

Annual Report on the Danish National Data Collection Programmes for 2011

**National Institute for Aquatic Resources
Danish Directorate of Fisheries
Danish Research Institute of Food Economics
Statistics Denmark**

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I. General framework

This document presents the Annual Report (AR) on the work carried according to the Danish National Programme (NP) for data collection in the fisheries sector for the year 2011. The programme has been carried out in accordance with the rules laid down in the “*Commission Regulation (665/2008) and Commission Decision (2010/93/EC) adopting a multi annual Community programme pursuant to Council Regulation (EC) No 199/2008 establishing a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy*”, hereafter referred to as “DCF” in this AR.

The format of this report is structured following the most recent guidelines from the Commission¹. The AR is structured in a number of modules. In the following chapters a description is given of the activities related to the DCF that have been carried out by Denmark.

Furthermore, the EC has established provisions to facilitate the cooperation between MS with the regard to the collection of data. These are Regional Coordination Meetings (RCM), formal (bilateral) agreements with other MS and in the future regional databases. As far as the conclusions and agreements of the meetings are relevant for the regional data collection and for Denmark they have been taken into account in this AR.

In addition to this AR a financial report for the 2011 programme has been made. The financial report of the costs is presented in separate spreadsheets in the FinForms formats as provided by the Commission.

In general the Danish national data collection programme has been carried out as in the previous years but it should be mentioned that some major changes have been made in establishing sampling frames and how the vessels for at sea sampling are selected.

II. National Data Collection Organisation

II.A National correspondent and participating institutes

Denmark has assigned the National institute of Aquatic Resources (DTU Aqua), Technical University of Denmark as the coordinating institute in Denmark. Jørgen Dalskov, Head of section Public Sector Consultancy, DTU Aqua has been assigned as the National Correspondent.

Jørgen Dalskov

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¹ Guidelines for the submission of Annual Report on the National Data Collection Programmes under Council Regulation (EC) 199/2008, Commission Regulation (EC) 665/2008 and Commission Decision 2008/93/EC, Version January 2012

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The work in Denmark has been carried out by 4 partners:

1. National institute of Aquatic Resources (DTU Aqua) is an institute under the Technical University of Denmark. The institute carries out research, monitoring and provides advice concerning sustainable exploitation of live marine and fresh water resources. Furthermore, the institute is responsible for providing data for ICES stock assessment work and participates in various ICES assessment working groups, planning and expert groups as well as in the ACOM work. The institute is having a public sector consultancy contract with the Danish Ministry for Agriculture, Fisheries and Food.

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2. Danish Directorate of Fisheries (FD) works for commercial fisheries to be balanced and economically healthy, for sustainable fishing and to maintain recreational fishing. The Directorate is part of The Ministry of Food, Agriculture and Fisheries; it was established in its present form in 1995.

The main tasks of the Directorate are to provide service to the Minister and the political level, assist in law proposals and contribute to international negotiations. Furthermore, FD are responsible for making rules and regulations in the Danish fisheries as well as administer the Danish fishing, to inspect and control fishing activities and finally to make primary statistics on fisheries.

It should be mentioned that from 1st October 2011 the FD has been merged into two other organisations now called the Danish AgriFish Agency.

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DK- 1780 København V
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www.fd.dk

3. The Danish Food and Resource Economics Institute (FOI) is an institute under KU Life, a faculty of life science a part of the University of Copenhagen. The Researchers and academic staff of the Institute have backgrounds and experience in economics, agricultural and resource economics, agronomy, as well as a wide range of statistical methods and applied research tools.

Danish Food and Resource Economics Institute (FOI)

Rolighedsvej 25
DK-1958 Frederiksberg C
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4. Statistics Denmark (DST) The aim of the institution is to collect, process and publish statistical information on social and economic conditions. Additionally DST contributes to the international statistical cooperation. Furthermore, DST is also actively involved in the statistical activities in the UN, OECD, IMF and in the Nordic countries, etc. DST is also carrying out statistical tasks for private and public customers.

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A Steering Group has been established with members from all four involved Institutes. The main objective of the Steering Group is to coordinate the work to be carried out according to the DCF.

Once or twice a year representatives from the involved institutes meet for discussing the coming year or present years programme. Usually these meetings take 1-2 hours. Main topics to discuss are the production and the content of the DFAD data base (see section VI.1 for details) and participation in various expert working group meetings. As it is very clear which of the partners are responsible for the various tasks it is only necessary to make sure deadlines for providing data to each other are agreed.

The daily cooperation can be made by using e-mails or phone calls. The representatives from the involved institutes have been working together for a number of years and therefore, no major disagreements or other issues are troublesome.

II.B Regional and International coordination

II.B 1 Attendance of International meetings

Most of the planned meetings have been attended by Danish representation in 2011. Denmark attended the DCF coordination meetings for the Baltic region and for the North Sea and Eastern Arctic region. The meeting attendance is listed in table II.B.1. All surveys are coordinated internationally by ICES planning groups. The survey planning groups, which were relevant to Denmark the BIFSWG, IBTSWG, WGIPS, WGNAPES were in 2011 attended by representatives from Denmark.

Denmark has for years made agreement on collection of biological sampling of landings or bilateral cooperation with a number of MS such as Sweden, Belgium, Germany, Ireland, the Netherlands and Scotland. This bilateral coordination has been continued in 2011.

In the economic field FOI constitutes the Danish representative in the project economic Assessment of European Fisheries organized under the Concerted Actions and Thematic Networks which is committed to develop a common method or standard for evaluation of the economic situation in the Community fisheries.

Denmark is a member of a large number of ICES WG, WK or PG groups. Those groups which have a major interest for Denmark one or more DTU Aqua staff members participate at the meeting. Some other ICES group meeting have minor interest and DTU staff members only participate at correspondence level and all Danish data is provided to the group. Furthermore, some meetings did not have Danish participation due to conflicting data with regards to other commitments.

II.B 2 Follow-up of regional and international recommendations

General recommendations made by RCM Baltic and RCM NS &EA from 2007 to 2011 and endorsed at the Liaison meeting and actions taken by Denmark are listed below.

RCM Baltic 2011 recommendation

Source	Recommendation	Action
RCM Baltic 2011	To ensure possibilities for adequate sampling of biological and métier related data including landings in foreign MS, national institutes need to have online access to national logbook data and national VMS.	DTU-Aqua has online access to VMS data and logbook information
RCM Baltic 2011	1. MS should upload all landing data into the Regional Data Base allowing the RCM to analyse the possible needs for bilateral agreements. 2. The RCMs should each year perform an analysis on landings in foreign countries and conclude where bilateral agreements needed to be made. MS should set up agreements, fixing the details of sampling, compilation and submission of data in each case when it is indicated by the RCM that a bilateral agreement is needed. To include the agreed	Denmark has uploaded all relevant data to the RDB

	<p>analysis in FishFrame would be very convenient and time saving.</p> <p>3. MS should set up agreements, fixing the details of sampling, compilation and submission of data in each case it is concluded by the RCM that a bilateral agreement is needed.</p>	
RCM NA 2011	RCM NA recommends that the collection of otoliths of John Dory is continued but not proceed with age readings until an agreed standardised method is developed.	Denmark has none or insignificant catch of John Dory.
RCM NA 2011	RCM NA recommends MS to describe in detail the methodology on the separation of the catches of the 2 Lophius species. This information should be available to the 2012 benchmark assessment.	Denmark has no significant catch of Lophius sp.
RCM NA 2011	RCM NA recommends MS to check in their NP proposal 2012 that sufficient coverage of deep-water fisheries on-board sampling is planned, in order to meet the EWG needs.	Denmark has no deep-sea fishery.
RCM NS & EA 2011	The RCM NS&EA recommends that that all MS respond to the data call in 2012 from the chair of RCM NS&EA and load their data to FishFrame or make it available in the FishFrame format. This data call will include Commercial Landings (CL), Commercial Effort (CE) and Commercial Samples (CS) records for 2010 and 2011.	All relevant data is uploaded to RDB FishFrame.
RCM Baltic (2010)	In order to move forward and get data into FF, a workplan was set up to support the MS in the upload process. Landing data, sampling and effort data for 2009 was agreed to be uploaded by all MS before 1 Sept 2010.	Denmark uploaded the data as agreed.
RCM Baltic (2010)	To ensure the wide implementation of COST, the RCM Baltic recommends that after the trial period lasting until May 2011 the working experience of member states will be reassessed and a training workshop should be organized in the first half of 2012.	Denmark has used a lot of effort during 2010 to learn how to use cost and participated in the workshop.
RCM Baltic (2010)	In order to be able to analyse the current sampling level of sprat in the Baltic and suggest optimal sampling levels for future regional coordinated sampling, the data must be available in an agreed format and checked for errors. Data has to be uploaded in Fishframe All MS should upload 2009 sprat data into Fishframe before the end of October 2010.	Denmark has uploaded the requested data
RCM Baltic	For institutes collecting small volumes of otoliths for certain species and when new species are to be sampled, task sharing of age reading is necessary in order to optimise the use of age reading expertise. The	Denmark fully support the idea of task sharing and welcomes the

(2010)	RCM Baltic recommends that the NC's starts to discuss, decide and agree on which MS should be responsible for age reading of species rarely caught in BITS survey (brill, plaice, turbot, dab, sole). An agreement of task sharing for aging eel should also be established.	discussion to take place between NC's.
RCM NS & EA (2010)	RCM recommended that MS start to implement COST	Denmark has put a lot of effort to implement and use cost, but are having severe challenges as the COST do not support size grade sampling
RCM NS & EA (2010)	In order to have correct reference list of species and stocks in Appendix VII 2010/93 and to avoid inconsistencies and errors in the tables filled in by MS in their NP proposals RCM NS &EA made a recommendation to establish a reference list for revision of the guidelines and templates for future NP proposal	Denmark has acted according to this recommendation.
RCM Baltic (2009)	In order to make analyses of the data collected within DCF and to optimize the coordination work, the developed regional database FishFrame 5.0 should be used within the RCM Baltic.	Denmark has uploaded most of the data for 2009 and will upload all data for 2007 and onwards for all species and all metiers at level 6.
RCM Baltic (2008)	In order to use the time of the RCM more efficient, the pre-processing of the exchange data tables, namely the merging of the data on fisheries statistics and planned sampling NP proposal tables in the NPs, for the harmonization of the NPs, including the quality checks, should be carried out before the next RCM.	Denmark actively participated in the work for the 2009 and 2010 before and at the RCMs.

III. Module of the evaluation of the fishing sector

III.A General description of the fishing sector

The number of vessels registered for Denmark in the Community Fishing Fleet Register on the 1st of January 2010 was 2,473, of which 860 had no activity in 2010. The 1,613 vessels which were active during 2010 had landings of fish to a total value of EUR 334 million or 83 per cent of the total value of the Danish fishery in 2010. The remaining 17 per cent of the value of the Danish fishery in 2010, totalling EUR 69 million, were landed from vessels entering the register after the beginning of the year (cf. table 1).

Table 1. Active registered vessels in the Danish Fishery 2010.

	Vessels registered the whole year	Exits register during year	Enters and stay in register during year	Enters and exits during year	Active fishermen with no vessels	Total active register units
Vessel length groups	----- Active registered vessels -----					
<10 m	1,036	89	81	37	-	32
10 - <12 m	90	30	14	7	-	23
12 - <18 m	217	41	31	17	26	1,067
18 - <24 m	50	14	11	2	-	136
24 - <40 m	28	14	8	5	-	34
40 m and above	12	9	5	-	-	177
All length groups	1,443	197	150	68	26	1,874
Total value of landings in 1000 EUR	333,537	33,529	30,317	5,265	104	402,752
Per cent share of value of landings	82.8%	8.32%	7.53%	1.3%	0.03%	100.0%

During the year 2010 an additional 588 vessels were registered of which 415 vessels became active. So the total number of Danish vessels with landings of fish in 2010 was 1,848. Many of these vessels are small boats used part time by fishermen, who have more than a single vessel at hand, and shift between one and the other dinghy depending on the work to be done (setting out poles for nets and/or traps, emptying gear, fishing for bait etc.). Also the fishery regulation system has for many years linked the right to fish a certain amount of fish to the vessel. So some fishermen have additional vessels, which are not used as separate production units, in order to keep the right to fish and ensure their income. Though all quotas today no longer are stuck to the physical vessel there are still a number of "additional or secondary" vessels registered, and some of the landings of fish are registered on those vessels. Also 26 fishermen with no vessels had (small) landings of fish.

In order to calculate the production for each fisherman and fishing firm it is necessary to identify the production unit that has been in use for the year. In most cases that is a single vessel, which has been owned and used by the same fisherman the whole year. Another situation exists when a fisherman sometime during the year shifts vessel and carry on fishery with his crew from the other vessel, or if he some months uses two vessels simultaneously like fishermen using fixed nets and traps sometimes does. In those cases the production and other economic data for each part time of the year must be added up to form a complete operating year.

The Danish programme for collection of economic data covers all fishing activity for the year and includes both vessels that are registered from the start of the year as well as vessels that become registered during the year and

commences fishery in the year. The population of fishing units (vessels) covers therefore the whole production in the fishing sector.

III.B Economic variables

Supra Region: Baltic Sea, North Sea and Eastern Arctic, and North Arctic.

The total volume of the Danish fishery in 2010 was 948,649 tonnes to a value of 402.6 million EUR. The main part of the fishery takes place in the North Sea, Skagerak/Kattegat, and the Baltic Sea, but some vessels are also fishing in the Norwegian Sea and the waters west of Ireland and Scotland. In the Danish fishery gears as trawls, Danish seines, purse seines, beam trawls, gillnets and hooks, trap nets are used.

III.B.1 Achievements: Results and deviation from NP proposal

The account for fishery has been restructured for the collection of data for 2009. In the accounting form we have included a table for calculation of an estimated value of the individual fishing rights (the vessel quota shares). The capital value of the quotas is calculated using the live weight quantities of fish equalling the quota share for the year for each fishing firm multiplied with shadow prices for every quota species. The results for 2009 and 2010 are preliminary as we are still in the process of investigating which model should be used for future estimation of the value of the fishing rights.

The methods used for collecting data and estimating the parameters correspond with the approach in the program.

III.B.2 Data quality: Results and deviation from NP proposal

No action is needed.

III.B.3 Follow-up on Regional and international recommendations

We have improved the basis for segmentation and clustering of the fleets by a thorough investigation of all registered gear use for each vessel for the years 2008-2010. Now we have the correct answer to which vessel should be categorized as pelagic or demersal for each year of the DCF. The same method will be used for the coming years, as we are in the process of reconstructing the system to build the database for the account statistics from the administrative databases in the Directorate.

The main result from the gear analysis is, that we do not have any segments for pelagic trawlers (TM), simply because there are too little numbers of trawlers with >50% fishing days with pelagic gear.

We have previously labelled the trawlers segments "24-40m." and "40m and above" as pelagic trawlers (TM), as we believed that the main part of the income for these vessels comes from pelagic fishery. But strict to the DCF definition these segments should be labelled demersal trawl and seine (DTS).

The revisions that have been reported for the whole DCF period (2008-2010) are:

DTS/VL2440 and DTS/VL40XX instead of TM/VL2440 and TM/VL40XX

Also, we have split the previously used "0-12m" length group into two length groups "0-10m" and "10-12m":

PGP/VL0012 divided on PGP/VL0010 and PGP/VL1012

PMP/VL0012 divided on PMP/VL0010 and PMP/VL1012

DTS/VL0012 divided on DTS/VL0010 and DTS/VL1012 (but clustered in 2010)

III.B.4 Actions to avoid shortfalls

Number of fishing enterprises is now included in the data report.

Data on landings are specified at FAO level 3, which equals ICES sub-area. We made a complementary deliverance of landings and effort data (2008-2010) specified at FAO level 4 (Baltic) for the 2011 data call.

Number of engaged crew is now reported. We collect normal (average) crew including skipper, number of reserve crew members (full time and part time) and other personnel (management, administration etc.).

FTE national is now reported using 1665 working hours, which equals the working hours used in farm accounts. FTE harmonized is still reported with unit 2000 working hours.

III.C Metier-related variables

The Danish NP concern sampling schemes for three areas the Baltic Sea (ICES areas III b-d), the North Sea (ICES areas IIIa, IV and VIIId) and Eastern Arctic (ICES areas I and II) and North Atlantic (ICES areas V-XIV and NAFO areas).

DTU Aqua has used the FD databases and combined logbook data with the sales slip data and vessel register data and created a database; the DFAD. Here total annual commercial landings by métier can be provided by all species and areas, according to level 2, level 3, level 4, level 5 and level 6, of geographical disaggregation according to Appendix II of Commission Decision 2008/93/EC. The figures are based on all recorded landings stored in this database. The recorded landings in this database are census data.

Results of the sampling in 2011 in relation to what was planned are presented in tables III.C.3, III.C.4, III.C.5 and III.C.6. The achievements of sampling in 2011 were in general improved compared to 2010. A main overall reason for deviations from what was planned is that it sometimes can be difficult to predict fishing pattern by métier for the sampling year at the time of compilation of the National Programme. When sampling is conducted at shore; in harbours or at markets, all information on the metiers is selected. However, the sampling frame is not conducted by métier but by species and sorting groups. Therefore we cannot always assure that all metiers have been samples although the numbers of fish measured and aged are in accordance with the program. Denmark has in 2010 initiated a work to improve the sampling design of the métier based sampling following the outcomes of ICES WKACCU and WKPRECISE. This outcome has led to a change in the sampling frame in 2011 to a more statistically sound sampling program where trips are the primary sampling unit. As the trips are randomly selected

in a database, based on the numbers of trips by the vessel the year before, large changes in fishing pattern between years can affect the sampling. As the new system is selecting the vessels randomly, the logistics have become a bigger challenge as we have to travel more to Islands and enter the vessels from rather small ports. The numbers of different vessels selected for the observer program has increased with 30% by this system. However, it has at least in the first year been at the expense of numbers of trips conducted. The main part of the deviations in 2011 from the aim is caused by the logistic more challenging system and is expressed below on a metier basis.

Baltic Sea (ICES areas III b-d)

III.C.1 Achievements: Results and deviation from NP proposal

Deviation from sampling on shore and at sea

Stationary uncovered pound nets targeting ell (FPN_CAT_ALL_0_0), sub 22-24

Eels from pond nets are fished alive and often kept in pounds until buyers are ready to get them. As cost of eel is very high and very difficult to measure alive, DTU Aqua has made an agreement with some local fishermen in order to measure eels when the fishermen are ready to slaughter a batch of eels. However, the eel fishery was limited in 2011 as was the case in 2010. Some of the fishermen that have agreed to cooperate with DTU Aqua had cancel the appointment on eel measurement to carried out several times due to limited catches of eels. These arrangements were established in 2010 and in 2011 carried out 37% more trips than planned and in 2011.

Bottom otter trawl targeting demersal fish (OTB_DEF >=105 1 110), sub 22-24 and 25-32

In the western Baltic 78 % (31) of the planned observer trips at sea and 78% (31) of the planned harbour sampling were conducted for this area. This métier has decreased the commercial trips by 21% between 2010 and 2011 indicating that a reduction in sampling effort by 22% is reasonable. In SD 25-32, 71% of the observers' trips were conducted. Again the lack of compilation of all the planned trips is due to the new and improved sampling program. To compensate for the 29% below the planned sampling level in the at-sea observer program an extra effort was inserted to increase the sampling level at market for this métier – In the market sampling 40 samples were collected instead of the 12 samples applied for (an increase of 333%). This indicates that the métier is very well covered in the Danish sampling program in 2011.

Bottom otter trawl targeting demersal fish (OTB_DEF_90-104_0_0), sub 22-24

When sampling at shore is conducted in the Danish sampling frame, we sample species by sorting groups and do not have the métier as the primary sampling units. As we cannot control the métiers that are landing very small métiers are sometimes not collected. This is the case for OTB_DEF_90-104_0_0 in the western Baltic in 2011, the numbers of commercial trips conducted decreased with 23% from 2010 to 2011. We planned to conduct 8 samples but have not achieved any.

Set gillnet fisheries targeting demersal fish (GNS_DEF_110-156_0_0), sub 25-32 and 22-24

In 2011 Denmark sampled a total of 43 trips in this metier in the Baltic, 40% of the planned trips for this métier in subdivision 25-32 and 70% of the planned trips in 22-24. The main part of these landings in SD 25-32 takes place on the Island Bornholm and it can be difficult to plan in advance when the samples are landed.

Bottom pair trawl targeting small pelagic (PTM_SPF_16-31_0_0), sub 25-32 and sub 22-24.

Denmark has in 2011 oversampled this metier in SD 22-24 by 138% (11 instead of 8 samples) and in the eastern Baltic by 436%. This very large numbers of sprat samples are in the eastern Baltic mainly due to the large numbers of landings from other EU members (mainly Poland and Sweden), where Denmark is obliged to collect samples and due to the fact the metier is a mixture of a herring and a sprat fishery.

Bottom pair trawl targeting small pelagic (PTM_SPF_32-89_0_0), sub 22-24.

The numbers of trips in the herring fishery in the western Baltic has decreased with 15% from 2010 to 2011 to a where low number. It has not been possible to get any samples from this fishery in 2011. However, herring has been sampled in the surveys and in the sprat fishery. To partly compensate there has been an oversampling of the herring fishery in the sd 25-32. We have in 2012 increased the focus on this metier to be able to achieve samples this year.

Longline fisheries targeting demersal fish (LLS_DEF_ALL_0_0), Sub 25-32

In 2011, 88% of the planned trips were conducted from this métier. Again the metier is very small compared to the trawlers and when sampled in harbours or at market our sampling frame is species and sorting groups and not metiers, therefore we can risk not to fulfil the sampling level of the less important metiers.. As this metier is very small compared to the trawlers it was not selected in the new random observer system and not sampled at sea.

Longline fisheries targeting demersal fish (LLD_ANA_ALL_0_0), Sub 25-32

This metier has not been selected by the ranking system, however it is the only metier that is targeting salmon directly and the duration of the fishing period is very short. It was therefore chosen to sample the salmon at sea and at land. In 2012 the effort to get salmon samples have increased as the species is considered were vulnerable.

III.C.2 Data quality: results and deviation from NP proposal

During 2011 Denmark has put some effort in working with the COST tool. Results obtained so far are presented in table III.C.5. Denmark has only calculated the CV's for the length distribution in the landings. The CV's have been calculated according to our sampling strategy for landings – quarter and commercial size category. Denmark calculates the volume of discard for all species by raising with total landings. This method has not been developed in COST, so the CV's for discard volume and length distribution in the discard have not been calculated.

Denmark has estimated CV's with the method described in Appendix 1.

The retained part of the catch for the main part of the species is sampled in harbours. For these the sampling frame is stratified by quarter and commercial size category. The CV's for this group of species are calculated

using COST. For a small part of the species the retained part of the catch are sampled at-sea and therefore the sampling frame is stratified by fishing ground, quarter and metier. For the last group of species it has not been possible to use COST as a tool for calculating CV's and therefor the method in Appendix 1 has been used for theses. The CVs for discard volume and length distribution in the discard have been estimated with the method described in Appendix 1.

Denmark has in 2011 implemented a new design of the metier sampling programmes on the basis of the outcome of the two ICES workshops WKACCU and WKPRECISE. The work includes identification of proper sampling frames and probability based ways to select primary sampling units. The new designs will improve the possibilities to evaluate possible bias and thereby also accuracy.

III.C.3 Follow-up of regional and international recommendations

Source	Recommendation	Action
RCM Baltic 2011 recommendation	For the purpose to give the RCM the possibility to evaluate were task sharing in métier sampling could be achieved. Robust analytical methods should be tested to look for differences / similarities in exploration patterns (size and species distribution, spatial pattern) between countries within 1-2 métiers as a case study.	Deadline not met yet. It is still the plan to incorporate on this issue.
RCM Baltic 2011 Recommendation	To ensure possibilities for adequate sampling of biological and métier related data including landings in foreign MS, national institutes need to have online access to national logbook data and national VMS data.	Relevant Danish Fisheries Institutes have access to national logbook data and VMS data.
RCM Baltic (2010)	To ensure the wide implementation of for several agreed/recommended tasks, the RCM Baltic recommends that a Fish frame 5.0 workshop should be arranged in early 2011.	RDB-FishFrame has been transferred to ICES by 31 st May 2012. Two workshops have been arranged (Feb. and May 2012). One will be arranged Oct 2012.
RCM Baltic (2010)	Development of a report in FishFrame which calculate the top 90% ranking of metiers for each MS as well as on regional level. The data should be based on data from the two previous years.	This report is still only in a SAS version.
RCM Baltic (2011)	1. MS should upload all landing data into the Regional Data Base allowing the RCM to analyse the possible needs for bilateral agreements.	All landings abroad in 2011 from Denmark are uploaded to RDB-FishFrame.

	<p>2. The RCMs should each year perform an analysis on landings in foreign countries and conclude were bilateral agreements needed to be made. MS should set up agreements, fixing the details of sampling, compilation and submission of data in each case when it is indicated by the RCM that a bilateral agreement is needed. To include the agreed analysis in FishFrame would be very convenient and time saving.</p> <p>3. MS should set up agreements, fixing the details of sampling, compilation and submission of data in each case it is concluded by the RCM that a bilateral agreement is needed.</p>	
RCM Baltic (2010)	For the purposes of regional understanding of sampling activities, National information on sampling should be compiled regionally in advance of the next meeting.	Denmark compiled and submitted the requested information.
RCM Baltic (2009)	For the purposes of ranking métiers to sample, National data on effort, landings and value by métier and fishing ground should be compiled regionally in advance of the next meeting. To enable this, participants from MS should strictly respect the agreed naming conventions of fishing ground, métiers and units of the variables as well as the deadline for submission of the national data.	Denmark will use the agreed formats and naming.
RCM Baltic (2009)	For the purposes of regional understanding of sampling activities, National information on sampling should be compiled regionally in advance of the next meeting. To enable this, participants from MS should strictly respect the agreed naming conventions of fishing ground and métiers as well as the deadline for submission of the data.	See above
RCM Baltic (2009)	For the purposes of understanding the heterogeneity of métiers and the consequences for task sharing and discard sampling, national descriptions of the regionally ranked métiers should be compiled using the format in annex 3. To enable this, participants from the MS should strictly respect the agreed naming conventions of fishing ground and métiers as well as the deadline for submission of the	Denmark has produced the requested description of the metiers and used the format in annex 3.

	information. Appointed persons are responsible for requesting the data and compiling it on a regional level	
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III.C.4 Actions to avoid shortfalls

In 2010-2011 a proper statistically sound sampling frame was developed and implemented in the observer program. This has reduced some of the problems mentioned in ICES WKACCU and WKPRECISE and latest WKPICS in 2012 as shortfalls to avoid. However, the new sampling program has in practice been more difficult to implement than expected mainly, due to the increased logistics problems that arise when vessels are randomly selected from a database (vessels with homeports on small islands, skippers that we do not normally have contact with ect.). However, some of the obvious pitfalls are avoid, such as only selecting a well-known part of the fleet, to have a clear procedure on how to follow up on refusal and to collect these information. Furthermore Denmark is now weighting the possibility of selecting a vessel, with the numbers of trips conducted by the vessel, thereby avoiding having an oversample of vessels not conducting the main part of the trips. The larges advances with the system are the increased number of vessels included in the sampling. The numbers of vessels have increased by 30% and as it has been shown that the main part of the uncertainties is between vessels it makes good sense to increase the number of ships to be sampled. Another reason for inconsistencies between planned no of trips and achieved number is the dynamic in the fishery making it difficult to predict spatial and temporal fishing patterns for some metiers at the time of planning the NP. However, with the new system we try to follow the fishery by calling the selected fisherman and if he is going on a trip, we are obliged to sample according to the DCF, we will conduct the trip although it is conducted in another area and with another metier. The improved Danish sampling program in 2011 has incorporated refusal rates from the random selected fishermen giving a much better overview of the bias in the sampling program in connection to the sampling population and the coverage of this.

North Sea (ICES areas IIIa, IV and VIId)

III.C.1 Achievements: Results and deviation from NP proposal

Deviation from sampling on shore and at sea

Beam trawl targeting crustaceans (TBB CRU 16-34 0 0), sub IV+VIId

150% of the planned Crangon fishery was covered. The reason for the oversamples can be found in the new observer program where number of trips are weighted in the selection. In the crangon fishery many 1 days trips are conducted and therefore this metier is having a higher possibility to be selected than a metier with fewer trips. As it is one of the metier with a high proportion of discards the higher priority seems sense full. In this fishery the landed part of the catch is sampled on board and brought back to the institute for analysis on sex and maturity. For this reason the numbers of trips on shore is identically to the numbers of trips at sea.

Bottom otter trawl targeting demersal fish (OTB_DEF<16 0 0), sub IV+VIId

The sandeel fishery has always been covered very detailed in the North Sea by Denmark as we are the main nation fishing on this species. In 2011 the real-time observer sampling programme was not conducted as usual.

This was due to the ICES recommendation on using the Danish sandell survey and normal level of catch data to conduct the survey. Therefore Denmark was in the position to reduce the sampling effort a lot and the total trips sampled were 152. Although only half of the level applied for, as the real-time sampling is not conducted and used the sampling level is still high and covers were fine the fishery. A large effort has been put to optimise the sandeels sampling program and a minimum of 30 samples by month and sandell area is collected. Both self-sampling and control samples are used in the program. The self-sampling samples have a higher quality duo to the extra information on position and the samples are frozen right away but to assure the correctness of the samples the results are compared with the control samples.

Bottom pair trawl targeting small pelagic (PTM_SPF_16-31_0_0), sub IV+VIId

The applied sampling level in the NP for the sprat fishery was between 2009 and 2011 increased from 20 to 80 annually samples. However, this increase in sampling level has been an overestimation of the number of sampled needed, 47 samples were collected or 59% of the applied level. In 2011 the numbers of trips decreased by 6% compared to 2010

Bottom pair trawl targeting small pelagic (OTB_SPF_32-69_0_0), sub IV+VIId

The mixed herring (67%) and mackerel fishery (33%) was in 2011 oversampled with 417% compared to the applied sampling level in the NP. This increased sampling level is partly caused by other MS (mainly Germany and Sweden) landings in Denmark, were Denmark is obliged to sample.

Bottom otter trawl targeting crustaceans (OTB_MSD_>=120), sub IV+VIId

The at-sea sampling program was only covering 6 of 28 planned trips. The reason for this under sampling can again be found in the new, logistic more challenging observer program. Numbers of trips have been decreased by 11% compared to 2010. To compensate for the lack of observer trips the numbers of harbour trips have been increased by 179% from 24 to 43. This indicates that the métier is very well covered in the Danish sampling program in 2011.

Bottom otter trawl targeting crustaceans (OTB_MCD_70-99_0_0), sub IV+VIId

This metier is a very small fishery and has decreased even more with 27% compared to 2010. Only 24% of the planned at sea monitoring was covered in this metier. The trip level is so low at present from this metier that the random selection will only very seldom select the metier.

Set gillnet fisheries targeting demersal fish (GNS_DEF_120-219_0_0), sub IV+VIId

The “at sea monitoring” achieved to sample 63% of the planned trips. One reason for this under sampling is caused by fishermen deciding rather late on the trips if they want to fish in sub IV or sub IIIaN. The trips in sub IIIaN is for the same reason oversampled by 220%. Another reason for the under sampling is a decrease in numbers of trips between 2010 and 2011 by 37%. To compensate for the under sampling in the at sea program for gillnets in the North Sea the harbour samples were increased by 475% (19 samples) compared to the level applied in 2010.

Bottom otter trawl targeting small pelagic (OTB_DEF_16-31_0_0) sub IV+VIId

The Norway-pout fishery in the North Sea was very small in 2011 due to lack of quota and therefore the sampling level was much lower compared to the applied sampling level. Number of trips decreased by 67% and the sampling level was 35% of the applied.

Anchored seine targeting demersal fish (SDN_DEF_>=120_0_0), sub IV+VIId

38% of the planned trips were conducted; however with many samples as the trips were unusually long (average of 6.5 days a trip). To compensate for the under sampling at sea, the on shore sampling were increased and oversampled compared to the applied number of samples by 225%.

Bottom otter trawl targeting Crustaceans (OTB_CRU_35-69_0_0), sub IIIaN

This shrimp fishery was oversampled by 125% in the observer program. In this fishery (as with Cragon) the landed part of the catch is sampled on board and brought back to the institute for analysis on sex and maturity. For this reason the numbers of trips on shore is identically to the numbers of trips at sea. It is therefore a mistake in the application that the number of harbour samples are higher than the number of samples at sea.

Bottom pair trawl targeting small pelagic (OTB_SPF_32-69_0_0), sub IIIaN

In 2011 was this métier mainly fishing herring were oversampled by 138% or with 11 samples compared to the 8 samples applied for in the NP. This area is a mixing area for 3 different herring stocks and the over sampling is due to the fact the herring assessment working groups needs a very large sampling cover to be able to make stock identification.

Bottom otter trawl targeting demersal fish (OTB_DEF<16 0 0), sub IIIaN

The Danish sandeel fishery was in 2011 only given a very small quota on 5000t (sandell area 3) however, the quota came very late in the year and the main part of it was fished in the North sea and no official landings have been registered in Skagerrak in 2011. For obvious reason there are no samples selected.

Bottom otter trawl targeting crustaceans (OTB_MCD_90-119 0 0), sub IIIaN

The at sea sampling program was conducted with 77% of the applied trips (23) compared to the applied sampling level. To compensate the number of harbour trips were increased with 163%.

Set gillnet fisheries targeting demersal fish (GNS_DEF_120-219_0_0), sub IIIaN

. The “at sea monitoring” was over sampled by 220%. For explanation see GNS_DEF_120-219_0_0), sub IV. The harbour samples were increased by 107% compared to the applied sampling level in 2010.

Anchored seine targeting demersal fish (SDN_DEF_90-119_0_0), sub IIIaN

This metier was in 2011 sampled very closed to the applied level. 100% of the sampling level at sea was conducted and a little 14 instead of 12 trips were sampled at land.

Bottom otter trawl targeting small pelagic (OTM_SPF_16-31_0_0) sub IIIaS

The sprat fishery in Kattegat has been sampled exactly at the applied level in the NP

Bottom pair trawl targeting small pelagic (PTB_SPF_32-69_0_0), sub IIIaS

This métier has been sampled at 63% compared to the applied level in the NP, however the numbers of trips has decreased between 2010 and 2011 with 18%.

Bottom otter trawl targeting Crustaceans (OTB_MCD_90-119_0_0), sub IIIaS

This métier is mainly targeting *Nephrops* although it is a mixed fishery. This métier has many 1 day trips and has therefore a very high weighting in the new observer system. The métier has therefore been oversampled 135% compared to the NP application and the harbour samples with 165%. However, due to the increased sampling level discard data were for the first time applied to the cod stock in Kattegat in the assessment in 2012.

Set gillnet fisheries targeting demersal fish (GNS_DEF_120-219_0_0), sub IIIaS

This fishery is a new fishery in the observers program and contact to the industry has to be build up. In 2011 100% of the applied at sea trips were conducted.

Anchored seine targeting demersal fish (SDN_DEF_90-119_0_0), sub IIIaS

This métier is very small in Kattegat and the change of a vessel is selected is rather low compared to the trawlers. In 2011 50% of the applied trips were conducted and 25% of the harbour samples. However the trip level has even further decreased since 2010 by 87%.

Midwater otter trawl targeting small pelagic fish (OTM SPF 32-69 0 0), sub I and II

The métier is a herring and partly mackerel fishery. It has in 2011 been oversampled with 213% (17 samples instead of the applied 8).

III.C.2 Data quality: results and deviation from NP proposal

In 2011 Denmark has been working with the COST tool. Results obtained so far are presented in table III.C.5. Denmark has only calculated the CV's for the length distribution in the landings. The CV's have been calculated according to our sampling strategy for landings – quarter and commercial size category. Denmark calculates the volume of discard for all species by raising with total landings. This method has not been developed in COST, so the CV's for discard volume and length distribution in the discard have not been calculated.

Denmark has estimated CV's with the method described in Appendix 1.

The retained part of the catch for the main part of the species is sampled in harbours. For these the sampling frame is stratified by quarter and commercial size category. The CV's for this group of species are calculated using COST. For a small part of the species the retained part of the catch are sampled at-sea and therefore the sampling frame is stratified by fishing ground, quarter and métier. For the last group of species it has not been possible to use COST as a tool for calculating CV's and therefor the method in Appendix 1 has been used for theses. The CVs for discard volume and length distribution in the discard have been estimated with the method described in Appendix 1.

Denmark has in 2011 implemented a new design of the metier sampling programmes on the basis of the outcome of the two ICES workshops WKACCU and WKPRECISE. The work includes identification of proper sampling frames and probability based ways to select primary sampling units. The new designs will improve the possibilities to evaluate possible bias and thereby also accuracy.

III.C.3 Follow-up of regional and international recommendations

Source	Recommendation	Action
RCM NS&EA 2011 Recommendation	MS to fill update metier descriptions already compiled by RCM NS&EA 2010 and using the standard template complete descriptions for any new metiers identified. Updated and new files to be uploaded by Fishing Ground co-ordinators.	If relevant for Denmark, this will be done before the deadline.
RCM NS&EA 2011 Recommendations	The RCM NS&EA recommends that that all MS respond to the data call in 2012 from the chair of RCM NS&EA and load their data to FishFrame or make it available in the FishFrame format. This data call will include Commercial Landings(CL), Commercail Effort (CE) and Commerical Samples (CS) records for 2010 and 2011.	All data are uploaded to RDB-FishFrame.
RCM NS&EA 2011 Recommendations	RCM NS&EA recommends that each MS should send a representative to WKPICS to discuss data collection and the methods used to raise this data for assessment use and that WKPICS adds this to its ToR.	One Danish participant was sent to this WK.
RCM NS&EA (2010)	The RCM NS & EA considers that in a situation where sampling resources are limited, priority should be given to the sampling of discards in those metiers with high discarding. The information required is an estimate of the level of discarding (volume and percentage) and the main species contributing to the discard fraction of the catch. MS to prepare information on level of discarding in national metiers collected in recent years to be presented at a dedicated workshop to be defined.	Denmark participated in the ICES PG for discards (SGPIDS) and will deliver data and information on request.
RCM NS&EA (2010)	The RCM NS & EA recommends that OTB_DEF_>=120_0_0 and TBB_DEF_70-99_0_0 are used as case studies for North Sea region in the ICES WKEID. The RCM NS & EA further recommends MS to submit data to ICES WKEID	Denmark submitted the requested data to WKEID.
RCM NS&EA (2009)	RCM NS&EA recommends Sweden and Denmark to explore whether the discrepancy identified between the Swedish and Danish métier definition of vessels operating in Div. IIIa have	Denmark provided the requested information to the HAWG.

	any effect on the raising of the input data during HAWG and to provide a definition of the métier exploiting the herring stock in IIIa.	
RCM NS&EA (2009)	For the purposes of ranking métiers to sample, National data on effort, landings and value by métier and fishing ground should be compiled regionally in advance of the next meeting. To enable this, participants from MS should strictly respect the agreed naming conventions of fishing ground, métiers and units of the variables as well as the deadline for submission of the national data.	Denmark has followed the guide lines.
RCM NS & EA (2009)	For the purposes of regional understanding of sampling activities, National information on sampling should be compiled regionally in advance of the next meeting. To enable this, participants from MS should strictly respect the agreed naming conventions of fishing ground and métiers as well as the deadline for submission of the data.	Denmark has followed the guide lines.
RCM NS & EA (2009)	For the purposes of understanding the heterogeneity of métiers and the consequences for task sharing and discard sampling, national descriptions of the regionally ranked métiers should be compiled using the format in annex 9. To enable this, participants from the MS should strictly respect the agreed naming conventions of fishing ground and métiers as well as the deadline for submission of the information. Appointed persons are responsible for requesting the data and compiling it on a regional level	Denmark has produced the requested information and provided this to the RCM.
RCM NS & EA (2009)	MS to use the average landing figures over the years 2007-2008 as the basis for ranking métiers within the NP 2011-2013	Denmark has done as requested.

III.C.4 Actions to avoid shortfalls

In 2010-2011 a proper statistically sound sampling frame was developed and implemented in the observer program. This has reduced some of the problems mentioned in ICES WKACCU and WKPRECISE and latest WKPICS in 2012 as shortfalls to avoid. However, the new sampling program has in practice been more difficult to implement than expected mainly, due to the increased logistics problems that arise when vessels are randomly selected from a database (vessels with homeports on small islands, skippers that we do not normally have contact with ect.). However, some of the obvious pitfalls are avoid, such as only selecting a well-known part of the fleet, to have a clear procedure on how to follow up on refusal and to collect these information. Furthermore

Denmark is now weighting the possibility of selecting a vessel, with the numbers of trips conducted by the vessel, thereby avoiding having an oversample of vessels not conducting the main part of the trips. The largest advances with the system (besides the unbiased results) are the increased number of vessels included in the sampling. The numbers of vessels have increased by 30% and as it has been shown that the main part of the uncertainties is between vessels it makes good sense to increase the number of ships to be sampled. . Another reason for inconsistencies between planned no of trips and achieved number is the dynamic in the fishery making it difficult to predict spatial and temporal fishing patterns for some metiers at the time of planning the NP. However, with the new system we try to follow the fishery by calling the selected fisherman and if he is going on a trip, we are obliged to sample according to the DCF, we will conduct the trip although it is conducted in another area and with another metier The improved Danish sampling program in 2011 has incorporated refusal rates from the random selected fishermen giving a much better overview of the bias in the sampling program in connection to the sampling population and the coverage of this.

North Atlantic (ICES areas V-XIV and NAFO areas)

III.C.1 Achievements: Results and deviation from NP proposal

Midwater otter trawl targeting small pelagic fish (OTM SPF 32-69 0 0), sub VII and VIII

The metier has earlier been a blue whiting fishery and has not been conducted in 2010 and 2011, However a new fishery has been initiated since 2009 and Denmark with Boarfish and this fishery is sampled to be able to have data for an assessment on this new fishery species. Therefore this metier is oversampled by 572%.

III.C.2 Data quality: results and deviation from NP proposal

See Baltic section

III.C.3 Follow-up of regional and international recommendations

Source	Recommendation	Action
RCM NA 2011 Recommendation	<p>MS should make sure that their landings abroad are included in their FishFrame upload allowing the RCM to analyse the possible needs for bilateral agreements.</p> <p>The RCMs should perform an annual analysis on landings in foreign countries and conclude where bilateral agreements need to be made. MS should set up agreements, fixing the details of sampling, compilation and submission of data in each case when it is indicated by the RCM that a bilateral agreement is needed. Standard output algorithms to enable analysis of compiled data should be included in FishFrame.</p> <p>MS should set up agreements, fixing the details of sampling,</p>	All landings abroad in 2011 from Denmark are uploaded to RDB-FishFrame.

	<p>compilation and submission of data in each case it is concluded by the RCM that a bilateral agreement is needed.</p>	
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No other RCM NA or LM recommendations related to this region are relevant to Denmark.

III.C.4 Actions to avoid shortfalls

See under Baltic Sea

III.D Biological - Recreational fisheries

In order to estimate 2011 cod, eel and sea trout harvest (fish caught and kept) in the Danish angling and passive gear fishing, interview survey has since 2009 been conducted by DTU Aqua in cooperation with Statistic Denmark. To estimate 2011 data two interview surveys were conducted in July 2011 and January 2012.

Recreational fishing was separated into anglers (with rod and reel) and passive gear fishing (fyke – and gillnets). In 2011 a total of 157,762 anglers and 33,911 passive gear fishermen had issued the compulsory annual license. In total, it was estimated that 80 t [Relative standard error (RSE)=6%] eel, 1,300 t (RSE=5 %) cod and 400 t (RSE=5 %) sea trout (including freshwater catches) was harvested in the recreational fishery. Eel are almost exclusively taken in the passive gear fykenet fishery and sea trout was mainly caught by anglers which accounted for 90 % of the total harvest. The estimated cod harvest was also mainly taken by anglers and at least two areas were identified with a high recreational harvest relative to the total yield (commercial landings plus recreational harvest), i.e. the Sound and in Kattegat.

Denmark and DTU Aqua developed a concept for a combined telephone and internet survey for the Danish recreational fishery. To estimate the seasonal and annual fluctuations in the catches the survey are intended to be conducted on a quarterly basis during the next years.

In 2011 two surveys was conducted resulting in a recall period on 6 months. None of the surveys included catches of Baltic salmon, since it was judged to be a fishery not suited for the sampling approach used in present survey. This is simply because the fraction of anglers practicing this fishery is believed to be very low. The surveys covering the 2011 catches did also include the catches of sea running trout.

The interview survey presented in this report was separated into two different phases with their own questionnaires and group of respondents: 1) The Omnibus and 2) License holders. The omnibus was only conducted once in 2010 as the results from this interview are not likely to change much since 2009 were 3 surveys were conducted. The license list survey was conducted twice covering the period from January to June and July to December.

Anglers - domestic as well as tourists - between 18 and 65 years of age have to purchase a license for a year, week or day. All passive gear fishers have to have an early license and you are not allowed to fish before the age of 12. The license is personal and non-transferable.

See further information under Baltic Sea and the total report in annex (“Eel and cod catches in Danish recreational fishing, Survey design and 2011 catches”)

The Baltic Sea and the North Sea and Eastern Arctic

III.D.1 Achievements: results and deviation from NP proposal

For the Baltic Sea, salmon, trout, eel and cod are to be reported and for the North Sea only cod, trout and eel. Denmark has provided a report with the landings estimated for 2011 that has been delivered to the relevant ICES working groups (WGBFAS, WGNSSK and WGBAST) for them to include in the assessments. However, as the survey has only been conducted for 3 years it has not been possible for the WG to use the data directly in assessment. It has however been suggested to include the cod data in the WGBFAS in the benchmark in 2012.

Salmon has not been included in the telephone survey as it was judged that this fishery was not suited for this kind of investigation. The salmon fishery is in a very short time frame and involving few people. An alternative way of receiving more detailed information from the Salmon fishery has to be further developed.

The majority of recreational fishermen in Denmark are occasional anglers using private boats or fishing from piers or using waders along the Danish coasts. A survey conducted by Bohn & Roth (1997) showed that around 13 of all recreational fishermen were members of an association. In Denmark there are several associations for recreational fishermen, with three dominant associations active in advisory committees to the government. These are the Sports Fishermen’s Association, the Danish Amateur Fishermen’s Association and the Danish Recreational Fishermen’s Organization.

Cod

A total of 1303 t cod were caught in the Danish recreational fishery in 2011. Cod were caught in all gears but with the main contribution (93%) from the angling fishery, 6% of the catches derived from the gillnet fishery and only 1.5% came from fykenets.

The angling catches of cod are quite evenly distributed in the first three quarters of the year but in the last quarter only 18% of the catches were taken. The most important area for cod catches were the Sound were 30% of the total cod catches were taken followed by the Belt Sea with 22% and Skagerrak with 20%.

Eel

A total of 80 t eel was caught with fykenet in Danish recreational fishing in 2011. The majority (60 %) was taken during the third quarter. The most important area was the Belt Sea which alone accounted for 36 % of the total eel catches.

Trout

Sea running trout was not only caught in marine waters and it was estimated that 15 % of the total catches was taken in freshwater in 2011. Trout was primarily caught angling which accounted for 88 % of the total catches. In total 401 t was harvested with the main area as Kattegat and the Belt Sea

Salmon in the Baltic

The Danish recreational fishery for salmon is increasing in popularity, as catches have been increasing in recent years and the activity is further promoted by popular fishing contests. It is especially popular around the island Bornholm, but fishing also takes place further to the west in the Baltic Sea. The fishery is primarily carried out by trolling from small boats and vessels. Some small harbours on the north of the island have specialized on servicing the trolling fishery.

The fishing season starts in September and ends in May. Both Danish nationals and visitors from abroad attend the fishery, either for short fishing trips or as participants in angling competitions. In addition to trolling, a traditional fishery carried out by non-professionals setting a number of fixed hook lines with only a few hooks is operated part of the year by local inhabitants around the island Bornholm.

In the North Sea there is no recreational fishery for salmon.

The total Danish recreational catch of Salmon in the Baltic Sea in 2011 was estimated to be on the same level as in previous years, i.e. approx. 3000 salmon. These catches were corresponding to just over 5% of the total Danish quota in 2011 and 14% of the commercial catch of Salmon as the quota was not utilized.

Trolling: The official number of salmon caught by the sport fishery (trolling boats) is 1225 in 2011. This information is based on data collected from 2 larger trolling fishing competitions in the spring period. A 3.rd competition covering the rest of the fishing season was not running in 2011. A large part of the total catches taken by the Danish trolling fishermen are registered in these 3 competitions, and our guestimate of the total catches (including non-reported catches made by tourist at Bornholm) is 1500 Salmon.

Long-lining made by non-professionals: From the coast guard, from the trolling boats, and from other sources we know that this fishery takes place, but the catches are quite uncertain as no catches are reported at all. It is known that a few smaller boats are fishing from time to time. Some of these boats are drifting together with the lines, and others leave the lines with buoys for 24 hours. Our guestimate is that the total catches in this fishery are between 1000 and 2000 salmon per year.

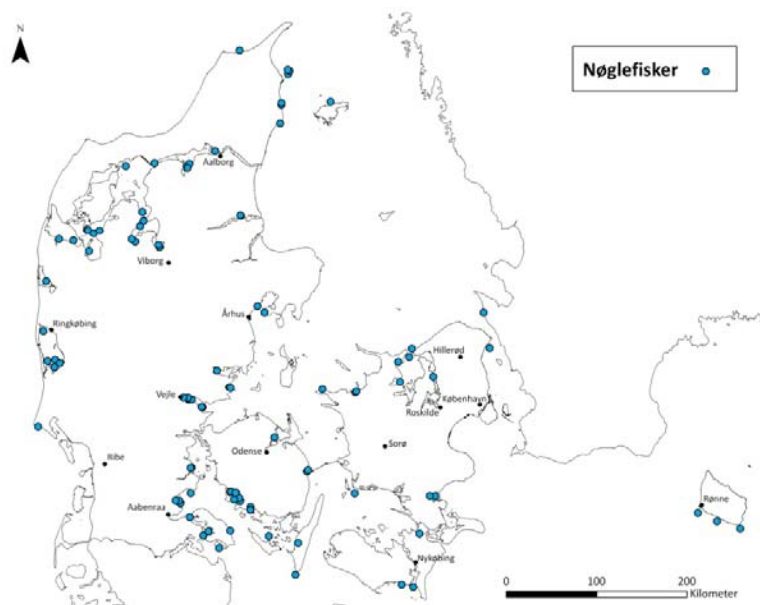


Fig.1. Maps showing distribution of fishermen during 2010. A total of 91 fishermen participated, 76 with gillnet and 68 with trap-net.

III.D.2 Data quality: results and deviation from NP proposal

The result is given in the attached annex. There is no deviation from the NP for 2011.

III.D.3 Follow-up of regional and international recommendations

Source	Recommendation	Action
RCM Baltic 2011	MS is requested to submit the recreational fishery available data (total removals, any biological data) to the next meeting of WGBFAS, WGBAST and WGEEL in 2012. ICES WGBFAS, WGBAST and WGEEL are asked to consider the usefulness of inclusion the recreational fishery data into the stock assessment. IF it is useful for certain stock WG should provide the list of necessary data needed from recreational fishery in the Baltic.	The Danish report on recreational fisheries including catch figures was made available to the WGBFAS and the WGEEL.
RCM Baltic 2010	1. Investigate the potential to coordinate recreational fisheries cod catches in SD 22-24 between Denmark, Germany and Sweden.	Denmark has participated in a meeting between Denmark, Sweden and Germany where the

	<ol style="list-style-type: none"> 2. Discuss the possibility to include recreational fisheries data into FishFrame. 3. Compile 1-page status report of on-going recreational fisheries surveys. 4. Provide guidance how often recreational fisheries surveys need to be conducted. 5. RCM Baltic endorses to use annual weight estimates. 	issues were discussed.
RCM NS & EA (2009)	RCM NS&EA recommends MS to provide an overview of their inland sampling of the recreational fishery on eel.	Denmark is still working on this overview and it the plan to have it ready for the ICES WGEEL. Denmark is having a limited sampling programme on eels from inland fisheries.

III.D.4 Actions to avoid shortfalls

Since 2009 Denmark has initiated a survey and sampling on the recreational fishery and it is planned that this survey will continue twice a year in the future. In 2010 the survey was expanded to sea trout. However, the same level of knowledge has not been achieved for Salmon and a proper way to sample this fishery has to be developed.

III.E Biological - stock-related variables

To get catch-in-numbers (CANUM) and weight-in-catch (WECA) by age group, sampling of the landings and discards is undertaken. For pelagic stocks simple random sampling is undertaken in land. Here a non sorted sample is taken by the control sent to DTU-Aqua and analysed at the institute. This sampling strategy is the case for sprat, sandell, herring, boarfish, and Norway pout. For sand-ell the sampling is supplemented by a self-sampling program sampling haul by haul For all species landed by sorting groups another strategy is applied; a fixed number of individuals are sampled randomly within market size category (if sorted) /unit (unit =area, quarter and gear). All individuals in a sample are analyzed according to length, weight and age. Sampling strategy on surveys and onboard fishing vessels differs from market sampling and was performed as follows: all individuals (or a sub sample) were length measured by species and a fixed number per length class was sampled for age and weight. For stocks sampled on surveys and onboard fishing vessels, the length can be given an age by using an Age-Length-Key. Maturity data is only estimated on scientific surveys to achieve a higher expertise

International survey manuals give guidelines on number of individuals / length class to be sampled for age, sex and maturity. These were followed and the actual sampled number is therefore dependent on the amount of catch.

The Baltic Sea (ICES areas IIIb-d)

III.E.1 Achievements: results and deviation from NP proposal

All stocks sampled during 2011 for biological variables, age, length, weight, sex and sexual maturity are listed in table III.E.3. The variables are collected from different sources like survey, market or sea sampling and sampling strategy differs. For most stocks the sampling sources are listed and the results presented in separate rows. In table III.E.3 in the NP most consume species have listed survey and harbour sampling as data sources however for most of the consume species sea sampling should also have been listed as data source. ICES has in 2011 increased the focus on flatfish species in the Baltic and for this reason 2 more species have been sampled although not applied for in the NP (dab and flounders).

Deviation from NP proposal

In the Baltic following species were not sampled as stated in the NP:

Cod in sub. 22-24 and 25-32

By mistake different numbers of planned sampled maturity@age and sex@age was given in the Danish National Programme for 2011. The values should off course have been the similar. Maturity@age and sex@age were sampled at 130% for sub 22-24 and at 112% for the sub 25-32 compared to the NP. The total number of the sampled maturity and sex-ratio are exclusively sampled at surveys were a guideline from ICES WGBIFS is followed. For length, weight and age data samples in 2011 were very closed to the applied level with 110% achieved samples in the sub 22-32 and 94% in the sub 25-32.

Sole in sub. 22-24.

111% of the length, weight and age data and 316% sex-ratio were sampled as planned, however the sampling level for sex and maturity was sat relatively low at 100..

Eel in sub. 22-32

Very closed to the applied level in the NP 95% of the length and weight data were sampled for ell in the Baltic.

Herring in sub. 22-32

In the Danish National Program for 2011 there was applied for 2000 age and length samples from Baltic herring 77% of this level was reached, for sex and maturity 140% of the applied level was sampled

Sprat in sub. 22-32

For sprat 128% of the applied age, length and weight data were sampled in 2011 and 54 % of the applied sex and maturity samples. Again all sex and maturity data are from surveys..

Dab in sub. 22-24

1029 or 172% of the dab samples length and weight applied for were sampled in 2011. 70% of the maturity@age and sex@age were sampled, as these are exclusively sampled at surveys the numbers available cannot in advance be foreseen.

Flounder in sub. 22-24

Flounder has by a mistake not been applied for in the NP in 2011. Denmark is obliged to sample dab according to the RCM Baltic and ICES has ambition to conduct an analytic assessment on this species. 1003 flounders has been length, weighted and aged in 2011 although they were not in the NP for 2010 (see III.E.1 start of section), 77 pieces has been matured and sexed.

Plaice in sub 22-32

93% of the sampling level for age, weight and length applied for in the NP 2011 was achieved in 2011. An oversampling of 294% for maturity and sex were sampled, the reason is the same as for cod. Samples on sex and maturity are conducted at surveys and the guidelines from WGBIFS are followed.

Turbot and brill 22-32

Turbot and brill have by a mistake not been applied for in the NP in 2011. Denmark is obliged to sample dab according to the RCM Baltic and ICES have ambition to conduct an analytic assessment on this species. 341 length, weight and age samples have been conducted and 113 sex and maturity samples. 281 brill were aged, length and weight measured and 147 were sexed and maturity measured.

Salmon in sub. 22-31

Salmon was sampled at 407% of the level applied in the NP. The increased sampling level is caused by an increased effort in sampling the long liner fishery in the Baltic.

III.E.2 Data quality: results and deviation from NP proposal

All precision estimates have to be achieved at a regional, but there is still missing some coordination work between countries, so all the CV's represented in table III.E.3 are estimated at a national level.

Denmark has used COST to calculate the CV for the variables in table III.E.3. The CV's for age and weight are based solely on data from harbour samplings, since this is the only Danish sampling strategy covered by the methods in COST. Denmark calculates the volume of discard for all species by raising with total landings. This method has not been developed in COST, so the CV's for age and weight in the discard have not been calculated. CV's for maturity and Sex have not been calculated, since the data only are used at a regional level and therefore it makes no sense to calculate the CV's at a national level.

The precisions obtained for age and weight are considerable high than in previous years. Previous all data obtained for a species regarding data source and sampling strategy were used to calculate the CV.

III.E.3 Follow-up of regional and international recommendations

Source	Recommendation	Action
RCM Baltic 2010	In order to be able to analyse the current sampling level of cod in the Baltic and suggest optimal sampling levels for future regional coordinated sampling, the data must be available in a agreed format and checked for errors. Data has to be uploaded to FishFrame.	Data has been uploaded and the results will be presented at the RCM 2012
RCM Baltic 2011	For institutes collecting small volumes of age samples for certain species and when new species are to be sampled, task sharing of age reading is necessary in order to optimise the use of age reading expertise. The RCM Baltic recommends the following MS to investigate their capability to read relevant age samples of interested MS: (1) Germany: plaice (2) Denmark: plaice, dab and sole (3) Poland: flounder and turbot (4) Sweden: eel and salmon (5) Finland: salmon The suggested coordination should be discussed, agreed and decided by the National Correspondents so the first agreements could be established before December 2011.	MS have not yet given any feed back to the chair of the RCM.

III.E.4 Actions to avoid shortfalls

Most of the deviations from the proposal are caused by incorrect numbers of planned sampled of maturity and sex-ratio data given in the Danish National Programme for 2011. This is partly due to the fact that maturity is only measured at surveys (and often only in the 1st quarter survey) and it can be hard to plan exactly how many fish are caught in the survey. Furthermore many new species have arrived in the list to be sampled as ICES has increased the focus on data poor stocks. DTU Aqua will make an effort to give better prognoses for collection of these data in the future.

The North Sea and Eastern Arctic (ICES areas IIIa, IV and VIId)

III.E.1 Achievements: results and deviation from NP proposal

All stocks sampled during 2011 for biological variables, age, length, weight, sex and sexual maturity are listed in table III.E.3. The variables are collected from different sources like survey, market or sea sampling and sampling strategy differs. For most stocks the sampling sources are listed and the results presented in separate rows.

Deviation from proposal

In the North Sea following species were not sampled as stated in the NP:

Sandeel in sub. IV and IIIa

Sandeel weight, age and length have been sampled at 108% and 134% in the North Sea and IIIa, respectively. Maturity and sex at age has been oversampled by 573% in the North Sea and 360% in IIIa. This data are available from the November sandeel survey in the North Sea.

Herring in sub. IIIa, IV-VIId and I-II

Herring was sampled between 85-169% of the level applied for in the NP 2011, for weight@age and length@age. The Danish data is used for stock separation in the assessment and therefore a high level of samples is collected. Maturity and sex@age data were also sampled at a higher level than applied for in the NP with sampling at 760%- 3000%. However, a very low level was applied for in the NP between 100 – 200 specimens and Denmark is also sampling for other MS with landings in Denmark.

Cod in IIIaN, IIIaS, IV- VIId.

Cod has been sampled above the applied level for weight@age and length@age in the IIIaS and IV-VIId with 259% and 110%, respectively. In IIIaN only 67% of the applied level was achieved, however this is still 2671 specimen. For sex@age and maturity@age there was again an oversample in the IIIaS and IV with 700 and 377%, the large oversample in both area are conducted on surveys. However, in area IIIaN no Danish survey is conducted and this has resulted in an under sampling for sex and maturity at 17%. This area is however very well covered by the Swedish IBTS.

Anglerfish in sub. IV- VIId.

209% of the applied sample level for weight@age or length@age were collected. Maturity and sex data is only collected in the 1 quarter survey (IBTS) in the North Sea and is therefore very depended on the amount of fish caught in the survey.

Whiting in sub. IV- VIId.

Sampling of whiting was only applied for in IIIa and not in IV in the NP – this is incorrect and the species has been sampled for all parameters in both areas.

Haddock IV and IIIa

Haddock was sampled in both IV and IIIa and not only in IIIa as stated in the NP. Length@age and weight@age have been sampled at 81% (or 1219 specimen) in IIIa and 1575 specimens were collected in IV. Were few (2) specimens were sampled for sex and maturity in IIIa. This very low level is caused by the survey is only conducted in the southern part of IIIa and here haddock is not as abundant. However, maturity and sex have been sampled at the IBTS in IV (510 specimens).

Plaice in IIIa and IV

For both areas the sampling for all parameters has been a small oversampling compared to the applied in the NP 2011. The plaice samples have had a high priority in 2011 as a benchmark on stock separation was conducted by ICES in 2012 and a detailed level of data was needed.

Turbot in IIIa and IV

Sampling of turbot was only applied for in IV and not in IIIa in the NP – this is incorrect and the species has been sampled for all parameters in both areas. There has been a higher sampling intensity in IIIa than in IV.

Brill in IIIa

Sampling of brill was not applied for in IIIa in the NP – this is incorrect and the species has been sampled for all parameters in the area.

Sole in IIIa and IV

Sampling of sole was only applied for in IIIa and not in IV in the NP – this is incorrect and the species has been sampled for all parameters in both areas. There has been a higher sampling intensity in IIIa than in IV. However the earlier high level of sampling has not been reached as both quota and the survey has been downscaled in 2011.

Saithe in IV, IIIa, VI

Length@age and weight@age data were sampled at 143% of the applied, no sex or maturity data were obtained as this is only conducted on the IBTS 1 quarter and no saithe were caught.

Hake in IIIa, IV, VI and VIIab

The achievement of collected maturity data was 6%. Maturity and sex data is only collected in the 1 quarter survey (IBTS) in the North Sea and is therefore very depended on the amount of fish caught. As a supplement to the lack of data, we have collected length, age and weight distributions from 159% of the planned samples.

Mackerel in North Sea

Last year Denmark only managed to sample 52% of the applied sampling level for maturity and sex-ratio. And extra effort was in 2011 put forward to increase sampling level and the mackerel is oversampled compared to the applied level for all parameters in 2011.

Horse mackerel in IIIa, IVbc, VIId

Horse mackerel was not applied for in the NP and only sampled in the surveys at a very low level (50).

Sprat in IIIa

Sprat was sampled at 48% of the applied level in sub IIIa and 126% in sub. IV for weight@age and length@age. Maturity and sex@age was oversampled for both areas.

Witch flounder and lemon sole in IV

Both species were sampled some above the applied level in the NP 2011. For both weight@age, length@age and maturity, however the applied level was not very high.

Ling IIIaN and IV

Ling is a new species to be sampled by Demark and is only sampled in very small quantities in 2011. No ling was caught in the survey and therefore no maturity or sex at age data has been sampled.

Blue Whiting in IV

Landings of blue whiting was in 2011 decreased to 133 tonnes, and the stock is at a very low level indicating that the catches in the survey also has been at historic low level. For this reason it has been impossible for Denmark to fulfil the applied sampling level in 2011.

Deep water shrimp IV, IIIa

Shrimps are caught in Skagerrak and sometimes in the border to the North Sea. The species were sampled for sex, length and weight (however not for maturity or age) and was oversampled for these parameters.

Nephrops in IIIa and IV

Length, weight, maturity and sex are sampled in very large numbers for this species. Samples are mainly deriving from the Nephrops survey and from discard trips.

Brown shrimp in IV

Cragon was oversampled with 575%, however this only correspond to 1725 individuals.

III.E.2 Data quality: results and deviation from NP proposal

A coordination scheme has been set up at the RCM North Sea to improve and ease the task sharing of age reading. This will be of great help as every country do not have to work up the expertise for age readings in all species but can set up a bilateral agreement with the MS with the best expertise, as the numbers of species to be read has increased in later years.

All precision estimates have to be achieved at a regional, but there is still missing some coordination work between countries, so all the CV's represented in table III.E.3 are estimated at a national level. Denmark has taken the lead in 2010 to conduct regional precision analysis on the North Sea cod stock were involved countries will upload there data to a regional database (FishFrame). This exercise will highlight the need for sampling coordination between countries.

Denmark has used COST to calculate the CV for the variables in table III.E.3. The CV's for age and weight are based solely on data from harbour samplings, since this is the only Danish sampling strategy covered by the methods in COST. Denmark calculates the volume of discard for all species by raising with total landings. This

method has not been developed in COST, so the CV's for age and weight in the discard have not been calculated. CV's for maturity and Sex have not been calculated, since the data only are used at a regional level and therefore it makes no sense to calculate the CV's at a national level.

The precisions obtained for age and weight are considerable higher than in previous years. Previous all data obtained for a species regarding data source and sampling strategy were used to calculate the CV.

III.E.3 Follow-up of regional and international recommendations

Source	Message	Action
RCM NS&EA 2011 Recommendation	The RCM NS&EA recommends that the task sharing species are investigating by MS participating in current age reading programs and decide whether task sharing is desirable or possible for the future.	Denmark supports the idea of task sharing, but until now formal agreement is only made for turbot and brill.
RCM NS&EA 2010 Recommendation	The RCM NS&EA recommends that relevant countries investigate the distribution of their landings from the named stocks in Table 12 in relation to the overall distribution across the stock area. Where they have no sampling plans for catches, they should consider if their component of the stock is adequately sampled, spatially and temporally by other MS.	Denmark has investigated the landings for the stocks and reported back to RCM NS&EA 2011.

III.E.4 Actions to avoid shortfalls

See section III.E.4. Baltic

The North Atlantic (ICES areas V-XIV and NAFO areas)

III.E.1 Achievements: results and deviation from NP proposal

Only 109 tonnes of bluewhiting have been landed from fisheries in this area have been made in Denmark. It should also be mentioned very few fishing trip in that area have been made.

Deviation from proposal

Denmark has 15% of the EU quota of bluewhiting in the North Atlantic. As the TAC was very low in 2011 no directed fishery for bluewhiting was rarried out. Landings are made by very few vessels only few fishing trips are made it can be logistic very hard to sample these few trips. However, Denmark will make an effort to collect these few samples.

In the North Atlantic following species were not sampled as stated in the NP:

Boar fish; Denmark has initiated a fishery on a new species the Boarfish in the North Atlantic. This species has been sampled very intensely since 2010 although not applied for in the NP. However, as the species is new DTU Aqua estimated that it would be of great value to get increased knowledge.

III.E.2 Data quality: results and deviation from NP proposal

All precision estimates have to be achieved at a regional, but there is still missing some coordination work between MS, so all the CV's represented in table III.E.3 are estimated at a national level. Denmark has taken the lead in 2010 to conduct regional precision analysis on the North Sea cod stock were involved countries will upload there data to a regional database (FishFrame). This exercise will highlight the need for sampling coordination between countries.

Denmark has used COST to calculate the CV for the variables in table III.E.3. The CV's for age and weight are based solely on data from harbour samplings, since this is the only Danish sampling strategy covered by the methods in COST. Denmark calculates the volume of discard for all species by raising with total landings. This method has not been developed in COST, so the CV's for age and weight in the discard have not been calculated. CV's for maturity and Sex have not been calculated, since the data only are used at a regional level and therefore it makes no sense to calculate the CV's at a national level.

The precisions obtained for age and weight are considerable high than in previous years. Previous all data obtained for a species regarding data source and sampling strategy were used to calculate the CV.

III.E.3 Follow-up of regional and international recommendations

None of the recommendations are relevant to Denmark, as Denmark has only had a fishery for boar fish and blue whiting.

III.E.4 Actions to avoid shortfalls

DTU Aqua has discussed the shortfall of sampling blue whiting with the Danish AgriFish Agency and more focus on sampling blue whiting landings will be made.

III.F Transversal variables

III.F.1 Capacity

III.F.1.1 Achievements: results and deviation from NP proposal

No shortfalls and/or deviations exist in relation to what was stated in the national programme.

III.F.1.2 Data quality: results and deviation from NP proposal

As the information in the Vessels Register is registered according to Regulation (EC) N° 2930/1986, N° 2090/1998 and N° 26/2004 and is updated daily data on fishing capacity is assumed to be correct

Therefore, no deviations exist in relation to what was stated in the national programme.

III.F.1.3 Actions to avoid shortfalls

No action is needed.

III.F.2 Effort

III.F.2.1 Achievements: results and deviation from NP proposal

According to the Danish NP the following derogations have been asked:

‘Hours fished’: It is not possible to estimate ‘Hours fished’ since this is not recorded in the Danish logbooks and according to the EU logbook regulation it is not mandatory to record that. Therefore, Denmark request for derogation for recording and submitting “Hours fished”.

The variables concerning numbers of gear (‘Number of rigs’, ‘Number of fishing operations’, ‘Number of nets, length’, ‘Number of hook, number of lines’, ‘Number of pots, traps’) and ‘Soaking time’ are not recorded in the Danish logbooks. According to the EU logbook regulation it is not mandatory to record this detailed information. Therefore, Denmark request for derogation for recording and submitting this information

As the Danish NP has been approved the above derogation has been granted.

Therefore, no deviations in relation to what was stated in the national programme exist.

III.F.2.2 Data quality: results and deviation from NP proposal

All logbook data is recorded in accordance with the provisions in the Control Regulation (Commission Regulation (EC) N° 404/2011). Even though effort from the national authorities is put into the improvement of the fishers logbook recordings errors might occur. The obligation to use e-logbook for all vessels above 12 meter in length will most likely improve the quality of the data. Still improvements can be made, but this needs a revision of the Control Regulation (Commission Regulation (EC) N° 404/2011).

III.F.2.3 Follow-up of regional and international recommendations

No relevant recommendations have been made about the collection of effort data.

III.F.2.4 Actions to avoid shortfalls

According to the Danish NP no shortfalls have occurred.

III.F.3 Landings

III.F.3.1 Achievements: results and deviation from NP proposal

In Denmark first hand fish buyer has to report to the authorities the amount of fish in kilo and value, the size grade, the quality, the area of origin, from whom the fish is bought from as well as other information. The volume of fish landed in Denmark has always been recorded using sales slips as sales slips information is 100% accurate. Logbook data is only used to determine which métier and statistical rectangle the

amount in weight and value according to the individual sales slip should be related to. There have been no deviations in relation to what was stated in the national programme.

III.F.3.2 Data quality: results and deviation from NP proposal

All fish landed in Denmark is recorded, therefore census data. No deviations in relation to what was stated in the national programme exist.

III.F.3.3 Follow-up of regional and international recommendations

No related recommendations have been made about the collection of landings data.

III.F.3.4 Actions to avoid shortfalls

As no shortfalls have happened no actions have to be made.

III.G Research surveys at sea

III.G.1 Achievements: results and deviation from NP proposal

In table III.G.1 an overview is given of the planned and achieved numbers of days at sea and the number of fishing hauls, transect length with acoustic data integration (Echo NM) etc.

The biological data from surveys are stored in the national biological database “Babelfisk” (see section 14.1). The acoustic data are stored in a national acoustic database. MIK data are stored in a national MIK database. CTD and other hydrographical information are stored in a national CTD database for later submission to ICES.

The BITS and IBTS survey data have been submitted to ICES and are stored in the ICES DATRAS database.

Baltic International Trawl Survey (BITS)

The survey is carried out in both the first and fourth quarters with participation of the research vessel R/V DANA and the smaller research vessel R/V HAVFISKEN. The primary purpose of the part undertaken by R/V DANA is to estimate abundance indices for recruitment and stock abundance of the Baltic cod stocks. The second part undertaken by R/V HAVFISKEN provides in addition to cod also abundance indices for flatfish. The BITS survey is coordinated by the ICES Baltic International Fish Survey Working Group.

Types of data collected:

- Species composition
- Length and age measurements
- Samples of cod for estimating age composition, sex ratios, maturity and growth parameters
- CTD: temperature, salinity and dissolved oxygen content

Achievements in 2011:

In the summary table below the planned and achieved days at sea and fish hauls on R/V DANA and on R/V HAVFISKEN are listed (Number of stations not fished due to bottom oxygen < 1.5 ml/l given in brackets).

Survey	Vessel	Planned days at sea	Achieved days at sea	Planned fish hauls	Achieved fish hauls
BITS 1 st quarter	Dana	18	18	55	47 (8)
BITS 1 st quarter (KASU)	Havfisken	max. 20	18	48	48
BITS 4 th quarter	Dana	18	18	50	32 (18)
BITS 4 th quarter (KASU)	Havfisken	max. 20	18	48	49

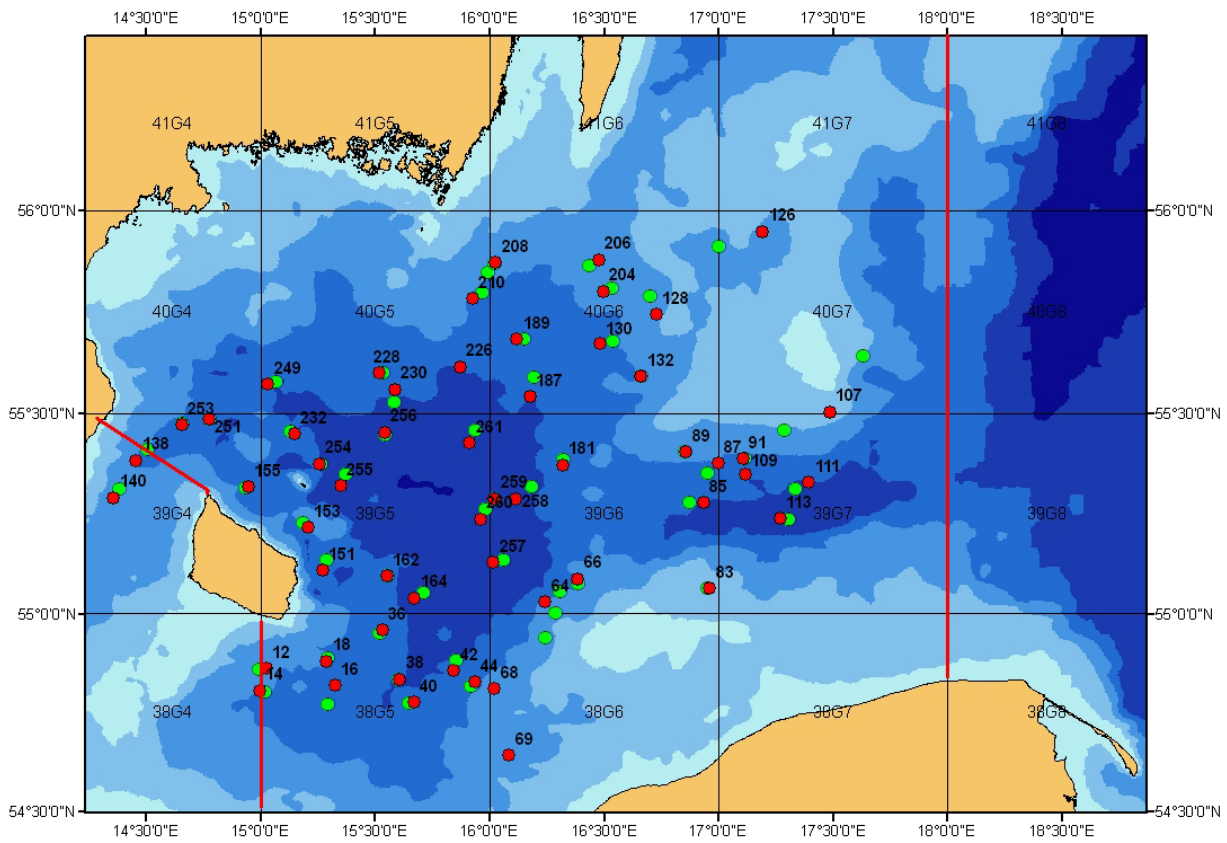


Figure III.G.1 Map showing BITS 1st quarter 2011 RV Dana trawl positions (red dots: conducted, green dots: planned).

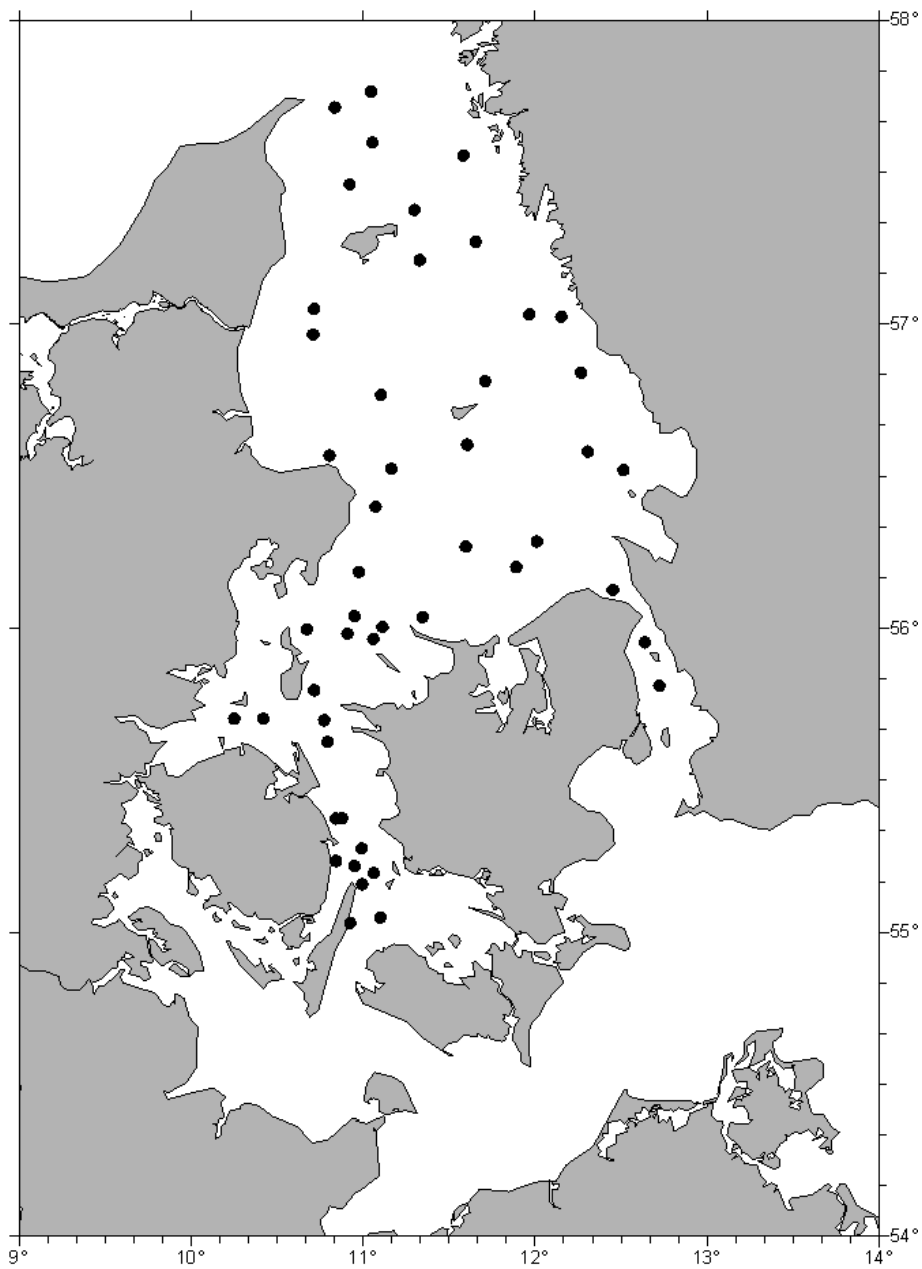


Figure III.G.2 Map showing BITS 1st quarter 2011 RV Havfisken sampling positions (Bottom trawl and CTD).

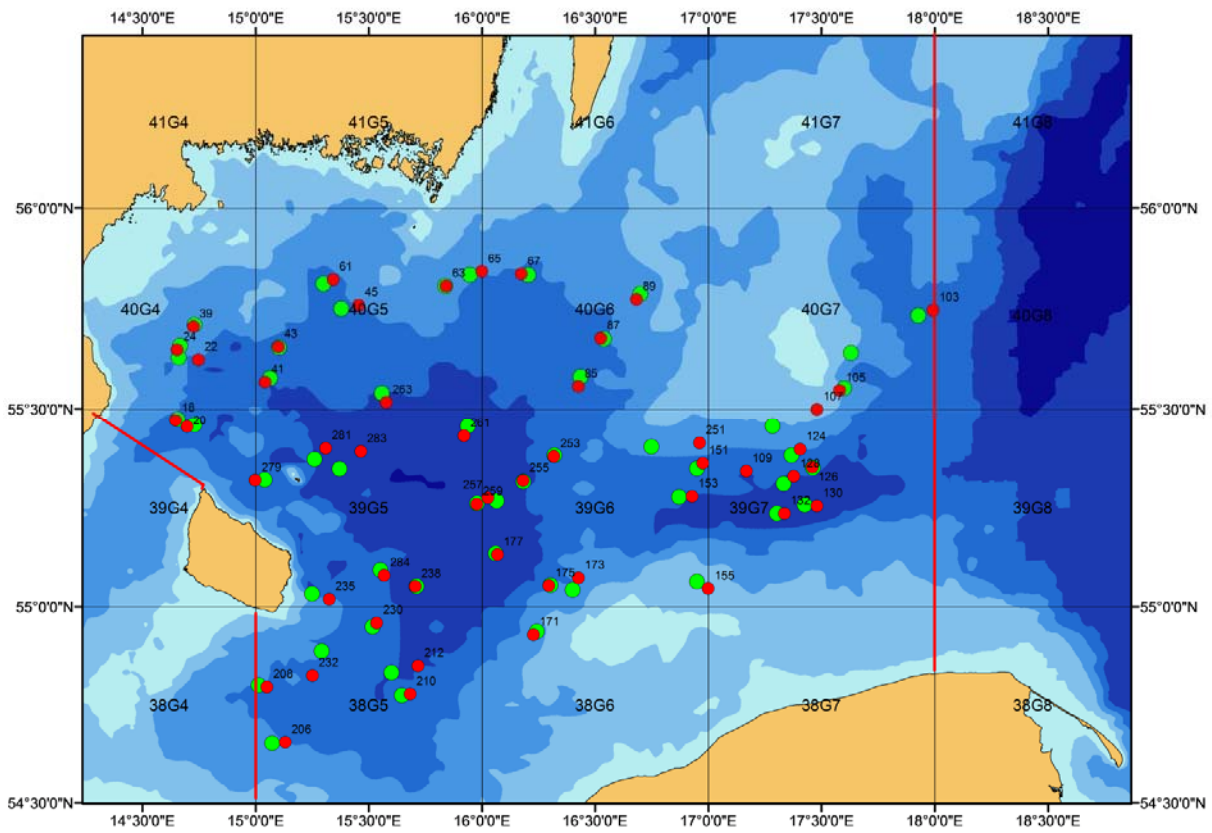


Figure III.G.3 Map showing BITS 4th quarter 2011 RV Dana trawl positions (red dots: conducted, green dots: planned).



Figure III.G.4 Map showing BITS 4th quarter 2011 RV Havfisken sampling positions (Bottom trawl and CTD).

International Bottom Trawl Survey (IBTS)

The purpose of the survey is to estimate abundance of commercial (cod, haddock, whiting, Norway pout, saithe, herring, sprat, and mackerel) and non-commercial fish species by means of bottom trawling and to collect otoliths of commercial species to assess abundance by age, in particular for the recruiting year classes in the North Sea, Skagerrak and Kattegat. It is a trawl survey using GOV-trawl. The IBTS survey is coordinated by the ICES International Bottom Trawl Survey Working Group.

Types of data collected:

- Species composition
- Length and age measurements
- MIK: plankton, fish larvae (only first quarter)
- CTD: temperature and salinity at fishing stations

RV Dana covered the area allocated to Denmark by the coordinator as planned in the 1st and 3rd quarter 2011 (Figs. III.G.5 and III.G.6).

Achievements 1st quarter 2011:

- 18 days at sea (as planned)
- 40 GOV trawl hauls (as planned)
- 40 CTD profiles
- 80 MIK hauls (see International Herring Larvae Survey)

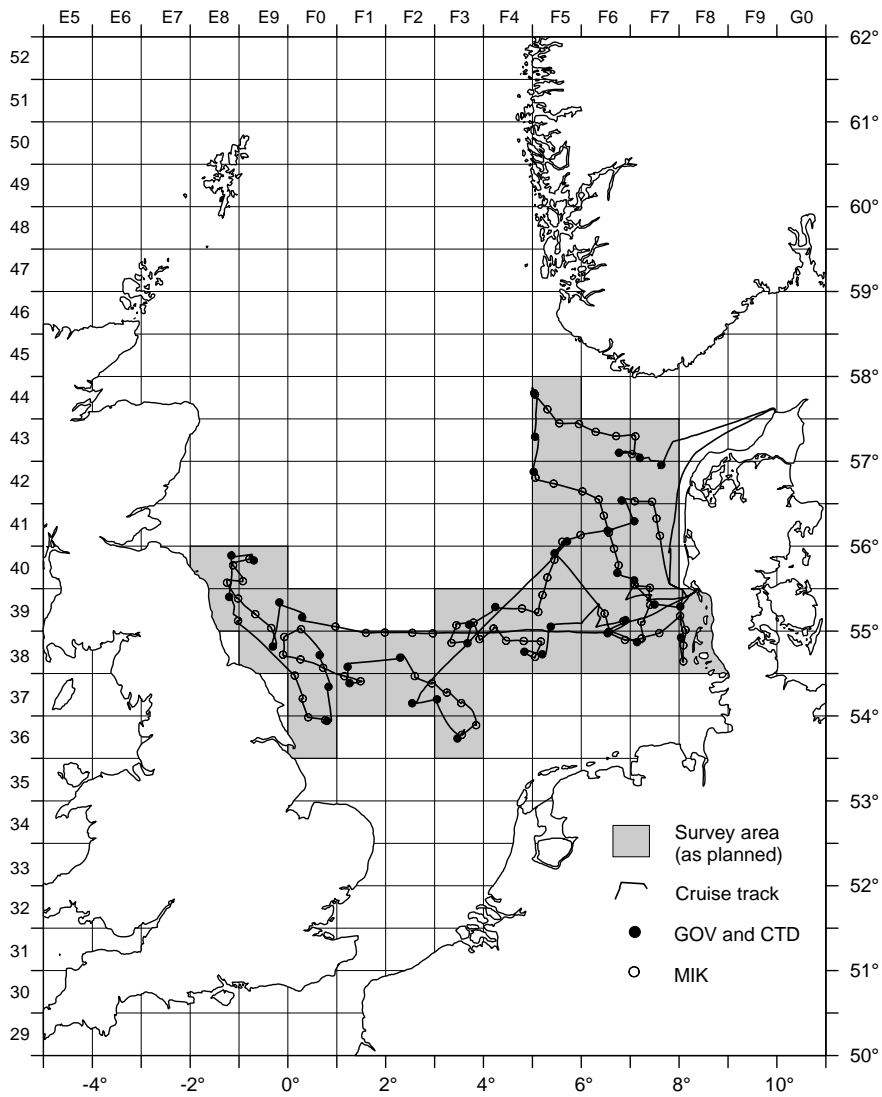


Figure III.G.5 Map showing IBTS 1st quarter 2011 RV Dana survey area, cruise track GOV haul and CTD positions.

Achievements 3rd quarter 2010:

- 17 days at sea (planned: 18 days)
- 49 GOV trawl hauls (planned minimum: 47)
- 50 CTD profiles

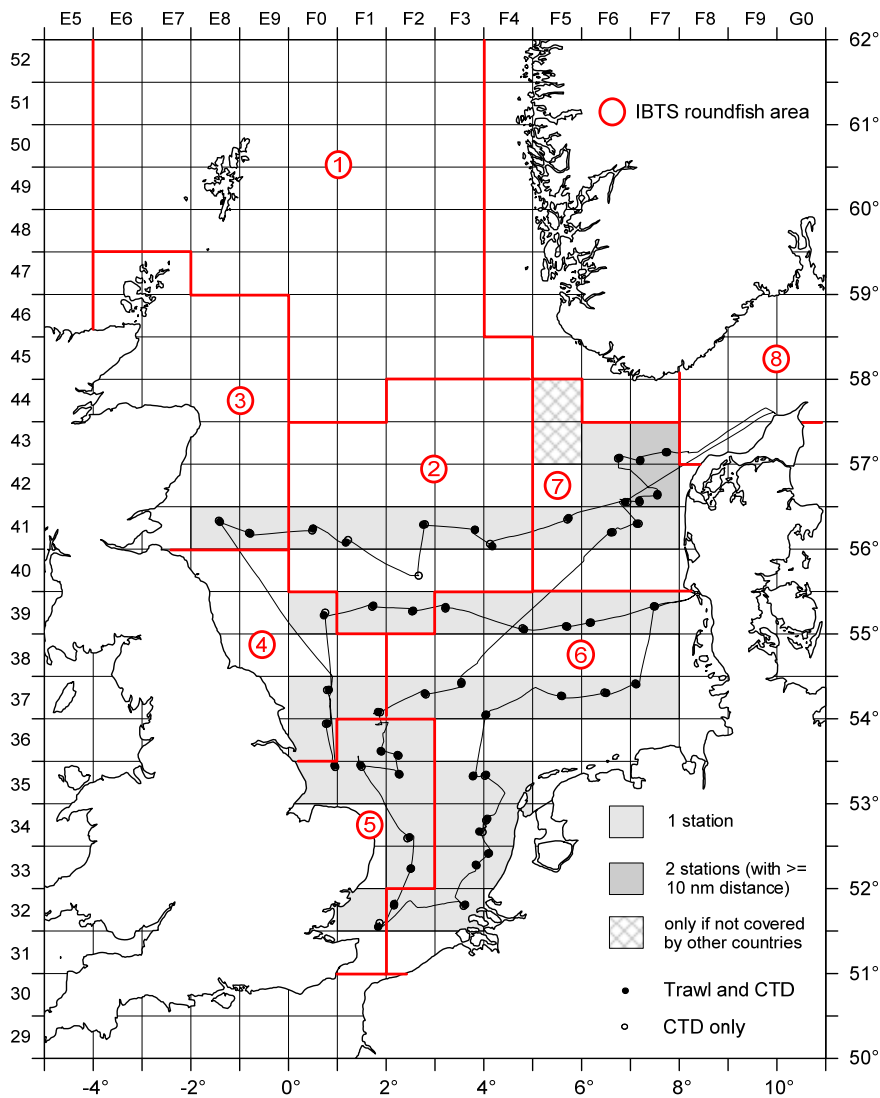


Figure III.G.6 Map showing IBTS 3rd quarter 2011 RV Dana survey area, cruise track, GOV haul and CTD positions.

International Ecosystem in the Nordic Sea (ASH)

This survey is carried out in order to investigate distribution and migrations of the Atlanto-Scandian herring, blue whiting and other pelagic fish and to produce a biomass index for herring and a recruitment index for blue whiting for the Working Group on Widely Distributed stocks (WGWIDE). Furthermore, hydrographical conditions and plankton abundance in the Norwegian Sea and adjacent waters are monitored in order to investigate distribution and migration of herring and other pelagic fishes are influenced by environmental conditions.

The survey was coordinated with Norway as an international survey with participation of Norway, Iceland, Faroe Islands and EU, where the Danish R/V Dana conducted the EU survey part.. The survey is coordinated by the ICES Planning Group on North East Atlantic Pelagic Ecosystem Surveys, PGNAPES. The survey is carried out as a joint EU survey with participation of UK, Ireland, Netherlands, Germany, Sweden and Denmark.

Types of data collected:

- Acoustic data
- Biological data: species composition, length measurements
- For herring and blue whiting samples following parameters was measured on 50 individuals from each haul: length, weight, sex, maturity and age (from scales of herring and otoliths of blue whiting)
- Zooplankton using a WP2 net
- CTD: hydrographical data

Achievements in 2011:

- 29 days at sea (as planned)
- 22 trawl hauls
- 34 CTD stations
- 33 WP2 stations
- 2886 Nm acoustic integration

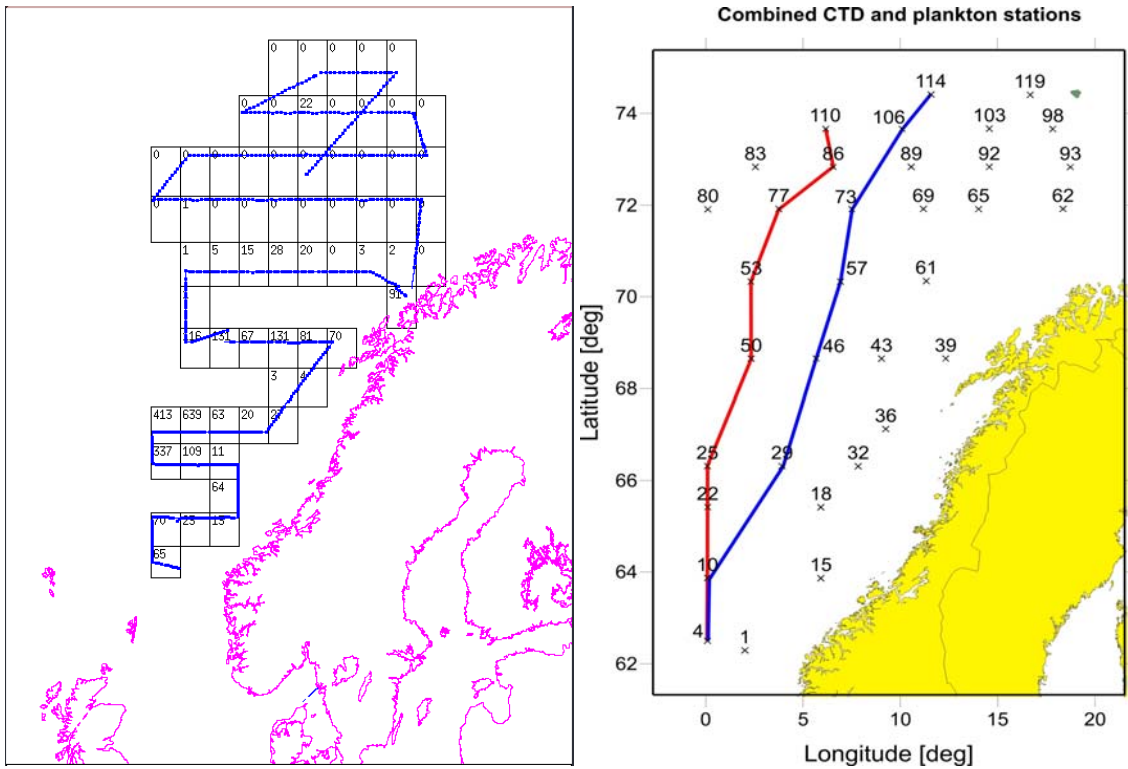


Figure III.G.7 Maps showing the RV Dana ASH 2011 survey track and sampling locations.

Herring larvae survey (IHLS)

The sampling for this survey was done during the 1st quarter IBTS and all 80 MIK (Method Isaac Kidd trawl) stations were covered in 2011 as planned (Fig. III.G.8).

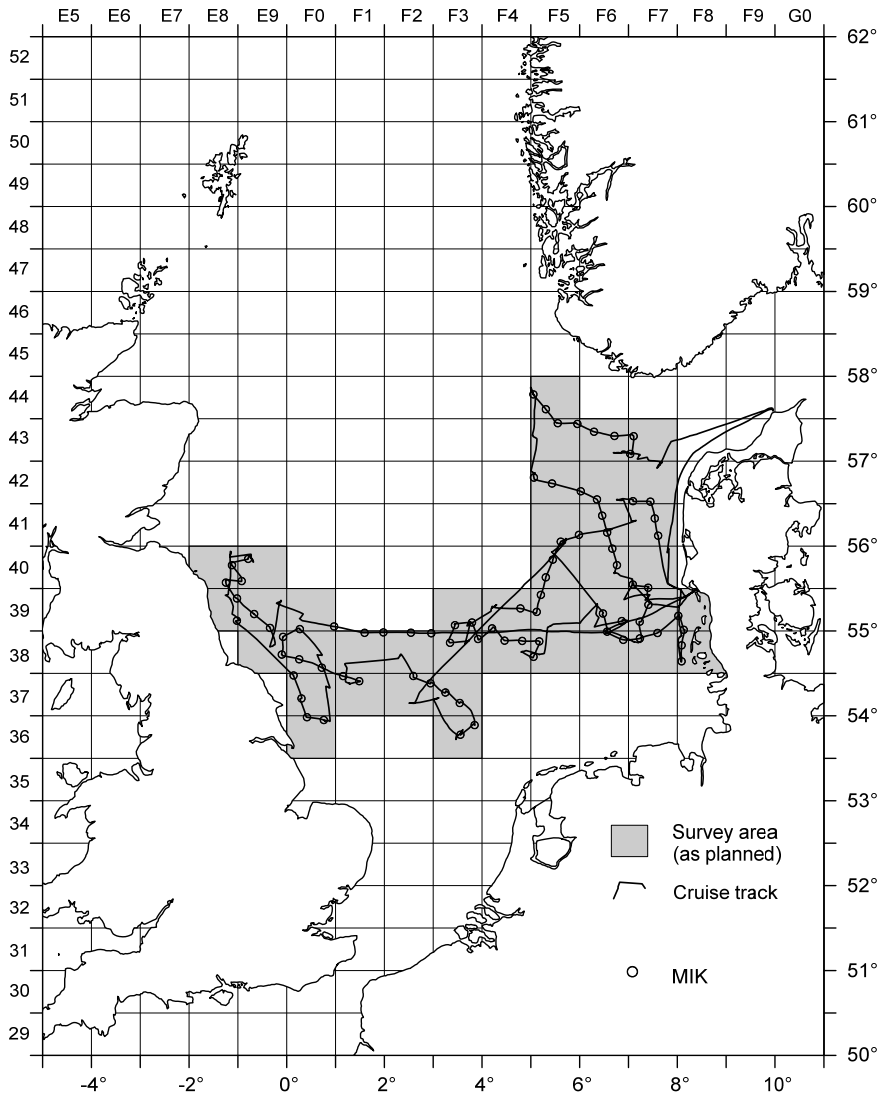


Figure III.G.8 Map showing IBTS first quarter 2011 RV Dana survey area, cruise track and MIK haul positions.

NS Herring Acoustic Survey (NHAS)

The purpose is to provide acoustic abundance estimates of herring and sprat in the North Sea (eastern part), Skagerrak and Kattegat. The survey is coordinated by the ICES Planning Group for International Pelagic Surveys, PGIPS (previously: ICES Planning Group for Herring Surveys, PGHERSUR).

Types of data collected:

- Acoustic data
- Biological data: species composition, length measurements
- For herring age and maturity measurements
- Hydrographical data using CTD

Achievements in 2011:

- 14 days at sea (as planned)
- 35 trawl hauls
- 37 CTD stations
- 1535 Nm acoustic integration

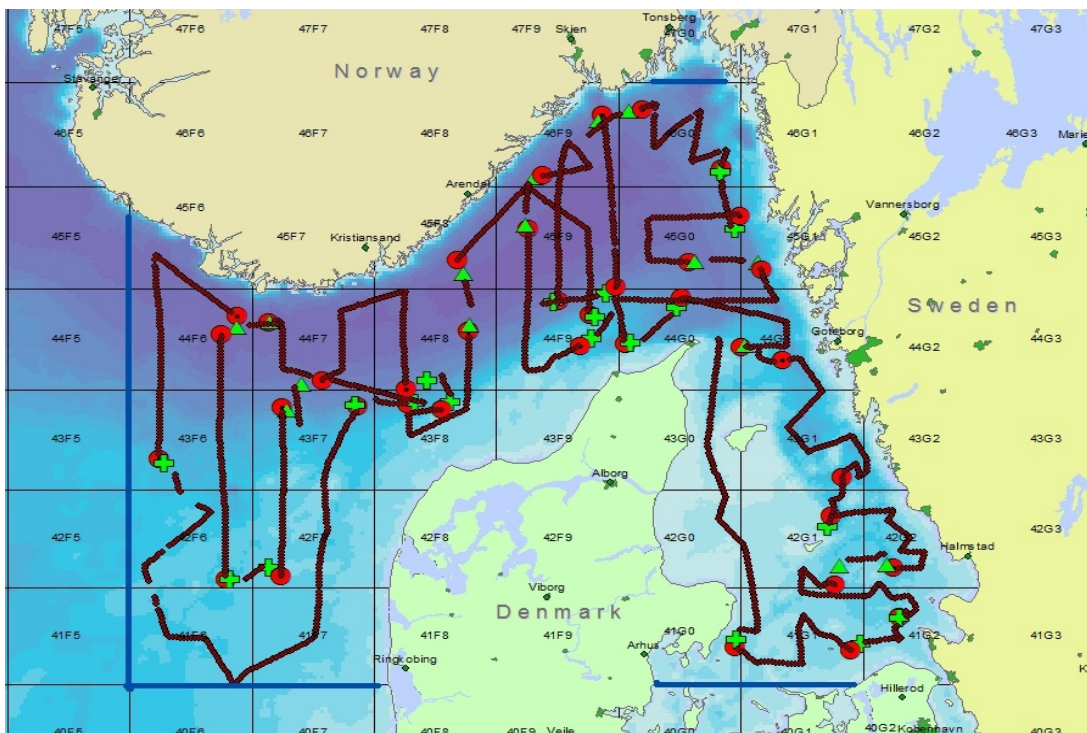


Figure III.G.8 Map showing the RV Dana NHAS 2011 survey track and sampling locations (triangles: pelagic trawl, cross: bottom trawl, circles: CTD).

Baltic International Acoustic Survey (BIAS)

Denmark has participated with one scientific staff member on the German R/V Solea in 2011.

Blue Whiting Survey in area VI and VII

Denmark has participated with one scientific staff member on the Dutch R/V Tridens and on the Irish R/V Celtic Explorer in 2011.

Nephrops UTV survey in functional unit IIIa

The purpose of the survey is to estimate the abundance of *Nephrops* in Skagerrak and Kattegat. An underwater video technique is used and later the video footage is analysed in laboratory to estimate the *Nephrops* abundance in selected survey areas. The 2011 survey was conducted with R/V Havfisken in April/May (10 days) and completed in August (5 days). The survey covers the main *Nephrops* fishing grounds in Skagerrak (Subarea 1) and Kattegat (Subarea 2), respectively, and station allocation follows a stratified random design.

Achievements in 2011:

- 15 days at sea (as planned)
- 118 stations (planned: 120).

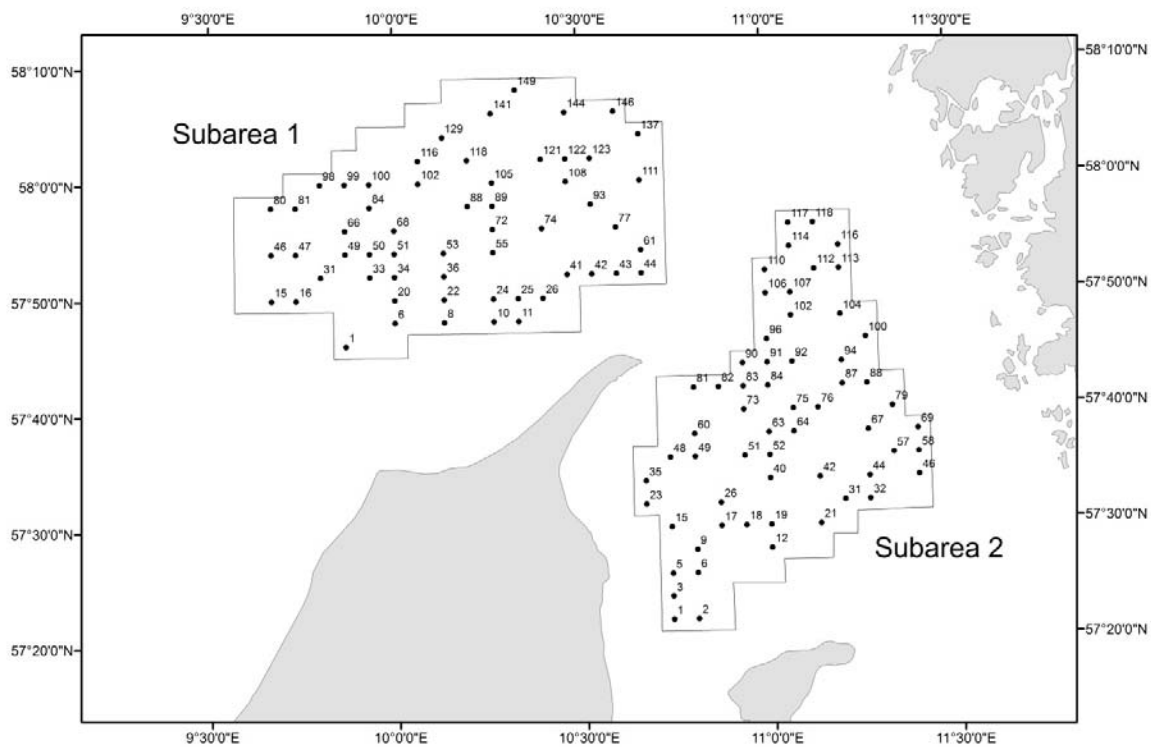


Figure III.G.9 Map showing the achieved and valid sampling locations in the 2011 Nephrops UTV survey.

North Sea sandeel survey

The purpose of the sand eel dredge survey is to collect sand eels buried in the seabed and compare catches (number and age composition) with the previous year's collections to assess year class strength of the lesser sand eel (*Ammodytes marinus*) in the different areas adopted by ICES in 2009. Data from the dredge survey is the basis for calculating a 0-group index, which is used in stock assessment. The 2011 survey was conducted with the commercial fishing vessel R 500 Pernille Kim.

Achievements in 2011:

- 18 days at sea (as planned)

- 61 stations (planned: 68)

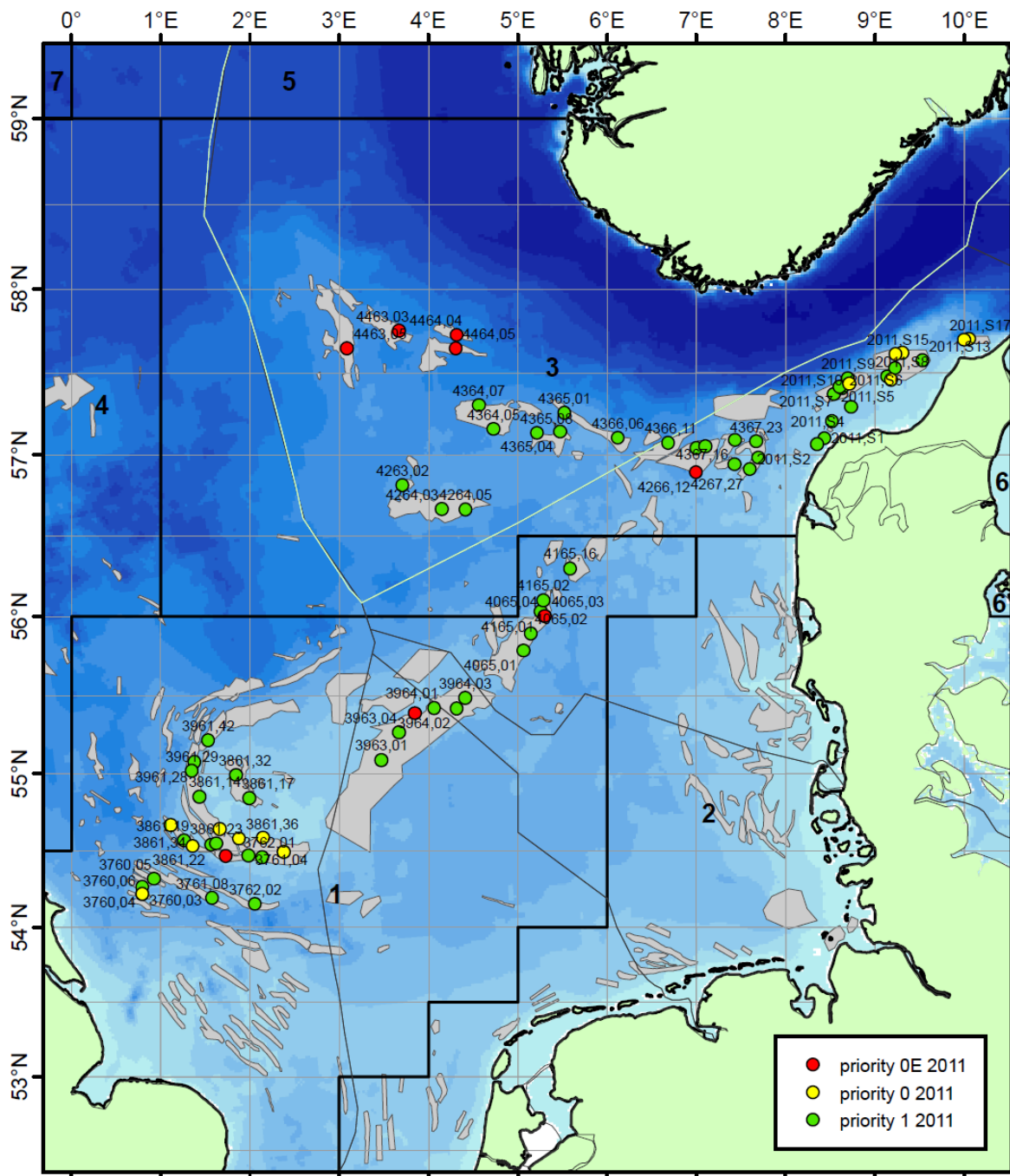


Figure III.G.10 Map showing the sampling locations in the 2011 sandeel survey with R 500 Pernille Kim (priority 1 (green circles) and priority 0 (yellow circles) stations were taken whereas priority 0E (red circles) stations were dropped).

III.G.2 Data quality: results and deviation from NP proposal

No serious data quality problems or deviations from the NP occurred in 2011.

III.G.3 Follow-up of Regional and international recommendations

All surveys were conducted according to international or national manuals and guidelines. There are no relevant RCM recommendations. Recommendations and requests from survey planning groups are generally followed up as part of the international coordination within ICES surveys planning groups.

III.G.4 Action taken to avoid shortfalls

No shortfalls that have affected the output.

IV. Module of the evaluation of the economic situation of the aquaculture and processing industry

IV.A Collection of data concerning the aquaculture

IV.A.1 Achievements: Results and deviation from NP proposal

Definition of the population

The Danish aquaculture sector is defined by the Business Register. In the Business Register the aquaculture sector is defined by the European NACE code 03.2. (European NACE rev. 2). There are no deviations from definition given by the DCF.

Segmentation

Data is segmented into 4 groups according to their main farming technique, determined on the basis of production value, corresponding to Appendix XI of Commission Decision 2008/949/EC.

Part of the population is further segmented according to economic size based on turnover. Only the segment of traditional pond farms is large enough to allow for this segmentation.

Land based farming

The land based fish farming is dominated by pond farms producing rainbow trout and recirculation systems producing European eel. New farm types producing rainbow trout by the use recirculation technology has been in production since 2006.

Traditional pond farms in Denmark produce almost exclusively rainbow trout. In 2010 there were 177 farms distributed on 103 companies. The production volume was 17,051 tonnes and the value was 50.8 million EUR. Companies producing more than one species of trout, can for most part be clearly allocated to this segment, because their main income comes from production of rainbow trout. Most of the companies have an integrated

production from hatchery to portion size fish. There are both small and large producers but otherwise the segment is very homogenous.

Recirculation systems producing rainbow trout in 2010 consisted of 32 farms distributed on 21 companies. The production volume was 11,727 tonnes and the value was 29.0 million EUR. Most of the companies have an integrated production from hatchery to portion size fish. It is expected that this segment will grow in the coming years, because the environmental impact from these recirculation farms is considered less than from the traditional pond farms.

Recirculation system producing European eel in 2010 consisted of 8 farms distributed on 8 companies. The production volume was 1,629 tonnes and the value was 12.0 million EUR. The segment is very homogeneous; all farms are very intensive and re-circulate more than 95% of the water. All companies have the same kind of production from glass eel to the final product.

Other recirculation system farms are producing turbot, pike perch, pollan, perch, barramundi and a few other species in very small scale. In 2010 this segment consisted of 2 farms from 2 companies. The on-growing technique is very similar in this segment, but the species produced are very different. The segment is not presented separately.

Nurseries and hatcheries are for most part an integrated part of the production process inside each company. Only a few companies have specialised in production of eyed eggs or fingerling. This segment is not presented separately.

Sea based farming

Sea cage farms in Denmark produce rainbow trout in cages. In 2010 there were 17 farms distributed on 6 companies. The production volume was 10,018 tonnes and the value was 46,7 million EUR. The production in each farm is quite homogeneous even though there are both small and large producers. The difference in volume and value is caused mainly by the production of trout eggs, roe, which estimated at 12.0 million EUR is the most valuable product from the Danish sea farms.

Shellfish farms producing blue mussels on long lines began production activity in 2004 and are still at a low production level. In 2010 there were 17 farms distributed on 13 companies. The production volume was 1,325 tonnes and the value was 0.7 million EUR. The production methods in the segment are very homogeneous.

IV.A.2 Data quality: Results and deviation from NP proposal

The data collected for the aquaculture sector give a complete coverage of all enterprises covered by NACE 03.2. In order to ensure an adequate data quality DST is collecting the economic data from the enterprises professional accountants. Furthermore there are several steps taken to achieve the best possible measures for the economic data.

- A full balanced accounting form to ensure, that the data on the individual level is delivered correctly in a uniform format.

- A beforehand obtained consent from the enterprise to allow their accountants to report all necessary data to avoid participation from a biased population of agents.
- Co-operation from professional accountants to achieve the best possible harmonized data.
- For every unit in the population actual production volume, production value and product type are gathered from FD registers thereby avoiding vaporous estimates.

The coherent structure of economic data makes it possible to validate all variables for each individual economic agent both in detail and consistently combined with other variables. The best way to do that is by setting up a balanced account. Therefore DST has constructed a harmonized accounting form for aquaculture, which ensures that the data is broken down to meet the requirements of the Account Statistic for Aquaculture as well as the specifications in DCR.

For every unit in the population actual production volume, production value and product type are gathered from FD registers. Hence, there are no deviations from the NP proposal.

IV.A.3 Follow-up of regional and international recommendations

DST expects to participate in the Regional Coordination Meetings when none foreseen items concerning the collection and use of economic data for the aquaculture sector are on the agenda.

FOI experts have participated in the following meetings under the Scientific, Technical and Economic Committee for Fisheries (STECF):

EWG 11-14: Economic performance of the aquaculture sector, by correspondence, 3th October 2011 – 7th October 2011.

In Appendix XI of Commission Decision 2008/949/EC it is suggested that the segmentation of the aquaculture sector should be according to the number of persons employed (SBS 16 11 0) in each enterprise. The Danish aquaculture sector only contains very few enterprises with more than 5 persons employed. Hence, for reasons of discretion the suggested segmentation is not carried out.

IV.A.4 Action to avoid shortfalls

There are no shortfalls in the data collection program for the aquaculture sector in Denmark.

IV.B Collection of data concerning the processing industry

IV.B.1 Achievements: Results and deviation from NP proposal

Definition of population

The Danish fish processing industry is defined by the Business Register. In the Business Register the fish processing industry is defined by the NACE code 10.20. (European NACE rev. 2), which includes:

NACE 10.20.10 – Fish processing and preservation.

NACE 10.20.20 – Smoking, curing and salting of fish etc.

NACE 10.20.30 – Fish meal factories.

For enterprises that carry out fish processing, but not as a main activity, it is mandatory to collect the following data, in the first year of each period:

- a) Number of enterprise and
- b) Turnover attributed to fish processing.

The number of enterprises and the turnover attributed to fish processing can be extracted from Statistics Denmark Industrial Commodity Statistics and Account Statistics.

The “purity” of the processing industry is very high. In 2009 about 98 % of the commodities, which contain fish or fish products, were produced in the branches defined by the European NACE code 10.20. There were only 7 non NACE-10-20 enterprises with fish processing in 2009, and the total turnover from fish products for those enterprises was EUR 20,649,000.

Planned sampling

The type of data collection is census (A).

The Danish data collection is based on data from the Account Statistics collected by Statistics Denmark. The Account Statistics covers all enterprises in the Danish fish processing industry. In collaboration with Statistics Denmark data from the Industrial Commodity- and Account Statistics are combined to comply with the variables listed in Appendix XII of Commission Decision 2008/949/EC.

The data is collected and processed by Statistics Denmark. The final segmentation and validation of data concerning the processing industry is done in cooperation between FOI and Statistics Denmark.

Segmentation

In the national proposal the processing industry was divided into 13 sub branches. Due to the limited numbers of enterprises and rules of confidentiality, the 13 sub branches are merged to 6 sub branches.

FOI has examined the composition of commodities from each enterprise in the processing industry for the years 2000 until 2009. This investigation has provided the background for dividing the enterprises into 6 sub branches on the basis of the enterprise’s commodity production. The first criteria for the division of the sub branches is the species that the enterprise processes and secondly the degree of processing. The 6 sub branches also reflect the most important species in the Danish primary sector, and if there is a change in the supply of raw material, it will probably reflect on these groups. The 6 sub branches will probably also reflect the social and economic impact, on the processing industry of measures taken on behalf of the common fisheries policy.

Data can also be segmented into 4 groups based on the number of employed calculated as Full-time equivalents according to Appendix XII of Commission Decision 2008/949/EC.

IV.B.2 Data quality: Results and deviation from NP proposal

All requested indicators listed in Appendix XII of Commission Decision 2008/949/EC are collected in the Danish data collection program for the fish processing industry.

In the data collection program it is suggested that the segmentation of the fish processing industry should be according to the number of persons employed (SBS 16 11 0) in each enterprise (SGECA 08 01 Lisbon). Using

the number of persons employed is not the common methodology used by the statistical offices in Europe, including Eurostat. It is, therefore, suggested that the segmentation should instead be according to the number of FTE employed in the enterprise (SBS 16 14 0). The Danish segmentation is based on the segmentation in Statistics Denmark, which is based on the number of FTE employed in the enterprise.

Furthermore, the calculation of imputed value of labour is only relevant for small scale enterprises where the owner and his family are the main source of labour input, like in fisheries and agriculture production. The fish processing industry is not a small scale business in Denmark where the main labour input is based on the owner and his family. The value of imputed labour in Denmark is therefore non existing or insignificant. It is suggested that this parameter “Imputed value of unpaid labour” is left out of the data collection for the processing industry.

IV.B.3 Follow-up of regional and international recommendations

FOI expects to participate in the Regional Coordination Meetings when items concerning the collection and use of economic data for the fish processing industry are on the agenda.

FOI experts have participated in the following meetings under the Scientific, Technical and Economic Committee for Fisheries (STECF):

Annual economic report of the EU fish processing sector 2011 concerning Denmark, 30th November 2011.

Follow-up of recommendations from the STECF: Report on the Evaluation of Data Collection Related to the Fish Processing Sector (SGECA 09 03).

STECF observes that the working group report presents possible deeper economic analysis based on data collected under the old and new data regulations. The possibilities presented here are ambitious, and are not feasible if economic data are provided on a national level only, as requested by the DCR/DCF. In order to be able to conduct the analyses proposed here, STECF recommends that at the national institutes, data should be disaggregated by either type of commodity or by company size.

Data for the Danish processing industry can be disaggregated by both type of species/commodity or by company size as recommended by the STECF.

IV.B.4 Action to avoid shortfalls

There are no shortfalls in the data collection program for the processing industry in Denmark.

V. Module of evaluation of the effects of the fishing sector on the marine ecosystem

V.1 Achievements: results and deviation from NP proposal

The indicators 1, 2 and 3 listed in Commission Decision 2008/949/EC Appendix XIII of the Commission Decision require data on species abundance and length distribution by species from fishery independent research surveys. These data has been collected through the annual surveys carried out by DTU Aqua. The spatial and

temporal coverage of data collection for the evaluation of effects of the fishing sector will consist of area IV in the first and third quarters and in area IIIId in the first and fourth quarters 2011.

VMS data has been used for indicators 4-7 require. VMS data has been made available for DTU Aqua for research purpose under certain conditions such as safeguarding the confidentiality of the identity of individual the vessels. The data are available on a resolution of one record every 1 hour. As described below in section VI A “Management and the use of the data” logbooks, selling slips and VMS data are available. Therefore, it has been possible to link VMS, Logbook and sales slips data.

Indicator 8 can be calculated by using the collected at sea observer data.

Indicator 9. The economic data collection carried out by DST includes data on fuel consumption. It is therefore possible to estimate fuel costs per quarter and métier for some segments.

There has been no deviation from the NP.

V. 2 Actions to avoid shortfalls

No action is needed.

VI. Module for management and use of the data

VI. 1 Achievements: results and deviation from NP proposal

Primary data collected under the Danish programme has been as planned stored in the following computerised databases:

- Vessel register. Data on fishing capacity. (FD)
- Logbook database. Data on origin of catches and on effort. (FD)
- Sales notes database. Data on quantities landed and prices. (FD)
- Species composition database. Data on species composition in landings for industrial purposes. (FD)
- Biological database. Data on discards and biological parameters. (DTU Aqua)
- Economic data. (DST)

In order, for the three involved institutes, to use the same primary data on capacity, effort, and geographical distribution of the origin of the landings a common database has been produced every year, the Danish Fisheries Analyses Database (DFAD). This database is a database where data from the register on Danish fishing vessels, data from the Danish logbooks and the catch area declarations database together with data from the Danish sales notes database are merged. It is therefore possible to categorise each landing in one fleet segment, in one fishery etc. This database contains most of the information requested in research projects and in relation to fisheries management. The DFAD is quarterly and yearly updated. The design and development of the database is made in a co-operation between the three above mentioned institutes.

The collected biological data has been stored in a database (“Babelfisk”) managed by DTU Aqua. These primary data are surrounded by confidentiality and will not be passed on to other persons or authorities without permission.

Economic data has been collected by DST and stored in a database managed by the institute. These primary data are surrounded by strict confidentiality and will not in any circumstance be passed on to other persons or authorities. Each year DST produces an analytic file on the individual level, which includes relevant data for stratification and grouping for statistical purposes. Based on the analytic file a number of statistical files has been produced and are made available for external users.

All primary data collected under the programme are dealt with in confidence. Accesses to the data are limited to authorised staff members from the three institutes and no one outside the institutes has access to the data without permission.

Regional database development and data management

“FishFrame”

The “FishFrame” is a web based database and warehouse application that can be accessed on www.FishFrame.org.

The main objectives of “FishFrame” are:

- To provide consistent centrally calculated biological data input across countries to assessment models (CANUM, WECA etc.) on dynamic aggregation level.
- To establish a logbook which describes the historical details of the raising procedure?
- To facilitate easy access to basic analysis of biological information on dynamic aggregation level.
- To provide the data background for additional analysis on un-aggregated data.
- To provide an easy overview of the sampling status on national and international level.
- To be the data portal for end users

“FishFrame” contains all fisheries assessment relevant data except data for establishing commercial tunings fleets. The assessment relevant data include:

- Biological information of the landings obtained by sampling from market.
- Biological information of the catch (discard as well as retained part compiled separately) obtained by observers participating in regular fishery.
- Biological information of the catch (discard as well as retained part compiled separately) collected by the fishermen themselves.
- Official landings statistics by two different aggregation levels.

- Effort statistics by two different aggregation levels.
- Scientific survey data on exchange format.

The “FishFrame” data warehouse is under continuous development and the number of available predefined dynamic reports and analysis are growing as a consequence of the increasing demands for functionality from various Assessment Working Groups Study Groups and STECF expert groups. Furthermore, the general request from managers for high quality and more transparency in data makes “FishFrame” a central tool in the process. The “FishFrame” has the potential to be a very important tool for the regional coordination of sampling schemes and have already proved its value in the Baltic area as a very useful and convenient tool for analyzing of data. Both the Baltic and the North Sea & Eastern Arctic Regional Coordinating Meeting (RCM) have expressed their support to the “FishFrame”.

In 2009 DTU Aqua released a new version FishFrame v. 5 based.

The FishFrame v.5 is able to hold the following DCF required data:

- “Biological metier related variables” data,
- “Biological recreational fisheries” data,
- “Biological stock-related variable” data,
- “Transversal variables” Landings and Effort data and
- BITS and IBTS survey data.

This summarizes to all the relevant for the scientific advisory process in ICES and relevant STECF expert groups. The FishFrame v. 5 can now be used as a data portal for all end users.

Denmark has provided sets of data to support scientific analysis needed to advice fisheries management. It includes parameters for assessment purposes or other scientific analysis such as number-at-age, weight-at-age and maturity-at-age which have routinely been submitted to relevant ICES governed assessment groups and to relevant STECF expert groups.

Furthermore, Denmark has provided data to other end user if requested.

A Danish DCF web-site is almost finalised and will be launched at the new DTU Aqua web platform.

VI. 2 Actions to avoid shortfalls

No action is needed.

VII. Follow-up of STECF recommendations

Denmark has taken the recommendations made by the Expert Working group (Evaluation of the 2009, 2010 Annual report and the evaluation of 2011 National Programme) under consideration while writing the Annual report for 2011.

Source	Recommendation	Action
EWG 11-08 June 2011	EWG 11-08 recommends that information and description of the method/software used for calculation of CV's should be included (or referred to) in the AR if not provided in NP	A description is given in the AR 2011
EWG 11-08 June 2011	EWG 11-08 recommends for the AR tables, Table II.B.1 (list of eligible meetings) that is provided by the Commission should be used and all meetings and not only the meetings attended should be provided.	Denmark has followed the recommendation
EWG 11-08 June 2011	EWG 11-08 recommends that MS set-up a website on their data collection. They are obliged (by DCF regulation) to do so. No MS mentioned or referenced in the AR to such websites.	Denmark expects the web-site will be finalized in 2012.
EWG 11-08 June 2011	EWG 11-08 recommends that in cases that a research vessels is not available for carrying out a contribution to a DCF survey, that MS in question should demonstrate that it made all necessary efforts to carry out the survey. MS must make provisions so that such problems do not happen e.g. seek assistance from other MS or charter a vessel).	Denmark has always used this practice.
SGRN 10-01 June 2010	Salmon river monitoring (Comment on NP Guidelines). Data collection on salmon river monitoring is difficult to present using standard tables. Some of the countries have "forced" salmon data collection details into the standard tables, others give salmon details in the text part only. A common approach is needed, since it would make it possible to evaluate the different MS in a consistent manner. This could be a task for the RCM. SGRN recommends that Sweden in	This issue has not been discussed in the RCM Baltic.

	correspondence with Estonia and Finland develop the table by September 2010 to be agreed by STECF by correspondence.	
SGRN 10-01	Some member states plan to sample data on stock-level variables for triennial species annually. Others plan a triennial approach. A common approach in the Baltic would be desirable. In many cases collection of annual data does not cause remarkable extra costs, since métier-level variables are sampled anyway. Task for RCM to decide? SGRN recommend that MS follow the RCM recommendations.	At present various approaches have been used depending of the species concerned. Denmark will work for increased standardization the Baltic Region.
SGRN 10-01	Overall the MSs need to provide more detailed information on the methods used to collect and analyze economic variables which are not clearly defined in the commission decision (capital value and costs, value of quotas and fishing rights, FTE national, imputed value of unpaid labor and fuel efficiency of fish capture).	Detailed description is given in the NP and AR.
SGRN 10-01	Overall most of the MSs need to provide more detailed information and description about the methodologies applied in the estimation process of the economic variables, the methods used to provide measures to assess data quality	Detailed description is given in the NP and AR.
SGRN 10-01	Overall most MSs did not provide information for inactive vessels. SGRN invites the MSs to provide information on inactive vessels in the NPs.	Detailed description is given in the NP and AR.
SGRN 2010-02	Relevant MS to attend the RCM LDF in future if the corresponding MS has a long-distance fishery in “Other regions” and to be equipped with the necessary data, background information and mandate to take decisions.	Denmark does not have any LDF.
SGECA-09-02 (2009)	SGECA-09-02 recommends that MS should carefully assess the impact of non-response, especially in the case of census with low response rate.	Statistics Denmark contacts the fishery accountants before drawing the sample to get an acceptance of the delivery of a harmonized account for the fisherman/fishing firm. The

		<p>acceptance is set up in a contract, where we guarantee the payment of DKK 3000 per completed account. We do not have low response rate.</p>
<p>SGECA-09-02 (2009)</p>	<p>Due to concerns raised over the implications for data time series if clustering practices change over time, SGECA-09-02 recommends MS to take this into account when they segment the fleet in order to produce consistent time series over time.</p>	<p>Denmark has improved the basis for segmentation and clustering of the fleets by a thorough investigation of all registered gear use for each vessel for the years 2008-2010. Now we have the correct answer to which vessel should be categorized as pelagic or demersal for each year of the DCF. The same method will be used for the coming years, as we are in the process of reconstructing the system to build the database for the account statistics from the administrative databases in the Directorate.</p> <p>The main result from the gear analysis is, that we do not have any segments for pelagic trawlers (TM), simply because there are too little numbers of trawlers with >50% fishing days with pelagic gear.</p> <p>Denmark has previously labelled the trawlers segments "24-40m." and "40m and above" as pelagic trawlers (TM), as we believed that the main part of the income for these vessels comes from pelagic fishery. But strict to the DCF definition these segments should be labelled demersal trawl and seine (DTS).</p>

		<p>The revisions that have been reported for the whole DCF period (2008-2010) are:</p> <p>DTS/VL2440 and DTS/VL40XX instead of TM/VL2440 and TM/VL40XX</p> <p>Also, we have split the previously used "0-12m" length group into two length groups "0-10m" and "10-12m":</p> <p>PGP/VL0012 divided on PGP/VL0010 and PGP/VL1012</p> <p>PMP/VL0012 divided on PMP/VL0010 and PMP/VL1012</p> <p>DTS/VL0012 divided on DTS/VL0010 and DTS/VL1012 (but clustered in 2010)</p>
SGECA-09-02 (2009)	SGECA-09-02 recommends that MS assess the comparability of economic variables over time, include the results in the TR and discuss inconsistencies in trends.	<p>The comparability of economic variables between years within the DCR or DCF periods are straightforward. There are no inconsistencies, as the same programming statements have been used to build the DCR or DCF variables for the whole DCR or DCF period. But when comparing DCR variables with DCF variables it is necessary to aggregate some of the DCF variables. For instance the DCR variables INCOME, CREWCOST and FIXEDCOST have in DCF been split into (LandgInc,</p>

		DirSub, OtherInc), (Crewwage, UnpaidLab) and (NovarCost, RightsCost)
SGECA/SGRN 09-02	<p>SGRN has repeatedly recommended every MS to estimate the precision of the data obtained by sampling in order to assess the quality of the associated estimates. In SGRN opinion, the best way to explore data is to evaluate the precision with the aim of optimising the sampling design (see Section 7.2 in SGRN-06-03 report, Anon. 2006). More than the exact quantification of the level of uncertainty, the objective of calculating precision levels should be to improve the quality of the data that is collected.</p> <p>In parallel, SGRN has supported the idea of developing a common tool for assessing the accuracy and precision of the biological parameters estimated through sampling programmes. Such a tool has been granted financial support by the Commission through the Call for Service Contracts FISH/2006/15. (COST project) SGRN will continue to request all MS to assess the quality of the estimates even if the different methodologies used prevent the direct comparisons of the results between MS.”</p>	<p>Denmark improve the sampling by explicitly including the most important/significant fishing firms in the sample, and for some smaller segments including all units in the sample. Starting from 2011 we aim to include the 100 most significant units.</p> <p>Denmark calculates CV values for all variables and includes that in the data sheets to be uploaded for the data call.</p> <p>Denmark uses various methods for calculating the CV's but at present no ideal method has been selected.</p>
SGRN June 2009 Evaluation of TR 2008	The TR should be structured by region	Denmark is following the guidelines.
SGRN February 2009 Evaluation of NP 2009-2010	General: Although the proposal metiers mergers are sensible there is no statistical evidence put forward to justify them.	The merging of metiers is not based on a thorough scientific analysis but on the knowledge of the exploitation pattern and management of the fisheries. Denmark participated in the WKMERGE (2010) and has used the outcome of this WK
SGRN February	General: Discard level for metiers which are not selected by ranking is not included in the NP	Metiers not selected by the ranking have not been

<p>2009 Evaluation of NP 2009- 2010</p>		<p>selected for discard sampling as individual metiers and the total number of trips often are low and therefore difficult to sample. Often these metiers are merged with other metiers and therefore are sampled.</p>
<p>SGRN February 2009 Evaluation of NP 2009- 2010</p>	<p>Economic and Transversal Variables: the method for raising the sample results to the total population is not clearly presented. More clear information of the method used for this calculation is needed.</p>	<p>Denmark is using census data.</p>
<p>SGRN February 2009 Evaluation of NP 2009- 2010</p>	<p>Metier-related variables; It is not clear if <10 are included.</p>	<p>All Danish vessels are including for the ranking and vessels < 10 meters are included.</p>

VIII. List of acronyms and abbreviations

Acronym/Abbreviation	Description
DCCA	Danish Commerce and Companies Agency
DCF	Data Collection Regulation (EC) No 199/2008
DST	Statistics Denmark
DTU Aqua	National Institute for Aquatic Resources
FD	Danish Directorate of Fisheries
AgriFish Agency	AgriFish Agency
FOI	Danish Food and Resource Economics Institute, Denmark
FTE	Full Time Equivalent
IQ/ITQ	Individual quota / Individual transferable quota
WKBALPEL	Workshop on data for Baltic Pelagics
WKADS	Workshop on Age Determination of Salmon
WKBENCH	Benchmark Workshop on Saithe, Haddock, Herring and Horse Mackerel Stocks
WGBYC	Working Group on Bycatch of Protected Species
WKCOD	North Sea cod benchmark
PGCCDBS	Planning Group on Commercial Catches, Discards and Biological Sampling
ADGSANDEEL	Sandeel Advice Drafting Group
WKARGH	Workshop on Age Reading of Greenland Halibut
WKARAS	Workshop on Age reading of European Atlantic Sardine
WCSANDEEL	ACOM WebEx to finalise sandeel advice
WGMME	Working Group on Marine Mammal Ecology
WKROUNDMP	Joint ICES-STEFCF Workshop on management plan evaluations for

	roundfish stocks
WGDEEP	Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources
HAWG	Herring Assessment Working Group for the Area South of 62°N
WKAREA-2	Workshop on Age Reading of European and American Eel
WGNAS	Working Group on North Atlantic Salmon
WGBAST	Baltic Salmon and Trout Assessment Working Group
WKCPUEFFORT	Workshop on the utility of commercial CPUE and VMS data in assessments
WCDSS	ACOM WebEx to finalize advice on deep sea surveys
WGBFAS	Baltic Fisheries Assessment Working Group
WGECO	Working Group on the Ecosystem Effects of Fishing Activities
NWWG	North-Western Working Group
AFWG	Arctic Fisheries Working Group
PGRFS	Planning Group on Recreational Fisheries Surveys
WGNSSK	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
WGHMM	Working Group on Hake, Monk and Megrin
WGCSE	Working Group for the Celtic Seas Ecoregion
WKSHARK	Workshop on splitting of deep water shark historical catch data WKSHARK
WKMSHS	Workshop on Sexual Maturity Staging of Herring and Sprat
WGEF	Working Group on Elasmobranch Fishes
WGANSA	Working Group on Anchovy and Sardine
SGPIDS	Study Group on Practical Implementation of Discard Sampling Plans
WGHARP	Working Group on Harp and Hooded Seals

WGWIDE	Working Group on Widely Distributed Stocks
WGMIXFISH	Working Group on Mixed Fisheries Advice for the North Sea
WKNARC	Workshop of National Age Readings Coordinators
WGEEL	Joint EIFAC/ICES Working Group on Eels
SGRF	Study Group on Recruitment Forecasting
WKPCS1	Workshop on practical implementation of statistical sound catch sampling programmes
WKMSREGH	Workshop on Sexual Maturity Staging of Redfish and Greenland Halibut
WGRS	Working Group on Redfish Surveys
NIPAG	Joint NAFO/ICES Pandalus Assessment Working Group
SGBALANST	Study Group on Data Requirements and Assessments Needs for Baltic Sea Trout
SIMWG	Stock Identification Methods Working Group
WGNEW	The Working Group on Assessment of New MoU Species
WKMERGE	Joint ICES/STECF Workshop on Methods for Merging Fleet Metiers for Fishery based Sampling
WKPRECISE	Workshop on Methods to evaluate and estimate the precision of fisheries data used for assessment
SCV	Standard Catch Value = landings per species multiplied by 3-year average prices.

IX. Comments, suggestions and reflections

None

X. Appendix

Appendix 1 - Calculating coefficient of variation

This year Denmark has started developing methods for calculating the coefficient of variation (CV) suited for the Danish sampling schemes. The methods are still under development and therefore the presented results are preliminary. The methods presented are based on a simple resampling method.

Metier-related variables – CV around the length distribution in the landing

The missing CV's has been calculated by taking n bootstrap samples from the original population of n sampled hauls in a stratum (species and fishing ground). The bootstrap unit are the entire length distribution of a haul (not bootstrapping the individual length groups) thereby maintaining covariance between the length groups within a haul. The bootstrap sampling was repeated 500 times for each stratum. For each bootstrap sample the mean length has been calculated and afterwards the CV around the mean lengths from the 500 bootstrap samples has been calculated - the latter being the presented precision (CV).

For a group of species the length distribution in the landing are sampled at-sea, where the sampling frame, besides species and fishing ground, are managed by quarter and metier. The current method does not take the variations caused by season and fisheries into account, since it only consider species and fishing ground as strata. Neither does the method account for the different sample intensity put into the strata nor is the result weighted by the actual intensity e.g. catch of the different strata. This of cause bias the estimate of precision and the method will be developed to include the missing parts.

Metier-related variables – CV around the length distribution in the discard

The CV's has been calculated by taking n bootstrap samples from the original population of n sampled hauls in a stratum (species and fishing ground). The bootstrap unit are the entire length distribution of a haul (not bootstrapping the individual length groups) thereby maintaining covariance between the length groups within a haul. The bootstrap sampling was repeated 500 times for each stratum. For each bootstrap sample the mean length has been calculated and afterwards the CV around the mean lengths from the 500 bootstrap samples has been calculated - the latter being the presented precision (CV).

Besides species and fishing ground the Danish sampling schemes are managed by quarter and metier. The current method does not take the variations caused by season and fisheries into account, since it only consider species and fishing ground as strata. Neither does the method account for the different sample intensity put into the strata nor is the result weighted by the actual intensity e.g. catch of the different strata. This of cause bias the estimate of precision and the method will be developed to include the missing parts.

Metier-related variables – CV around the volume of discard

Denmark has calculated the precision of the achieved discard rate instead of the actual volume of the discard, since the variation of the discard rate results in the variation of the discard volume.

The CV's has been calculated by taking n bootstrap samples from the original population of n sampled hauls in a stratum (metier, species and fishing ground). The bootstrap sampling was repeated 500 times for each stratum. For each bootstrap sample the discard rate has been calculated and afterwards the CV around the mean discard rate from the 500 bootstrap samples has been calculated - the latter being the presented precision (CV).

Besides metier, species and fishing ground the Danish sampling schemes are managed by quarter. The current method does not take the variations caused by season into account, since it only consider metier, species and fishing ground as strata. Neither does the method account for the different sample intensity put into the strata nor is the result weighted by the actual intensity e.g. catch of the different strata. This of cause bias the estimate of precision and the method will be developed to include the missing parts.

Stock-related variables – CV for length and weight at age

The CV's for length and weight at age has been calculated by taking n bootstrap samples from the original population of n sampled fish per stratum (age, species and fishing ground). The bootstrap sampling was repeated 500 times for each stratum. For each bootstrap sample the mean length and weight has been calculated and afterwards the CV around the mean lengths and weights from the 500 bootstrap samples has been calculated - the latter being the presented precision (CV).