web application, calculation and use

General information
State: Published
Organisations: Section for Monitoring, National Institute of Aquatic Resources, Section for Population- and Ecosystem Dynamics
Authors: Degel, H. (Intern), Jansen, T. (Intern)
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: ICES CM 2003/
Volume: ACFM:21
Issue number: WD4
Original language: English
Source: orbit
Source-ID: 231453
Anamixidae (Amphipoda: Crustacea) from the Andaman Sea, north-eastern Indian ocean

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Coastal Ecology
Authors: Jansen, T. (Intern), Dinesen, G. E. (Intern)
Pages: 265-272
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: Phuket Marine Biological Center. Special Publications
Volume: 23
Issue number: 1
ISSN (Print): 0858-3633
Ratings:
Web of Science (2018): Indexed yes
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: English
Source: orbit
Source-ID: 231439
Publication: Research - peer-review › Journal article – Annual report year: 2002

A taxonomic revision of Westwoodilla Bate, 1862 (Amphipoda: Crustacea) including descriptions of 2 new species

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources
Authors: Jansen, T. (Intern)
Pages: 83-136
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: Steenstrupia
Volume: 27
Issue number: 1
ISSN (Print): 0375-2909
Ratings:
Web of Science (2018): Indexed yes
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
BFI (2009): BFI-level 1
BFI (2008): BFI-level 1
Web of Science (2002): Indexed yes
Original language: English
Source: orbit
Source-ID: 231440
Publication: Research › Journal article – Annual report year: 2001

Changes through time in macrofaunal composition on the Dogger Bank in the North Sea

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Management Systems
Equipment for the sampling of benthic macrofauna: A comparison between a 2m beamtrawl and a 0.1 m² van Veen grab

General information
State: Published
Organisations: Section for Population- and Ecosystem Dynamics, National Institute of Aquatic Resources, Section for Management Systems
Authors: Jansen, T. (Intern), Jarre, A. (Intern)
Publication date: 1998

Projects:

Capelin Migration and Stock Structure using Otolith Microchemistry
National Institute of Aquatic Resources
Period: 01/06/2017 → 31/05/2020
Number of participants: 3
Phd Student:
Fink-Jensen, Peter (Intern)
Supervisor:
Jansen, Teunis (Intern)
Main Supervisor:
Hüssy, Karin (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Blue whiting (Micromesistius poutassou): behaviour and distribution in Greenland waters
National Institute of Aquatic Resources
Period: 01/03/2016 → 28/02/2020
Number of participants: 4
Phd Student:
Post, Søren Lorenzen (Intern)
Supervisor:
Balk, Helge (Ekstern)
Hedeholm, Rasmus Berg (Ekstern)
Main Supervisor:
Jansen, Teunis (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Industrial PhD
Project: PhD

Assessment of a mixed hake stocks off Namibia
National Institute of Aquatic Resources
Period: 15/12/2012 → 26/09/2017
Number of participants: 8
Phd Student:
Kathena, Johannes N. (Intern)
Supervisor:
Hamukuaya, Hashali (Ekstern)
Jansen, Teunis (Intern)
Nielsen, Anders (Intern)
Main Supervisor:
Thygesen, Uffe Høgsbro (Intern)
Examiner:
Nielsen, J. Rasmus (Intern)
De Oliveira, José (Ekstern)
Kolding, Jeppe (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Ansat eksternt
Project: PhD

North Sea Mackerel or Mackerel in the North (Sea)?
National Institute of Aquatic Resources
Period: 01/08/2012 → 21/11/2012
Number of participants: 5
Phd Student:
Jansen, Teunis (Intern)
Main Supervisor:
Gislason, Henrik (Intern)
Examiner:
MacKenzie, Brian (Intern)
Sparholt, Henrik (Ekstern)
Villamor, Begoña (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: §15 Re-enrolment
Project: PhD

Development of ecological sustainable fisheries practices in the Benguela Current Large Marine Ecosystem (EcoFish) (38847)
EcoFish promotes the ecosystem approach to fisheries (EAF) and is conducted in the Benguela Current Large Marine Ecosystem (BCLME), encompassing fish stocks from Angola, Namibia and South Africa.

The objectives are:
1. Adaptation of state-of-art assessments methods and Marine Protected Areas (MPA) planning tools
2. Validation or modification of current assessment practices based on spatially explicit analyses
3. Incorporation of stakeholders' knowledge in data collection and analysis
4. Strengthening of regional capacity to apply the developed assessment tools on a regular basis.
The project represents a paradigm shift compared to DTU Aqua 20 years of FAO/Danida courses in the 80’s and 90’s, where fish stock assessment was taught in 85 countries by using comparative simple techniques. In contrast EcoFish applies advanced stock assessment methodology based on open access, web-based state space (SAM) and geostatistical (GeoPop) tools. Thus the capacity building involved also includes a focus on DTU Aqua because of similar ongoing challenges in the Nordic seas, and two DTU Aqua PhD projects are integrated in EcoFish.

Focus in Ecofish is on hake, horse mackerel and sardinella, coordination to important donor projects in the area such as the Norwegian climate project NansClim and EAF-Nansen is ensured through the leadership of Benguela Current Commission. There are potential synergies to several EU projects (FP6 IMAGE, FP7 MEECE and FP7 FACTS) as well as national projects such as Sunfish (Description of the life cycle and recruitment of cod) and REX/RESOURCE (fishermen-science collaboration on cod in the North Sea). The potential database for BCLME is unique and EcoFish offers the possibility for developing a master example to be used as a generic tool in African Large Marine Ecosystems as well as the large lakes.

The project is coordinated by Benguela Current Commission, Namibia.

The project is funded by EuropeAid.

National Institute of Aquatic Resources
Section for Marine Living Resources
Benguela Current Commission
Institute National Investigacao Pescas
National Marine Information and Research Centre
Marine and Coastal Management
University of Cape Town
University of Stellenbosch

Period: 01/01/2011 → 31/12/2015
Number of participants: 4
Research areas: Marine Living Resources & Marine Population and Ecosystem Dynamics

Project participant:
Wieland, Kai (Intern)
Jansen, Teunis (Intern)
Project Manager, organisational:
Köster, Fritz (Intern)
Project Manager, academic:
Beyer, Jan (Intern)

Activities:

ICES - Ad Hoc Group on the Distribution and Migration of Northeast Atlantic Mackerel - AGDMM2 (External organisation)
Period: 2012 → …
Teunis Jansen (Participant)

National Institute of Aquatic Resources
Section for Ocean Ecology and Climate
Degree of recognition: International

Related external organisation

ICES - Ad Hoc Group on the Distribution and Migration of Northeast Atlantic Mackerel - AGDMM2
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Widely Distributed Stocks - WGWIDE (External organisation)
Period: 2012 → …
Teunis Jansen (Participant)

National Institute of Aquatic Resources
Section for Ocean Ecology and Climate
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