Individual transferable quotas, does one size fit all?: Sustainability analysis of an alternative model for quota allocation in a small-scale coastal fishery

The introduction of vessel-based Individual Transferable Quotas (ITQs) in Danish demersal fisheries in 2007 caused significant structural changes in the fleet, towards fewer and larger vessels deploying otter trawls. Mainly smaller coastal vessels deploying Danish seines and gillnets reduced in numbers. The ecosystem effects of this structural change were investigated by comparing the sustainability of a local, small-scale, coastal fishery (Thorupstrand) using Danish seines and gillnets with that of demersal trawling by larger vessels using the same fishing grounds. The fisheries were compared using six ecological and socio-economic indicators: 1), discards (food web), 2), by-catch incidences (food web/biodiversity), 3), seabed impacts, 4), fuel use efficiency, 5), quality of fish landed (food provision), and 6), social and cultural gains and drawbacks (social and cultural features). Except for by-catch of vulnerable species, the fisheries using Danish seines and gillnets scored better in all indicators when compared to otter trawls. Additional commercial and cultural benefits of establishing a local fishery guild with share-owned quotas and land-based facilities were investigated. The results and lessons learned are discussed in the context of an ecosystem approach to fisheries management and the current reform of the common fisheries policy of the European Union.
Identification of high-risk areas for harbour porpoise Phocoena phocoena bycatch using remote electronic monitoring and satellite telemetry data

The bycatch of harbour porpoise Phocoena phocoena is an issue of major concern for fisheries management and for porpoise conservation. We used high-resolution spatial and temporal data on porpoise abundance and fishing effort from the Danish Skagerrak Sea to identify areas with potentially higher and lower risk of porpoise bycatch. From May 2010 to April 2011, 4 commercial gillnet vessels were equipped with remote electronic monitoring (REM) systems. The REM system recorded time, GPS position and closed-circuit television (CCTV) footage of all gillnet hauls. REM data were used to identify fishing grounds, quantify fishing effort and document harbour porpoise bycatch. Movement data from 66 harbour porpoises equipped with satellite transmitters from 1997 to 2012 were used to model population density. A simple model was constructed to investigate the relationship between the response (number of individuals caught) and porpoise density and fishing effort described by net soak time, net string length and target species. Results showed that a model including both porpoise density and fishing effort data predicted bycatch better than models containing only one factor. We therefore conclude that porpoise telemetry or REM data allow for identification of areas of potential high and low bycatch risk, and better predictions are obtained when combining the 2 sources of data. The final model can thus be used as a tool to identify areas of bycatch risk.

General information

State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Marine Living Resources, Section for Monitoring and Data, Aarhus University, University of St Andrews
Authors: Kindt-Larsen, L. (Intern), Berg, C. W. (Intern), Tougaard, J. (Ekstern), Sørensen, T. K. (Intern), Geitner, K. (Intern), Northridge, S. (Ekstern), Sveegaard, S. (Ekstern), Larsen, F. (Intern)
Management of fisheries in harbour porpoise (Phocoena phocoena) marine protected areas

The harbour porpoise (Phocoena phocoena) is the focus of a range of conservation efforts and policies aiming at reducing bycatch of the species in gillnet fisheries. In European waters, the harbour porpoise is protected within the Habitats Directive (Annexes II and IV), implying that the population has to be maintained at a favourable conservation status and the deliberate actions of killing and disturbance and habitat deterioration shall be prohibited in accordance with the directive’s aims. A spatial network, Natura2000, will further protect all Annex II species. According to Natura2000, Member States are obliged to nominate candidate protected areas in their waters to the EU Commission and within six years establish legislation to implement them as special areas of conservation and prepare management plans. Up to this point in time, however, no such management plans exist. This Ph.D. thesis focuses on research methods and management tools, which can contribute to a better scientific understanding in the preparation of fisheries management plans for Natura2000 sites designated for harbour porpoises. Firstly, it investigates the potential use of CCTV cameras to document bycatch of marine mammals. Here it is shown that Remote Electronic Monitoring (REM) systems installed on commercial fishing vessels can provide video footage, time and position of all net hauls and record bycatches of marine mammals. Comparisons between the visual analysis of the REM data and fishers logbooks showed that the REM system gave more reliable results since fishers did not, in many instances, observe the bycatch while working on the deck because it dropped out of the net before coming on board. Furthermore, REM provided high percentage coverage at low cost, compared to on-board observers. Secondly, the suitability of using high-resolution spatial and temporal data on porpoise density and
fishing effort data from the Danish Skagerrak Sea as a method to predict harbour porpoise bycatches was examined. The results showed that a simple relation between the two could predict bycatch and that the final model can thus be used as a tool to identify areas of porpoise bycatch risk and thereby support the management of both fisheries and harbour porpoises in accordance with the Habitats Directive. Thirdly, the behaviour of porpoises in relation to two different pinger types with different acoustic properties was studied at three different locations. The results showed that at one location, the AQUAmark100 pinger had a significant effect on porpoise echolocation behaviour at 0 and 200 m distances, whereas another trial showed a significant reduction in such behaviour for up to 400 m. In none of the studies of the AQUA100 did the behaviour reveal any signs of habituation. Studies of the AQUAmark300, however, revealed clear habituation effects. Fourthly and finally, the thesis describes the governance process and analyses its mechanisms and conflicts surrounding ongoing fisheries management planning with a focus on two Natura2000 sites in the Danish part of the Skagerrak Sea designated to protect harbour porpoises.

**General information**

State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Marine Living Resources, University of St Andrews
Authors: Kindt-Larsen, L. (Intern), Larsen, F. (Intern), Stage, B. (Intern), Northridge, S. (Ekstern)
Number of pages: 115
Publication date: 2015

**Publication Information**

Place of publication: Charlottenlund
Publisher: National Institute of Aquatic Resources, Technical University of Denmark
Original language: English
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**Pilot project for the preparation of MSC certification of the gillnet fishery in the Baltic Sea**

**General information**

State: Published
Organisations: National Institute of Aquatic Resources, Section for Monitoring and Data, Section for Ecosystem based Marine Management, Danish Fishermen's Producers' Organization
Authors: Olesen, H. J. (Intern), Larsen, F. (Intern), Kindt-Larsen, L. (Intern), Jacobsen, J. B. (Ekstern)
Number of pages: 26
Publication date: 2015

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Place of publication: Copenhagen
Publisher: Ministry of Food, Agriculture and Fisheries
Original language: English
Main Research Area: Technical/natural sciences
Publication: Commissioned › Report – Annual report year: 2015

**Acoustic alarms reduce bycatch of harbour porpoises in Danish North Sea gillnet fisheries**

A double-blind experiment in the Danish gillnet fishery for cod (Gadus morhua) demonstrated that pingers can substantially reduce bycatch of harbour porpoises (Phocoena phocoena). Fourteen vessels fished a total of 168 days in the North Sea in 1997. In the wreck fishery the total effort was 1052 nets with active pingers, 1056 nets with dummy pingers and 74 nets without pingers. Eight porpoises were caught, all in nets with dummy pingers. In the flat bottom/stony ground fishery the total effort was 5596 nets with active pingers, 5210 nets with dummy pingers and 2973 nets without pingers. Sixteen porpoises were caught, including 1 animal in a net with active pingers, 6 in nets with dummy pingers and 9 in nets without pingers. The difference in bycatch between nets with active pingers and nets with inactive or no pingers was highly significant (p < 0.007) for both the wreck fishery and the flat bottom/stony ground fishery. We conclude that the direct effects of the pinger signals on the porpoises caused the reduction in bycatch, which means that the results can be generalized to other situations where harbour porpoises are taken in gillnets. Generalized linear modelling demonstrated that cod cpue was not affected negatively by pingers. It was furthermore estimated that the stony ground fishery had significantly lower (p < 0.001) cpue values (a factor 0.47) compared to the wreck fishery. The results of this experiment led to the introduction of pingers in Danish gillnet fisheries in 2001 and were also part of the basis for EU Council Regulation 812/2004 introducing EU-wide use of pingers.

**General information**

State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Digitale billeder skal dokumentere sælskader

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Larsen, F. (Intern)
Pages: 13
Publication date: 2014

Publication information
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Newspaper: Fiskeritidende
Volume: 21
No.: 49
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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: 2014

Fiskeriforvaltning i Natura 2000 områder

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Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Section for Monitoring and Data, Research Secretariat, Section for Marine Living Resources
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Publication information
Original language: Danish
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Miljøskånsomhed og økologisk bæredygtighed i dansk fiskeri

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management, Public Sector Consultancy, Section for Monitoring and Data, Section for Freshwater Fisheries Ecology
Number of pages: 83
Determining optimal pinger spacing for harbour porpoise bycatch mitigation

A trial was conducted in the Danish North Sea hake gillnet fishery in July to September 2006 to determine whether the spacing of the Aquatec AQUAmark100 pinger could be increased without reducing the effectiveness of the pinger in mitigating harbour porpoise bycatch. The trial was designed as a controlled experiment where nets without pingers formed the control group (41 hauls) and nets with pingers spaced at 455 m (24 hauls) and 585 m (43 hauls), respectively, formed the 2 experimental groups. Nets without pingers had a bycatch frequency of 0.54 incidents per haul, nets with pingers spaced at 585 m had a bycatch frequency of 0.12 incidents per haul, and nets with pingers spaced at 455 m had a bycatch frequency of 0. The bycatch frequencies for the 2 experimental groups were both significantly different from the bycatch frequencies of the control group (p < 0.0001). These results show that the spacing of the Aquatec AQUAmark100 pinger can be increased without reducing the effectiveness of the pinger in mitigating harbour porpoise bycatch, thereby reducing some of the disadvantages of widespread pinger deployment. The results also stress the importance of basing implementation regulation on solid evidence and led the Danish Fisheries Directorate in 2007 to allow the use of the AQUAmark100 pinger with a spacing of up to 455 m under derogation to the European Union’s Council Regulation No. 812/2004.
No apparent population genetic structure of the North Atlantic blue whale (Balaenoptera musculus musculus)

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Ecosystem based Marine Management
Authors: Oosting, T. (Ekstern), Berube, M. (Ekstern), Sears, R. (Ekstern), Ramp, C. (Ekstern), Vikingsson, G. (Ekstern), Larsen, F. (Intern), Tison, J. (Ekstern), Palsboll, P. (Ekstern)
Publication date: 2013
Main Research Area: Technical/natural sciences
Publication: Research › Poster – Annual report year: 2013

Biologisk forstyrrelse: Selektiv udtagnning af arter, herunder tilfældige fangster af ikke-målarter (f.eks. ved erhvervs- og fritidsfiskeri): Fagligt baggrundsnotat til den danske implementering af EU’s Havstrategidirektiv

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

Fully Documented Fishery onboard gillnet vessels >15 m

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Coastal Ecology, Section for Population Ecology and Genetics, Section for Public Sector Consultancy
Authors: Kindt-Larsen, L. (Intern), Larsen, F. (Intern), Stage, B. (Intern), Dalskov, J. (Intern)
Number of pages: 27
Publication date: 2012

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Place of publication: Charlottenlund
Publisher: DTU Aqua. Institut for Akvatiske Ressourcer
Original language: English
Applicant: Ministeriet for Fødevarer, Landbrug og Fiskeri
Main Research Area: Technical/natural sciences
Electronic versions: REM_on_gillnet_vessels.pdf
Links: http://www.fvm.dk/Admin/.../DWSDownload.aspx?
Observing incidental harbour porpoise Phocoena phocoena bycatch by remote electronic monitoring

Quantification of marine mammal bycatch is important in relation to conservation and management of protected species. Hitherto, using onboard observers has been the most reliable and accurate method but observer programs can be prohibitively expensive. To investigate the potential of CCTV cameras to document bycatch of marine mammals, 6 Danish commercial gillnetters (10 to 15 m in length) operating under the Danish catch quota management system were equipped with Remote Electronic Monitoring (REM) systems. The REM systems provided video footage, time and position of all net hauls and bycatches of marine mammals. Comparisons between REM results and fishers logbooks showed that the REM system gave more reliable results, since fishers in many cases did not observe the bycatch while working on the deck because the bycatch dropped out of the net before coming on board. Furthermore, very high coverage percentages at low cost, compared to onboard observers, could be obtained with REM. Alternative means of conducting the video analysis were tested; they were however, found not to be very efficient.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Coastal Ecology, Section for Public Sector Consultancy, Section for Population Ecology and Genetics
Authors: Kindt-Larsen, L. (Intern), Dalskov, J. (Intern), Stage, B. (Intern), Larsen, F. (Intern)
Pages: 75-83
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Main Research Area: Technical/natural sciences
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Journal: Endangered Species Research
Volume: 19
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Web of Science (2018): Indexed yes
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 1.95 SJR 0.78 SNIP 0.771
Web of Science (2016): Indexed yes
Scopus rating (2015): SJR 0.873 SNIP 0.829 CiteScore 1.83
Web of Science (2015): Indexed yes
Scopus rating (2014): SJR 1.157 SNIP 1.307 CiteScore 2.24
Scopus rating (2013): SJR 1.339 SNIP 1.169 CiteScore 2.49
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
Evaluering af marsvins adfærd og habituering i forhold til redskabsselektion med akustiske alarmer

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Coastal Ecology, Fjord & Bælt
Authors: Kindt-Larsen, L. (Intern), Wahlberg, M. (Ekstern), Larsen, F. (Intern)
Number of pages: 24
Publication date: 2011

Publication information
Place of publication: København
Publisher: Ministeriet for Fødevarer, Landbrug og Fiskeri
Original language: Danish
Main Research Area: Technical/natural sciences
Publication: Research › Report – Annual report year: 2012

Konsekvensvurdering af fiskeri af østers i Nissum Bredning 2011/2012

General information
State: Published
Organisations: Section for Coastal Ecology, National Institute of Aquatic Resources
Authors: Dolmer, P. (Intern), Poulsen, L. K. (Intern), Christoffersen, M. O. (Intern), Geitner, K. (Intern), Larsen, F. (Intern)
Number of pages: 78
Publication date: 2011

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Place of publication: Charlottenlund
Publisher: DTU Aqua, Institut for Akvatiske Ressourcer
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Original language: Danish
Series: DTU Aqua-rapport
Number: 245-2011
ISSN: 1395-8216
Main Research Area: Technical/natural sciences
Electronic versions:
Publication: Commissioned › Report – Annual report year: 2012

Konsekvensvurdering af fiskeri på blåmuslinger i Løgstør Bredning 2011/2012

General information
State: Published
Organisations: Section for Coastal Ecology, National Institute of Aquatic Resources
Authors: Dolmer, P. (Intern), Christoffersen, M. O. (Intern), Poulsen, L. K. (Intern), Geitner, K. (Intern), Aabrink, M. (Intern), Larsen, F. (Intern), Kristensen, P. S. (Intern), Holm, N. (Intern)
Possible cryptic stock structure for minke whales in the North Atlantic; Implications for conservation and management

General information
State: Published
Organisations: National Institute of Aquatic Resources, Durham University, Icelandic Food Research, Institute of Marine Research, Fisheries and Oceans Canada, SAC Veterinary Services, Marine Research Institute
Authors: Anderwald, P. (Ekstern), Daníelsdóttir, A. K. (Ekstern), Haug, T. (Ekstern), Larsen, F. (Intern), Lesage, V. (Ekstern), Reid, R. J. (Ekstern), Vikingsson, G. A. (Ekstern), Hoelzel, A. R. (Ekstern)
Pages: 2479-2489
Publication date: 2011
Main Research Area: Technical/natural sciences

Publication information
Journal: Biological Conservation
Issue number: 144
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BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): SJR 2.322 SNIP 1.684 CiteScore 4.22
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 2.567 SNIP 1.834 CiteScore 4.24
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 2.517 SNIP 1.903 CiteScore 4.1
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 2.624 SNIP 2.008 CiteScore 4.55
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 2.554 SNIP 1.973 CiteScore 4.14
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 2.798 SNIP 2.002 CiteScore 4.3
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.181 SNIP 1.832
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 2.398 SNIP 1.878
Stress level in wild harbour porpoises (Phocoena phocoena) during satellite tagging measured by respiration, heart rate and cortisol

During satellite tagging of harbour porpoises (Phocoena phocoena), heart rate, respiration rate and cortisol value were measured to evaluate stress effects during handling and tagging. Respiration rates were obtained using video recordings, heart rates were recorded and serum cortisol levels were analysed from blood samples. Differences in heart rates, respiration rates and cortisol levels before and during the tagging events were investigated. An overall significant decrease of 31.5% in respiration rate was found during the tagging event period, while mature porpoises respired significantly more often than immature individuals. Though significant differences in heart rates were found for some individuals, no general significant change for all animals was detected. We found no correlation between cortisol concentration and either heart rate or respiration rate, nor did we find any relationships between cortisol and month of year, sex and body length. As high individual variations occurred in response to tagging of harbour porpoises, it is not possible to give general advice based on the factors investigated, on how to reduce stress during handling. However, pouring water over the animal and lowering it into the water seem to stabilize a stressed animal. Therefore, general precaution and individual judgement based on experience is essential when handling wild harbour porpoises.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Management Systems
Authors: Eskesen, I. G. (Intern), Teilmann, J. (Ekstern), Geertsen, B. M. (Ekstern), Desportes, G. (Ekstern), Riget, F. (Ekstern), Dietz, R. (Ekstern), Larsen, F. (Intern), Siebert, U. (Ekstern)
Pages: 885-892
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Marine Biological Association of the United Kingdom. Journal
Volume: 89
Issue number: 5
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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): SJR 0.382 SNIP 0.546 CiteScore 0.8
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.532 SNIP 0.683 CiteScore 0.99
BFI (2014): BFI-level 1
Bifangst af hvaler i det danske pelagiske trawlfiskeri 2006-2008

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Public Sector Consultancy
Authors: Kindt-Larsen, L. (Intern), Larsen, F. (Intern), Dalskov, J. (Intern)
Number of pages: 12
Publication date: 2008

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Publisher: Ministeriet for Fødevarer, Landbrug og Fiskeri
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Main Research Area: Technical/natural sciences
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3704-3-06-0146_bifangstafhvaler.pdf
Links:

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DMU misinformer om marsvin

General information
State: Published
Organisations: Unknown
Authors: Larsen, F. (Intern)
Pages: 16
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Fiskeritidende
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Source: orbit
Source-ID: 226400
Publication: Research › Journal article – Annual report year: 2008

Stor usikkerhed om marsvinstælling

General information
State: Published
Organisations: Unknown
Authors: Larsen, F. (Intern)
Pages: 8
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Fiskeritidende
Issue number: 13
Original language: Danish
Source: orbit
Source-ID: 226409
Publication: Research › Journal article – Annual report year: 2008

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
Can alerting sounds reduce bycatch of harbour porpoises (Phocoena phocoena)?

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Kindt-Larsen, L. (Intern), Larsen, F. (Intern), Amundin, M. (Ekstern)
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: IWC/SC/
Volume: 59
Issue number: SM28
Original language: English
Source: orbit
Source-ID: 226183
Publication: Research › Conference article – Annual report year: 2007

Could genetic diversity in eastern North Pacific gray whales reflect global historic abundance?

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Palsbøll, P. (Ekstern), Bérubé, M. (Ekstern), Larsen, F. (Intern)
Pages: E2
Publication date: 2007
Main Research Area: Technical/natural sciences
Dive behaviour and habitat selection by harbour porpoises

**General information**
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Edrén, S. (Ekstern), Teilmann, J. (Ekstern), Dietz, R. (Ekstern), Larsen, F. (Intern), Desportes, G. (Ekstern)
Publication date: 2007

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Main Research Area: Technical/natural sciences
Source: orbit
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Publication: Research › Conference abstract in proceedings – Annual report year: 2007

Fishery trials with increased pinger spacing

**General information**
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Larsen, F. (Intern), Krog, C. (Ekstern)
Publication date: 2007

**Publication information**
Journal: IWC/SC/
Volume: 59
Issue number: SM2
Original language: English
Source: orbit
Source-ID: 226402
Publication: Research › Conference article – Annual report year: 2007

Pinger spacing - Widening the gap

**General information**
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Larsen, F. (Intern), Krog, C. (Ekstern)
Publication date: 2007

**Event**
Event: Poster session presented at Conference of the European Cetacean Society, San Sebastian, Spain, 23-25 April
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 237044
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Pinger spacing - Widening the gap

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Larsen, F. (Intern), Krog, C. (Ekstern)
Publication date: 2007
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 237045
Publication: Research › Poster – Annual report year: 2007

Radiation and speciation of pelagic organisms during periods of global warming: the case of the common minke whale, Balaenoptera acutorostrata

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Pastene, L. (Ekstern), Goto, M. (Ekstern), Kanda, N. (Ekstern), Zerbini, A. (Ekstern), Kerem, D. (Ekstern), Watanabe, K. (Ekstern), Bessho, Y. (Ekstern), Hasegawa, M. (Ekstern), Nielsen, R. (Ekstern), Larsen, F. (Intern), Palsbøll, P. (Ekstern)
Pages: 1481-1500
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Molecular Ecology
Volume: 16
Issue number: 7
ISSN (Print): 0962-1083
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 5.9 SJR 3.508 SNIP 1.651
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 3.862 SNIP 1.606 CiteScore 5.73
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 3.446 SNIP 1.602 CiteScore 5.43
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 3.13 SNIP 1.564 CiteScore 5.6
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 3.068 SNIP 1.705 CiteScore 5.36
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 3.469 SNIP 1.823 CiteScore 5.56
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Reduction of harbour porpoise (*Phocoena phocoena*) bycatch by iron-oxide gillnets

**General information**

State: Published  
Organisations: Section for Management Systems, National Institute of Aquatic Resources  
Authors: Larsen, F. (Intern), Eigaard, O. R. (Intern), Tougaard, J. (Ekstern)  
Pages: 270-278  
Publication date: 2007  
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Fisheries Research  
Volume: 85  
Issue number: 3  
ISSN (Print): 0165-7836  
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 2.21 SJR 1.12 SNIP 1.136  
Web of Science (2016): Indexed yes  
BFI (2015): BFI-level 1
Testing potential acoustic deterrent signals, AQ636 and DDD02F devices on bow riding dolphins

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Management Systems
Testing potential acoustic deterrent signals, AQ636 and DDD02F devices on bow riding dolphins

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Management Systems
Authors: Balle, J. D. (Intern), Larsen, F. (Intern), Canadas, A. (Ekstern), Sagaminaga, R. (Ekstern), Miller, L. (Ekstern)
Pages: 1-2
Publication date: 2007

Host publication information
Title of host publication: 14. danske havforskermøde, Syddansk Universitet, 23-25 januar
Main Research Area: Technical/natural sciences

Bibliographical note
Abstract
Source: orbit
Source-ID: 225171
Publication: Research › Conference abstract in proceedings – Annual report year: 2007

Time allocation and diving behaviour of harbour porpoises (Phocoena phocoena) in Danish and adjacent waters

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Tilmann, J. (Ekstern), Larsen, F. (Intern), Desportes, G. (Ekstern)
Pages: 201-210
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Cetacean Research and Management
Volume: 9
Issue number: 3
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
Population spatial structuring on the feeding grounds in North Atlantic humpback whales (Megaptera novaeangliae)

General information
State: Published
Organisations: Section for Coastal Ecology, National Institute of Aquatic Resources
Authors: Stevick, P. (Ekstern), Allen, J. (Ekstern), Clapham, P. (Ekstern), Katona, S. (Ekstern), Larsen, F. (Intern), Lien, J. (Ekstern), Mattila, D. (Ekstern), Palsboll, P. (Ekstern), Sears, R. (Ekstern), Sigurjónsson, J. (Ekstern), Smith, T. (Ekstern), Vikingsson, G. (Ekstern), Oien, N. (Ekstern), Hammond, P. (Ekstern)
Pages: 244-255
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Zoology
Volume: 270
Issue number: 2
ISSN (Print): 0952-8369
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 2.09 SJR 1.085 SNIP 1.106
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.008 SNIP 1.053 CiteScore 1.94
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.073 SNIP 1.038 CiteScore 1.96
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.058 SNIP 1.035 CiteScore 2.07
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.108 SNIP 1.307 CiteScore 2.16
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.037 SNIP 1.115 CiteScore 1.92
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.95 SNIP 1.002
BFI (2009): BFI-level 1
Mitigation of seal damages by improved fishing technology and by alternative fishing strategies

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Suuronen, P. (Ekstern), Siira, A. (Ekstern), Ikonen, E. (Ekstern), Riikonen, R. (Ekstern), Kauppinen, T. (Ekstern), Aho, T. (Ekstern), Lunneryd, S. (Ekstern), Hemmingson, M. (Ekstern), Königson, S. (Ekstern), Fjälling, A. (Ekstern), Westerberg, H. (Ekstern), Larsen, F. (Intern)
Number of pages: 38
Publication date: 2005

Publication information
Place of publication: Copenhagen
Publisher: Nordic Council of Ministers
Original language: English
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 227581
Publication: Research → Report – Annual report year: 2005

A note on improving the mechanism of pinger attachment for the danish North Sea gillnet fishery

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Larsen, F. (Intern)
Pages: 147-150
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Cetacean Research and Management
Volume: 6
Issue number: 2
ISSN (Print): 1561-0713
Ratings:
Distribution and abundance of West Greenland humpback whales (Megaptera novaeangliae)

Photo-identification surveys of humpback whales Megaptera novaeangliae were conducted at West Greenland during 1988-93, the last 2 years of which were part of the internationally coordinated humpback whale research programme YoNAH, with the primary aim of estimating abundance for the West Greenland feeding aggregation. The area studied stretched from the coast out to the offshore margin of the banks, determined approximately by the 200 to depth contours, between c. 61°70’N and c. 66°N. The surveys were conducted between early July and mid-August and 993 h were expended on searching effort. A total of 670 groups of humpback whales was encountered leading to the identification of 348 individual animals. Three areas of concentration were identified: an area off Nuuk; an area at c. 63°30’N and an area off Frederikshab. Sequential Petersen capture-recapture estimates of abundance were calculated for five pairs of years at 357 (1988-89), 355 (1989-90), 566 (1990-91), 376 (1991-92), and 348 (1992-93).

Excluding the anomalously high estimate in 1990-91, the simple mean is 359 (SE = 27.3, CV = 0.076) and the inverse CV squared weighted mean is 356 animals (SE = 24.9, CV = 0.070). These calculations lead us to conclude that between 1988 and 1993 there were 360 humpbacks (CV = 0.07) in the West Greenland feeding aggregation. Using the Cormack-Jolly-Seber model framework non-calf survival rate was estimated at 0.957 (SE = 0.028). Our data have low power (P <0.3) to detect a trend of 3.1%, assuming the probability of a type I error was 0.05.
Satellitsporing af marsvin i danske og tilstødende farvande

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Teilmann, J. (Ekstern), Dietz, R. (Ekstern), Larsen, F. (Intern), Desportes, G. (Ekstern), Geertsen, B. (Ekstern), Andersen, L. (Ekstern), Aastrup, P. (Ekstern), Rye Hansen, J. (Ekstern)
Number of pages: 85
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
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
Scopus rating (2006): SJR 1.371 SNIP 0.703
Scopus rating (2005): SJR 0.122 SNIP 0
Web of Science (2004): Indexed yes
Original language: English
Source: orbit
North Atlantic humpback whale abundance and rate of increase four decades after protection from whaling.

Humpback whales Megaptera novaeangliae in the North Atlantic Ocean were severely depleted by exploitation. With legal protection since 1955, substantial recovery is likely to have occurred, but information on abundance and rates of increase has been limited. We present an assessment of humpback whale abundance in the North Atlantic Ocean based upon capture-recapture estimates using naturally marked individuals. These data result from a long-term collaborative effort combining large-scale dedicated projects and incidental data collection, leading to extensive geographical coverage. The application of robust statistical techniques produces estimates of greater accuracy and precision than has previously been possible. Abundance estimates ranging from 5930 to 12 580 individuals, with coefficients of variation (CVs) from 0.07 to 0.39, were calculated for the West Indies breeding population using data from 1979 to 1993. The most precise estimate for the West Indies breeding population is 10 752 (CV=0.068) for 1992 and 1993. Due to application of new analytical methods, these estimates are larger and more precise than those previously published from similar time periods. The average rate of increase for the West Indies breeding population over a 14 yr period was estimated to be 0.031 (SE=0.005). The best available estimate for the entire North Atlantic population of humpback whales is 11 570 (95% CI 10 290 to 13 390) based upon samples from 1992 and 1993. However, this estimate may be biased downwards to an unknown extent due to heterogeneity in capture probabilities that do not influence the West Indies estimates.

General information
State: Published
Organisations: University of St Andrews, College of the Atlantic, National Oceanographic and Atmospheric Administration, Memorial University of Newfoundland, Center for Coastal Studies, University of Copenhagen, Marine Research Institute, Institute of Marine Research, Greenland Institute of Natural Resources
Authors: Stevick, P. T. (Ekstern), Allen, J. (Ekstern), Clapham, P. J. (Ekstern), Friday, N. (Ekstern), Katona, S. K. (Ekstern), Larsen, F. (Intern), Lien, J. (Ekstern), Mattila, D. K. (Ekstern), Palsbøll, P. J. (Ekstern), Sigurjonsson, J. (Ekstern), Smith, T. D. (Ekstern), Øien, N. (Ekstern), Hammond, P. S. (Ekstern)
Pages: 263-273
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Marine Ecology Progress Series
Volume: 258
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
Web of Science (2016): Indexed yes
Scopus rating (2016): CiteScore 2.4
Web of Science (2015): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.56
Web of Science (2014): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.75
Web of Science (2013): 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
Segregation of migration by feeding ground origin in North Atlantic humpback whales (Megaptera novaeangliae).

Results from a large-scale, capture-recapture study of humpback whales Megaptera novaeangliae in the North Atlantic show that migration timing is influenced by feeding ground origin. No significant differences were observed in the number of individuals from any feeding area that were re-sighted in the common breeding area in the West Indies. However, there was a relationship between the proportion (logit transformed) of West Indies sightings and longitude ($r^2=0.97$, $F_{1,3}=98.27$, $P=0.0022$) suggesting that individuals feeding farther to the east are less likely to winter in the West Indies. A relationship was also detected between sighting date in the West Indies and feeding area. Mean sighting dates in the West Indies for individuals identified in the Gulf of Maine and eastern Canada were significantly earlier than those for animals identified in Greenland, Iceland and Norway ($9.97$ days, $t_{179}=3.53$, $P=0.0054$). There was also evidence for sexual segregation in migration; males were seen earlier on the breeding ground than were females ($6.63$ days, $t_{105}=1.98$, $P=0.050$). This pattern was consistently observed for animals from all feeding areas; a combined model showed a significant effect for both sex ($F_1=5.942$, $P=0.017$) and feeding area ($F_3=4.756$, $P=0.0038$). The temporal difference in occupancy of the West Indies between individuals from different feeding areas, coupled with sexual differences in migratory patterns, presents the possibility that there are reduced mating opportunities between individuals from different high latitude areas.

General information
State: Published
Organisations: University of St Andrews, Allied Whale - College of the Atlantic, University of Copenhagen, National Oceanographic and Atmospheric Administration, Center for Coastal Studies, Institute of Marine Research, Marine Research Institute, Memorial University of Newfoundland, Greenland Institute of Natural Resources
Authors: Stevick, P. T. (Ekstern), Allen, J. (Ekstern), Berube, M. (Ekstern), Clapham, P. J. (Ekstern), Katona, S. K. (Ekstern), Larsen, F. (Intern), Mattila, D. K. (Ekstern), Palsbøll, P. J. (Ekstern), Robbins, J. (Ekstern), Sigurjónsson, J. (Ekstern), Smith, T. D. (Ekstern), Oien, N. (Ekstern), Hammond, P. S. (Ekstern)
Pages: 231-237
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Zoology (London)
Volume: 259
Issue number: 3
ISSN (Print): 0952-8369
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 2.09 SJR 1.085 SNIP 1.106
Effects of marine windfarms on the distribution of fish, shellfish and marine mammals in the Horns Rev area

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources, Section for Coastal Ecology
Authors: Hoffmann, E. (Intern), Astrup, J. (Intern), Larsen, F. (Intern), Munch-Petersen, S. (Intern), Støttrup, J. (Intern)
Number of pages: 45
Publication date: 2002

Publication information
Place of publication: Charlottenlund
Publisher: Danmarks Fiskeriundersøgelser
Original language: English
Series: DFU-rapport
Number: 117-02
Main Research Area: Technical/natural sciences
Long range movements of a blue whale (Balaenoptera musculus) between the Gulf of St. Lawrence and West Greenland

General information
State: Published
Organisations: National Institute of Aquatic Resources
Authors: Sears, R. (Ekstern), Larsen, F. (Intern)
Pages: 281-285
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: Marine Mammal Science
Volume: 18
Issue number: 1
ISSN (Print): 0824-0469
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 1.87 SJR 1.008 SNIP 0.978
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.055 SNIP 0.972 CiteScore 1.73
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.987 SNIP 1.093 CiteScore 1.83
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.193 SNIP 1.206 CiteScore 1.78
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.029 SNIP 1.106 CiteScore 1.9
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.891 SNIP 1.002 CiteScore 1.59
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.776 SNIP 0.876
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.94 SNIP 0.919
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.97 SNIP 1.084
Scopus rating (2007): SJR 1.025 SNIP 0.999
Scopus rating (2006): SJR 0.892 SNIP 1.104
Scopus rating (2005): SJR 0.799 SNIP 1.002
Scopus rating (2004): SJR 1.039 SNIP 1.32
Scopus rating (2003): SJR 0.888 SNIP 1.038
Reduction of harbour porpoise by-catch in the North Sea by high-density gillnets

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Larsen, F. (Intern), Eigaard, O. R. (Intern), Tougaard, J. (Ekstern)
Pages: 1-14
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/54/
Volume: SM30
Original language: English
Source: orbit
Source-ID: 226406
Publication: Research › Conference article – Annual report year: 2002

Udvalget om Miljøpåvirkninger og fiskeriressourcer: Delrapport vedr. topprædatorer

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Hoffmann, E. (Intern), Lockyer, C. (Ekstern), Larsen, F. (Intern), Jepsen, P. (Ekstern), Bregnballe, T. (Ekstern), Teilmann, J. (Ekstern), Scheel-Bech, L. (Ekstern), Kongsted, E. (Ekstern), Thøgersen, H. (Ekstern)
Number of pages: 53
Publication date: 2002

Publication information
Place of publication: Charlottenlund
Publisher: Danmarks Fiskeriundersøgelser
ISBN (Print): 87-90968-35-2
Original language: Danish
Series: DFU-rapport
Number: 113-02
Main Research Area: Technical/natural sciences
Electronic versions:
113-02_delrapport_om_topprædatorer.pdf
Links:
Source: orbit
Source-ID: 225779
Publication: Research › Report – 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
Publication information
Journal: IWC/SC/54/
Volume: SM31
Original language: English
Source: orbit
Source-ID: 227476
Publication: Research › Conference article – Annual report year: 2002

Marsvin kender ingen grænser

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Teilmann, J. (Ekstern), Teilmann, G. (Ekstern), Larsen, F. (Intern), Desportes, G. (Ekstern), Dietz, R. (Ekstern), Geertsen, B. (Ekstern)
Pages: 28-39
Publication date: 2001
Main Research Area: Technical/natural sciences
Publication information
Journal: Fisk og Hav
Issue number: 53
ISSN (Print): 0105-9211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Links:
Source: orbit
Source-ID: 227647
Publication: Research › Journal article – Annual report year: 2001

An ocean-basin-wide mark-recapture study of the North Atlantic humpback whale (Megaptera novaeangliae)

Although much is known about the humpback whale, Megaptera novaeangliae, regional studies have been unable to answer several questions that are central to the conservation and management of this endangered species. To resolve uncertainties about population size, as well as the spatial and genetic structure of the humpback whale population in the North Atlantic, we conducted a two-year ocean-basin-wide photographic and biopsy study in 1992-1993. Photographic and skin-biopsy sampling was conducted of animals in feeding and breeding areas throughout most of the range of this
species in the North Atlantic, from the West Indies breeding grounds through all known feeding areas as far north as arctic Norway. A standardized sampling protocol was designed to maximize sample sizes while attempting to ensure equal probability of sampling, so that estimates of abundance would be as accurate and as precise as possible. During 666 d at sea aboard 28 vessels, 4,207 tail fluke photographs and 2,326 skin biopsies were collected. Molecular analyses of all biopsies included determination of sex, genotype using six microsatellite loci, and mitochondrial control region sequence. The photographs and microsatellite loci were used to identify 2,998 and 2,015 individual whales, respectively. Previously published results from this study have addressed spatial distribution, migration, and genetic relationships. Here, we present new estimates of total abundance in this ocean using photographic data, as well as overall and sex-specific estimates using biopsy data. We identify several potential sampling biases using only breeding-area samples and report a consistent mark-recapture estimate of oceanwide abundance derived from photographic identification, using both breeding and feeding-area data, of 10,600 (95% confidence interval 9,300-12,100). We also report a comparable, but less precise, biopsy-based estimate of 10,400 (95% confidence interval 8,000-13,600). These estimates are significantly larger and more precise than estimates made for the 1980s, potentially reflecting population growth. In contrast, significantly lower and less consistent estimates were obtained using between-feeding-area or between-breeding-area sampling. Reasons for the lower estimates using the results of sampling in the same areas in subsequent years are discussed. Overall, the results of this ocean-basin-wide study demonstrate that an oceanwide approach to population assessment of baleen whales is practicable and results in a more comprehensive understanding of population abundance and biology than can be gained from smaller-scale efforts.

General information
State: Published
Organisations: Greenland Institute of Natural Resources
Authors: Smith, T. D. (Ekstern), Allen, J. (Ekstern), Clapham, P. J. (Ekstern), Hammond, P. S. (Ekstern), Katona, S. (Ekstern), Larsen, F. (Intern), Lien, J. (Ekstern), Mattila, D. (Ekstern), Palsbøll, P. J. (Ekstern), Sigurjonsson, J. (Ekstern), Stevick, P. T. (Ekstern), Øien, N. (Ekstern)
Pages: 1-32
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Marine Mammal Science
Volume: 15
Issue number: 1
ISSN (Print): 0824-0469
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 1.87 SJR 1.008 SNIP 0.978
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.055 SNIP 0.972 CiteScore 1.73
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.987 SNIP 1.093 CiteScore 1.83
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.193 SNIP 1.206 CiteScore 1.78
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.029 SNIP 1.106 CiteScore 1.9
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.891 SNIP 1.002 CiteScore 1.59
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.776 SNIP 0.876
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.94 SNIP 0.919
Population genetic structure of North Atlantic, Mediterranean Sea and Sea of Cortez fin whales, Balaenoptera physalus (Linnaeus 1758): analysis of mitochondrial and nuclear loci

Samples were collected from 407 fin whales, Balaenoptera physalus, at four North Atlantic and one Mediterranean Sea summer feeding area as well as the Sea of Cortez in the Pacific Ocean. For each sample, the sex, the sequence of the first 288 nucleotides of the mitochondrial (mt) control region and the genotype at six microsatellite loci were determined. A significant degree of divergence was detected at all nuclear and mt loci between North Atlantic/Mediterranean Sea and the Sea of Cortez. However, the divergence time estimated from the mt sequences was substantially lower than the time elapsed since the rise of the Panama Isthmus, suggesting occasional gene flow between the North Pacific and North Atlantic ocean after the separation of the two oceans. Within the North Atlantic and Mediterranean Sea, significant levels of heterogeneity were observed in the mtDNA between the Mediterranean Sea, the eastern (Spain) and the western (the Gulf of Maine and the Gulf of St Lawrence) North Atlantic. Samples collected off West Greenland and Iceland could not be unequivocally assigned to either of the two areas. The homogeneity tests performed using the nuclear data revealed significant levels of divergence only between the Mediterranean Sea and the Gulf of St Lawrence or West Greenland. In conclusion, our results suggest the existence of several recently diverged populations in the North Atlantic and Mediterranean Sea, possibly with some limited gene flow between adjacent populations, a population structure which is consistent with earlier population models proposed by Kellogg, Ingebrigtsen, and Sergeant.
The effect of acoustic alarms on the bycatch of harbour porpoises in bottom set gill nets

General information
State: Published
Organisations: Section for Management Systems, National Institute of Aquatic Resources
Authors: Larsen, F. (Intern)
Number of pages: 12
Publication date: 1998

Publication information
Place of publication: Monaco
Publisher: BY-CARE Workshop
Original language: English
Main Research Area: Technical/natural sciences

Bibliographical note
BY-CARE Workshop, Monaco, 17 January 1998
Source: orbit
Source-ID: 226410
Publication: Research › Report – Annual report year: 1998

The value of parallel analysis of uni- and bi-parental inherited loci: the North Atlantic humpback whale (Megaptera novaeangliae)

General information
State: Published
Organisations: Unknown
Authors: Palsbøll, P. (Ekstern), Clapham, P. (Ekstern), Jørgensen, H. (Ekstern), Larsen, F. (Intern), Mattila, D. (Ekstern), Sears, R. (Ekstern), Vasquez, O. (Ekstern)
Number of pages: 498
Pages: 426-430
Publication date: 1998

Host publication information
Title of host publication: Molecular tools for screening biodiversity: Plants and animals
Place of publication: London
Publisher: Chapman & Hall
Editors: Karp, A., Isaac, P., Ingram, D.
ISBN (Print): 0412638304
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278881
Publication: Research - peer-review › Book chapter – Annual report year: 1998
Genetic tagging of humpback whales

General information
State: Published
Organisations: University of Copenhagen, College of the Atlantic, Center for Coastal Studies, University of St Andrews, University of California, Irvine, Institute of Marine Research, National Marine Fisheries Service, Mingan Island Cetacean Study Inc., Marine Research Institute, Memorial University of Newfoundland, Greenland Institute of Natural Resources
Authors: Palsbøll, P. (Ekstern), Allen, J. (Ekstern), Bérubé, M. (Ekstern), Clapham, P. (Ekstern), Feddersen, T. (Ekstern), Hammond, P. (Ekstern), Hudson, R. (Ekstern), Jørgensen, H. (Ekstern), Katona, S. (Ekstern), Larsen, A. (Ekstern), Larsen, F. (Intern), Lien, J. (Ekstern), Mattila, D. (Ekstern), Sigurjónsson, J. (Ekstern), Sears, R. (Ekstern), Smith, T. (Ekstern), Sponer, R. (Ekstern), Stevick, P. (Ekstern), Øien, N. (Ekstern)
Pages: 767-769
Publication date: 1997
Main Research Area: Technical/natural sciences

Publication information
Journal: Nature
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Web of Science (2018): Indexed yes
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Web of Science (2017): Indexed Yes
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Scopus rating (2016): CiteScore 13.33
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 14.38
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 14.22
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 14.96
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Microsatellite genetic distances between oceanic populations of the humpback whale (Megaptera novaeangliae)

Mitochondrial DNA haplotypes of humpback whales show strong segregation between oceanic populations and between feeding grounds within oceans, but this highly structured pattern does not exclude the possibility of extensive nuclear gene flow. Here we present allele frequency data for four microsatellite loci typed across samples from four major oceanic regions: the North Atlantic (two mitochondrially distinct populations), the North Pacific, and two widely separated Antarctic regions, East Australia and the Antarctic Peninsula. Allelic diversity is a little greater in the two Antarctic samples, probably indicating historically greater population sizes. Population subdivision was examined using a wide range of measures, including F-st, various alternative forms of Slatkin's R-st, Goldstein and colleagues' delta-mu, and a Monte Carlo approximation to Fisher's exact test. The exact test revealed significant heterogeneity in all but one of the pairwise comparisons between geographically adjacent populations, including the comparison between the two North Atlantic populations, suggesting that gene flow between oceans is minimal and that dispersal patterns may sometimes be restricted even in the absence of obvious barriers, such as land masses, warm water belts, and antitropical migration behavior. The only comparison where heterogeneity was not detected was the one between the two Antarctic population samples. It is unclear whether failure to find a difference here reflects gene flow between the regions or merely lack of statistical power arising from the small size of the Antarctic Peninsula sample. Our comparison between measures of population subdivision revealed major discrepancies between methods, with little agreement about which populations were most and least separated. We suggest that unbiased R-st (UR-st, see Goodman 1995) is currently the most reliable statistic, probably because, unlike the other methods, it allows for unequal sample sizes. However, in view of the fact that these alternative measures often contradict one another, we urge caution in the use of microsatellite data to quantify genetic distance.

General information

State: Published
Organisations: University of Cambridge, University of Copenhagen, University of Queensland, Marine Research Institute, Mingan Island Cetacean Study Inc., Greenland Fisheries Research Institute, Center for Coastal Studies
Authors: Valsecchi, E. (Ekstern), Palsbøll, P. (Ekstern), Hale, P. (Ekstern), Glockner-Ferrari, D. (Ekstern), Ferrari, M. (Ekstern), Clapham, P. (Ekstern), Larsen, F. (Intern), Matilla, D. (Ekstern), Sears, R. (Ekstern), Sigurjónsson, J. (Ekstern), Brown, M. (Ekstern), Corkerson, P. (Ekstern), Amos, B. (Ekstern)
Pages: 355-362
Publication date: 1997
Main Research Area: Technical/natural sciences
Projects:

**Gillnet modifications to reduce by-catch of seabirds and harbour porpoises in the Baltic Sea**

National Institute of Aquatic Resources
Period: 01/01/2018 → 31/12/2020
Number of participants: 4
Phd Student:
Kratzer, Isabella (Intern)
Supervisor:
Kindt-Larsen, Lotte (Intern)
Stepputtis, Daniel (Ekstern)
Main Supervisor:
Larsen, Finn (Intern)

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

Bycatch of seabirds in Danish gillnet fisheries - assessing scale and testing mitigation
National Institute of Aquatic Resources
Period: 01/12/2016 → 30/11/2019
Number of participants: 3
Phd Student:
Glemarec, Gildas (Intern)
Supervisor:
Kindt-Larsen, Lotte (Intern)
Main Supervisor:
Larsen, Finn (Intern)

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

Bycatch of marine mammals and seabirds - Assessment and mitigation (39337)
The aim of the project is to develop innovative mitigation methods to reduce the unintended bycatch of marine mammals and seabirds in Danish gillnet fisheries.

The project includes the following components:
- determine the distribution in time and space of the bycatches;
- identify the factors that determine the occurrence of the bycatch and its distribution;
- identify behaviour that are correlated with bycatch;
- conduct pilot trials of mitigation methods;
- propose further mitigation methods to test in a continuation of the project.

The results of the project will contribute to a better management of protected species of marine mammals and seabirds, as well as placing Denmark in a better position with respect to its obligations in relation to the EU Habitats Directive, the EU Bird Directive, the EU Marine Strategy Framework Directive, the EU Council Resolution 812/2004 and the EU Action Plan for reduction of seabird bycatch.

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
Kolmården Wildlife Park
Period: 01/03/2016 → 28/02/2018
Number of participants: 5
Research areas: Ecosystem based Marine Management & Coastal Ecology
Project participant:
Sørensen, Thomas Kirk (Intern)
Rindorf, Anna (Intern)
Development of seal-safe fishing gear (Seal-Safe II) (39188)

Increasing numbers of seals in Danish waters have in recent years made it difficult to conduct a economically sustainable coastal fishery with gillnets and hooks/lines. The objective of Seal-Safe is to improve the viability of these fisheries by developing efficient, environmentally friendly and seal-safe pots for catching cod. The pots will make it possible for the coastal fishermen to conduct a sustainable fishery without damages inflicted by seals.

The specific goal of Seal-Safe is to increase the catch rate to at least 4 kg cod per pot per day. Seal-Safe will attain this through a combination of fishing trials on board commercial fishing vessels and research into the behaviour of fish and seals around the pots.

This project is coordinated by DTU Aqua.

The project is funded by the Danish Ministry of Food, Agriculture and Fisheries through the Green Development and Demonstration Program (GUDP).

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Aarhus University
Sveriges Lantbruksuniversitet

Nekskø Vodbinderi
Period: 01/06/2014 → 31/07/2016
Number of participants: 4
Research areas: Ecosystem based Marine Management & Fish Biology & Fisheries Technology
Project participant:
Sørensen, Thomas Kirk (Intern)
Behrens, Jane (Intern)

Developing seal-safe fishing gear (Seal-Safe I) (39163)

Developing seal-safe fishing gear will primarily be focused on fish pots, which have the best potential for protection against seal attacks. Other advantages of pots includes being size selective, that the catch can swim freely inside the pot and is alive when the pot is emptied resulting in a higher quality and thus a higher price, high survival for discards, low bycatch of small cetaceans and seabirds, and that the pot does not have to be tended every day. Disadvantages include low catch rates compared to gillnets, and that they are not good at catching flatfish.

DTU Aqua will carry out a development project that includes the following components:
- Review of fishing gear as alternatives to gillnets.
- Optimizing existing pots to Danish conditions in collaboration with the fisheries.
- Fishing trials for cod with the optimized pots.
- Experiments with bait types.
- Studies of fish and seal behavior around pots.
- Dissemination of results to the Danish fishery.

DTU Aqua has established a collaboration with Swedish scientists, who have extensive experience with development of seal-safe fish pots.

The main challenge will be to increase the catch rates of the fish pots, so that seal-safe fish pots can be an economically viable alternative to set gillnets. If this is successful, changing from gillnets to fish pots can ensure the continued survival of the small-scale coastal fishery and at the same time reduce bycatch of e.g. marine mammals and seabirds.

The project is coordinated by DTU Aqua.
The project is funded by the Danish Ministry of Food, Agriculture and Fisheries through a special governmental Funding for sustainable fisheries ("Bæredygtighedspuljen").

National Institute of Aquatic Resources
Section for Ecosystem based Marine Management
Aarhus University
Sveriges Lantbruksuniversitet
Neksø Vodbinderi
Period: 01/02/2014 → 01/07/2016
Number of participants: 2
Research areas: Ecosystem Based Marine Management & Fisheries Technology
Project participant:
Kindt-Larsen, Lotte (Intern)
Project Manager, academic:
Larsen, Finn (Intern)

Using commercial gears to sample ecosystem effects
National Institute of Aquatic Resources
Period: 15/12/2013 → 30/09/2017
Number of participants: 6
Phd Student:
Savina, Esther (Intern)
Supervisor:
Larsen, Finn (Intern)
Main Supervisor:
Krag, Ludvig Ahm (Intern)
Examiner:
Eigaard, Ole Ritzau (Intern)
O’Neill, F.G. (Ekstern)
Rochet, Marie-Joëlle (Ekstern)

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

Seal-inflicted damages to Danish fisheries (39143)
In recent years, there has been an increasing conflict between commercial fisheries and the increasing seal populations. Direct damages in the form of reduced or damaged catch is frequently seen in fishing with set gillnets, poundnets and hooks/lines. Fishermen have proposed that the diminishing fish stocks are a result of increased predation from seals. The problems appear to be most widespread in the small-scale coastal fisheries, which there is a political will to preserve, but basic information about the scale of the problem is lacking.
The present project aimed to remedy this situation by collecting information on the scale of the seal-inflicted damages to Danish commercial fisheries and assessing the economic consequences of the damages.
The project focused on the following areas:
- Seal populations in Danish waters – distribution, size, behaviour and feeding preferences (WP 1)
- Damage to catch and fishing gears inflicted by seals (WP 2, 3 and 4)
- Potential mitigation measures (WP 5).
The project was coordinated by DTU Aqua.
The project was funded by the Danish Ministry of Food, Agriculture and Fisheries and the European Fisheries Fund (EFF).
**Krog Consult ApS**

**BioApp**
- **Period:** 15/07/2013 → 01/05/2015
- **Number of participants:** 2
- **Research areas:** Ecosystem Based Marine Management & Fisheries Technology
  - **Phd Student:** Kindt-Larsen, Lotte (Intern)
  - **Project Manager, academic:** Larsen, Finn (Intern)

**Project**

**Gillnet fishing in Natura 2000 areas – Porpoises and stone reefs (39125)**
The aim of the project was to determine the effects of gillnet fishing in Danish Natura 2000 areas, specifically the effects on harbour porpoises and on the hard bottom’s flora and fauna.

The project included 3 sub-projects and 9 work packages aimed at:
- documenting the extent of gillnet fishing in selected Natura 2000 areas;
- evaluate the effects of gillnet fishing on porpoises in these Natura 2000 areas;
- evaluate the effects of management initiatives on the gillnet fishing in these areas;
- assess the effects of gillnet fishing on the stone reef’s flora and fauna in these Natura 2000 areas.

The methods employed were a combination of literature reviews, documentation of fishing activities and conduction of field experiments. The results of the project will contribute to a better knowledge base on the effects of gillnet fishing and should lead to an improved management of gillnet fishing in Natura 2000 areas, based on facts instead of assumptions and anecdotal evidence.

This project was coordinated by DTU Aqua.

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

**National Institute of Aquatic Resources**

**Section for Ecosystem based Marine Management**
- **Period:** 15/04/2013 → 31/05/2015
- **Number of participants:** 4
- **Research areas:** Ecosystem based Marine Management & Coastal Ecology
  - **Project participant:** Sørensen, Thomas Kirk (Intern)
  - **Phd Student:** Christoffersen, Mads (Intern)

**Project**

**Reducing bycatch of harbour porpoises – Insight, mitigation and effects (39037)**
The main objective of the project was to provide a better basis for management of harbour porpoise by-catch in Danish setnet fisheries by:
- Elucidating the circumstances that leads to by-catch
- Developing and testing by-catch mitigation methods
- Assess the side effects of such mitigation methods

The project included 6 sub-projects organized under three headings:
- Behaviour of harbour porpoises around gillnets
- Reducing by-catch of harbour porpoises
- Effects on harbour porpoises of wide spread use of pingers

The project was coordinated by DTU Aqua.

The project was funded by the Danish Ministry of Food, Agriculture and Fisheries and the European Fisheries Fund (EFF).
BALTFFIMA general tool (39001)

The objective of the BALTFFIMA project (Managing Fisheries in Baltic Marine Protected Areas) was to develop a generic decision making assisting tool to give guidance and advice on impacts of different fishing practices and gear on protected habitats and species in the Baltic Sea. This was based on a comprehensive review of the existing literature. The tool has the form of a matrix of fishing gear types against habitats and species, and includes a generic level, a detailed level and a technical level in addition to a list of the relevant literature. At the generic and detailed levels impacts are scored in traffic light categories (red, yellow, green), whereas the technical level includes summaries of actual impacts.

The project was lead by DTU Aqua.

The project was funded by the Helsinki Commission (HELCOM).

National Institute of Aquatic Resources

Section for Ecosystem based Marine Management

Helsinki Commission - Baltic Marine Protection Commission

Period: 01/08/2012 → 01/04/2013

Number of participants: 5

Research areas: Ecosystem based Marine Management & Coastal Ecology & Fisheries Technology

Project participant:

Sorensen, Thomas Kirk (Intern)
Dolmer, Per (Intern)
Frandsen, Rikke (Intern)
Stottrup, Josianne Gatt (Intern)

Project Manager, academic:
Larsen, Finn (Intern)

Development of monitoring plans for incidental bycatch of harbour porpoises in inner Danish waters (38869)

Incidental bycatch of harbour porpoises in Danish fisheries has till now primarily been documented by on-board observers or voluntary reporting by fishermen. An observer program in 1992-98 showed bycatch in Danish North Sea fisheries to occur primarily in bottom-set gillnets for turbot, cod, hake and plaice, but a similar program has not been conducted in inner Danish waters and the Baltic Sea.

The objective of the present project is thus to further develop and carry out plans for monitoring of incidental bycatch of harbour porpoises in inner Danish waters by use of CCTV camera systems. Further, to ensure full documentation of smaller gillnet vessels' fishing operations by:
- monitoring all seasons of the major gillnet fisheries;
- providing information on bycatch of harbour porpoises and seabirds by fishery/season/area with a view to develop management plans for Natura2000 areas;
- providing information on discard of cod by gillnet vessels in inner Danish waters.

The project is coordinated by DTU Aqua.

National Institute of Aquatic Resources

Section for Ecosystem based Marine Management

Period: 16/06/2011 → 28/02/2014

Number of participants: 4

Research area: Ecosystem Based Marine Management
Pilot project for the preparation of certification (MSC) of gillnet fishing in the Baltic Sea (38974)
Fishing for some important stocks has been assessed in accordance with Marine Stewardship Council (MSC) principles for sustainable fisheries. All these fisheries have now passed the assessment and are certified, with a single exception: Gillnet fishing in the Baltic. This is due to the lack of evidence for gillnet fishing East of Bornholm not having by-catches of the very small population of harbor porpoises which are found in the Baltic Sea in Ices Subdivision (SD) 24 and East.

There has not been registered by-catch of porpoises in the Danish gillnet fishing East of Bornholm, neither in biological studies nor by fishermen themselves. But as the Swedish and Polish studies have shown individual by-catches in some gillnet fisheries and the current estimates of stock size means that the by-catch of even a few individuals can prevent it from being restored, the MSC considered that it was not sufficiently proven that the Danish gillnet fisheries did not constitute a threat to the population.

There is therefore a need for documentation of the level of by-catch of harbor porpoises in the Danish gillnet fisheries.

This project is coordinated by Danish Fishermen's Association.

National Institute of Aquatic Resources

Section for Monitoring and Data

Danish Fishermen's Association
Period: 09/06/2011 → 01/05/2015
Number of participants: 6
Research area: Fisheries Management

Project participant:
Larsen, Finn (Intern)
Kindt-Larsen, Lotte (Intern)
Degel, Henrik (Intern)
Rasmussen, Mie Lundsfryd (Intern)
Lundgaard, Louise Scherffenberg (Intern)

Project Manager, academic:
Olesen, Hans Jakob (Intern)

Management of fisheries in harbour porpoise (Phocoena phocoena) marina protected areas

National Institute of Aquatic Resources
Period: 01/05/2010 → 02/09/2015
Number of participants: 7
Phd Student:
Kindt-Larsen, Lotte (Intern)

Supervisor:
Northridge, Simon (Ekstern)
Stage, Bjarne (Intern)

Main Supervisor:
Larsen, Finn (Intern)

Examiner:
Madsen, Niels (Intern)
Macleod, Kelly (Ekstern)
Read, Andrew Justin (Ekstern)

Financing sources
**Electronic monitoring on smaller fishing vessels fishing with gillnets (38773)**

The aim of the project is to examine whether electronic monitoring by the use of CCTV and sensor recordings can ensure full documentation of the fisheries carried out by smaller gillnetters, and whether the use of “pingers” (acoustic deterrent devises) can be more operational.

Furthermore, the project has the aim to proof that:
- A total recording of all catches of quota managed species and a reduction of "high-grading"
- Involvement of the fishing industry in collection of detailed data and thereby ensure industry involvement for joint responsibility for the collection of data to be used as the basis for the scientific advice
- An adequately documentation that can ensure that the fishery could be carried out sustainably in sensitive marine areas such as NATURA 2000 sites
- An improved economy for vessels that participate in fully documented fishery
- A documentation that can provide the basis for the marked to be able to evaluate sustainability of the fisheries.

The project is coordinated by DTU Aqua.

**National Institute of Aquatic Resources**

Section for Ecosystem based Marine Management

Archipelago Marine Research Ltd

**Period:** 01/01/2010 → 31/12/2011

**Number of participants:** 5

**Research areas:** Fisheries Management & Observation Technology

**Project participant:**
- Kindt-Larsen, Lotte (Intern)
- Larsen, Finn (Intern)
- Olesen, Hans Jakob (Intern)
- Jensen, Reinhardt (Intern)
- Dalskov, Jørgen (Intern)

**Evaluation of harbour porpoise behaviour in relation to acoustic alarms (pingers) (38670)**

The project included four sub-projects that were all related to development of methods for mitigation of harbour porpoise by-catch. The first sub-project investigated the effective deterrent range for a commercial pinger and whether the range changed over time (habituation). This is important to know in order to be able to evaluate the effects if pingers are to be used in marine protected areas like the Natura 2000 areas. By deploying automated porpoise click loggers (C-PODs) in a grid around an active pinger, the effective range of the pinger was assessed. The set-up was deployed both in Denmark and in Scotland to also investigate possible regional differences in porpoise reactions to pingers. The second sub-project tested the alerting-hypothesis, i.e. whether it was possible to induce porpoises in the wild to use their biosonar against a target by having the target emit artificial porpoise click trains (alerting signals). Alerting signals have a number of advantages over traditional pinger signals, including that they will not lead to exclusion of porpoises from important habitats, that the risk of habituation is smaller because the porpoises will be able to learn from their experience with the alerting pingers, and that noise pollution will be considerably smaller because the sound level of alerting pingers is much lower than for traditional pingers. The third sub-project tested if pingers emitting alerting-signals could reduce by-catch of harbour porpoises in the commercial gillnet fishery. Alerting pingers were deployed on bottom-set gillnets in a fishery with a high by-catch rates, in a double-blind experiment. The fourth sub-project investigated the behaviour of free ranging harbour porpoises in relation to a gillnet. This included land-based tracking by theodolite of porpoises approaching a bottom-set gillnet to determine detection distances and avoidance behaviour.

The project was coordinated by DTU Aqua.

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

**National Institute of Aquatic Resources**

Section for Ecosystem based Marine Management

Fjord & Bælt
Activities:

**ICES - Working Group on Bycatch of Protected Species - WGBYC (External organisation)**

Period: 2015  
Finn Larsen (Participant)  
National Institute of Aquatic Resources  
Section for Ecosystem based Marine Management  
Degree of recognition: International  

**Related external organisation**

**ICES - Working Group on Bycatch of Protected Species - WGBYC**  
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**ICES - Working Group on Bycatch of Protected Species - WGBYC (External organisation)**

Period: 2014  
Finn Larsen (Participant)  
National Institute of Aquatic Resources  
Section for Ecosystem based Marine Management  
Degree of recognition: International  

**Related external organisation**

**ICES - Working Group on Bycatch of Protected Species - WGBYC**  
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**ICES - Working Group on Bycatch of Protected Species - WGBYC (External organisation)**

Period: 2013 → …  
Finn Larsen (Participant)  
National Institute of Aquatic Resources  
Section for Ecosystem based Marine Management  
Degree of recognition: International  

**Related external organisation**

**ICES - Working Group on Bycatch of Protected Species - WGBYC**  
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

**ICES - Working Group on Bycatch of Protected Species - WGBYC (External organisation)**

Period: 2012 → …  
Finn Larsen (Participant)  
National Institute of Aquatic Resources  
Section for Coastal Ecology  
Degree of recognition: International
Related external organisation

ICES - Working Group on Bycatch of Protected Species - WGBYC
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

ICES - Working Group on Marine Mammal Ecology - WGMME (External organisation)
Period: 2012 → …
Finn Larsen (Participant)
National Institute of Aquatic Resources
Section for Coastal Ecology
Degree of recognition: International

Related external organisation

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