

ANNUAL REPORT

FOR

THE SWEDISH NATIONAL PROGRAMME FOR

COLLECTION OF FISHERIES DATA 2016

Under

Council Regulation (EC) No 199/2008
Commission Regulation (EC) No 665/2008
Commission Decision 2010/93/EU

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I General framework

The Swedish National Programme (NP) 2014-2016 for collection of fisheries data (roll-over of NP 2011-2013 according to Commission Implementing Decision of 30.8.2013) refers to the Community and National Programme defined in Article 3 and 4 of Council Regulation 199/2008, to Article 1 of Commission Regulation 665/2008 and the Annex of Commission Decision 2010/93/EU. The Annual Report (AR) 2016 on the Swedish NP refers to Article 7 of Council Regulation 199/2008, to Article 5 of Commission Regulation 665/2008 and to the Annex of Commission Decision 2010/93/EU. The report year is 2016. If the reference year differs from the report year, it is stated in the sections.

This AR is based on Guidance for the Submission of Annual Report on the National Data Collection Programmes (...) Version for Annual Reports 2015 (January 2016) and follows the layout and content of the NP 2014-2016, which is a roll-over of NP 2011-2013.

No major methodological changes appeared during 2016 and the data collection could be undertaken with only some adjustments which are explained in the report.

List of derogation valid for 2016 see table I.A.1.

Sweden has established bilateral agreements with Belgium, Denmark, Finland, Poland and UK for sampling foreign-flag vessels (Table I.A.2). For details see agreements in Annex I.

II National data collection organisation

II.A National correspondent and participating institutes

The National correspondent representing Sweden is:

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Box 11 930
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Tel +46 10 698 60 00
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The following two institutions contribute the National Program:

Swedish University of Agricultural Sciences (SLU)
<http://www.slu.se/en/>,

Department of Aquatic resources (SLU Aqua) with three institutes:

Institute of Marine Research (**IMR**)
Swedish University of Agricultural Sciences
Turistgatan 5
SE-453 30 Lysekil, Sweden
Tel + 46 18 67 10 00

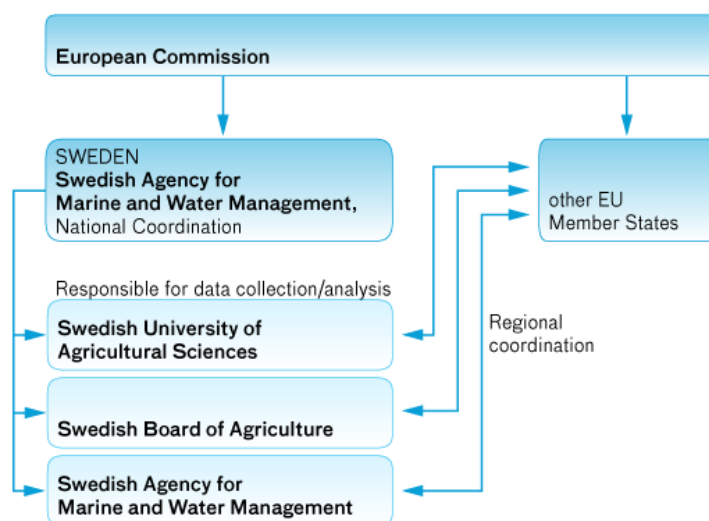
Institute of Freshwater Research (**IFR**)
Swedish University of Agricultural Sciences
Stångholmsvägen 2
SE-178 93 Drottningholm, Sweden
Tel + 46 18 67 10 00

Institute of Coastal Research (**ICR**)
Swedish University of Agricultural Sciences
PO Box 109
SE-742 22 Öregrund, Sweden
Tel + 46 18 67 10 00

Swedish Board of Agriculture
<http://www.jordbruksverket.se/>

Department of Rural Development, Rural Analysis Division
and
Market Department, Division for Trade and Markets
SE-551 82 Jönköping, Sweden
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The Swedish organization of DCF work:



The Swedish Agency for Marine and water Management collects information on landings, fishing efforts, and economic data regarding Sweden's fishing fleet. The Agency also collects data on recreational fisheries. The Swedish Board of Agriculture assists the Swedish Agency for Marine and Water Management in data collection concerning aquaculture and processing industries. The Department of Aquatic Resources (SLU Aqua) at the Swedish University of Agricultural Sciences carries out the largest part in the data collection and is responsible for the biological sampling, e.g. surveys (bottom trawling, acoustic, UWTV), sea-sampling onboard commercial vessels, harbour sampling, and biological sampling of recreational fisheries. SLU Aqua is also responsible for storing, quality-checking, analysing and delivering biological data to end users as well as participating and contributing in scientific working groups (listed in table II.B.1)

A website has been established to inform involved partners, the EU Commission and the public about the Swedish implementation of the EU Data Collection framework in accordance with Commission Regulation (EC) 665/2008 article 8(2):

<http://www.havochvatten.se/en/start/environmental-research/-data-collection-framework.html>

A national coordination meeting with all partners was arranged in December 2016, to which the Commission was invited (Table II.B.1 and Annex II). In addition, information and important news was communicated by the NC during the year to the responsible persons involved in DCF on a regular basis. The main issues dealt with were reporting on the recast of the DCF (including EU-MAP), EMFF

and ongoing data collection work including information on guidelines and deadlines for reporting to the Commission.

A group discussing data management issues with representatives from all institutions in the NP was established in 2014 and had one meeting in 2016.

II.B Regional and International coordination

II.B.1 Attendance of international meetings

The international meetings planned for 2016 and relevant for DCF are listed in table II.B.1. Comments on shortfalls is included in the table.

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

Recommendations and the agreements from the RCMs endorsed by the Liason meeting and survey planning groups (IBTSWG, WGBIFS, WGNPS, and WGRFS) were screened. Recommendations relevant to 2016 and Sweden are listed in table II.B.2. For the 2016 STECF plenary meeting reports, no DCF relevant recommendations were found.

Sweden actively participates in the Regional Coordination Meetings (RCMs) for the Baltic and the North Sea & Eastern Arctic, in ICES survey planning groups, assessment working groups and other DCF related ICES working groups as well as different expert working groups (EWGs) within the umbrella of STECF.

III Module of evaluation of the fishing sector

III.A General description of the fishing sector

In 2016 the Swedish fishing fleet consisted of 1 255 registered vessels, with a combined gross tonnage of 32 thousand GT, a total power of 171 thousand kW and an average age of 34 years. The size of the Swedish fleet decreased between 2008 and 2016; the number of vessels decreased by 17% and GT and kW decreased by 26% and 19%, respectively. The major factors causing the fleet to decrease include entry barriers, bad profitability, scrapping campaigns, introduction of transferable fishing rights and natural wastage due to age.

In 2016, the number of fishing enterprises in the Swedish fleet totalled 951 with the vast majority (74%), owning a single vessel. Only 26% of the enterprises owned more than two fishing vessels. Total employment in 2015 was estimated at 1 487 jobs, corresponding to 791 FTEs. The level of employment decreased between 2008 and 2015, with total employed decreasing by 25% and the number of FTEs decreasing by 30% over the period. The major factors causing employment to decrease include of course the decreasing fleet size but also less labour intensive vessels. The table below describes Swedish national fleet structure, activity and production trends: 2008-2016 (2015 for economic variables).

Variables	2008	2009	2010	2011	2012	2013	2014	2015	2016
All vessels	1507	1471	1415	1359	1322	1299	1266	1298	1255
Inactive vessels	359	339	351	328	303	317	288	296	281
Average vessel age (years)	30,9	31,5	31,4	30,6	31,5	32,2	32,8	33,3	34,0
GT (thousand tonnes)	43	41,7	38,6	32,9	29,5	30,5	29	30,8	31,9
Engine power (thousand kW)	211,8	207,9	196,4	178,2	169,1	170,7	163,9	167,9	170,6
No. Enterprises (N)	1211	1181	1134	1089	1055	1035	985	995	951
Total employed (N)	1980	1758	1765	1679	1663	1577	1568	1487	---
FTE (N)	1133	1019	990	974	942	886	845	791	---
Average wage per FTE (thousand €)	24,7	24,3	28,3	29,4	32,2	37,6	38,2	37,8	---

In 2016 the Swedish fleet spent a total of around 73 thousand days at sea. The total numbers of days at sea decreased by around 29% between 2008 and 2016. The major factors causing the decrease include lower quotas and increasing catch per effort. The quantity of fuel consumed in 2015 totalled around 49 million litres, a decrease of around 21% from 2009, driven by fewer days at sea and increased fuel efficiency.

The total volume landed by the Swedish fleet in 2016 was 197 thousand tons of seafood, with a landed value of €124 million euros. The total volume and value varies over the period analysed due to quotas. In terms of landings weight, decreasing quotas (particularly on pelagic species such as herring and sprat) affects the results. The total landed value follows the price statistics; in particular lobster and prawn prices has increased and cod prices dropped over the period. Landed values are also strongly affected by the currency exchange and landings weight (quotas).

Variables	2008	2009	2010	2011	2012	2013	2014	2015	2016
Days at Sea (thousand days)	102,8	96,6	85,1	83,7	78,9	77,75	77,67	73,37	73,48
Fishing Days (thousands)	102,8	96,6	85,1	83,7	78,9	77,75	77,67	73,37	73,48
Fuel consumption (million litres)	41,4	62,2	54,1	40,9	47,4	48,1	41,1	49,3	---
Fuel per tonne landed (litre/tonne)	194,1	312,2	264,8	236	347,1	270,8	247,3	243,25	---
Landings weight (thousand tonnes)	213,2	199,3	204,4	173,3	136,5	177,6	166,1	202,7	197,2
Landings value (million €)	111,8	96,2	109	122,8	120,8	125,3	106,7	116,0	123,8

No major changes occurred in the fishing sector during 2008-2016. The Swedish management has succeeded to decrease some of the over-capacity (over-capitalisation due to too many licenses for specific fisheries). A funded scrapping campaign during late 2009 and beginning of 2010 and an introduction of an ITQ-system in the pelagic fishery have shown to be successful. The Swedish fleet consists of a majority of small vessels fishing with passive gear and a smaller number of larger vessels mainly using trawls. Most demersal and pelagic trawlers have their home port on the Swedish west coast. Pelagic trawlers on the west coast mostly target herring, sprat and mackerel. Pelagic trawlers operating in the northern part of the Baltic Sea mainly target vendace. Demersal trawlers in the Baltic Sea mostly target cod whereas demersal trawlers on the west coast mostly target Norway lobster and shrimp. Vessels using passive gears are spread along the entire Swedish coastline. Geographically, the activities are concentrated to ICES divisions IIIa and III d and to some extent, divisions IVa and IVb.

III.B Economic variables

SUPRA REGION: BALTIC SEA, NORTH SEA AND EASTERN ARCTIC, AND NORTH ATLANTIC

Since 2008, the Swedish data collection is mostly based on census data mixed with a census survey in order to distinguish specific cost items. The introduction of a tradable fishing right system has affected the 2010 data. Half of the vessels that had more than half of the total landings value left the fleet. There are most probably incomes in the 'other income' variable that result from selling quotas. The effect is that the profitability of 2010 is higher than it should be (since incomes and costs from fishing rights should be kept outside in this analysis). At the same time some costs incurred from buying fishing rights may have been recorded in the variable other costs, as well as, in the 'in year investments' variable. Sweden has performed an evaluation of the introduction of the fishing right system showing the success of the new management system for the pelagic fishery.

There are no other major data issues in the Swedish DCF data. The main problems had previously stemmed from changes in certain methodologies over time, which interrupted time series data especially for expenditure data. One example is the issues with the estimation of capital costs. Since few, if any, new vessels have been built or even entered the Swedish fleet in recent years, reliable

observations on price per capacity unit to use as input in the PIM-model are hard to find. Sweden works around this issue by estimating insurance values for each vessel from a survey. The insurance values are later used as a base for estimating the price per capacity unit used in the model. However there are issues connected with using insurance values since they may include or exclude certain values. Old wooden vessels cannot be insured and newer vessels normally don't need full insurance since part of the vessel is insured by guarantees. This issue has now been taken into consideration by using different models for estimating price per capacity unit for the Swedish data.

Another important issue is clustering. With a small and diminishing fleet, Sweden is forced to cluster all of the economic data and also report cluster definitions. At the same time Sweden is recommended to report un-clustered transversal data on capacity, landings etc. Previously Sweden used different clusters for different years but has now worked around this problem, back-calculating all data, and is now using the same clusters for the whole DCF period. This makes it easier to follow trends. Most of the Swedish data comes from registers but cost data is collected separately. Sweden uses mandatory questionnaires for data on costs (combined with tax declarations from registers). Previously, Sweden used probability sampling when sending out the questionnaires. Since 2012, questionnaires requesting 2011 data are sent to all vessels (census). Instead of getting 60% response from a 50% sample, Sweden now gets more than 80% response from a census sample, i.e. the number of data points has increased threefold.

Capital value

Value of physical capital was estimated as the depreciated replacement value of the hull, engine, electronics and other equipment. Depreciation is set to: hull 7 %, engine 25 %, electronics 25 % and other equipment 25 %. A digressive depreciation is used. The replacement value is assumed to consist of hull 60 %, engine 20 %, electronics 10 % and other equipment 10 %. Calculations of capital value are also based on the same data and sources as capital costs and the template related to the PIM methodology in (No FISH/2005/03) is also used to estimate the capital value.

Capital costs

Capital costs are calculated according to the PIM methodology documented in the capital valuation report (No FISH/2005/03). Templates available on the DCF website were applied. The average service life will be needed in order to distribute the life of the hull, engine, electronics and other equipment over the service life of the vessel.

Age will be collected for all vessels from the Swedish fleet register. Calculations of capital costs are based on the replacement values of the vessels. Replacement values for all vessels are estimated for the whole fleet in SPSS using insurance values collected through a questionnaire from a census sample of the vessel owners. Based on the estimated replacement values for all vessels price per capacity unit were estimated and used as the baseline value in the template connected to the capital valuation report (No FISH/2005/03). For historical values consumer price index is used.

Clustering

In 2008-2015 around 25 segments were clustered into 9 segments according to NP and following the instructions and recommendations by STECF. Out of the 25 segments 4 consisted of inactive vessels. Clustering was done due to confidentiality reasons and for all segments that were clustered data was collected for all vessels. Segments with similar characteristics were clustered, which gear type was used most frequent and which gear type was predominant the previous year was also looked upon

when determining which segment to cluster with. Clustering is also necessary to get consistent time-series.

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

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

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

No deviation from NP proposal.

III.B.3 Actions to avoid deviations

No deviations to be reported and therefore no actions to be taken.

III.C Metier-related variables

THE BALTIC SEA

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

Results of the sampling in 2016, as well as what was planned to be sampled, are presented in tables III.C.3, III.C.4, and III.C.6.

Sweden has updated the information in table III.C.1 in accordance with the instructions in the guidelines. However the basis for the sampling in 2016 is the reference years 2007-2008 as stated in the National Programme. The information in table III.C.1 origins from logbooks and sales slips. For vessels not carrying logbooks are the information based on monthly fishing journals. These journals are mandatory in Sweden and include, on a monthly basis, information on landings and effort.

Sweden has participated in the ICES methodological expert groups dealing with “statistically sound sampling” and has gradually changed the sampling schemes towards this approach. Since 2014, most demersal fisheries have been sampled in accordance with these methodologies. Some fisheries, e.g. pelagic fisheries and salmon fisheries are however still sampled on a metier basis. For these fisheries it is indicated in table III.C.1 which metiers that have been merged. The rationale behind the merging is that the merged metiers have similar catch composition (e.g. pair trawlers have been merged with single trawlers).

Sweden has not been able to reach the planned targets for some of the sampling frames and metiers. One main reason for inconsistencies between planned number of trips to be sampled and achieved is that it is the time lag between the reference years in the NP and the sampling year. The activities in some fisheries (e.g. some pelagic fisheries) have been considerable reduced during this time resulting in fewer samples. Another main reason for difficulties to reach the targets is that all vessels are not willing to carry observers. These problems becomes more obvious in a “statistically sound sampling scheme” were vessels to be sampled are truly chosen randomly.

In 2015 the landing obligation was implemented in the Baltic Sea for salmon, cod and pelagic species. This caused a serious problem for the on board sampling of Baltic Sea trawl fisheries for cod as almost all vessels refused to take observers. The problem continued in the beginning of 2016 resulting in an overall achievement of eleven sampled trips out of 24 planned. This had an impact on the quality of the data as well as the ability to submit data to end-users. In the fourth quarter a new system to ensure access to vessels was introduced to improve the situation (see section III.C.3).

Furthermore, bad weather conditions can at times stop the fishermen with smaller boats from going out to sea. This can in turn influence the planning and achievement of the sampling.

Specific reasons for deviations from the NP in terms of planned versus sampled number of trips in the métier sampling are summarised in the Comments column in table III.C.3.

III.C.2 Data quality issues

In 2009 Sweden initiated work to improve the designs of the métier sampling programmes taking into account the outcomes of WKACCU, WKMERGE, WKPICS and SGPIDS into account. This work continued in 2016 and includes identification of proper sampling frames, probability based ways to select primary sampling units and documentation of non-responses. At the same time we are trying to sort out some of the logistical problems that arise from the new more statistically sound sampling designs. The new designs will improve the possibilities to evaluate possible bias and thereby also accuracy.

Presently is the sea-sampling programme as well as the shore sampling programme for cod in the Baltic carried out in a 4S way. The ambition is to eventually sample all the fisheries in this way.

Concurrent sampling is carried out during sea-sampling trips. During these trips are length frequencies sampled for all species (G1, G2 and G3) and catch fractions (landings, discards).

III.C.3 Actions to avoid deviations

The Swedish Agency for Marine and Water Management did in 2015 get a mandate from the Swedish Government (N2015/950/FJR) to develop a robust system to assure access for samplers to Swedish fishing vessels. Sweden implemented this new system in October 2016. The system puts a larger responsibility on the holder of the fishing license to make sure that planned observers trips are conducted. If the holders fail to do so they can be given a type of fine. The Swedish Agency for Marine and Water Management will work in close collaboration with Swedish University of Agricultural Sciences on the follow up of the individual vessels.

Sweden will in forthcoming WPs adjust, where appropriate, the planned number of trips to follow more recent patterns in the fisheries/fleets. When planning the sampling of the coastal fisheries, we will in the future take into consideration to plan on shore sampling to a higher extent due to the risk of unpredictable impact of bad weather conditions.

THE NORTH SEA AND EAST ARCTIC

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

Results of the sampling in 2016 as well as what was planned to sample are presented in tables III.C.3, III.C.4, and III.C.6

Sweden has updated the information in table III.C.1 in accordance with the instructions in the guidelines. However, the basis for the sampling in 2016 is the reference years 2007-2008 as stated in the National Programme. The information in table III.C.1 originates from logbooks and sales slips. For vessels not carrying logbooks is the information based on monthly fishing journals. These journals are mandatory in Sweden and include, on a monthly basis, information on landings and effort.

Sweden has participated in the ICES methodological expert groups dealing with “statistically sound sampling” and has gradually changed the sampling schemes towards this approach. During 2016, most demersal fisheries were sampled in accordance with these methodologies. Some fisheries, e.g. pelagic fisheries are however still sampled on a metier basis. For these fisheries it is indicated in table III.C.1 which metiers that have been merged. The rationale behind the merging is that the merged metiers have similar catch composition (e.g., pair trawlers have been merged with single trawlers).

Sweden has not been able to reach the planned targets for some of the sampling frames and metiers. One main reason for inconsistencies between planned number of trips to be sampled and achieved is that it is the time lag between the reference years in the NP and the sampling year. The activities in some fisheries have been considerably reduced (e.g. pelagic fisheries) during this time resulting in fewer samples. Another main reason for difficulties to reach the targets is that not all vessels are willing to carry observers. These problems become more obvious in a “statistically sound sampling scheme” where vessels to be sampled are truly chosen in a random way. In the fourth quarter 2016 a new system to ensure access to vessels was introduced (see section III.C.3).

Further, a large proportion of the Swedish fleet fishing for demersal species and crustaceans are further relatively small (<24 m). Most of them avoid being at sea in bad weather (or do not want to bring observers in bad weather due to safety reasons). This means that after a prolonged period of bad weather Sweden sometimes is lagging behind in sampling of all fisheries and need to prioritise trips at the end of the sampling period in question.

Specific reasons for deviations from the NP in terms of planned versus sampled number of trips in the métier sampling are summarised in the Comments column in table III.C.3

III.C.2 Data quality issues

Sweden initiated a work in 2009 to improve the designs of the metier sampling programmes taking into account the outcomes of WKACCU, WKMERGE, WKPICS and SGPIDS into account. This work was continued in 2016 and includes identification of proper sampling frames, probability based ways to select primary sampling units and documentation of non-responses. At the same time we are trying to sort out some of the logistical problems that arise from the new more statistically sound sampling designs. The new designs will improve the possibilities to evaluate possible bias and thereby also accuracy.

Presently, demersal fisheries are sampled in a 4S way while pelagic fisheries are sampled on a metier basis.

Concurrent sampling was carried out during sea-sampling trips. During these trips length frequencies were sampled for all species (G1, G2 and G3) and catch fractions (landings, discards).

III.C.3 Actions to avoid deviations

The Swedish Agency for Marine and Water Management did in 2015 get a mandate from the Swedish Government (N2015/950/FJR) to develop a robust system to assure access for samplers to Swedish fishing vessels. Sweden implemented this new system in October 2016. The system puts a larger responsibility on the holder of the fishing license to make sure that planned observers trips are conducted. If the holders fail to do so they can be given a type of fine. The Swedish Agency for Marine and Water Management will work in close collaboration with Swedish University of Agricultural Sciences on the follow up of the individual vessels.

Sweden will in forthcoming WPs adjust, where appropriate, the planned number of trips to follow more recent patterns in the activities of the fisheries/fleets.

III.D Recreational fisheries

THE BALTIC SEA

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

According to the Data Collection Frame Work, DCF 2010/93/EU, member states shall evaluate the weight of the recreational catches of cod, salmon, eel and sharks for the Baltic Sea. For Sweden, salmon and cod are reported while recreational fishery for eel is not allowed according to regulation (FIFS 2004:36) and therefore no data has been collected.

The only species of sharks in the Baltic to be considered here is dogfish and it is rarely in the Baltic Sea. The SwAM has banned all recreational fisheries after dogfish since 1 April 2011 (FIFS 2004:36). This means that dogfish is not allowed to catch in Swedish waters by Swedish regulation.

National mail screening surveys

A periodically national mail screening survey has been carried out with the same methodology since 2013 regarding recreational fisheries. The survey is performed periodically three times a year and includes all major types of recreational fishing. The data are collected according to created recreational metiers. A postal questionnaire is sent to approximately 11,000 randomly selected permanent residents in Sweden, age 16-80 years. The questionnaire is sent at three occasions during a calendar year with questions regarding fishing activities in the most recent four months. The statistics do not include fishing carried out by visitors to Sweden. In this study, recreational fishing is defined as all fishing activities carried out by those without a commercial fishing license. At sea, this includes fishing activities surrounding recreation, tourism and sports. The questionnaire will give information on the recreational effort, gear use and expenditures in different geographical areas.

The SwAM have noticed some minor defaults in the data due to errors in the estimations and sampling schemes by Sweden Statistics. New revised estimates for 2013-2015 will be available by September 2017 when also 2016 years data will be publicly accessible. Preliminary results from the screen survey for years 2013-2015 are however available for cod and salmon (see table below).

Supportive national surveys on recreational fishing

Salmon

In the Swedish recreational fisheries, salmon is caught through angling, brood stock and traditional fishing in rivers, with trap nets along the coast and in offshore trolling fishing. Catches from coastal trap net fishing and offshore trolling fishing are estimated according to surveys performed every fourth year. The latest two surveys were performed in 2015. The corresponding two surveys carried out in 2011 were used for comparison. The aim of the trap net survey is to map the number of trap nets along the coast and then with this background information make an estimate of the total catches of salmon in this fishery (Hasselborg 2016 and Anon 2011). The aim of the former 2011 trolling survey was to make an inventory of the fishery including an estimation of the salmon catches (Persson et al. 2013). A new trolling survey was done in 2015 following the same method as in 2011. Collection of river catch data is carried out annually in accordance with routines described in Anon 2003. The number and weight of fish collected as brood stock are collected by personnel at the hatcheries. Data are delivered to ICES WGBAST as summaries per river and fishery.

Cod

The monitoring of cod catches made on Swedish tour boats operating in the Sound (ICES sub-basin 23) between Sweden and Denmark started in 2011 and is an ongoing annual survey since then. The Sound was chosen for this monitoring study as it was, and still is, considered the only area with significant Swedish recreational tour boat fishing for cod. The captains report the number of fishing trips (usually 1-3 per day) and cod catch from each fishing trip during the entire year. In 2016, eight out of the twelve Swedish tour boats that operated in the Sound reported their catches. The table below gives the number of fishing trips and catches of cod in kg as reported by the captains. The four boats not reporting catches were given the monthly mean of number of trips and monthly catch of the eight reporting boats. No independent controls of weights (nor length measurements) were carried out on board the boats. The Swedish tour boats caught 190 ton cod that should be compared to the 448 ton caught by the commercial fishing fleet. The tour boat catch made up 30 % of total catch (tour boat catch + commercial catch). It should be noted that a large fishing for cod also occurs from private recreational boats and from the shoreline in this area (analyses indicates that tour boats represent approximately 25 % of the total recreational fishing sector in the Sound).

Starting in January 2017 a new research study started in the ICES areas 23 and 24, trying to cope with the private recreational fishing sector, to get estimates of the effort, catches and age at length of cod both from tour boats but also from private boats and sport-fishing from the shore also including non-residents in Sweden as well as citizens younger than 16 and older than 80 years.

Preliminary data on recreational fishing harvest of salmon and cod in kg from the national questionnaires (2013-2015) and average values over the three years in different sub basins. Standard error in brackets. North Sea includes Kattegat and Skagerrak.

Recreational fishing (Kg)	Salmon			
	2013	2014	2015	Avg
Bothnian Bay/Bothnian Sea	5300 (12316)	29151 (46542)	32250 (27109)	22234
Baltic Proper	96955 (90761)	28279 (32710)	26334 (21705)	50523
Southern Baltic Proper	8771 (15280)	75607 (112109)	0 (-)	28126
The Sound	11129 (26568)	0 (-)	19153 (15811)	10094
Kattegat	0 (-)	28203 (36782)	23568 (23456)	17257
Skagerrak	0 (-)	13649 (25396)	23091 (16101)	12247
Baltic Sea total	122155	133037	77737	110976
North Sea total	0	41852	46659	29504
In total	122155	174889	124396	140480

Recreational fishing (Kg)	Cod			
	2013	2014	2015	Avg
Bothnian Bay/Bothnian Sea	10473 (12102)	0 (-)	21107 (16089)	10527
Baltic Proper	133791 (65241)	19868 (20019)	30304 (13965)	61321
Southern Baltic Proper	108925 (134871)	172703 (378640)	8137 (12824)	96588
The Sound	252034 (161003)	586877 (606554)	708897 (263975)	515936
Kattegat	31791 (30271)	206320 (209245)	156227 (76584)	131446
Skagerrak	152623 (126804)	101593 (118458)	103373 (45087)	119196
Baltic Sea total	505223	779448	768445	684372
North Sea total	184414	307913	259600	250642
In total	689637	1087361	1028045	935014

Summary of seasonal and annual cod catches in kg from 12 out of 12 Swedish tour boats operating in the Sound in 2016. Boats not reporting catches were given the monthly mean of number of trips and monthly catch of the reporting boats

2016	No. trips	Catch	Mean catch/trip	Commercial catch	% tour catch of total catch
Jan-March	404	33797	84		
Apr-June	613	51024	83		
July-Sept	793	75995	96		
Oct-Dec	432	29129	67		
TOTAL	2242	189944	85	448317	30

III.D.2 Data quality issues

National mail screening surveys

Due to errors in the estimation and sampling schemes for the national mail screening survey performed by Sweden Statistics, new estimates for 2013-2016 will be available in September 2017.

Supportive national surveys on recreational fishing

Salmon

There is an urgent need to further improve the quality of catch data from the recreational salmon fisheries. The diversity in the salmon fisheries is one of the challenges when trying to get an overall picture. Salmon is caught using many different fishing methods in rivers, along the coast and out at sea and therefore, different sampling strategies have to be used.

Cod

With the new survey in place for 2017, individual sampling of cod from the tour boats as well as from private boats and shoreline anglers weight- and length estimates will be more thoroughly investigated and reported. The goal is further to include all tour boats in the survey. That was not achieved in 2016 (four boats missing). The captains are not obliged to report catches but they appear to be positive to reporting and IMR arrange annual meetings for captains and crew where survey results and data quality are discussed. Missing boat catches can easily be estimated from the mean catch of participating boats. Control weight- and length estimates by IMR were not carried out during 2016 as were done during 2012 and 2013. Such controls may not be necessary to carry out every year but should be done at least every third year. All cod survey data are stored at IMR.

III.D.3 Actions to avoid deviations

National mail screening surveys

Actions have been taken to improve the statistical analysis of the data collected in the national screening survey during 2016 and also for the surveys conducted 2013-2015.

Supportive national surveys on recreational fishing

Salmon

There is an overall need for more frequent, preferable annual, surveys targeting different fishing methods. Also, closer collaboration with organisations that are managing recreational fisheries on salmon is needed. Quality assurance work including development of the recreational fisheries surveys that are in progress is ongoing. Here, one of the focus areas is database development.

Cod

A pilot study will run during 2017 for monitoring of recreational fishing for cod from private boats and from the shore in the Sound and southern Sweden. A control programme for recreational fishing for cod onboard tour boats in the Sound started January 2017. Staff from IMR will join 20 tour boat trips during 2017. Individual weight and length from captured and released cod are measured and

otolith for age readings are collected. Data will be compared with the data (from all their fishing trips) reported by the captains.

THE NORTH SEA AND EAST ARCTIC

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

For the North Sea only cod are to be reported while recreational fishery for eel and sharks is not allowed according to regulation (FIFS 2004:36) in Sweden and therefore no data has been collected.

SwAM has banned all recreational fisheries after several species of sharks since 1 April 2011. The TAC in the North Sea, Skagerrak and Kattegat is 0 tonnes for 2011, 2012, 2013, and 2014, and captured sharks will quickly be put back in undamaged condition. This means that sharks are not allowed to catch due to national legislation, and no sampling or collection of data is therefore planned. Particularly the dogfish have recently, after a successful management action, starting to thrive in Swedish waters again and are probably one of the most accidentally caught species in recreational fishing in semi-deep waters with live-bait. The dogfish are very robust and by-catch is probably not an issue. Some specimens can however be caught in nets and/or hook-injured and suffer from an increased post-released mortality.

National mail screening surveys

A periodically national mail screening survey has been carried on since 2013 regarding recreational fisheries. The survey is performed periodically three times a year and includes all types of recreational fishing. The data are collected according to created recreational metiers.

Due to errors in the estimation and sampling schemes by Sweden Statistics, new estimates for 2013-2016 will be available in September 2017. Preliminary results for salmon and cod can be seen in the table above.

III.D.2 Data quality issues

Due to errors in the estimation and sampling schemes for the national mail screening survey performed by Sweden Statistics, new estimates for 2013-2016 will be available in September 2017. There are no other deviations from NP proposal.

III.D.3 Actions to avoid deviations

Actions have been taken to improve the statistical analysis of the data collected in the national screening survey during 2016 and also for the surveys conducted 2013-2015.

III.E Stock-related variables

General Remarks

To get catch-in-numbers (CANUM) and weight-in-catch (WECA) by age group, sampling of the landings is undertaken. Simple random sampling was used for pelagic stocks, cod salmon and flounder. The simple random sampling means that a fixed number of individuals were sampled randomly within market size category (if sorted) /unit (unit =area, quarter and gear) independent of landing size. All individuals in a sample were analysed according to length, weight and age. Sampling strategy on surveys and on board fishing vessels and sampling of the eel stock differs from market sampling and was performed as follows: all individuals (or a sub sample) were length measured and a fixed number per length class was sampled for age, sex, maturity and weight. In 2015, the 4S method was introduced for the shore sampling program in the Baltic. For stocks sampled on surveys and on board fishing vessels, the length can be given an age by using an Age-Length-Key. Samples of herring and sprat were collected by Denmark according to the bilateral agreements and number of individuals collected is included in table III.E.3.

Reasons for over- and undersampling:

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 indications of the planned minimum numbers of individuals to be measured for the different variables are based on experiences with the Swedish sampling scheme and survey catches from 2008. Also, for sea sampling, number of trips and not number of individuals are the basis for planning. Therefore, percent achievement can vary and look like it is over- or undersampled. In the cases for oversampling it is done without any additional costs. However, minor additional costs occur in the home laboratory in form of additional staff time for age reading.

For some stocks, the planned sample sizes have not been achieved. In surveys this is seen for many stocks, and is due to the general rule to collect stock-related variables for a certain number of individuals per length class and area. If only very few length classes occur during the survey, this rule can look like under-sampling compared to planned numbers. In a few cases, the stock sampling in surveys was not originally included in separate rows in table III.E.3. When improving the table, the planned minimum number of individuals to be measured at the national level has been set to the achieved No.

THE BALTIC SEA

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

The stocks selected for sampling are listed in table III.E.1 and the reference years refers to 2007-2009 since the NP is a roll-over from 2011-2013 and the NP was prepared in 2010. The AR should be compared to what was planned in NP. The column “share in EU landings %” were only filled for species where average landings exceeded 200 tonnes and no EU TAC are established. In all other cases the column was left blank. All stocks sampled during 2016 for biological variables, age, length,

weight, sex, sexual maturity and /or fecundity are listed in table III.E.3. The variables are collected from different sources like survey, market or sea sampling and different sampling strategies have been used. For most stocks, the sampling sources are listed separately in order to keep track on the contribution of the different sources to the total. General reasons for over- and undersampling are explained above under “General remarks”. Oversampling did not cause significant additional costs.

Sweden is obliged to sample nine stocks in the Baltic Sea. Sweden also samples *Anguilla anguilla* in Inland freshwater and *Salmo salar* from rivers. Reasons for deviations from the NP in terms of planned versus achieved individuals on stocks are summarised in the Comments column in table III.E.3. Some additional comments to some deviation are listed below.

Salmo salar, River monitoring of wild salmon stocks:

In 2016, the sampling in the ICES defined salmon index rivers continued according to established data collection procedures with one exception. A temporary change in the sampling design was made by moving the activities in the index river Sävarån to the river Rickleån. This change (endorsed by ICES WGBAST) was also made in 2014 and 2015. The reasons were mainly to improve data collection by adding a new river with similar conditions (in size and location, i.e. assessment unit), since these new data would give higher value than an additional year of data collection in the river Sävarån. In addition to the index river monitoring, sampling is also performed in a number of other rivers.

Platichthys flesus sd 22-32:

All in all, the level of sampling was adequate, even though the planned number of samples to be collected in the commercial fisheries was not achieved for two of the variables (sex-ratio and maturity). In 2015, the sampling of the commercial fisheries was changed from market sampling to sea sampling and “Purchase of fish” is therefore changed to “sea sampling” in table III.E.3. In connection with this shift, unexpected logistic problems appeared rendering shortfalls in the sampling in 2016

Clupea harengus sd 30-31:

The species was sampled according to plan. According to the bilateral agreement between Sweden and Finland, the age readings from BIAS in sd 30 are divided between the two countries and in 2016, Sweden read 1 519 of the total 2 700 samples that were collected during the survey. Finland is responsible for running BIAS in the Bothnian Sea.

III.E.2 Data quality issues

The reasons for the deviations in sampling (differences between planned and achieved numbers) are described in table III.E.3. Since planned numbers refers to a NP written in 2010 there are several incorrect numbers that has to be explained throughout the list.

III.E.3 Actions to avoid deviations

For stocks that are sampled for biological parameters within the sea sampling it is crucial that observers are allowed to get onboard for collecting biological samples. During 2016 Sweden implemented a new system in which it is mandatory for holder of the fishing license to bring observers if they are selected for sea-sampling (according to a mandate from the Swedish Government (N2015/950/FJR) to develop a robust system to assure access for samplers to Swedish fishing vessels). The Swedish Agency for Marine and Water Management work in close collaboration with Swedish

University of Agricultural Sciences on the follow up of the individual vessels. This was particularly affecting the sampling of cod in sd 22-24 and cod in sd 25-32.

Salmo salar:

In the commercial fisheries, the planned number of individuals to be sampled was not achieved. In order to collect more samples during a short fishing season, one possibility would be that additional fishermen took part in the sampling programme. Another possibility would be to grant exemptions from the closure for the fishermen already taking part in the sampling. The latest years, the salmon fisheries have been closed early in the fishing season in order to follow the EU TAC.

To increase the number of biological samples within the recreational fisheries, sampling intensity during appropriate environmental conditions must improve through different management measures. For example, sampling could become better organised at local recreational fishing organisations' landing stations.

THE NORTH SEA AND EAST ARCTIC

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

The stocks selected for sampling are listed in table III.E.1 and the reference years refers to 2007-2009 since the NP is a roll-over from 2011-2013 and the NP was prepared in 2010. The AR should be compared to what was planned in NP. The column "share in EU landings %" were only filled for species where average landings exceeded 200 tonnes and no EU TAC are established. In all other cases the column was left blank. All stocks sampled during 2016 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 different sampling strategies have been used. For most stocks, the sampling sources are listed separately in order to keep track on the contribution of the different sources to the total. General reasons for over- and undersampling are explained above under "General remarks". Oversampling did not cause significant additional costs.

Sweden is obliged to sample twelve stocks in the North Sea region. Reasons for deviations from the NP in terms of planned versus achieved individuals on stocks are summarised in the Comments column in table III.E.3

III.E.2 Data quality issues

The deviations in sampling described in section above explain the differences between planned and achieved sampling. Since planned numbers refers to a NP written in 2010 there are several incorrect numbers that has to be explained throughout the list.

III.E.3 Actions to avoid deviations

For stocks that are sampled for biological parameters within the sea sampling it is crucial that observers are allowed to get onboard for collecting biological samples. During 2016 Sweden implemented a new system in which it is mandatory for vessels to bring observers if they are selected for sea-sampling (according to a mandate from the Swedish Government (N2015/950/FJR) to develop a robust system to assure access for samplers to Swedish fishing vessels). The Swedish Agency for

Marine and Water Management work in close collaboration with Swedish University of Agricultural Sciences on the follow up of the individual vessels. This was particularly affecting the sampling of *Nephrops norvegicus* in FU 4 (Kattegat).

Furthermore, since planned numbers are not updated for some years, the sometimes lower effort in the fleet is not reflected in NP.

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 NP.

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

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

III.F.1.3 Actions to avoid deviations

No deviations to be reported and therefore no actions to be taken.

III.F.2 Effort

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

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

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

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

Effort data derived from the same datasets used to monitor quotas and effort limitations. Comprehensive validations were made during the database entry process (logbook, landing declarations, sales notes, coastal journals, effort reports). Spatial data from logbook, VMS, effort reports, sightings etc. were compiled trip by trip. The trip information was crosschecked in order to verify catch and effort area information in the logbook and to calculate time in different effort areas. Cross-checking of effort information in the monthly coastal journals was not made on a trip by trip basis and not on a regular basis.

III.F.2.3 Actions to avoid deviations

No deviations to be reported and therefore no actions to be taken.

III.F.3 Landings

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

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

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

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

Landing data derive from the same datasets used to monitor quotas. Comprehensive validations were made during the database entry process (logbook, landing declarations, sales notes, Coastal journals, effort reports). Catch, landing and sales data as well as spatial data from logbook, VMS, effort reports, etc. was compiled trip by trip. The trip information was crosschecked in order to verify catch and catch area information in the logbook. Crosschecking of information in the monthly coastal journals was not made on a trip by trip basis and not on a regular basis.

III.F.3.3 Actions to avoid deviations

No deviations to be reported and therefore no actions to be taken.

III.G Research surveys at sea

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

During 2016, Sweden has as planned undertaken six surveys in the Baltic Sea, Kattegat and Skagerrak. The Danish R/V DANA was chartered for five Swedish surveys during the year and complemented with R/V Hålabben in the Sound. For the UWTV survey a smaller Vessel Asterix was used.

Sweden also participated as planned in the joint survey in area IIa. Details for this survey will be reported by Denmark.

A description of the different surveys undertaken in 2016 follows below, and a summary of the surveys and the number of days the vessel is used are presented in table III.G.1.

The Baltic International Trawl Survey (BITS) first and fourth quarter

The main aim of the survey is to estimate cod recruitment indices and cod abundance in the different Sub-Divisions in the Baltic. The survey has also the purpose to follow the development of flounder and other flatfish populations. The BITS survey is coordinated by the ICES Baltic International Fish Survey Working Group (WGBIFS).

All Swedish survey data are stored in “Fish sample database” (SLU) and sent to ICES DATRAS database for international data storage. The present surveys provide data to the ICES Baltic Fisheries Assessment Working Group (WGBFAS) and ICES Baltic International Fish Survey Group (WGBIFS).

BITS first quarter

The survey was conducted in the Baltic by chartering the R/V Dana between the 20th of February to 3rd of March 2016 using the TV3 demersal trawl according to the BITS manual (ICES, 2014). 50 hauls were planned with R/V Dana while 47 hauls were conducted and 47 were valid (including ten oxygen deficiency hauls which were not trawled because the oxygen concentration close to the bottom was <1.5 ml/l). During the survey, acoustic data were continuously recorded and the fish hauls were randomized from the Tow Database. In the Sound, the survey was conducted by Hålabben between 8

to 10 of February using a down scaled TV3 930 trawl, to 30 % of original size. The two fish stations with two hauls per station in the Sound are stationary and were completed in two days at sea (Figure 1).

In this survey, 7 262 individuals of cod (out of 37 400 individuals in total) were measured and otoliths were sampled from 894 individuals. From the catch of flounder (a total of 7 931), otoliths were sampled from 1 115 individuals. Overall, 20 fish species were caught during the survey and the catch was dominated by herring, sprat, cod, and flounder, in terms of weight. In the Sound, 183 individuals of cod were sampled and 74 individuals of plaice were measured and otoliths were sampled. In total 16 species were caught.

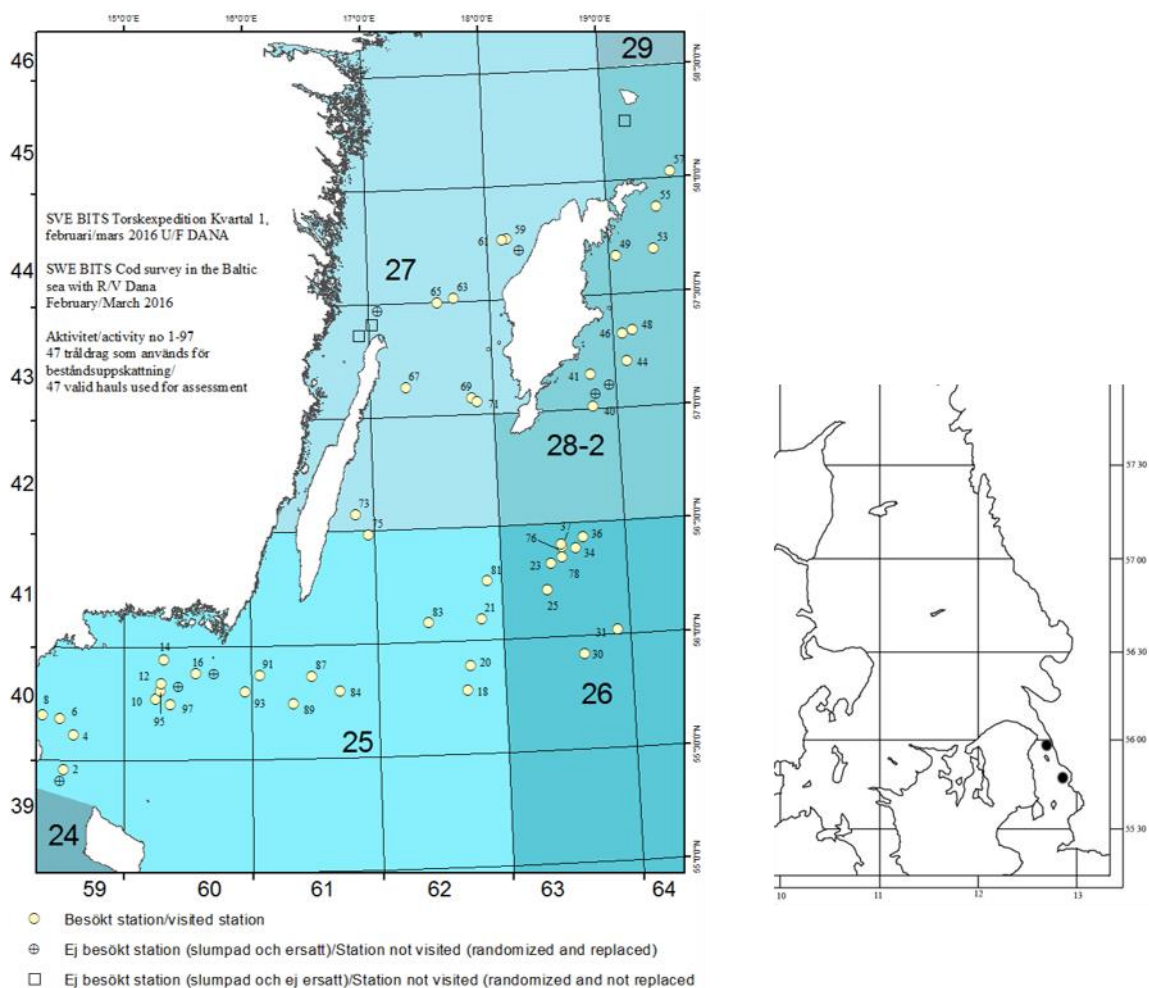


Figure 1. BITS first quarter survey in 2016. Trawl stations conducted by R/V DANA is shown in the map to the left. The two stations conducted by Hålabben in the Sound is illustrated in the map to the right.

BITS fourth quarter

The survey was conducted in the Baltic by chartering R/V Dana between the 18th to 28th of November 2016 using the TV3 demersal trawl according to the BITS manual (ICES 2014). 30 hauls were planned with R/V DANA and 31 hauls were conducted including four additional hauls that were made to add biological data for age analysis and maturity. 29 were valid (including nine oxygen deficiency

hauls which were not trawled due to oxygen concentration close to the bottom was <1.5 ml/l). In total 25 hauls are included in stock assessment. The survey covered parts of SD 23, 25, 26, 27 and 28 this year. Acoustic data were continuously recorded and the fish hauls were randomized from the Tow Database (Figure 2 a).

In the Sound, the survey was conducted by Hålabben between 23th and 24th of August using a down scaled TV3 930 trawl, to 30 % of original size. Three hauls were planned and conducted at two stations in the Sound (Figure 2).

In this survey, 2 910 individuals of cod (from a total of 5 307) were length measured and otoliths from 759 individuals were sampled. From the catch of flounder (a total of 2 808), 700 otoliths were sampled. Overall, 19 fish species were caught during the survey and the catch was dominated by herring, cod, flounder and sprat, in terms of weight. In the Sound, 185 individuals of cod and 133 individuals of plaice were sampled. In total twelve species were caught.

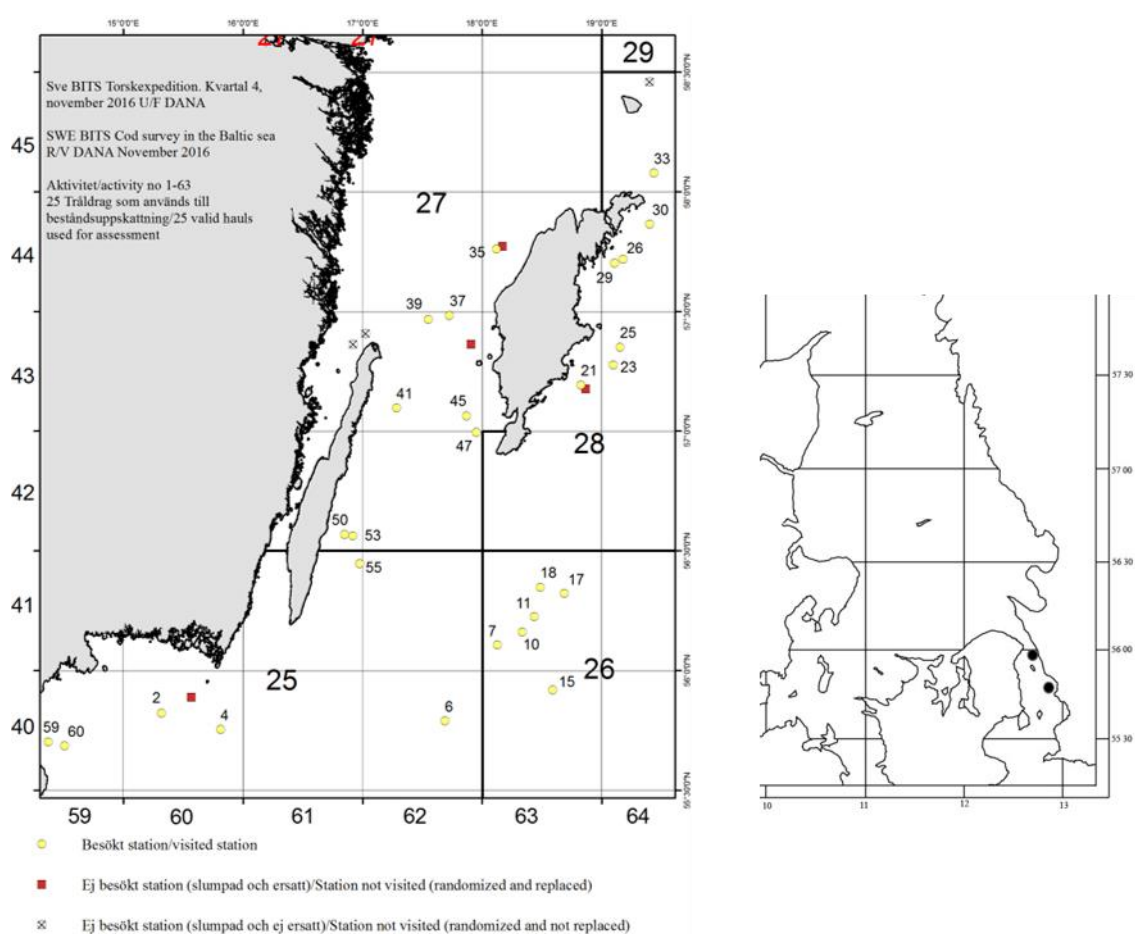


Figure 2. BITS fourth quarter survey in 2016. Trawl stations conducted by R/V DANA is shown in the map to the left. The map to the right the two trawl stations (three hauls) conducted by Hålabben are illustrated.

BIAS Baltic International Acoustic Survey

The main objective of the survey is to assess clupeoid resources in the Baltic Sea.

The R/V Dana cruise started 30th of September from Hirtshals with transit to Gullmarsfjorden for calibration the 1st and 2nd of October. Thereafter the survey continued southeast of Simrishamn the 3rd October and ended the 15th of October in Copenhagen. All trawl hauls were made using the Fotö pelagic trawl with 6 mm mesh bar in the codend. In total 45 trawl hauls were carried out and the cruise covered ICES subdivision 27 and parts of 25, 26, 28 and 29 (Figure 3). Sweden follows the recommendations given by WGBIFS that states that the maximum sampling effort should preferably be used and therefore produces an age key by taking otoliths from each ICES rectangle covered by the survey. Sampling of otoliths, weight and maturity was performed on 2 243 herring and 1 401 sprat.

The surveys in September/October are coordinated within the frame of the Baltic International Acoustic Surveys (BIAS). Data are stored in “Fish sample database” at SLU and sent for international data storage to the IBAS database that is maintained by WGBIFS. The present survey provides data to the ICES Assessment Working Group (WGBFAS).

The squares that were allocated to Sweden can be seen in green (sd 25-29, Figure 4). The area is around 21 751 square nautical miles and was covered by approximately 1 307 nautical miles of acoustic data collection and 45 hauls. Due to bad weather for several days this year the coverage and the number of hauls were somewhat less than usual. The Swedish BIAS survey achieved 91% of the number of planned acoustical data and 94% of the hauls that normally should cover the Swedish area of SD 25 to 29.

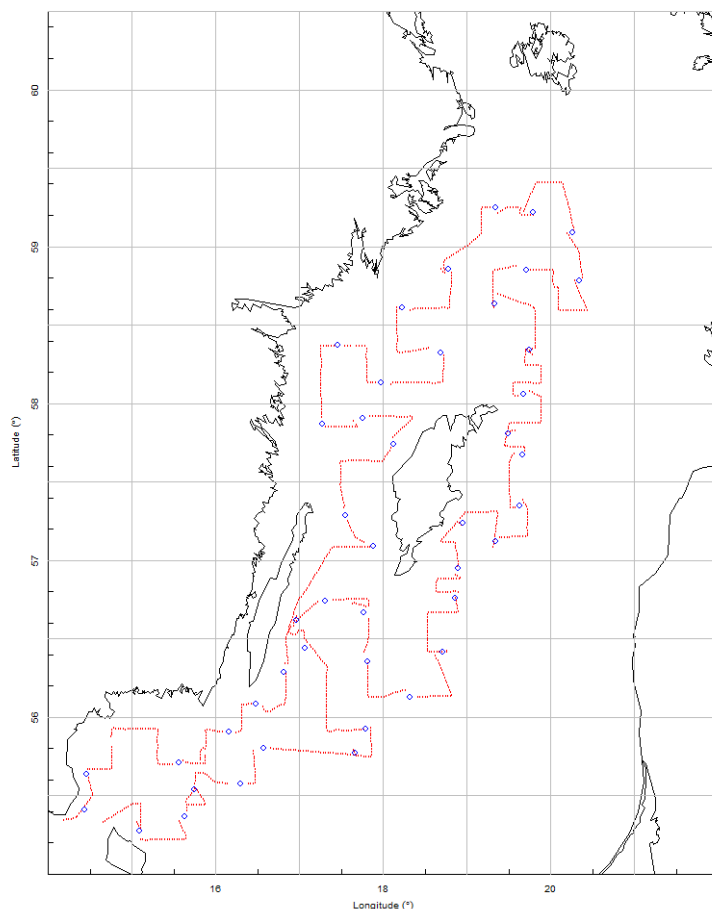


Figure 3. Survey grid and trawl positions of R/V Dana during BIAS survey 2016.

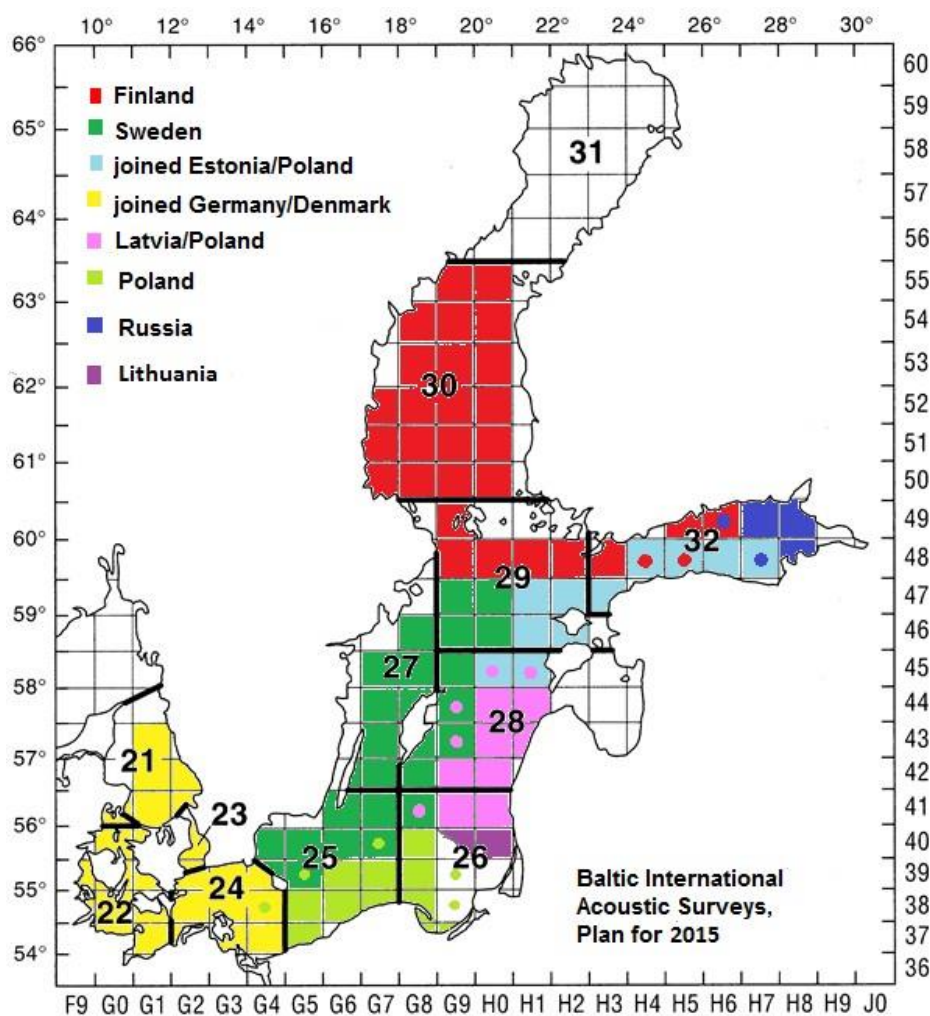


Figure 4. Survey plan map for BIAS survey 2015 also valid for 2016 (WGBIFS).

The International Bottom Trawl Survey (IBTS) first and third quarter

The main aim of the survey is to estimate abundance of commercial (cod, haddock, whiting, Norway pout, herring, sprat, saithe and mackerel) and non-commercial fish. Moreover, the otoliths of the commercial species are collected and subsequently analysed in order to assess abundance by age class, in particular for the recruiting year classes in the North Sea, Skagerrak and Kattegat. The IBTS survey is coordinated by the ICES International Bottom Trawl Survey Working Group.

All survey data are stored in “Fish sample database” (SLU) and sent to DATRAS, i.e. the ICES database, for international data storage. This survey currently provides data to the ICES Assessment working groups WGBFAS, HAWG and WGNSSK.

IBTS first quarter

The R/V Dana was chartered between the 18th and the 31st of January to conduct the survey in the Skagerrak/Kattegat, ICES area IIIa (Figure 5). In order to make use of charter time as efficiently as possible, lab staff boards Dana at her home port so travelling takes place while the ship is loading and rigging the trawls and the larvae trawling can commence already during first evening.

The GOV demersal trawl was used according to the IBTS manual (ICES SISP 10-IBTS IX). In total, 46 valid hauls were towed during the 14 days at sea. The weather was reasonably good throughout

most of the survey. Larvae trawling with the Midwater ring net also called the MIK trawl resulted in 62 valid hauls and catches consisting of 61 herring larvae, six eel larva and several other species (Figure 6).

Biological sampling, comprising length, weight, sex, maturity and age was carried out on the target species in accordance with the IBTS manual. In total 4 943 otoliths were collected from eleven species. In all, 57 fish species were caught during the survey.

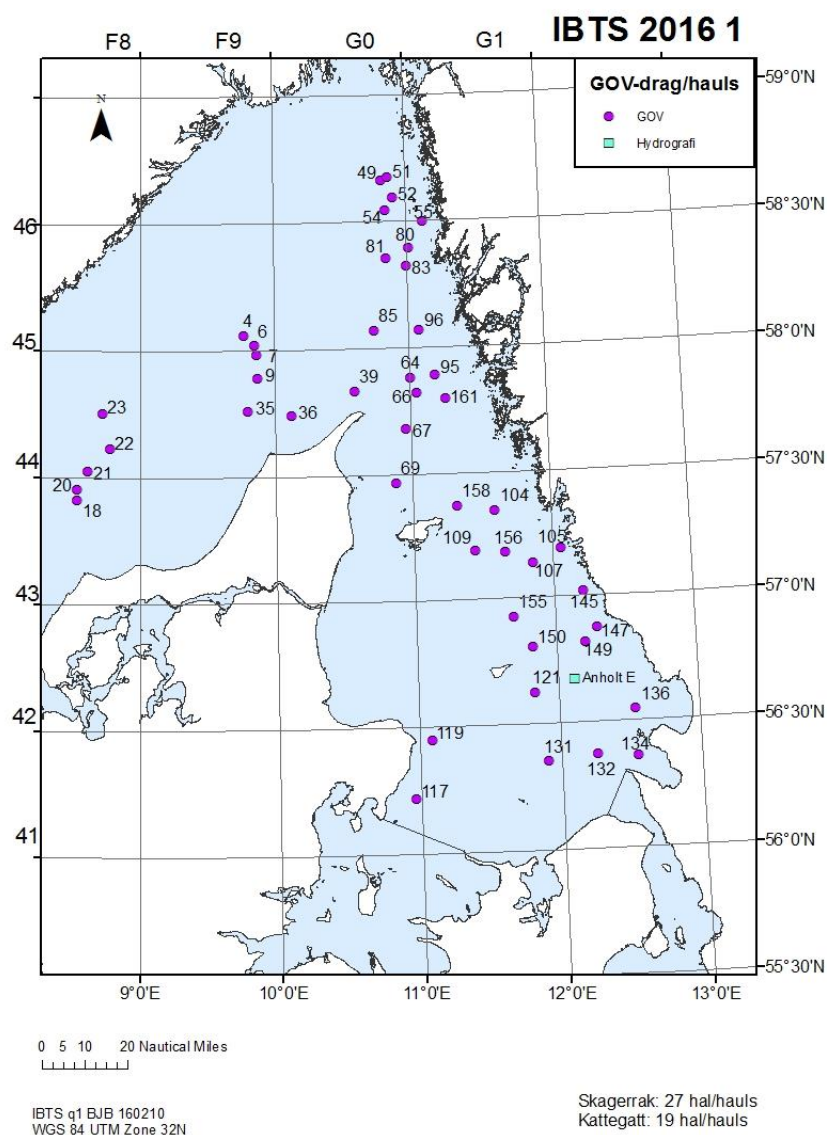


Figure 5. Hauls with GOV demersal trawl IBTS first quarter survey 2016.

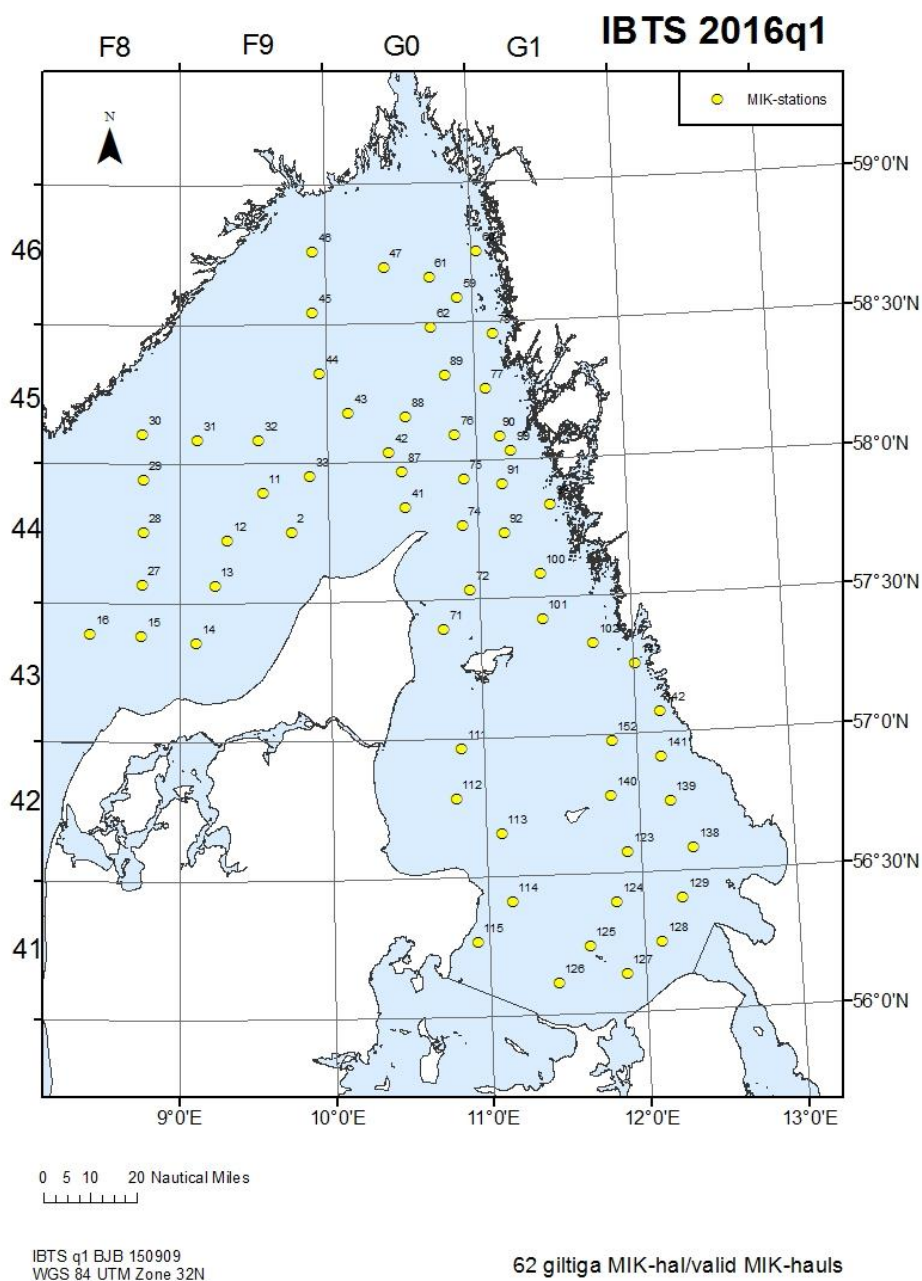


Figure 6. Hauls with MIK larvae trawl during IBTS first quarter survey 2016.

IBTS third quarter

The survey was conducted in the Skagerrak/Kattegat on board the R/V Dana during the period of 22nd of August to 2nd of September using the GOV demersal trawl in accordance with the IBTS manual (ICES SISP 10 - IBTS IX) (Figure 7). All 45 planned hauls could be realized within the eleven days at sea.

The biological sampling, comprising length, weight, sex, maturity and age was carried out on the target species in accordance with the IBTS manual. In total, 4 225 otoliths for age analysis were collected from eleven species. Overall 57 fish species were caught.

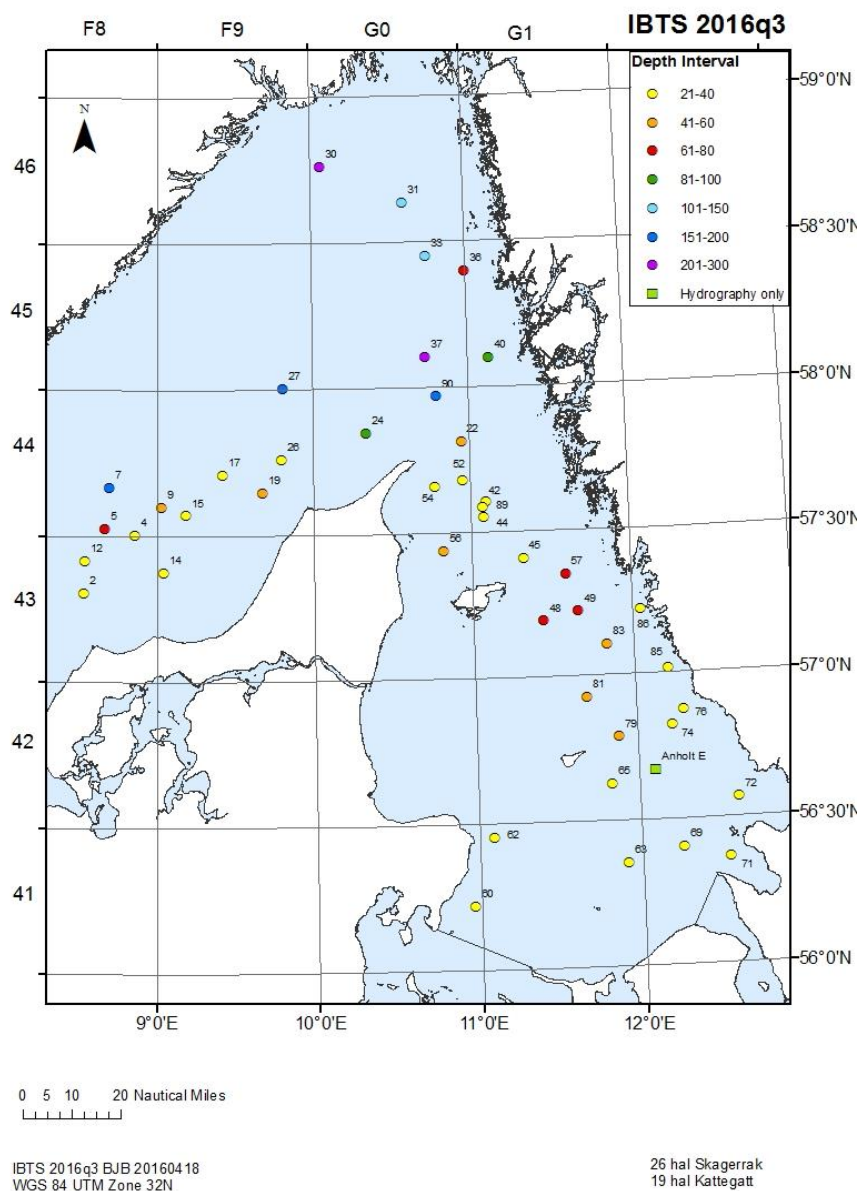


Figure 7. Hauls with GOV demersal trawl IBTS third quarter survey 2016.

Underwater TV (UWTV) survey on *Nephrops* grounds

Uncertainty over landings figures and concern over some of the analytical assumptions upon which analytical assessments are based, has led to investigations into alternative approaches for providing *Nephrops* advice.

Nephrops stocks are limited to bottoms with suitable silty clay sediment where they live in burrows. This mud-burrowing species is protected from trawling while inside its burrow. Burrow emergence is known to vary with environmental (ambient light intensity) and biological (moult cycle, female reproductive condition) factors. Trawl surveys are therefore not ideal for *Nephrops*, and underwater TV (UWTV) has been developed as a means of estimating stock size from burrow densities.

The Marine laboratory in Aberdeen developed a fishery independent UWTV survey in early 1990's in order to estimate stock size from burrow densities. UWTV consists of a video camera mounted on a sledge that is towed slowly (0.5-0.8 knot) on the bottom by a vessel. *Nephrops* burrows are counted

and converted into densities using information on the width of the view of the camera and length of the tow. Mean weight from biological samplings are used to estimate stock biomass.

ICES Advisory Committee for Fisheries Management (ACFM) recommend that UWTV surveys should be used to provide biomass estimates for mud-burrowing animals like *Nephrops*.

The Swedish and Danish *Nephrops* fishery has an increasing economic importance in recent years and it was agreed that Denmark and Sweden start a joint UWTV survey at around 90 stations on *Nephrops* grounds in the Skagerrak and Kattegat.

The UWTV survey during 2016

The 2016 UWTV survey started with equipment of a hydraulic controlled cable drum on aft deck and a hydraulic controlled ramp in the stern of the R/V Asterix. Subarea 3, 4 and 6 was this year covered by Sweden according to an agreement with Denmark. Subarea 1, 2 and 5 (and new 7) was covered by Denmark.

The 2016 TV survey was conducted during 10 days the period 8/6 – 8/7 using the Swedish sledge on the Swedish UWTV vessel and resulted in 79 valid stations in subarea 3, 4 and 6 (see table below). Eight stations were not sampled due to rocky bottoms, too much creels or other obstacles. Five out of total 15 days were not used due to bad weather/visibility conditions or reparations of equipment and the survey was carried out on only ten days at sea.

SubArea	Area km2	planned	achieved	% achieved	No visibility	Rocky bottoms	creels	Wrong zone	Sum
1	2 044								
2	1 982								
3	2 462	44	44	100					
4	676	13	12	92	1				
5	670								1
6	973	38	23	23	1	11	1	1	15
7	1 019								
sum	9 826	95	79	83					16

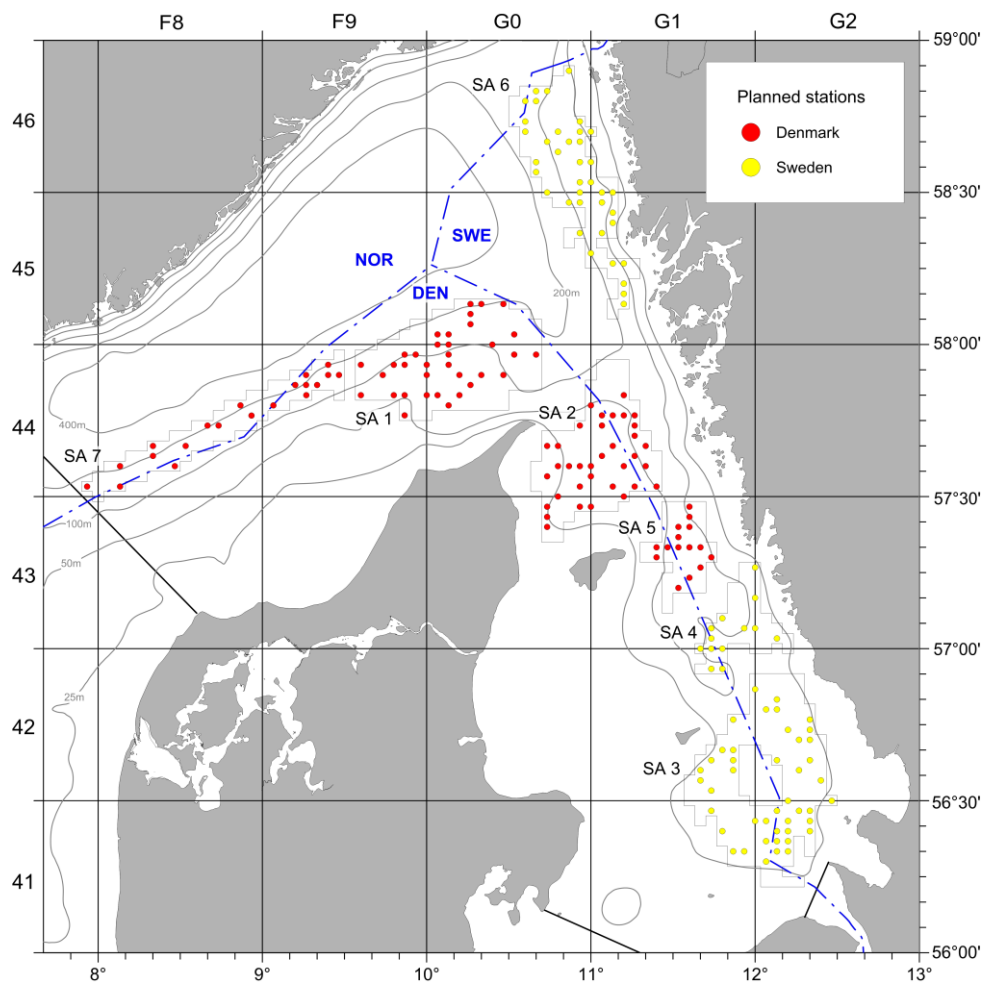


Figure 8. Planned sledge stations for Denmark and Sweden for the survey in 2016 in the defined sub areas of the *Nephrops* stock in IIIa.

The distribution of the *Nephrops* stock in IIIa (Skagerrak and Kattegat) was estimated from Danish and Swedish VMS data from *Nephrops* trawler (>15 m) with landings consisting of at least 50% *Nephrops*. The *Nephrops* grounds in IIIa have been divided into seven sub areas (SA) as shown in figure 8.

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

Generally, the surveys are following the international manuals set up for the different surveys. These manuals therefore represent the state of the art for what it concerns the quality in the data collection and are annually updated during WGBIFS and IBTSWG, where Sweden actively participates.

Due to the access prohibition to foreign vessels in some areas by the Swedish Armed Forces, Sweden could not visit eight stations (out of the 50 planned) in BITS q1 survey and seven stations (out of 30) in the BITS q4 survey. However, five replacement hauls for BITS q1 and four replacement hauls for BITS q4 survey were included, and therefore 47 and 25 hauls could be conducted in the two surveys, respectively. This will likely not negatively affect the stock assessment for the Eastern Baltic cod stock.

However, the Swedish environmental monitoring and research could be negatively affected. This year, the access prohibition to foreign vessels also affected the IBTS survey. In IBTSq1 three stations were banned and the time series on these hauls thereby broken. In quarter 3 the stations in the Skagerrak are randomized and this year one haul in square 45G1 had to be replaced. Since several of the replacement stations also are debarred, stations may have to be moved outside the original statistical rectangle altering the randomization of the survey.

The quality of the *Nephrops* burrow counting is checked through exchange of *Nephrops* ground footage between countries and circulation of reference footage with different visibility, *Nephrops* density and burrowing species complexes. All institutes conducting UWTV-surveys are asked to use Linns CCC on station basis to check counter consistency.

III.G.3 Actions to avoid deviations

Discussions with the Swedish Armed Forces have been held at different levels to allow Sweden to complete all allocated trawl stations during the forthcoming surveys when using the Danish research vessel Dana.

The Swedish Government has decided that Sweden will allocate funds to build its own research vessel. The build will take place at the shipyard Armon in Spain. The vessel is planned to be operational from autumn 2019. Using the new Swedish state owned research vessel may remove the problem with access to stations within the Swedish territory.

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

Economic data for the reference year 2014 was collected and compiled by Statistics Sweden in cooperation with the Swedish Board of Agriculture in 2016. Three sources of information were used:

- i. Income tax declarations (census data).
- ii. Questionnaire (Q1) sent to every aquaculture farm unit (census data).
- iii. Questionnaire (Q2) sent to every aquaculture enterprises (census data) to establish a cost allocation key for costs not specified in Income tax declarations.

The three parts were processed by Statistics Sweden in 2016. Statistics Sweden compiled data from income tax declaration and Q1, Swedish board of Agriculture compiled data from Q2.

General overview of aquaculture activities are presented in table IV.A.1. Results for population segments are presented in table IV.A.2. Reported variables and response rate are presented in table IV.A.3.

Reported segments- confidentiality

The planned segmentation, as presented in the NP 2008 and 2009, was made before the declaration of the Council Regulation (EC) No 199/2008 of 25 February 2008 and the Commission Decision of 6 November 2008. Therefore the final segmentation presented in the Technical Report 2010 and after is different from the one proposed in the NP 2009 - 2010. Moreover, due to confidentiality reasons some of the segments had to be merged into clusters. For example, the segment for salmon had to be merged with trout because the numbers of enterprises in the salmon segment were too few to be presented separately. In a similar way, mussels, oysters and crayfish had to be merged due to confidentiality reasons.¹

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

Questionnaire Q1

The questionnaire is sent out to all aquaculture farm units and farm units are clustered into enterprises. For each enterprise, the value of sales from the questionnaire is compared to income as reported in the income tax declarations. Enterprises that have more than 50 per cent of their income from aquaculture (income from tax declarations/sales value from questionnaire) are considered to have their *primary activity* in aquaculture. By comparing the value of sales from questionnaire, which covers all aquaculture activity in Sweden, with income in tax declarations for the enterprises with aquaculture as their primary activity we obtain a figure, used to scale-up relevant variables. Using this method,

¹ The segment other shellfish (crayfish) as proposed in the National program was not included for reference year 2008 and 2009 but added for reference year 2010 and following years. For 2008 and 2009 it was not possible to give any reliable estimation on crayfish due to a non-updated register on crayfish farms.

variables can be assumed representative of all aquaculture activity in Sweden and comprise the same allocation between variables as for enterprises with aquaculture as their primary activity.

Questionnaire Q2

The primary objective of Q2 is to create a cost allocation key for costs that are not specified in income tax declarations. The survey (Q2) was undertaken in 2015. The results are compiled from all active aquaculture enterprises in 2014 that have aquaculture as their primary activity. The survey had a response rate of 60 per cent.

Possible shortfalls

Data for enterprises on specified costs in table IV.A.3, for reference year 2014, are estimated using the cost allocation key compiled from the questionnaire Q2. The questionnaire is conducted on an every 3-year basis to ensure updated cost allocations. The low risk is attributed to the calculated index numbers derived from updated survey, for the population the costs is considered to remain roughly constant during the time period.

IV.A.3 Actions to avoid deviations

- The methods used to collect the data for the reference year 2008 to 2014 are consistent and ensure full comparability.
- Usage of an every 3-year cost allocation key made from a census merged with the annual questionnaire in the new program period to ensure good quality of data. This does not affect consistency or comparability of data.
- A population has been established by Statistics Sweden that accounts for yearly changes of new enterprises entering aquaculture production and others ending their production, causing natural changes in the population.
- Crayfish producers are not part of the population of 2008. The Swedish Board of Agriculture and Statistic Sweden were able to include crayfish farming for the reference years 2009 to 2014.

IV.B Collection of data concerning the processing industry

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

The planned sampling scheme and the results are presented in table IV.B.1 and results for individual variables are presented in table IV.B.2. All of the variables in table IV.B.2 are available in the same segmentation as in table IV.B.1.

Data was collected and processed by Statistics Sweden through the SRU register which is maintained by Statistics Sweden and consists of income tax declarations in Sweden. Part of the data was also collected from the Statistical Business Register which is a central register consisting of information on all registered enterprises in Sweden. It is also maintained by Statistics Sweden. Data on two variables (energy costs and subsidies) were collected from answers from a questionnaire sent out by Statistics Sweden based on PPS-selection in the Statistical Business Register. The questionnaire is used as a base for estimating an allocation key for variables not included in the financial accounts. The questionnaire was sent to twelve companies out of which eleven responded. The frame population has 224 companies and Statistics Sweden ensures representativeness in terms of company size and

structure and decides on the appropriate sampling method and sample size for the questionnaire. The total sum of costs and total sum of income is unaffected according to Statistics Sweden. The data still holds for calculations such as gross value added and return on investment.

All data is collected, estimated and checked by Statistics Sweden which ensures the consistency of the final data.

The achieved sample rate is 100 % for variables collected through company/financial accounts by Statistics Sweden and 5 % for subsidies collected by questionnaires by Statistics Sweden.

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

No shortfalls or deviations exist in relation to what was stated in the NP.

All data is collected, estimated and checked by Statistics Sweden which ensures the consistency of the final data. The achieved sample rate and respond rate is 100 % for variables collected through financial accounts by Statistics Sweden. For subsidies obtained from questionnaires the corresponding achieved sample rate is 5 % and the response rate 92 %. Comprehensive validations were made during the compilation of the data and figures were cross checked with other data sources by Statistics Sweden, when possible.

A possible shortfall is that although data is collected, processed and ensured by Statistics Sweden, some variables are not available through financial accounts. The variables affected by this possible shortfall are subsidies and energy costs. The reason for this is that those variables were solely collected through questionnaires and there is a certain range of uncertainty of these variables and it is also difficult to control if they are correct.

IV.B.3 Actions to avoid deviations

All data is collected, estimated and checked by Statistics Sweden which ensures the consistency of the final data. Moreover, in data collection from 2009 and onward the fish processing industry is a separate stratum, implying that the questionnaire to estimate subsidies and energy costs in 2014 has been sent out to twelve enterprises. The response rate was 92 %.

There are some shortfalls when it comes to subsidies, but it is not a good solution to obtain subsidies from the administrative records. The reason is that we are using Statistics Sweden's standardized method to obtain the financial information for the processing industry and we do not see that we have any option to change this method. If the method was changed, the time series would be broken and we would lose comparability over the years.

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

V.1 Achievements: Results and deviation from NP proposal

In 2016 the data requirements for the indicators 1-4 proposed in the Commission Decision 2010/93/EC Appendix XIII was realized through the annual surveys. The data was collected in area IIIa in the first and third quarters and in area III d in the first and fourth quarters 2016. The data collection was fishery independent and was carried out by the research vessel DANA using standard gear, thereby fulfilling the required precision level. The surveys are described in section III.G.1. Data on species, length frequencies and abundance was collected from all hauls including individual parameters such as age, length, sex and maturity from the target species of the survey following the sampling levels established in the manuals for the respective survey.

The economic indicator fuel efficiency of fish capture uses the variable cost of fuels as input. The collection is described in section III.B Economic variables. The survey conducted by the SwAM is exhaustive.

SwAM is collecting VMS and logbook information. SLU Aqua has access to the data upon request, but not online access.

In Sweden, VMS positions are reported once every hour for boats of 15m length or longer. Data can be aggregated at metier level 6 for environmental indicators 4, 5 and 6 and processed accordingly. The data is sent to SLU Aqua upon request and is not accessible online.

No shortfalls regarding the data collected.

V.2 Actions to avoid deviations

No action taken since there were no deviations in sampling.

VI Module for management and use of the data

VI.1 Achievements: Results and deviation from NP proposal

VI.1.1 Management of data

The development of databases during 2016 includes projects for the Fish sample Oracle database at SLU Aqua and projects for the data collection of economic data at the SwAM. The Fish sample database at SLU Aqua is used for registration, storage, quality checking and reporting of biological data. Outputs from the database together with data from SwAM are processed for delivery of requested data to many of the data calls. Sweden also uploads data upon request to the international databases; FishFrame; Intercatch and DATRAS.

The amount of data calls have for the last years put a large pressure on the data handling process within Sweden and the time spent on data processing. To ease the process, Sweden is working with setting up new routines for quality control of the data, in line with the discussions within RCMs. Sweden is also developing scripts for systematic checking of errors in data and also follows the development of tools and scripts within the FishPi project (MARE/2014/19) aiming to strengthen regional coordination in the area of fisheries data collection.

During 2016 the work also continued to develop devices for electronic data recording. The aim is to develop flexible systems for use in both sea sampling, market sampling and in surveys. The benefit from having such systems is to have more efficient data handling process as well as having data quality checks already when data is captured.

During 2016 the user interface Oracle Application Express (APEX) was further developed to finalize the change introduced in 2015 and to adjust to new sampling designs, and new dataformats.

For the data collection of economic data the project to modernize and rebuild the existing systems including data entry and reporting continued. The development phases during 2016 covered:

Fishing sector

- For the data collection of economic data the project to modernize and rebuild the existing systems including data entry routines, new functions, and reporting continued.
- Unique reports types have been developed for data calls.
- Yearly manual loading of questionnaires to the data warehouse.
- Data warehouse loading processes have been created.
- Implementation of reports in new analysis software, Tableau.

The development of the systems has not proceeded as planned during 2016, mainly depending on capacity problem in the business and IT staff. Our plan to recruit new IT staff 2016 was unsuccessful due to candidates not meeting our competence requirements. Increased consultant costs were due to our lack of staff.

VI.1.2 Data transmission

The transmission of Swedish data to the different ICES working groups, EU expert groups and data calls are listed in table VI.1.

VI.2 Actions to avoid deviations

In order to receive high quality data from MS, it is of high importance that data calls sent out are well thought out by end-users before launching them. Also, it is essential that data format are well described and streamlined with other data calls, but also that data asked for actually are needed.

VII List of acronyms and abbreviations

Acronym/ Abbreviation	Explanation
4S	Statistical Sound Sampling Scheme
ACOM	Advisory Committee
BIAS	Baltic International Acoustic Survey
BITS	Baltic International Trawl Survey
COST	Common Open Source Tool (software package for precision calculations)
CPUE	Catch per unit effort
CTD	Conductivity-Temperature-Depth probe
DATRAS	Database for trawl surveys
DCF	Data Collection Framework
DCR	Data Collection Regulation
EMFF	European Marine and Fisheries Fund
EU	European Union
FTE	Full time employment
Funct.	Functional
FYK	Fish traps
GNS	Set nets/Gill nets
Gt	Gross Tonnage
HAWG	ICES Herring Assessment Working Group
HELCOM	Helsinki Commission
IBTS	International Bottom Trawl Survey
IBTSWG	ICES International Bottom Trawl Survey Working Group
ICES	International Council for the Exploration of the Sea
ICR	Institute of Coastal Research
IFR	Institute of Freshwater Research
IMR	Institute of Marine Research
JRC	Joint Research Centre
kW	Kilowatt
LOA	Length overall
NA	Not applicable
NIPAG	The joint NAFO/ ICES Pandalus Working Group
NP	National Programme
OTB	Otter trawl bottom
OTM	Otter trawl midwater
PTB	Two ship trawl bottom
PTM	Two ship trawl midwater
RCM	Regional Co-ordinating meeting
RCM Baltic	Regional Co-ordination Meeting for Baltic Sea
RCM NS & EA	Regional Co-ordination Meeting for North Sea and Eastern Arctic
SERS	Database for electrofishing

SLU	Swedish University of Agricultural Sciences
STECF	Scientific, Technical and Economic Committee for Fisheries
SwAM	Swedish Agency for Marine and Water Management
UK	United Kingdom
VMS	Vessel Monitoring System
WG	Working Group
WGBAST	ICES Baltic Salmon and Trout Assessment Working Group
WGECO	ICES Working Group on Ecosystem Effects of Fishing Activities
WGEEL	ICES Working Group on Eels
WGBFAS	ICES Baltic Fisheries Assessment Working Group
WGBIFS	ICES Baltic International Fish Survey Working Group
WGFAST	ICES Working Group on Fisheries Acoustic Science & Technology
WGNSSK	ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak

VIII Comments, suggestions and reflections

In table VI.1 the achievement rate “F” was selected for most data since Sweden has delivered, in general all data requested for in the data calls within the timeframe given. However, in some cases there might be minor shortfalls in the data transmission but this was not the level of details that could be handled efficiently in the current table.

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Report of the 12th Liaison meeting, DG MARE, Brussels, Belgium; 8-9 October 2015

X Annexes

Annex I

Bilateral agreement with Belgium.

Havs
och Vatten
myndigheten

Sept 2014 2014-09-19

Bilateral Agreement between ILVO, Belgium and SwAM, Sweden, for the collection of length and age samples collected in the IBTS survey in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/93/EC.

Agreement:

This agreement has been established to optimize and exchange the age reading expertise for species collected in the IBTS survey. A list of species are collected during the survey according to the Manual for the International Bottom Trawl Surveys ICES CM 2000/D:07, but for some species only a small amount are caught and there is a need for collaboration and task sharing. No additional sampling costs are involved and costs for analysis will be covered in the National Sampling Programme for 2014-2016.

Description of sampling:

Age samples will be collected during the IBTS survey according to the manual (ICES CM 2000/D:07). Sweden will sample otoliths of Sole which will be stored in paperbags (with relevant data as agreed between the responsible readers and needed for the reading) and sent to Belgium for age reading.

Sampling Intensity:

Sole (*Solea solea*) - Sweden sends the otoliths collected during the IBTS q1 and q3 survey to Belgium for age reading. App 50 -100 individuals per year. Belgium sends the results of the age readings together with the otoliths at the latest in December each year.

Data responsibility:


Sweden is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework.

Contact persons:

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For Belgium: Annemie Zenner (annemie.zenner@ilvo.vlaanderen.be) Tel +32 59 56 98 23

Signatures:

For  12/09/14

Els Torreele

National Correspondent

Institute for Agricultural and Fisheries Research

For SwAM 22/9 - 2014



Anna Hasslow

National Correspondent

Swedish Agency for Marine and
Water Management

Bilateral agreements with Denmark.

Nov 2014

Bilateral Agreement between the DTU Aqua, Denmark and Swedish Agency of Marine and Water Management (SwAM), Sweden for the collection of biological samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/93/EU.

Denmark and Sweden have agreed entering co-operation on collection of fisheries data. This agreement has been established due to common interests in the fisheries in the Skagerrak (Division IIIa North), the Kattegat (Division IIIa South) and in the Baltic Sea. Furthermore, substantial landings by Swedish flagged vessels take place in Denmark and therefore, in order to optimize the quality of the sampling programme, exchange of information and knowledge is necessary. The eventual additional sampling costs will be covered within the National Sampling Programme 2014-2016.

Sampling of the following species has been discussed and agreed:

Plaice in the Skagerrak and Kattegat

It has been agreed that only Denmark will carry out sampling as the Swedish landings are below the threshold of 10 percent of the total TAC for the areas combined. Age reading calibration between Denmark and Sweden will be carried out on routine basis.

Cod in the North Sea

It has been agreed that only Denmark will carry out sampling as the Swedish landings are below the threshold of 5 percent of the total TAC.

Cod in the Baltic sd25-32

About 1 230 tonnes of cod fished by Denmark is landed in Sweden (10 % of total landings) (RCM Baltic 2014). It has been agreed that Denmark will cover the sampling of cod by performing statistically sound sampling scheme. Swedish harbours are not among the most important harbours and therefore it will not be included in the sampling.....

Haddock in Div. IIIa

It has been agreed that only Denmark will carry out sampling as the Swedish landings are below the threshold of 5 percent of the total TAC.

Saithe in Div. IIIa

It has been agreed that only Denmark will carry out sampling as the Swedish landings are below the threshold of 5 percent of the total TAC.

Sole in Div. IIIa

It has been agreed that only Denmark will carry out sampling from the commercial fishery as the Swedish landings are below the threshold of 5 percent of the total TAC.

Whiting in Div. IIIa

Only Sweden, Denmark and Norway have shares in the TAC. The sum of landings of Swedish and Danish fishermen is below 10 percent of the TAC due to the market situation. Therefore, no sampling is done. On the other hand significant amounts of discard are

obtained in some fisheries in the area. Discard rates of whiting and other relevant species will continue to be sampled.

Norway Lobster in the Kattegat and the Skagerrak

Denmark and Sweden will carry out sampling according to the DCF. It has been agreed that only Sweden will carry out sampling for other biological parameters. The Swedish sampling intensity will compensate for the missing Danish sampling.

Hake in Div. IIIa

The sampling scheme for hake in the area is included in the North Sea (IV, VI, VII, IIXa, IIXb) sampling scheme. Denmark will sample hake according to the DCF.

Special agreements have been developed for the following species and are described in detail in annex I:

Herring in Div. IIIa

Whitch flounder IIIa

Herring in the Baltic Sea

Sprat in the Baltic Sea

ANNEX 1

In accordance with (Commission Regulation 199/2008, Commission Regulation 665/2008 and Commission Decision (2010/93/EC)) countries that receive foreign landings are responsible to sample those.

Agreement: Herring in ICES Division IIIa

Description of sampling:

Flag country: **Sweden**

Landings (2013): 4 500 (tons)

In receiving country: **Denmark**

This means that the receiving country will sample this particular species/stock from Trawl fisheries targeting small pelagic fish

Sampling Intensity:

Based on last year's landings the sampling effort for this species/stock would be:

No samples: **5**

No of age readings per sample: **50**

No of length measurements per sample: **50**

No of individual weight per sample: **50**

Measurement: 0.5 cm class, 1 g

If landings decrease or increase the amount of samples will be adjusted accordingly.

Data responsibility:

Denmark obtains the samples by market sampling from unsorted catches. Denmark will sample length, age and weight information. Otoliths should be stored in paper bags provided by SLU Aqua. The raw-data and the otoliths will be sent to Sweden for the age determination of the otoliths. A subset of app 100 otoliths should be returned to Denmark for cross-checking of the age interpretation. Sweden is responsible for submitting the data to relevant ICES WG and to the EC.

Data will be delivered to Sweden regularly on a quarterly basis during the year of sampling.

Contact persons:

Receiving country:

Aage Thaarup (att@aquadtu.dk or +45 35 88 32 48)

Flag country:

Marianne Johansson (marianne.johansson@slu.se or +46 10 478 40 27)

Agreement: Witch Flounder Division IIIa

This species is a new species to be covered and should be sampled according to the DCF. It has been agreed that sampling of witch flounder could be a joint effort between Sweden and Denmark. Sweden will sample this species in the amount to sustain a sampling scheme of the species for possible future assessment. Denmark is running a complementary sampling scheme

Description of sampling:

Samples will be collected in Denmark and Sweden in order to get a better coverage of the fishery in space and time. Sweden will conduct the age reading of all Danish samples and all the data will then be shared between the countries for raising.

Sampling Intensity:

Approximately 600 individuals are collected and sent to Sweden for age reading

Data responsibility:

Denmark collect the data from the market sampling /sea sampling and sends the otoliths to Sweden for age reading. Denmark is responsible for submitting the data to relevant ICES WG and to the EC.

Otoliths will be delivered to Sweden regularly and at latest 1 February the year after sampling and Sweden will return with the age readings latest 1 March the year after sampling

Contact persons:

Sweden:

Barbara Bland (Barbara.bland@slu.se or +46 10 478 4013)

Denmark:

Helle Rasmusen (hr@aquadtu.dk) or +45 35 88 32 08

Agreement: Herring in ICES Division III b-d.

Description of sampling:

Flag country: **Sweden**

Landings (2013): 14 088 (tons)

In receiving country: **Denmark**

This means that the receiving country will sample this particular species/stock from

Trawl fisheries targeting small pelagic fish. The Swedish fishery is a mixed sprat and herring fishery and mostly the 2 species are landed together. The Danish sampling is therefore conducted on the mixed landings.

Sampling Intensity:

Based on last year's landings the sampling effort for this species/stock would be:

No samples: 14

No of age readings per sample: **50**

No of length measurements per sample: **50**

No of individual weight per sample: **50**

If landings decrease or increase the amount of samples will be adjusted accordingly.

Measurement: 0.5 cm class, 1 g

If landings decrease or increase the amount of samples will be adjusted accordingly.

Data responsibility:

Denmark obtains the samples by market sampling from unsorted catches, stratified by fishery (see above). Denmark will sample length, age and weight information. Otoliths will be stored in paper bags provided by IMR. The raw-data and the otoliths will be sent to Sweden for the age determination of the otoliths. Sweden is responsible for submitting the data to relevant ICES WG and to the EC.

Data will be delivered to Sweden regularly on a quarterly basis during the year of sampling

Contact persons:

Receiving country:

Frank Ivan Hansen (fih@aqua.dtu.dk or +45 35 88 33 63)

Flag country:

Carina Jernberg (carina.jernberg@slu.se or +46 10 478 40 25)

Agreement: Sprat in ICES Division III b-d.

Description of sampling:

Flag country: **Sweden**

Landings (2013): 28 766 (tons)

In receiving country: **Denmark**

This means that the receiving country will sample this particular species/stock from

Trawl fisheries targeting small pelagic fish The Swedish fishery is a mixed sprat and herring fishery and mostly the 2 species are landed together. The Danish sampling is therefore conducted on the mixed landings.

Sampling Intensity:

Based on last year's landings the sampling effort for this species/stock would be:

No samples: 28

No of age readings per sample: **50**

No of length measurements per sample: **50**

No of individual weight per sample: **50**

Measurement: 0.5 cm class, 1 g

If landings decrease or increase the amount of samples will be adjusted accordingly.

Data responsibility:

Denmark obtains the samples by market sampling from unsorted catches, stratified by fishery. Denmark will send the frozen samples to Sweden once every quarter. Sweden is responsible for length measurements, weight and age reading. Sweden is responsible for submitting the data to relevant ICES WG and to the EC.

Data will be delivered to Sweden regularly on a quarterly basis during the year of sampling

Contact persons:

Receiving country:

Frank Ivan Hansen (fih@aqua.dtu.dk or +45 35 88 33 63)

Flag country:

Carina Jernberg (carina.jernberg@slu.se or +4610 478 40 25)

Signatures:


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Jørgen Dalskov

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**For Swedish Agency for Marine
and Water management**



Anna Hasslow

National Correspondent
Swedish Agency for Marine and
Water management

Date: 6 November, 2014

Bilateral Agreement between the DTU Aqua, Denmark and Swedish Agency for Marine and Water management (SwAM), Sweden, for the collection of length and age samples collected in the IBTS survey in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/93/EC.

Agreement:

This agreement has been established to optimize and exchange the age reading expertise for species collected in the IBTS survey. Both Sweden and Denmark are involved in the survey which is conducted in IIIa twice a year. A list of species are collected during the survey according to the Manual for the International Bottom Trawl Surveys ICES CM 2000/D:07, but for some species only a small amount are caught and there is a need for collaboration and task sharing. No additional sampling costs are involved and costs for analysis will be covered in the National Sampling Programme for 2014-2016. Denmark and Sweden seeks for a balanced share of tasks and the species of interests are described below.

Description of sampling:

Age samples will be collected during the IBTS survey according to the manual (ICES CM 2000/D:07) Otoliths will be stored in paperbags and sent to the country in charge for age reading (see below).

Sampling Intensity:

Norway pout (*Trisopterus esmarki*) – Sweden sends the collected otoliths to Denmark for age reading. App 200-300 individuals per year.

Whiting (*Merlangius merlangius*) – Sweden sends the collected otoliths to Denmark for age reading. App 800-1 000 individuals per year.

Data responsibility:

Sweden is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework.

Contact persons:

In Sweden: Barbara Bland (barbara.bland@slu.se) +46 10 478 4013

In Denmark: Helle Rasmussen (hr@aqu.dtu.dk) +45 35 88 32 08

Signatures:

For DTU Aqua

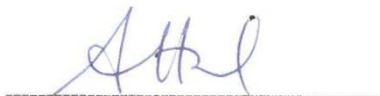
A handwritten signature in blue ink, appearing to read 'Jørgen Dalskov', written over a horizontal dashed line.

Jørgen Dalskov

National Correspondent

National Institute of Aquatic Resources

For SwAM

A handwritten signature in blue ink, appearing to read 'Anna Hasslow', written over a horizontal dashed line.

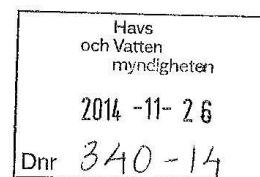
Anna Hasslow

National Correspondent

Swedish Agency for Marine and
Water Management

Date: 6 November, 2014

Bilateral agreement with Finland.



Bilateral Agreement between Finnish Game and Fisheries Research Institute (FGFRI), Finland* and Swedish Agency of Marine and Water Management, Sweden, for the collection of biological samples and cooperation during Baltic International Acoustic Survey (BIAS) in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/93/EC.

* The Finnish Game and Fisheries Research Institute will merge with MTT Agrifood Research Finland and the Finnish Forest Research Institute on 1 January 2015, to form Natural Resources Institute Finland (Luke).

This agreement has been established between Finland and Sweden to cooperate on the collection of fisheries data regarding the following issues:

1. Herring fished by Finnish flagged vessels (OTM_SPF_16-104_0_0) are landed in Sweden in such an amount that a bilateral agreement has to be established (RCM Baltic 2014) for NP 2014-2016
2. Sharing of staff within the BIAS survey in the Baltic areas SD30 and 29N for NP 2014-2016
3. Collection of salmon catch samples and genetic analysis for NP 2014-2016

Agreements:

1. It has been agreed that Swedish University of Agricultural Sciences, Department of Aquatic Resources (SLU-aqua) will sample Finnish landings of herring to Sweden, since considerable share (17 % i.e. 16 800 tonnes in 2013) of the total Finnish landings of herring fished in SD30 is landed in Sweden.
2. It has been agreed that SLU-aqua will send yearly two technicians for fish sampling to the Finnish part of the BIAS survey. Age reading of 50 % of the otoliths sampled during BIAS SD30 will be conducted at SLU-aqua. The associated costs will be covered within the Swedish National Programme for 2014-2016. In case Sweden is not fulfilling the DCF conditions for exemption of the biological sampling on herring in SD30, this agreement will be reviewed and amended in bilateral negotiations.
3. It has been agreed that vessels fishing for salmon, operating in the Baltic Sea and land for first sale into Sweden, will be sampled as part of the Swedish National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Swedish National Sampling Programme for 2014- 2016.

The genetic analysis of 200-300 Swedish salmon samples per year will be carried out as part of the Finnish National Programme under the requirements of the EC Data Collection Framework (199/2008). The costs of genetic analysis will be covered within the Finnish National Programme for 2014- 2016.

Description of sampling for each agreement:

1. SLU-aqua will lengthmeasure 300 randomly selected individuals per sample, maximum 14 samples per year. Finland is sampling for age and the Finnish ALK will be used.
2. Sampling onboard BIAS will be done according to the BIAS manual.
3. SLU-aqua will deliver the collected salmon samples (part of the scales of each sample and associated data) to FGFRI for genetic analysis.

Data responsibility for each agreement:

1. SLU-aqua is responsible for submitting the length distribution data to FGfRI. FGfRI is responsible for incorporating the data in the Finnish dataset and deliver the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework.
2. FGfRI is responsible for submitting the data from BIAS conducted in SD30 to relevant end-user in the requested format.
3. The FGfRI is responsible for delivering the results of genetic analysis to SLU-aqua, to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework.

Contact persons:

In FGfRI;

agreement 1: jukka.ponni@rktl.fi

agreement 2: timo.myllyla@rktl.fi

agreement 3: tapani.pakarinen@rktl.fi

In SLU-aqua;

agreement 1: Maria.Hansson@slu.se

agreement 2: Niklas.Larson@slu.se

agreement 3: Johan.Ostergren@slu.se

Signatures:

Finnish Game and Fisheries Research Institute



Riitta Rahkonen

Head of Unit, Research and Expert Services

Swedish Agency for Marine and Water Management



Anna Hasslow

National Correspondent Sweden

Date: 14 November, 2014

Bilateral agreement with Poland.

Bilateral Agreement between University of Agricultural Science (SLU), Institute of Marine Research Sweden and National Marine Fisheries Research Institute Poland for the collection of length and age samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/93/EU

This agreement has been established between Poland and Sweden due to landings of sprat by Polish flagged vessels take place in Sweden in an amount that it has to be dealt with in a form of bilateral agreement (RCM Baltic 2011).

Agreement:

While sprat in the Baltic is managed as one single stock and that the stock is well covered concerning biological samples, vessels fishing under the Polish register, which land for first sale into Sweden, will be sampled as part of the Polish National Programme under the requirements of the EC Data Collection Framework (199/2008).

Description of sampling:

The sampling will be for length and age of discards and landings, sampling will be carried out in accordance with the Polish National Sampling Programme.

Data responsibility:

Sweden is responsible for submitting the data from Swedish vessels, and Poland in the case of sampling Polish vessels, to the relevant ICES Expert Groups, and to the EC under the requirements of Data Collection Framework. Both Member States will provide the required data for the species that are requested by the relevant ICES Expert Groups as and when requested.

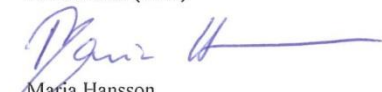
Contact persons:

In Sweden (SLU): Maria Hansson: maria.hansson@slu.se

In Poland (NMFRI): Irek Wójcik: iwojcik@mir.gdynia.pl

Signatures:

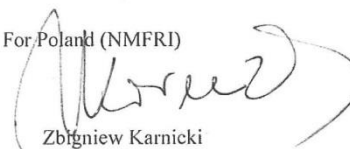
For Sweden (SLU)



Maria Hansson

National Correspondent, Sweden

For Poland (NMFRI)



Zbigniew Karnicki

National Correspondent, Poland

Date: 1 okt 2011

**Amendment to the
Bilateral Agreement between University of Agricultural Science (SLU), Institute
of Marine Research Sweden and National Marine Fisheries Research Institute
Poland for the collection of length and age samples in accordance with EC
Regulation 665/2008, laying down detailed rules for the application of Council
Regulation (EC) 199/2008, and its Commission Decision 2010/93/EU**

The agreement between Sweden and Poland for biological data collection of sprat fisheries in the Baltic (Agreement), as signed on 1st of October 2011 is amended as follows:

Parties to the Agreement

Due to the internal change related to the responsibility for Data Collection in Sweden, the Agreement became the agreement between the **Swedish Agency for Marine and Water Management (SwAM)**, Sweden and the National Marine Fisheries Research Institute (NMFRI), Poland.

Term

Due to an extension of the current DCF for further years and the adoption of NP 2011-2013 for period 2014-2016, the Agreement remains in force until 31st December 2016 unless revoked before that date if required by the changes to the Council Regulation (EC) 199/2008.

Signatures:

For Sweden (SwAM)



Anna Hasslow

National Correspondent, Sweden

For Poland (NMFRI)



Ireneusz Wójcik

on behalf of National Correspondent, Poland

Date: 27 August 2014

Bilateral agreement with Scotland, United Kingdom.

Havs
och Vatten
myndigheten

2014 -03- 3 1

BILATERAL AGREEMENT

Dnr 340-14

**Bilateral Agreement between
Marine Scotland Science (MSS), Marine Laboratory, Scotland, United Kingdom and the
Swedish Agency for Marine and Water Management (SwAM), Sweden
for the collection of length and age samples in accordance with EC Regulation 665/2008, laying down
detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision
2010/93/EU.**

Mackerel is one stock where the sum of Member States (MS) having a share of quotas/landings less than 10%, altogether exceeds 25%. In Area IV, Sweden has average landings of mackerel of 4475 tonnes (<1% of the EU TAC) and approximately 77% of these landings take place into the UK. In Area IIIa average landings are 160 tonnes, which is below the threshold for sampling. It has been agreed that in some cases it would be perfectly acceptable that sampling by MS for these stocks may not be necessary (RCM NS&EA 2010).

Agreement:

Mackerel is managed as one stock (II, IIIa, IV, V, VI, VII, VIII, IX) and it has been agreed that the stock is well covered concerning biological sampling by the United Kingdom Marine Scotland National Programme under the requirements of the EC Data Collection Framework (199/2008). This agreement will be on-going during 2014 and 2015 and will be reviewed for the 2016 National Proposals.

Description of Sampling:

The sampling will be carried out in accordance with the UK (Scotland) National Sampling Programme.

Data Responsibility:

The United Kingdom will submit all data to the relevant ICES Expert Groups and to the EC under the requirements of its Data Collection Framework. Any Swedish sample data will be sent to Sweden for raising purposes.

Contact Persons:

In United Kingdom:

Margaret Bell

m.bell@marlab.ac.uk
Margaret.bell@scotland.gsi.gov.uk

In Sweden (SwAM)

Anna Hasslow

anna.hasslow@havochovatten.se

Signatures:

For United Kingdom (MSS)



Margaret Bell

DCF Manager (Scotland)

For Sweden (SwAM)



Anna Hasslow

Sweden National Correspondent

Date: 1 January 2014

Annex II

Protocol from the National Coordination meeting 20/12/2016

Background

In accordance with Commission Regulation ((EC) No 665/2008 article 3.2) a National Coordination meeting was held 20/12/2016 at the Swedish Agency for Marine and Water Management, Gothenburg. The European Commission was invited to participate to the meeting.

Meeting participants

Swedish Agency for Marine and Water Management (SwAM):

Anna Jöborn, *Director of Science Affairs Department*

Mikael Krysell, *Head of Division for Environmental Monitoring*

Inger Dahlgren, *Head of Division for Fisheries Policy*

Anna Hasslow, *Analyst, Division for Environmental Monitoring, National Correspondent*

Anton Paulrud, *Analyst, Division for Fisheries Policy*

Department of Aquatic Resources at the Swedish University of Agriculture Sciences (SLU Aqua):

Maria Hansson, *Deputy Head of Institute*

Katja Ringdahl, *Head of Unit for Environmental and Management Effects*

Ida Ahlbeck Bergendahl, *Research Assistant, Diadromous Species*

Swedish Board of Agriculture:

Camilla Burman, *Fisheries Policy Analyst, Division for Trade and Markets*

Madelene Wetterskog, *Analyst, Rural Analysis Unit*

Introduction, aim of the group

Presentations of meeting participants and information of the aim of the meeting.

Reviewing notes from last meeting

Nothing to add.

Update of the Swedish national programme / Work Plan

The Work Plan 2017 is approved by the European Commission. NC informs about the outcome from the meeting at the Swedish Agency for Marine and Water Management, Nov 25 2016. NC informs about the on-going process for Work Plan 2018.

Applications for the EMFF 2017

Information about incoming applications and the process of administrating these. Information of the agreement, according to paragraph 123.7 in regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013, between the managing authority (Swedish Board of Agriculture) and the intermediate body (Swedish Agency for Marine and Water Management). Other issues related to the DCF budget was also discussed.

Cost sharing workshop

The SLU presented the most important outcome from the cost sharing workshop related to surveys. The workshop was held at the Swedish Agency for Marine and Water Management during 12-14 December, 2016 and was very successful.

Fleet economics

Presentations of changes in personnel working with fleet economics within the Swedish DCF.

Other relevant issues

Swedish Board of Agriculture presented some changes in the Swedish national plan for the Operational Programme for Sweden.