MEMORANDUM

Date 2010-03-29

Revised 2010-06-10
Revised 2010-09-30
Revised 2011-02-24

SWEDISH NATIONAL PROGRAMME FOR

COLLECTION OF FISHERIES DATA 2011 - 2013

in accordance with

Council Regulation (EC) No 199/2008

Commission Regulation (EC) 665/2008

Commission Decision 2010/93/EC

I. General framework

This document describes the Swedish Programme for 2011, 2012 and 2013 for the collection of data in the fisheries sector.
The Swedish national programme for the collection of basic fisheries data for the years 2011-2013 is governed by Council Regulation (EC) 199/2008 establishing a community framework for the collection and management of the data necessary for conducting the Common Fisheries Policy, Commission Regulation (EC) 665/2008 and Commission Decision EC 93/2010.

This document describes the Swedish programme for the period 2011-2013 with the intension to meet the obligations outlined in the Regulation (EC) 199/2008. The programme is a continuation (of the NP 2009-2010) and is the next step toward the full implementation of the new Regulation.

Some of the key elements for the 2008 reform of the data collection regulation are:
- metier based sampling, use of ranking system to determine the metiers to be sampled
- collection of data from aquaculture, diadromous species, recreational fisheries
- integration of ecosystem indicators
- access to databases, security of those, data quality control and validation
- achieve certain precision levels in sampling

All the data collected through the DCF will be made available to the different end-users (ICES, Commission and other scientific bodies) when requested.

The resources required to fulfil the requirements within the modules are set out in the specific enclosed financial forms, following the guidelines developed.

II. Organisation of the National Programme

II.A National organisation and co-ordination

In Sweden, the Swedish Board of Fisheries (**SBF**) is the administrative authority responsible for fisheries and fisheries issues. The collection of information on fishing capacity, fishing effort, economics and landing statistics is concentrated to the Resource Management Department (**RF-dep**) and the Department of Fisheries Control (**K-dep**) while biological data are gathered at the Research and Development Department (**FoU-dep**), within which the following institutes participate;
- Institute of Marine Research (**IMR**),
- Institute of Freshwater research (**IFR**)
- Institute of Coastal Research (**ICR**).

Biological information about catches, information gathered by research vessels and information about discards are co-ordinated internationally in most cases and carried out in close cooperation with research institutes in Member States as well as third countries. IT-issues fall within the responsibilities of the **IT-unit** of the **SBF**. All national coordination is led from the **IMR** in Lysekil. However, since all parts of the programme fall within the responsibility of the **SBF**, national coordination is comparatively simple and participating institutes and units are frequently connected through electronic communication techniques. For issues needing more thorough discussions, meetings are arranged and

there is also a yearly presentation of the programme to the responsible authority, Ministry of Agriculture.

Remarks:
SBF will expire on 31 December 2010. The Swedish government intends to establish a new marine and aquatic authority from 1 January 2011. The final elements to be included in the new authority are still not settled.
The Unit of Research Vessels, Research and Development Department, SBF, can be shifted to another authority (Swedish Maritime Administration) from next year.

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II.B International co-ordination

Table II.B.1. illustrate the Swedish participation in international meetings and workshops. These tables are by no means complete as they will be updated in connection with the announcement from the Commission on December 15 of eligible meetings.

II.C Regional coordination

Sweden is an active participant in the Regional Coordination Meetings (RCMs) for the North Sea and the Baltic Sea. Sweden is also represented in specific working groups of the RACs. Bi-lateral and multi-lateral cooperation on issues like survey design, age-reading, intercalibrations and data-base design is also common for both the North Sea and the Baltic region. Details on coordination within the RCMs can be found in each relevant module.

Formal agreements for cooperation on sampling have been signed with Denmark, Finland and Germany and these are anticipated to be discussed and may be renewed for 2011-2013 in connection with the RCM-meetings.

III. Module of evaluation of the fishing sector

III.A General description of the fishing sector

In the 1st of January 2008 there were 1 509 Swedish vessels with licences for commercial fishery and 1 800 licensed fishermen. The median age of the licensed fishermen in Sweden was 52 years.

The Swedish fleet consists of a majority of small vessels fishing with passive gear and a smaller number of larger ships mainly using trawls. Most demersal and pelagic trawlers have their home port on the Swedish west coast and target herring, sprat and mackerel. Pelagic trawlers operating in the northern part of the Baltic Sea mainly target vendace. Vessels using passive gears are spread along the entire coastline. Geographically, the activities are concentrated to ICES divisions IIIa and IIId and to some extent, divisions IVa and IVb.

The Swedish fleet can roughly be divided into three larger groups:

- Pelagic (trawl/seine) e.g. herring/sprat, mackerel, blue whiting, sandeel, vendace
- Demersal (trawl) e.g. gadoids, witch flounder, shrimp, Norway lobster
- Passive gear (gillnets, fyke-nets, longlines, creels) e.g. cod, herring, salmon, eel, plaice, flounder, turbot, perch, pike, pike-perch, Norway lobster

The table below briefly describes the number of vessels per segment in Sweden in 2008.

Segment	No vessels
Vessels using passive gears	852
Demersal trawlers < 24 m	79
Demersal trawlers > 24 m	18
Demersal trawlers targeting Shrimp	39
Demersal trawlers targeting Norway Lobster	90
Pelagic trawlers targeting Vendace	32
Pelagic trawlers < 40 m	24
Pelagic trawlers > 40 m	11
Inactive vessels	364
Total number of vessels	1 509

Table III.A.1. illustrates the geographical areas where the fleet is operating and the broader species assemblages.

III.B Economic variables

THE BALTIC SEA, THE NORTH SEA AND EAST ARCTIC AND THE NORTH ATLANTIC

Supra region: Vessels will be allocated to the supra region by their fishing days. In 2008 Swedish vessels only operated in one supra region, the Baltic Sea, the North Sea and Eastern Arctic and the North Atlantic. If, by the end of 2010, it can be shown that Swedish vessels have operated in more than one supra region the concerned vessels will be attributed to the supra region in which they had 50 % or more of its fishing days. If vessels are attributed to a different supra region than the Baltic Sea, the North Sea and Eastern Arctic and the North Atlantic, data will be collected for those vessels separately.

Reference years for collection of economic data are 2010, 2011 and 2012.

III.B.1 Data acquisition

(a) Definition of variables

Definition of variables and sources:
As defined in Appendix VI of Commission Decision 2008/949/EC.

Income from leasing out quota or other fishing rights: For pelagic vessels there is a system with individual transferable quotas as of November 2009, only permanent transfers are allowed so leasing out quota is not allowed.

Imputed value of unpaid labour: The compilation of imputed value of unpaid labour will be based on data on wages and salaries of crew from income tax declarations and the estimated full time equivalents. If the total sum of wages and salaries from the tax declarations exceeds a given sum corresponding to the number of FTE's times an assumed yearly salary (including 40 percent social costs) there will be no imputed value. If the total sum given by the tax declarations is lower than the sum of FTE's times the assumed wage the imputed value will be the difference between actual salaries and FTE's times the assumed salary. For vessels 24 meters or longer the assumed yearly salary including social costs will be 336 000 SEK, 240 000 SEK excluding social costs. For vessels less than 24 meters the assumed yearly salary will be 252 000 SEK, 180 000 SEK exckluding social cost.

Lease/rental payments for quota or other fishing rights: For pelagic vessels there is a system with individual transferable quotas as of November 2009, only permanent transfers are allowed so leasing out quota is not allowed.

Capital costs: Capital costs will be calculated according to the PIM methodology documented in the capital valuation report (No FISH/2005/03). Templates available on the DCR website will be applied. Based on age of each vessel, the average service life of vessels from the respective segments will be estimated by conducting a Kaplan-Meier survival analysis for each segment. A survival analysis is a number of statistical procedures that analyse data in order to find the time until an event occurs, in this case the time until a vessel is retired from commercial fisheries. 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 will be based on the replacement values of the vessels. Replacement values for all vessels are to be estimated for the whole fleet in SPSS using insurance values collected through a questionnaire from a randomised sample of vessel owners. Based on the estimated replacement values for all vessels price per capacity unit in 2008 is estimated and used as the baseline value in the template connected to the capital valuation report (No FISH/2005/03).

Capital value: Value of physical capital will be 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 will be used. The replacement value will be 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 capital value.

Employment: FTE National and FTE harmonised will be calculated according to the methodology presented in Study No FISH/2005/14. According to national standards in Sweden, the national reference level for FTE working hours of one crew member, including worked onboard the vessel and onshore, will be fixed to a total of 1800 hours. The harmonised reference level for FTE working hours will be set to 2000 hours in accordance with the Commission Regulation (EC) No 665/2008 Appendix VI. Data on working hours onshore and number of crew members' onboard (incl. and excl. rotation) will be collected through a questionnaire. Vessel owners (random sample) from all segments will be asked to give information. Estimations will be made in SPSS in order to make data representative for the population of vessels in each segment respectively. The number of working hours on board the vessel will be based on data collected from logbooks on days at sea (exhaustive survey) and the assumption that one day at sea consists of 12 working hours. Total employment is calculated as average number of persons employed by the vessel.

Fuel efficiency of fish capture:

Sweden shall estimate fuel efficiency of fish capture by using a proportionality key based on the quarterly effort by metier to distribute the fuel consumption to metiers and quarter. Fuel efficiency of fish capture will then be estimated as the ratio between value of landings and cost of fuel by quarter and by métier.

(a) Type of data collection

A) Census: For fleet variables, effort variables, landings variables (kg and value), price variables and direct subsidies the data is gathered from the databases of the SBF. Other income, wages and salaries of crew as well as financial position is also gathered through a census from the income tax declarations of all vessel owners from compiled by Statistics Sweden. From the income tax declarations compiled by Statistics Sweden data on total variable costs are also collected as a census. Many of the Swedish segments contain few vessels. For all segments, except vessels using passive gears 0-10 m and 10-12 meters and demersal trawlers 12-18 meters, data on energy costs, repair and maintenance costs, variable costs, non-variable costs, investments in physical capital, insurance value (gathered to estimate capital costs and capital value) and engaged crew as well as other information gathered to estimate FTE's will be collected through a questionnaire sent out to all vessels in the segments.

B) Probability Sample Survey: For segments with a large number of vessels (vessels using passive gears 0-10 m and 10-12 meters and demersal trawlers 12-18 meters) an allocation key to allocate the total variable cost to the different cost variables will be estimated through a questionnaire (probability sample survey). The concerned cost variables are energy costs, repair and maintenance costs, variable costs and non-variable costs. Investments in physical capital, insurance value (gathered to estimate capital costs and capital value) and engaged crew as well as other information gathered to estimate FTE's are also collected through a probability sample survey for bigger segments.

(b) Target and frame population

The target (and frame population) is all vessels in the Community Fishing Fleet Register on January 1st each reference year. To distinguish between active and non-active vessels data from logbooks (for vessels above 10 meters and vessels less than 10 meters using active gears) and monthly journals (vessels less than 10 meters using passive gears) are used. Inactive vessels are vessels with 0 days at sea during the reference year, active vessels have more than 0 days at sea during the reference year.

The inactive fleet will not be covered by the survey to be carried out by the Swedish Board of Fisheries (described below) since it by definition does not have any costs related to fisheries. Data are however gathered on effort, which by definition is zero, and capacity (fleet indicators). By experience, the capital value and capital cost of the inactive vessels is similar to capital value and capital cost of active vessels. Therefore capital costs and capital value will be estimated from data of active vessels with the same main gear type as the inactive vessels used when they were last active and fishing. For the indicator financial position, data from company accounts will be bought from Statistics Sweden for a random sample of vessels.

Clustering: 2008 25 segments were clustered into 9 segments. Out of the 25 segments 4 consisted of inactive vessels. Clustering was done due to confidentiality reasons and for all segments that were clustered into a bigger segment 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 of the segments will be done similarly for data referring to 2010-2012. For the 2008 data the segments that were clustered have been assessed in terms of value and volume of landings and days at sea. Similarity is also assessed by looking at the characteristics of the vessels, length and

gear type. Data cannot be presented due to confidentiality reasons since the small segments clustered consist of one or two vessels.

When determining whether or not to cluster the segments will be assessed according to the following three categories;

1. Important segments with distinct characteristics
2. Segments similar to other segments
3. Non-important segments with distinct characteristics

For those segments that are categorized as 1, important segments with distinct characteristics, clustering will not be done. For segments that are categorized in the two other categories clustering will be considered.

(c) Data sources

Logbooks (A): All vessels, 10 meters or more, are required to provide information in logbooks for all fishing activities in the sea. Vessels less than 10 meters fishing with trawls or seiners or land in another country than Sweden and vessels that are 8 meters or more and fish in ICES areas 22-28 and if the vessel has cod onboard that is caught in ICES areas 20-32 also have to fill in logbooks. Other vessels are obliged to fill in monthly costal journals. The logbooks contain information on time for departure and arrival from and to port, gear, minimum mesh size and size of the gear, time and position for the fishing activity, effective fishing time, position given in latitude and longitude and quantity per species in live weight. The logbooks further give information about vessels that have participated in the fishing activity and information on all arrivals to port for those cases the stay in port is a short stop which does not include landing or transhipment.
The logbook shall be sent or left to the SBF no later than 48 hours after the landing has been completed

Monthly journals (A): A monthly coastal journal shall be filled in for professional fisheries in the sea when the obligation to fill in logbook does not exist. The monthly journals contain information about the vessel (name, signal code and district name), fishing period (one period may not exceed one calendar month), number of days at sea, catch in kilogram live weight for each species, gear and catch area.
The monthly journals shall be sent or left to the SBF no later than two calendar days from the end of the month of the fishing activity.

Landings declarations (A): All vessels that fill in logbooks shall after landing of fish fill in a landings declaration. Only one landing may be accounted for per landing declaration. The landings declarations give information on weight per species in kilogram regardless of quantity, for salmon, trout and lobster the number of individuals shall also be specified. Signal code shall indicate which quantities that concerns own catch and which concerns transhipment in case one landing includes catches from transhipment from another vessel. Signal code should also be given to indicate what quantities that shall be counted to respective vessel for joint fisheries. ICES area of the catch shall also be indicated. If fishing activities have been conducted in several ICES areas each area should be given.

Sales notes (A): Sales notes shall be filled in by a registered first hand buyer after a sale has been closed. Except for the information stated in article 64 in regulation (EG) no 1224/2009 a sales note should also include a unique number for the first hand buyer, the first hand byers designated code, signal code of the vessel who has landed the product, the social security number of the vessel license holder, manufacturing, purpose of use.

Questionnaire (A & B): The questionnaire contains questions about the insurance value of the vessel as well as fuel consumption and cost, repair and maintenance costs, variable costs and non-variable

costs. The questionnaire further includes questions about crew and hours worked onshore. A copy of the questionnaire will be included in the TR and the updated NP.

Income tax declarations from Statistics Sweden (A): Statistics Sweden has a register of all income tax declarations for all businesses in Sweden called the SRU register. They distribute the costs from all owners to each vessel in the population using the value of landings given by the SBF as a key. When distributing the cost the vessels value of landings is compared to the variable "the enterprises main revenue". A deviation between the value of landings and the main revenue of up to 25 % higher and a deviation of 20 % lower is accepted. For persons owning more than one vessel the information in the SRU register is distributed with the help of value of landings per vessel.

If the main revenue is more than 25 % than the value of landings the SRU value will be multiplied by the ratio between the value of landings and the main revenue. A requirement for this will be that the share of revenue from fisheries is at least 25 % of the taxable revenue. If the share is less than 25 % the vessel is transferred and counted as missing data. The underlying assumption of this is that when the fisheries makes up for a relatively large share of the total revenue the cost structure between the fisheries and the enterprises total activity does not deviate too much.
To reduce the effects of missing data a correction factor is used which takes into account the difference in the activity of vessels with information that can be processed and vessels that are part of the missing data. The correction factor is the ratio between the average value of landings for all vessels in a certain segment divided by the average value of landings for vessels for which data can be processed.

Assurance of consistency of data: To ensure consistency of data coming from different data sources time series of variables shall be assessed to see if there are suspicious values. To assess the information given in the questionnaires the answers will be compared to the number of days at sea to find outliers. Trends in variables shall also be compared to one another. Data from income tax declarations are allocated to vessels using value of landings per vessel as an allocation key to ensure that only data from fisheries are allocated to the vessel.

(e) Sampling stratification and allocation scheme

Type of sampling strategy: For the questionnaire survey only a few segments will be sampled by simple random sample, for most segments all vessels will be covered (census).

Further stratification within fleet segment: The active vessels are divided into more active and less active vessels. Furthermore demersal trawlers and seiners are divided into strata based on their type of activity. Vessels where the value of landings is dominated by nephrops, shrimp and vendace are divided into separate groups and then there is the demersal others which mainly target cod and other demersal fish. For vessels using passive gears less than 12 meters the vessels are stratified by vessels using drift and/or fixed nets, vessels using pots and traps and vessels using hooks. Vessels using pots and traps are further stratified by whether or not the value of landings is dominated by nephrops or not. The stratification is shown in Table 1: Further stratification below.

Table 1: Further stratification

Segmentation	Further stratification by gear	Further stratification by species	Further stratification by activity	Number of vessels
Vessels using drift and/or fixed nets 12-18 m			More active	18
Vessels using drift and/or fixed nets 12-18 m			Less active	9
Demersal trawlers and seiners 0-10 m			More active	7
Demersal trawlers and seiners	Demersal trawlers and seiners		Less active	7

0-10 m	0-12 m			
Demersal trawlers and seiners 10-12 m		Nephrops	More active	20
Demersal trawlers and seiners 10-12 m		Vendace	More active	21
Demersal trawlers and seiners 10-12 m		Others	More active	7
Demersal trawlers and seiners 10-12 m	Demersal trawlers and seiners 0-12 m		Less active	2
Demersal trawlers and seiners 12-18 m		Nephrops	More active	58
Demersal trawlers and seiners 12-18 m		Shrimp	More active	17
Demersal trawlers and seiners 12-18 m		Nephrops	More active	11
Demersal trawlers and seiners 12-18 m		Others	More active	18
Demersal trawlers and seiners 12-18 m	Demersal trawlers and seiners 12-40 m		Less active	4
Demersal trawlers and seiners 18-24 m		Nephrops	More active	12
Demersal trawlers and seiners 18-24 m		Shrimp	More active	8
Demersal trawlers and seiners 18-24 m		Others	More active	32
Demersal trawlers and seiners 18-24 m	Demersal trawlers and seiners 12-40 m		Less active	2
Demersal trawlers and seiners 24-40 m		Shrimp	More active	14
Demersal trawlers and seiners 24-40 m		Others	More active	16
Demersal trawlers and seiners 24-40 m	Demersal trawlers and seiners 12-40 m		Less active	2
Vessels using passive gears 0-10 m	Vessels using drift and/or fixed nets 0-10 m		More active	150
Vessels using passive gears 0-10 m	Vessels using passive gears 0-10 m		Less active	174
Vessels using passive gears 0-10 m	Vessels using fixed pots and traps 0-10 m	Nephrops	More active	46
Vessels using passive gears 0-10 m	Vessels using fixed pots and traps 0-10 m		More active	97
Vessels using passive gears 0-10 m	Vessels using passive gears 0-10 m		Less active	157
Vessels using passive gears 0-10 m	Vessels using hooks 0-10 m		More active	19
Vessels using passive gears 0-10 m	Vessels using passive gears 0-10 m		Less active	28
Vessels using passive gears 10-12 m	Vessels using drift and/or fixed nets 10-12 m		More active	66
Vessels using passive gears 10-12 m	Vessels using passive gears 10-12 m		Less active	39
Vessels using passive gears 10-12 m	Vessels using pots and traps 10-12 m	Nephrops	More active	25
Vessels using passive gears 10-12 m	Vessels using passive gears 10-12 m		Less active	5
Vessels using passive gears 10-12 m	Vessels using hooks 10-12 m		More active	11
Vessels using passive gears 10-12 m	Vessels using passive gears 10-12 m		Less active	8

Pelagic trawlers and seiners 24-40 m	More active	24
Pelagic trawlers and seiners >=40 m	More active	11

Determination of sample size for each fleet segment: The minimum aim of the sample survey is to cover at least 10 % of the segment or minimum 10 vessels in each segment as described in the further stratification table. However to produce more reliable estimates a minimum of 20 % coverage is desireable. Based on the previous reference years response rates on the survey the number of questionnaires are optimised so a minimum of 20 % coverage of the segment is achieved, based on the assumption that the response rate of the segment for the segments is equal to the the response rate for the precious reference year. Following formula displays how the number of questionnaires sent out is calculated:

$$0{,}2 \leq \frac{Q_t \times \frac{R_{t-1}}{N_{t-1}}}{N_t}$$,Q_t is optimised so that the result is minimum 20 %

where:

Q_t = number of questionnaires for the relevant reference year (t)

R_{t-1} = number of responses for the previous relevant reference year (t-1)

N_{t-1} = number of vessels in the segments for previous relevant reference year (t-1)

N_t = number of vessels in the segment for the relevant reference year (t)

Thus the sample size is rotated over time based on the response rate for the previous year.

However this not apply when the number of vessels in the segment is small. If the number number of vessels smaller than 30 vessels the whole segment is sampled.

Sweden will consider using the Bethel or Neyman method in order to estimate optimal sample size and using previous years response rate to the achieve the optimal achieved sample size.

III.B.2 Estimation

Estimation methods from sample to population: For distributing the total variable cost from income tax declarations to Repair and maintenance costs, fuel costs, variable cost and non-variable costs an allocation key will be estimated from data from the questionnaire survey. For each stratum averages will be estimated from the respondents. To raise the respondent result to the population a correction factor (weight) for non-responses and deviations between the respondents and population is used. The correction factor is based on auxiliary information, i.e. days at sea which is available for all vessels in the Swedish fleet. The correction factor, w, is defined as,

$$w = n_r/N * \sum DAS_P/\sum DAS_R$$

where N is the number in the strata, n_r is the number of respondents, $\sum DAS_P$ is the number of days at sea in the strata and $\sum DAS_R$ is the number of days at sea among the respondents.

The allocation key is then given by calculating percentages of estimated costs to total costs. These percentages can then be multiplied by the total variable cost from the tax declarations.

Capital value and cost: The estimation of value of physical capital and annual depreciation costs will be based information on insurance value given by the questionnaire survey. The insurance value is estimated by divided the vessels into two groups, one less then 24 meters and one for vessels larger than 24 meters. A regression analysis for each group will then be run which includes logarithmic data on insurance value, length, age and kW of the respondens and two dummy's, one for pelagic vessels, one for demersal vessel.

$$\text{LN Insurance value} = \beta_0 + \beta_1 * \text{LN age} + \beta_2 * \text{LN kW} + \beta_3 * \text{LN length} + \beta_4 * D_{demersal} + \beta_5 * D_{pelagic}$$

Based on the results of the regressions fitted values of insurance values are calculated for each vessel. All vessels are divided into three groups:

1. Vessels fishing with passive gears
2. Vessels fishing with active gears with a length under 24 meters
3. Vessels fishing with active gears with a length over 24 meters

For each group the gross tonnage and insurance value is summarized for each individual building year. The sum of insurance value for each building year is divided by the sum of gross tonnage for each building year to obtain the depreciated price per capacity unit for each building year. Based on the depreciated price capacity unit a linear regression with a quadratic form is carried out to estimate the price per capacity unit for the current year of interest. The estimation equation is:

$$PPC_t = \alpha + \beta t^2 + \varepsilon$$

where

$PPC_t =$ Price per capacity unit for building year t
$t =$ building year

And the price per capacity unit for 2008 is calculated as:

$$\hat{PPC}_{2008} = \hat{\alpha} + \hat{\beta} \times 2008^2$$

The quadratic form is used to compensate for digressive depreciation.

In calculation the depreciated replacement values price per capacity unit for 2008 is used. In calculating the depreciated historical values price per capacity unit for 2008 is deflated using time series of the consumer price index. Both types of capital value calculations use the template connected to the PIM methodology in the capital valuation report (No FISH/2005/03).

Capital costs and the value of capital for each segment are calculated by extracting the values for each of the three large groups from the template and are reweighted to distribute them to individual segments according to the weighting scheme:

$$Cap_{Seg} = Cap_G \times \frac{\sum kW_{Seg}}{\sum kW_G} \times \frac{\sum Age_G}{\sum Age_{Seg}} \times \frac{Num_{Seg}}{Num_G}$$

where

Cap = Capital value or capital costs depending on which variable to be calculated
kW = Engine power
Age = Age of vessel
Num = Number of vessels

The subscript *Seg* refers to the segments e.g. DFN VL1218. The subscript *G* refers to the groups described earlier for which total capital value and capital costs are estimated i.e. vessels fishing with passive gears, vessels fishing with active gears under 24 meter and vessels fishing with active gears over 24 meters.

Engaged crew and FTE's

Engaged crew is estimated for each stratum using a Horvitz-Thompson-type estimator:

$$\hat{C}_{HT} = \frac{N}{n}\sum_{k=1}^{n} c_k$$

where

$\hat{C}_{HT}$ = Estimated number of engaged crew in a stratum

c_k = Observation on the number of engaged crew from questionnaire

N = Total number of vessels in a stratum

n = Total number of observations in a stratum

FTE's are calculated according to:

$$FTE = ((totEC \times DAS \times hAS) + (aveCT \times hOS \times w)) / FTh$$

where

FTE = Full time equivalents per vessel

$totEC$ = Total engaged crew per vessel

DAS = Days at sea per vessel

hAS = Number of working hours per day at sea, engaged crew and vessel. A working day is assumed to be 6 hours for vessels fishing with passive gears and 12 hours for vessels fishing with active gears.

$aveCT$ = Averaged crew per fishing trip and vessel

hOS = Average number of working hours in onshore per crew member, week and vessel

w = Number of working weeks per year and vessel

FTh = Number of working hours in a year for a full time employee. For national FTE's the number of working hours in year is assumed to be 1800 and for harmonised FTE's the number of hours is assumed to be 2000.

Imputed value of unpaid labour

Imputed value of unpaid labour is calculated as the difference between labour costs given by the income tax declaration and the number of FTE's (harmonised) times an assumed yearly minimum salary (Including Social Costs):

Imputed Value of Unpaid Labour = Labour cost – FTE (harmonised) x Yearly Minimum Salary (Including Social Costs)

Vessels displaying a positive difference are able to pay the crew a minimum wage for the time they work and are therefore removed. For all the vessels displaying a negative difference the labour costs are lower than what is expected based on assumed yearly minimum salaries. The sums of the negative differences are summarized for each segment and the absolute numbers of the sums are the imputed value of unpaid labour.

Assumed minimum wages (including social costs equal to 40 %) are 252 000 SEK for vessel shorter than 24 meters and 336 000 SEK for vessel longer than 24 meters. Excluding social costs the corresponding salaries are 180 000 SEK and 240 000 SEK.

III.B.3 Data quality evaluation

Two types of error should be distinguished: bias and variability.

- For data collection type A (census) there is by definition no sampling error and therefore there is no variability indicator. The indicator of bias is the response rate.
- For data collection type B (Probability Sample Survey), the related types of error are coverage rates and response rates. The indicator of variability is the coefficient of variation (CV).

Coverage errors: The target and the frame population is the same and therefore no divergences and coverage errors.

Measurement errors: Data from respondents will be assessed by comparing the answers to the number of days at sea. Outliers will be assessed and possibly cleaned out before performing the estimations. Information on the corrections will be given in the TR.

Non-response adjustments: Non-response will be adjusted for by using auxiliary information, i.e. effort data, when estimating the allocation key from the questionnaire. Non-response and missing data is also adjusted for in the income tax declaration when estimating the total variable cost by using a correction factor which takes into account the difference in the activity of vessels with information that can be processed and vessels that are part of the missing data. The correction factor is the ratio between the average value of landings for all vessels in a certain segment divided by the average value of landings for vessels for which data can be processed.

III.B.4 Data presentation

Data referring to 2010 will be collected during 2011 and final and validated economic data available in January 2012. Data referring to 2011 will be collected during 2012 and final and validated data will be available in January 2013. Data referring to 2012 will be collected during 2013 and final and validated data will be available in January 2014.

There is a definite need to cluster segments in the Swedish fleet due to confidentiality reasons. The fleet is relatively small and diverse. In 2008 there were 17 segments that consisted of less than 7 vessels. The number of segments went from 30 segments to 14 segments after clustering. Data will be collected for all vessels in segments which have to be clustered with larger segments.

III.B.5 Regional coordination

No initiatives to coordinate the national programme have been agreed upon at the RCM's.

III.B.6 Derogations and non-conformities

There are no planned derogations or non-conformities with the requirements of the DCF.

III.C Biological - metier-related variables

THE BALTIC SEA

III.C.1 Data acquisition

(a) Codification and naming convention

The Swedish logbook is extended compared to the EU logbook. Valuable additional information in the Swedish logbook is the data on a haul to haul basis. The fishermen also provide more detailed information of the gears used and the species targeted. Sweden has, for example, 19 different national codes for the “Bottom Otter Trawl” (OTB), all describing different gear characteristics (incl. selectivity devices) and target species assemblages. Furthermore, it is mandatory for Swedish vessels not carrying logbooks to report their gear, number of fishing days, fishing areas and catches (by species) in monthly fishing journals.
When assigning fishing trips to metiers, the national gear codes have been assigned to a metier if the national code in combination with the mesh size clearly falls within one DCF metier (level 6). For example, there is a national gear code for fyke nets targeting eel. All fishing trips registered with this gear code have been assigned to FYK_CAT_0_0_0. If the definition of the national gear code allows fishing trips to be allocated to more than one DCF metier (level 6) the fishing trip have been assigned to a metier using the national gear code in combination with the landing composition *in weight*.

The ranking of metiers have been done by the fishing grounds agreed by the RCM Baltic.

Mesh size ranges are in agreement with the summary tables in "The 5th liaison meeting between the Chairs of the RCMs, the Chair of ICES PGCCDBS, the Chair of PGMED, the ICES representative, the chair of the SGRN and the European Commission 2009”.

(b) Selection of metiers to sample

Ranking of metiers
The main input data for the ranking of metiers and the subsequent choice of metiers to sample is information from the logbooks and, in the case of small scale fisheries, information from monthly fishing journals. All metiers for which fishing activities have been recorded during the reference years are listed in table III.C.1
Total value of a metier is calculated by using mean values (and weight by species) of the different species. The value is given in EUR.
Effort is reported as fishing days. Sometimes a vessel has been active in more than one metier during a day. In such cases each metier have been allocated a day.

Merging of metiers for sampling purposes
Metiers with equal or similar catch composition have been merged for sampling purposes. All merged metiers are presented in table III.C.2. Information on gear characteristics will however be collected at all sampling occasions to identify the “original” metier sampled. This means that the original metiers can be treated as domains if necessary.
The merging of metiers is for the planned sampling in 2011-2013 not always based on a thorough scientific analysis but on the knowledge of the exploitation pattern, management of the fisheries and

"common sense". Rationale for merging of metiers is expressed below within the description of the different metiers.

Splitting of metiers into national metiers for sampling purposes
No Swedish metiers in the Baltic have been split into national metiers.

Description of Swedish métiers selected for sampling
Descriptions of fisheries picked by the metier ranking system but not chosen for sampling are found in III.C.6 "Derogations and non-conformities"

The selected metiers are described underneath the different fishing grounds except in the case of metiers targeting eels. The reason for this is to get a more coherent description of the eel fisheries and sampling.

Fishing ground SD 22-24

Trawl fisheries targeting small pelagic fish (PTM_SPF_32_104_0_0)

In 2008 the total annual landing from the metier was 9100 tonnes. The landings constitutes exclusively (>99 %) of the target species herring and sprat. The majority of the landings are for human consumption but there are also landings for industrial purposes. The fisheries are conducted all year around but are less intense during summer. The fishery is nationally managed by transferable individual quotas, limiting the allowed landing by vessel. The majority of the catches (84 % in 2008) are taken by pair trawlers using a mesh size of 32-104 mm. However, to some extent other trawls and mesh sizes are used within the fisheries. The metiers PTM_SPF_16-31_0_0, PTM_SPF_32-104_0_0, OTM_SPF_32-6104_0_0, OTM_SPF_16-31_0_0, OTB_SPF_32-104_0_0 and OTB_SPF_16-31_0_0 are thereby merged.
The metier was included in the sea sampling programme 1996-2001. Discard rates are estimated to be below 10 %. The metier will be sampled concurrently in harbours/at markets by purchasing unsorted samples. Sampling scheme 1 will be applied. Sampling will be stratified by quarter and subdivision. The assumption for the planned number of trip (III.C.3) is that the fishery is conducted all year around in the main subdivision (SD 24).

Bottom trawl fisheries targeting demersal fish (OTB_DEF_>=105_1_110)

The bottom trawl fisheries targeting demersal fish in SD 22-24 is almost exclusively a cod fishery, exploiting the western Baltic cod stock. In 2008 the total landing from the metier was 1300 tonnes of which 1250 tonnes (96 %) where cod. The fisheries are managed in accordance with the Management plan for Baltic Sea cod (1098/2007) which includes a closed season (April) during the spawning season. The metier is also limited by allowed number of days at sea in accordance with the TAC regulation (1404/2007 annex II). Sweden practices temporal closures on a national basis to fulfil the effort limitation in the regulation. The fishery is further nationally managed by rations, limiting the allowed landing by vessel. The fishing pattern (exploit effort) in SD 22-24 is strongly linked to regulations limiting the fisheries in area 25-32 since the same vessels are involved in both fisheries. As a result the main fishing season is in the 3rd quarter (in 2008 84 % of the overall landings) when the equivalent fisheries in SD 25-29, 32 is closed for the main part of the quarter.
The metier has been included in the sea-sampling programme since the mid 1990ies. Discard rates of cod fluctuates between years but the overall discard rate is estimated to be above 10 %. The metier will be sampled concurrently at sea throughout the main fishing season. Sampling scheme 1 will be applied. Sampling will be stratified by quarter. The majority of the fisheries are conducted with otter bottom trawls even though some fishermen are using twin trawls. To some extent fishermen also use midwater trawls. The exploitation pattern of the gears is the similar and the metiers OTB_DEF_>=105_1_110, OTT_DEF_>=105_1_110 and OTM_DEF_>=105_1_110 are therefore merged.

Set gillnet fisheries targeting demersal fish (GNS_DEF_110-156_0_0)

In 2008 the total landing from the metier was 1600 tonnes of which 1350 tonnes (84 %) where cod. The Swedish fisheries take place in SD 23 and 24. The fisheries are managed in accordance with the Management plan for Baltic Sea cod (1098/2007) which includes a closed season (April) during the spawning season. The metier is also limited by allowed number of days at sea in accordance with the TAC regulation (1404/2007 annex II). Sweden practices temporal closures on a national basis to fulfil the effort limitation in the regulation. The fishery is further nationally managed by rations, limiting the allowed landing by vessel.
The metier was included in the sea-sampling programme between 1996-2005 as well as during 2009. The discard rate was found to be below 10 % in SD 24 but higher in SD 23. One reason for this is that SD 23 borders to the Kattegat which houses a more complex marine fauna. Sampling will, due to the differences in exploitation pattern, be stratified by subdivision. The metier will be sampled concurrently at harbours (markets) throughout the main fishing season. Discards will only be sampled in SD 23 were fishermen will be asked to bring discards ashore. Sampling scheme 1 will be applied. Sampling will be stratified by quarter. The fisheries are conducted with a mixture of set gillnets and trammel nets. The metiers GNS_DEF_110-156_0_0, GNS_DEF_>=157_0_0, GNS_DEF_90-109_0_0, GTR_DEF_110-156_0_0, GTR_DEF_>=157_0_0 and GTR_DEF_90-109_0_0 are thereby merged.

Fishing ground SD 25-29, 32

Trawl fisheries targeting small pelagic fish (PTM_SPF_16_31_0_0)

In 2008 the total annual landing from the metier was 132 800 tonnes. The landings constitutes exclusively (>99 %) of the target species herring and sprat. The majority of the landings are for industrial purposes but there are also landings for human consumption. The fisheries are conducted all year around but are much less intense during summer. The fishery is nationally managed by transferable individual quotas, limiting the allowed landing by vessel. The majority of the catches (78 % in 2008) are taken by pair trawlers using a mesh size of 16-31 mm. However, to some extent other trawls and mesh sizes are used within the fisheries. The metiers PTM_SPF_16-31_0_0, PTM_SPF_16-104_0_0, PTM_SPF_32-104_0_0, OTM_SPF_32-104_0_0, OTM_SPF_16-31_0_0, OTM_SPF_16-104_0, OTB_SPF_32-104_0_0, OTB_SPF_16-104_0_0, OTB_SPF_16-31_0_0, PTB_SPF_32-104_0_0 and PS_SPF_32-104_0_0 are thereby merged.
The metier was included in the sea sampling programme 1996-2001. Discard rates are estimated to be below 10 %. The metier will be sampled concurrently in harbours/at markets by purchasing unsorted samples. Sampling scheme 1 will be applied. Sampling will be stratified by quarter and subdivision. The assumption for the planned number of trip (III.C.3) is that the fishery is conducted all year around in all the main SDs (25-29).

Bottom trawl fisheries targeting demersal fish (OTB_DEF_>=105_1_110)

The bottom trawl fishery targeting demersal fish in SD 25-29,32 is almost exclusively a cod fishery, exploiting the eastern Baltic cod stock. In 2008 the total landing from the metier was 6050 tonnes of which 5940 tonnes (98 %) were cod. The fishery predominantly takes place in subdivision 25. The fisheries are managed in accordance with the Management plan for Baltic Sea cod (1098/2007) which includes a closed season during July-August. The metier is also limited by allowed number of days at sea in accordance with the TAC regulation (1404/2007 annex II). Sweden practices temporal closures on a national basis to fulfil the effort limitation in the regulation. The fishery is further nationally managed by rations, limiting the allowed landing by vessel. The majority of the fisheries are conducted with otter bottom trawls even though some fishermen are using twin trawls. The exploitation pattern of the gears is the same and the metiers OTB_DEF_>=105_1_110 and OTT_DEF_>=105_1_110 are therefore merged.
During springtime the bottom trawl fishery is some years replaced by a mid-water trawl fishery (OTM_DEF_>=105_1_110). The importance of the midwater trawl fisheries in comparison with the bottom trawl fisheries vary considerable (0-20 % of the trawl catches of cod) between years. The midwater trawl fishery will be merged with the bottom trawl fishery due to the difficulties to predict

the occurrence of the midwater trawl fisheries. In the analysis following sampling the fisheries will be considered as different domains.
The metier has been included in the sea-sampling programme since the mid 1990ies. Discard rates of cod fluctuate between years but the overall discard rate is estimated to be above 10 %. The metier will be sampled concurrently at sea throughout the main fishing season. Sampling scheme 1 will be applied. Sampling will be stratified by quarter.

Set gillnet fisheries targeting demersal fish (GNS_DEF_110-156_0_0)
In 2008 the total landing from the metier was 2190 tonnes of which 2085 tonnes (95 %) where cod. The Swedish fisheries predominantly take place in SD 25. The fisheries are managed in accordance with the Management plan for Baltic Sea cod (1098/2007) which includes a closed season (July-August) during the spawning season. A limited fishery (5 days a month) is allowed for vessels below 12 meters during the closed season. The metier is limited by allowed number of days at sea in accordance with the TAC regulation (1404/2007 annex II). Sweden practices temporal closures on a national basis to fulfil the effort limitation in the regulation. The fishery is further nationally managed by rations, limiting the allowed by vessel.
The metier has been included in the sea-sampling programme during 1996-2005 as well as 2009. The discard rate was found to be below 10 %. The metier will be sampled concurrently in harbours (markets) throughout the main fishing season. Sampling scheme 1 will be applied. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter. The fisheries are conducted with a mixture of set gillnets and trammel nets. The metiers GNS_DEF_110-156_0_0, GNS_DEF_>=157_0_0, GTR_DEF_110-156_0_0 and GTR_DEF_>=157_0_0 are thereby merged.

Longline fisheries targeting demersal fish (LLS_DEF_0_0_0)
In 2008 the total landing from the metier was 760 tonnes. The landings consist of more than 99 % of cod. The Swedish fisheries predominantly take place in SD 25. The fisheries are managed in accordance with the Management plan for Baltic Sea cod (1098/2007) which includes a closed season (July-August) during the spawning season. A limited fishery (5 days a month) is allowed for vessels below 12 meters during the closed season. The metier is limited by allowed number of days at sea in accordance with the TAC regulation (1404/2007 annex II). Sweden practices temporal closures on a national basis to fulfil the effort limitation in the regulation. The fishery is further nationally managed by rations, limiting the allowed landing by vessel.
The metier has been included in the sea-sampling programme during 2003-2005 as well as 2009. The discard rate was found to be below 10 %. The metier will be sampled concurrently in harbours (markets) throughout the main fishing season. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Trap net fisheries targeting anadromous species (FPO_ANA_0_0_0)
This metier is merged with FPO_ANA_0_0_0 in subdivision 30-31 were the majority of the fisheries take part (see text underneath fishing ground 30-31).

Fishing ground SD 30-31

Trap net fisheries targeting anadromous species (FPO_ANA_0_0_0)
Coastal fishery for anadromous species in the Baltic is heavily dominated by the métier FPO_ANA_0_0_0 with different kinds of traps having similar catch composition. The métiers FYK_ANA_0_0_0 and FPN_ANA_0_0_0 are merged with this métier, due to strong similarities in catch composition. The métier mainly targets salmon (*Salmo salar*) and whitefish (*Coregonus lavaretus*). The fishery is nationally regulated by effort (permit, area and seasonal closures). This fishery targeting anadromous fish takes place almost exclusively in SD 30-31 (94.4 % of total catch) even though it also occurs to a very low extent in SD 22-29. The sampling of the fishing in the different fishing grounds is thereby merged. Fishing takes place mainly in quarters 2 and 3. A sampling of this métier was motivated by the high proportion of the total fishing effort. Anadromous

species made up in total more than 90 % of the total catch in 2008-09 with freshwater species contributing to most of the remainder. This catch figure does not cover the recreational fishery with similar gear operating in Sub-division 30-31. The coastal fishery for salmonids takes place in June-August and the target population is geographically well defined. It is possible to plan the frame population accordingly. The composition of the catch (for instance in the FPO_ANA_0_0_0) is varying among areas over a very long coastline. This depends on the varying stock status of anadromous fish stocks in different areas. The coastal fishery for anadromous fish is completely dominated by SDs 30-31 with a heavy dominance for SD 31. Furthermore wild salmon populations are concentrated to this subdivision and it motivates a further concentration of sampling to this subdivision. Sea sampling takes place monthly at selected fishermen. For salmon the catch composition is partly influenced by the local river stocks, but the overriding pattern is similar in most exposed coastal areas with high proportions of wild salmon from the two dominant wild stocks in northern SD 31 (River Torneälven and Kalixälven).

Bottom trawl fisheries targeting small pelagic fish (OTB_SPF_16_104_0_0)

The herring fishery in SD 30 and 31 is regulated by TACs within Management Unit 3 of International Baltic Sea Fishery. Fishing data of the trawl fisheries are entered in the Swedish logbook, which conforms to the EU fishing logbook but provides information on hauls, positions and applied gear on a more detailed basis.

In 2008 the total landing from the metier was 1110 tonnes. The landings consist of more than 99 % of herring. The main fishing season on trawl fisheries targeting herring for human consumption is in quarter 2, but some fishing takes place throughout the year. The fishery is clearly concentrated to SD 30, where all of the landings are normally taken. The estimated amount of by-catch is low, as evident from previous sampling within this métier.

Sampling scheme 1 will be applied. Samples will collected by purchasing a random sample of about 20 kg of the unsorted catch, including by-catches and discard, directly from the fishing vessel. Sampling will be performed from three different vessels in each quarter (1-4) in SD 30. Because of restricting weather conditions in quarter 1, trawl fishing might be limited in quarter 1. Samples are analyzed by staff at ICR in Öregrund. The catch is sorted and weighted by species and commercial category, and the lengths of all individuals are registered.

Set gillnet targeting small pelagic fish (GNS_SPF_<110_0_0)

A small-scale gillnet fishery targeting herring (*Clupea harengus*) for human consumption is conducted in near-shore areas. The major proportion of the fishery is conducted in SD 30 and 31. The fishery mainly takes place during the peak reproductive period of herring in the spring and in some cases also during a second reproductive peak in the autumn. Landings are recorded in monthly fishing journals, which provide information of species composition and weight by species. In 2008 the total landing from the metier was 870 tonnes. The landings consist of more than 99 % of herring. The amount of by-catch is estimated as low. The métier was selected due to high effort.

Sampling will be performed in SD 30-31, where main part of the fishery within this métier is conducted. Sampling scheme 1 will be applied. Samples will be collected by purchasing a random sample of about 20 kg of the unsorted catch, including 5 kg by-catches and discard, directly from the fishing vessel. Because of restricting weather conditions, gill net fishing is limited in quarters 1 and 4, and sampling will be conducted in the quarters of relevance for the fishery (2-3). Sampling will be performed from three different vessels in each quarter (2-3) and SD. Samples are analyzed by staff at ICR in Öregrund. The catch is sorted and weighted by species and the lengths of all individuals are registered by 0,5 cm.

Trawl fisheries targeting freshwater species (PTB_FWS_0_0_0)

A seasonal small-meshed trawl fishery with small-sized pair-trawlers is conducted in SD 31 (Bothnian Bay). The fishery occurs within the Swedish territorial zone and is nationally regulated by effort (license permits), area closures and technical measures (selective grids). The fishery is only allowed during six weeks each autumn. Target species is vendace (*Coregonus albula*), which primarily is fished for the roe. In 2008 the total landing from the metier was 700 tonnes. The overall landing consisted of ~80 % vendace. The major by-catch consists of herring (*Clupea harengus*) (17 % in

weight) but minor catches of whitefish (*Coregonus lavaretus*) and other fresh-water species are common. Catches including by-catches are landed unsorted and recorded by census methods (logbooks and specific fishing journals). The metier is sampled following sampling scheme 1. Unsorted samples of the catch from 4 fishing trips are collected during the fishing season (September-October) using a randomized design by vessel and landing date. The metier was selected due to high economical value.

Eel (*Anguilla anguilla*) SD 23, 24, 25 & 27 and inland waters

Concerning the eel, the presence of a single spatial Eel Management Unit in Sweden precludes a geographical subdivision of the sampling programme. Most stock-related information will be derived from the metier- and stock-sampling described in this section and in the section describing Biological – stock-related variables, respecting the minimal sample numbers specified in the footnote to Appendix VII of DCF. The distribution of sampling intensity over areas (Skagerrak/Kattegat, Baltic, inland waters) is approximately proportional to the landings from these areas.

Fyke net fisheries targeting catadromous species (FYK_CAT_0_0_0)
Fishing for eel with small fyke nets is concentrated to the Öresund area (SD 23) and on the central Baltic coast in SD 27. Peaks in landings normally occur in May-September. The total annual landings in this fishery were 64 tonnes in 2007-2008, with equal shares in the southern Baltic, the Öresund included, and in the central Baltic. Discards in the central Baltic are estimated to be small, and non-target species and individuals can be returned live with a high probability of survival. Discards in the Öresund area are estimated to be above 10 %. Due to the high level of shore crab consumption, concurrent sampling of catches at sea in the Öresund area is considered impossible within reasonable costs. Survey data on catch composition exist for long time series in that area that will provide a good proxy for discards in the fyke net fishery. Concurrent sampling at sea is proposed to be replaced by analysis of data from existing test fishing surveys using fyke nets, from which data on catch composition and length distributions of all species is available. Stock specific sampling of yellow eel will be applied on a quarterly basis in quarters 2 and 3 in SD 23 and once in summer, during the peak of landings, in SD 27. The métier was selected due to high effort.

Pound net fisheries targeting catadromous species (FPN CAT 0 0 0)
This fishery targets silver eel in the early phase of their migration towards the spawning grounds in the Sargasso Sea. It is the basis of small scale coastal fisheries in many areas along the Swedish coast in SDs 23, 24, 25 and 27, i.e. from Öresund into the Baltic proper. The total annual landings in this fishery were 257 tonnes in 2007-2008. Eel consisted 80-90 % of these landings. It is a seasonal fishery, starting at midsummer in the easternmost parts. Peaks in landings normally occur in August-October in SD 25 and 27 and in October-November in the Öresund area SD 23 and 24. A seasonal span from summer to late autumn reflect plausible differences in the composition of by-catches and discards, with freshwater species being more abundant at higher water temperatures in summer in the Baltic proper and marine species more plausible in the autumn and in the south-western parts of the area. Discards are estimated to be above 10 % and a concurrent sampling of catches at sea is proposed, based on monthly samples during the peak of the season in SD 23, 24, 25 and 27. The métier will be sampled using Non-Probability Sample Surveys, as the main objective is to collect data on length- and age composition of silver eel in a way that represents the major part of the migrating season in each area. Although discards may be considerable, the fish are caught alive and may be returned to sea with a high probability of survival. Thus concurrent sampling at sea, using sampling scheme 1, is combined with collection of biological samples in a non-random manner in order to obtain a rough estimate of the composition of discards and of the relatively modest by-catches. The métier was selected due to high effort and high value.
Metier sampling of the pound net fishery in the Baltic will be stratified on SDs 23, 24, 25 an 27. Monthly sampling during the expected peak of the fishing season will be performed in each

subdivision. Sampling will adapt to the fact that the fishing season normally differs in length and timing between subdivisions. In total 10 journeys are planned to be sampled, 2 in SD 23, 2 in SD24, 3 in SD25 and 3 in SD27.

Pound net fisheries targeting catadromous species (FPN CAT 0 0 0), specific to silver eel fishing.
The above sampling of the pound net metier targeting eel provides catch composition and biological information, but does not allow the estimation of the mortality exerted by the fishery. A standard cohort model (the typical target of DCF) does not fit the silver eel fisheries, since there is no such thing as a dynamic pool, i.e. there is just a one-time opportunity to catch the silvers after which they leave to the Sargasso Sea, and thus year-to-year comparison of catches provides no information on mortality rates. Mortality estimates can only be derived from within-year, within-run comparison. In accordance with the approved Swedish Eel Management Plan, it is proposed to continue the long-time data series on silver eel mark-recapture experiments. Noting the changing willingness of fishers to cooperate in eel research, the feasibility of conventional tagging studies must be re-evaluated, considering alternatives such as cryptic tags, before actually executing the experiments. Exchange of recapture data with neighbouring countries, and integration of assessments, is foreseen.

There is a long history in Sweden of collecting detailed catch statistics from the commercial silver eel fishery in the Baltic Sea, mainly financed by industrial monitoring. Providing information from specified gears on specific sites, this data provides an accurate estimate of the intensity of silver eel migration at the sites monitored, reducing bias being introduced by changing fishing strategies over time. Thus less specified landing statistics may be tuned and combined with results from the mark-recapture experiments suggested above, an estimate of silver eel escapement will be obtained on a relative basis. With focus on reestablishment of time series starting in some cases in the 1950´s, a new programme is suggested for two or if possible three strategic sites in SD 23, 25 and 27 in the Baltic Sea. The programme will provide daily landings in numbers and weight of silver eel from 10-15 pound nets on specified sites throughout the entire fishing season.

Fyke net and pound net fisheries targeting catadromous species in Eel Management Units as specified in Council Regulation 1100/2007, i.e. in inland waters (FYK_CAT_0_0_0, FPN_CAT_0_0_0), are included under section III.E – Biological – stock-related variables.

(c) Type of data collection

The extended Swedish logbook and the mandatory monthly fishing journals for vessels not carrying logbooks, give Sweden the opportunity to have complete information of species composition and weight by species in landings from all metiers.

For information on length frequencies and discards Sweden apply different sampling schemes which are described below. In principal Sweden apply probability sample surveys. However, sampling frames are presently not well defined for some metiers/sampling schemes. (see section III.C.1(d)). In some sampling schemes e.g. “other- detailed journal by fishermen” Sweden apply non probability sample surveys. Details related to specific metiers are in relevant cases presented within the description of the different metiers as well as in tables IIIC.3 and IIIC.4.

Main sampling strategies

Concurrent sampling of catches at sea
This sampling scheme will be applied primarily for metiers where discard rates are expected to be above 10 %. In the Baltic this sampling strategy will be the primary strategy applied to trawls targeting demersal fish (OTB_DEF_>=105_1_110).

Data will be collected by staff from SBF by sampling on board randomly chosen commercial fishing vessels.
Sampling scheme 1 will be applied.
Information to be collected is:

- Total weight of discard and landing by all species caught
- Separate length distributions of discard and landings by all species caught.
  If the retained part of the catch is landed in commercial weight categories, separate length frequencies are obtained by category
  -Otoliths per cm group of discard part of the catch of G1 and G2 species for which Sweden conducts age sampling of landings.

For some metiers (primarily were small vessels are common), sampling will be performed as self-sampling by fishermen. Unsorted random subsamples of the total catch, including by-catches and discard, are purchased directly from the vessel. All the samples are transported to the SBF research laboratories for analysis where information is registered as described above (e.g GNS_DEF_110-156_0_0). The sampling procedure will be validated by SBF staff on a regular basis.

Concurrent sampling of landings at markets

This sampling scheme will be applied for metiers where discard rates are expected to be low. In the Baltic this sampling strategy will be the primary strategy applied for trawls targeting small pelagic fish (e.g PTM_SPF_16-31_0_0).
Data will be collected by staff from SBF by randomly sampling landings in harbours. Samples may also be collected by the Swedish Coast Guard.
Sampling scheme 1 will be applied.
Information to be collected is:

- Total weight of landing by all species caught
- Length distributions of landings by all species caught. If the landed in commercial weight categories, separate length frequencies are obtained by category

Other – Stock specific sampling based on commercial size categories

In Sweden are all information on landings are available by metier in the official catch statistics except length distributions. The distribution of landed size categories by metier is however available through sales slips. Commercial size categories in Sweden are well defined and harmonised to EU standards. Sweden will for some metiers (ex. GNS_LLS_110-156_0_0), carry out sampling based on commercial size categories.

Other-Stock specific sampling combined with survey data

In the metier of fyke net fisheries targeting catadromous species (FYK_CAT_0_0_0) sampling of discards at sea is not considered feasible in all fishing grounds (North Sea SD 20-21, Baltic SD 22-24), due to a high rate of consumption of the discard by shore crabs. Concurrent sampling at sea will be replaced by analysis of data from existing test fishing surveys using fyke nets. Survey data on catch composition and length distributions are available. As a complement, stock-specific sampling of the length distribution of landings will be performed by staff at SBF.

Other- detailed journal by fishermen

For métiers in which daily catches are expected to be low or irregular, concurrent sampling of catches at sea will partly be performed by contracted fishermen (type A sampling), who are asked to keep a more detailed journal of their catches (FPO_ANA_0_0_0). The information will serve as an addition to stock-specific sampling of the length distribution of catches being performed by staff at SBF, in order to increase precision.

Details on sampling strategies related to specific metiers are in relevant cases presented within the description of the different metiers

(d) Target and frame population

Sweden has previously strived to obtain quality in data collected within the DCF primarily by i) spreading out the sampling events in time and space mirroring the activities of the metiers and/or landings of the stocks and ii) increasing the number of sampled trips/landings in contrast to number of fish.
During 2008 and 2009 Sweden has attended the ICES workshops WKACCU, WKPRECISE and WKMERGE and realised that a more systematic approach is needed to accurately be able to evaluate possible bias and precision. Sweden have however also realised that design and in particular implementation of statistically sound catch sampling programmes is difficult and need thorough analysis (and thereby time) in order to be successful. The main reasons for the difficulties are the complexity in the metier approach (were do we have sufficient information in advance to treat individual metiers as strata and were do we not?), cluster effects and a wide range of logistical constrains. The devil is in the details and national implementation would benefit from transparent international discussions on assumptions and experiences, as suggested by ICES PGCCDBS. It is also of importance that the statistical tools available enable analysis of data quality in cases where the primary sampling unit is something else than trip (access points, areas…). This is presently not the case for the COST tools.
In 2009 Sweden initiated the work towards a more design based approach in catch sampling by defining sampling frames in the sea sampling programme as well as applying random sampling of primary sampling units. Sweden will continue this work during 2010 and also expand it to the other sampling programmes. For the sake of this NP proposal it is thereby premature in some cases to describe sampling designs, including sampling frames. The sampling frames described in table IIIC.4 may thereby be revised during the programme period. The sampling frames are intended to cover all trips in a metier, The temporal frame (IIIC.4) are thereby in some cases “all year” even if the fishing activities are limited during certain seasons. Details on seasonal fishing pattern are in relevant cases included in the description of the different metiers.

Sea sampling
The target population is all the trips by strata (selected metier, fishing ground and temporal stratification). For the sea-sampling programme (concurrent sampling at sea) the sampling frames consist of lists of trips by vessel and sampling strata (fishing ground, temporal stratification). The assumption is made that the activity (number of trips) of individual vessels during the previous year can be used to predict the activity for the sampling year. By making this assumption Sweden can randomly select trips for sampling. Trip is then the primary sampling unit. The sampling frame covers the population of trips except in the situation were new vessels are entering the fishery within the sampling year.

(e) Sampling stratification and allocation scheme

Sampling effort has been allocated to the metier based on prior sampling, knowledge of variation in the different metiers, importance of different metiers (Swedish share of the metier / stocks at an international level (importance of Swedish data in the stock assessment)) and precision targets. Sampling effort is allocated ensuring that the number of trips sampled is at least one per month and metier throughout the fishing season. However, so far, no thorough analysis has been made to optimise number of samples and sample sizes for sampling all the Swedish metiers. Sweden was waiting for the finalisation of the COST project to start this work. The work has been initialised and is a part of the

overall effort to improve our sampling designs (see section III.C.1.d). Expected number of sampled trips by metier is presented in table III.C.3 and III.C.4.

Table III.C.5 shows sampling intensity of length measurements of all G1 and G2 species listed in Appendix VII. The Swedish sampling strategy for metiers is in most cases aiming for a certain number of trips and/or number of hauls, rather than targeting a certain number of individuals to be measured. In the sea sampling programme, Sweden as a "rule of thumb" takes random subsamples containing approximately:

for species with a large occurrence at the trip/haul:
Discards; 100 individuals / haul for cod and other species with a wide length frequency; 50 individuals /haul for other species.
Landings; 100 individuals / size category for cod and other species with a wide length frequency; 50 individuals /haul for other species.

for other species:
all available individuals within the trip/haul/sample

The catch composition and volume in catch is not known beforehand and therefore, numbers of length measured individuals are impossible to predict and plan exactly. In table III.C.5 number of length measured individuals sampled in 2009 are listed to give an idea of sampling levels. Cells containing "0" means that the species was not caught and length measured in 2009 but could appear in future catches. A minimum number of individuals to be measured exist for herring in SD 30-31 as well as for eels. For these stocks the planned numbers of individuals to be sampled are presented in table III.C.5.

III.C.2 Estimation procedure

Different analytical methods will be used to estimate discard volumes and length structure of the catches. Were possible Sweden will use the tools provided by the COST project in this process. Historically Sweden have been using the landed weight of target species (single species as in the case of trawl fisheries for cod in the Baltic or a mixture of target species) in the different metiers for raising discard data. Parameters (landed weight, effort) at the population level will be used for raising origins from the logbook (or in case of small scale fisheries from the monthly fishing journals).

Eel
Survey data on catch composition exist from long time series of fyke net fishing in Öresund area. These data will provide a good proxy for discards in the commercial fyke net fishery targeting yellow eel in the area (FYK_CAT_0_0_0), and may be used for estimation of discards and by-catches in this fishery. More importantly, the length composition information will be used in estimating mortality in the yellow eel stage, by means of catch-curve analysis; methodology for this still needs to be developed, as will be addressed in ICES SGIPEE and WGEEL.

III.C.3 Data quality evaluation

In the sea-sampling programme a main possible source of bias is the non-access to all vessels/trips. Sweden will during the programme period keep track on the refusal rate and compare fishing patterns (spatial and temporal) between accessed trips and non-access trips. Sweden is also working systematically to reduce the refusal rates.

In the market/harbour based programmes Sweden try to spread out the sampling effort in time and space, mirroring the activity of the metier. However, so far, sampling frames have not been

implemented. It is thereby difficult to evaluate if certain parts of the trips have been excluded which could introduce bias.

Precision estimates from pervious sampling differ between metiers, years and quarters. For discards are the requirements in 2010/93/EC extensive and hard to reach. Sweden will during the programme periods work towards regional coordination of discard sampling in order to increase the overall precision but this requires survey designs that allows for regional task-sharing.

Sweden has quality checks in the national database. Sweden further uploads data into the regional database Fishframe which have additional quality checks. Were possible Sweden will use the tools provided by the COST project for exploratory analysis of the overall sampling.

Eel
Data on coastal and inland eel fisheries have not been used for regular stock assessments before. The implementation and evaluation of the Eel Management Plan will necessitate that these data too are brought under quality control. To this end, the data (contemporary, and secondarily the historical data too) will be included in the national databases, under the regular quality control rules. This might require updating data entry procedures and business rules.

III.C.4 Data presentation

Data is prepared in the beginning of the year following the year of sampling. The main end-users for data relating to metier based sampling have so far been working groups (ICES WGBFAS, WGBAST and STECF SGMOS) interested in discard data. These end-users usually require data during the spring and data is submitted accordingly.

Data on eel fishing will be applied in the post-evaluation of the Swedish Eel Management Plan, as foreseen in the Eel Regulation 1100/2007. This post-evaluation will cover the period before and after the implementation of protective management measures since 2009. Additionally, the data will be reported to ICES WGEEL, in traditional Country Reports, and in the newly to develop data bases of this working group. Furthermore, data and new methodology will be fed to ICES SGIPEE. Standardisation of ageing methodology across Europe is achieved through participation in ICES WKAREA. Finally, the dominance of saline water eels in the Swedish stock is of special interest to ICES SGAESAW.

All collected data is stored in the national databases. Estimation of catches, including discards (in relevant cases), can be done at the level described in the National Programme (NP). If there is deviations from what is planned in the NP this will be stated in the Technical Report.

Sweden have for a long period of time advocated regional databases enabling end-users to assess what data is available as well as increase the use of data. So far no international framework around regional databases has been established.

III.C.5 Regional coordination

Salmon FPO_ANA_0_0_0
An agreement has been made between Finland and Sweden regarding sampling of salmon for genetic analysis (Annex II).

Eel
The eel stock in all of Europe is generally considered to constitute one single panmictic stock. Management, however, is structured by Eel Management Units, which for the Swedish case is chosen

to be the whole national territory. However, strong interactions occur between Baltic States, especially in the Swedish (and Danish) coastal fisheries targeting silver eel derived from yellow eel stocks across the Baltic. The Eel Regulation 1100/2007 devotes special attention to regional coordination, and the Swedish Eel Management Plan indicates to initiate regional cooperation (Baltic Sea Action Plan, HELCOM). Given the national/regional nature of Eel Management Units, this will primarily concern coordination of management and cooperation in research, but subsequently, this will also concern the exchange of data and regional tuning of data collection.

Herring (PTM_SPF_16_104_0_0)

The herring stock in Sub-divisions 30-31 is mainly exploited by the Finnish trawl fishery (95% of the landings). Information for representing the métier of bottom trawl catches of herring is suggested to be obtained from the large Finnish sampling scheme on stock specific data of approx. 2000 individuals. The Swedish trawl fishery has a similar selection pattern as the Finnish trawl fishery. Sweden asks for derogation for the required sampling of the Swedish trawl fleet in Subdivision 30. For assessment purposes landings of this fleet will be distributed according to sampling results from Finland.

Recommendations made in the RCM Baltic are listed below starting with 2009 back to 2005.

Source	Recommendation	Action
RCM Baltic (2009)	*ECONOMIC VARIABLES: THE INCLUSION OF A METHODOLOGY REPORT IN THE NPS AS PROPOSED BY SGECA, WOULD PROVIDE SIGNIFICANT BENEFITS*	Sweden will give a thorough description of the methods used to sample and estimate the economic data in the national programme
RCM Baltic (2009)	*FOR THE PURPOSES OF RANKING MÉTIERS TO SAMPLE, NATIONAL DATA ON EFFORT, LANDINGS AND VALUE BY MÉTIER AND FISHING GROUND SHOULD BE COMPILED REGIONALLY IN ADVANCE OF THE NEXT MEETING. TO ENABLE THIS, PARTICIPANTS FROM MS SHOULD STRICTLY RESPECT THE AGREED NAMING CONVENTIONS OF FISHING GROUND, MÉTIERS AND UNITS OF THE VARIABLES AS WELL AS THE DEADLINE FOR SUBMISSION OF THE NATIONAL DATA.*	Sweden will use the agreed naming ground, metiers and units of the variables as well as respect the deadline
RCM Baltic (2009)	*FOR THE PURPOSES OF REGIONAL UNDERSTANDING OF SAMPLING ACTIVITIES, NATIONAL INFORMATION ON SAMPLING SHOULD BE COMPILED REGIONALLY IN ADVANCE OF THE NEXT MEETING. TO ENABLE THIS, PARTICIPANTS FROM MS SHOULD STRICTLY RESPECT THE AGREED NAMING CONVENTIONS OF FISHING GROUND AND MÉTIERS AS WELL AS THE DEADLINE FOR SUBMISSION OF THE DATA.*	See above.
RCM Baltic (2009)	*FOR THE PURPOSES OF UNDERSTANDING THE HETEROGENEITY OF MÉTIERS AND THE CONSEQUENCES FOR TASK SHARING AND DISCARD SAMPLING, NATIONAL DESCRIPTIONS OF THE REGIONALLY RANKED MÉTIERS SHOULD BE COMPILED USING THE FORMAT IN ANNEX 3. TO ENABLE THIS, PARTICIPANTS FROM THE MS SHOULD STRICTLY RESPECT THE AGREED NAMING CONVENTIONS OF FISHING GROUND AND MÉTIERS AS WELL AS THE DEADLINE FOR SUBMISSION OF THE INFORMATION. APPOINTED PERSONS ARE RESPONSIBLE FOR REQUESTING THE DATA AND COMPILING IT ON A REGIONAL LEVEL*	Sweden will produce the description of the metiers using the format in annex 3 BEFORE THE RCM 2010.
RCM Baltic (2009)	*IN ORDER TO USE THE TIME OF THE RCM MORE EFFICIENT AND FOR THE HARMONISATION OF THE NPS, INCLUDING THE QUALITY CHECKS, THE EXCHANGE DATA TABLES FROM ALL NPS, NAMELY*	Sweden is responsible for compiling the data from all MS to be used

	PLANNED NUMBER OF INDIVIDUALS TO BE SAMPLED FOR AGE, LENGTH, WEIGHT, SEX AND MATURITY SHOULD BE COMPILED BEFORE THE NEXT RCM.	in RCM 2010.
RCM Baltic (2009)	*MS TO USE THE AVERAGE LANDING FIGURES OVER THE YEARS 2007-2008 AS THE BASIS FOR RANKING MÉTIERS WITHIN THE NP 2011-2013*	Done
RCM Baltic (2009)	*IN ORDER TO MAKE ANALYSES OF THE DATA COLLECTED WITHIN DCF AND TO OPTIMISE THE COORDINATION WORK, THE DEVELOPED REGIONAL DATABASE FISHFRAME 5.0 SHOULD BE USED WITHIN THE RCM BALTIC.*	Sweden will upload the data (all species, all metiers level 6) for 2009 in FishFrame 5.0
RCM Baltic (2008)	*IN ORDER TO USE THE TIME OF THE RCM MORE EFFICIENT, THE PRE-PROCESSING OF THE EXCHANGE DATA TABLES, NAMELY THE MERGING OF THE DATA ON FISHERIES STATISTICS AND PLANNED SAMPLING NP PROPOSAL TABLES IN THE NPS, FOR THE HARMONISATION OF THE NPS, INCLUDING THE QUALITY CHECKS, SHOULD BE CARRIED OUT BEFORE THE NEXT RCM.*	Action will be taken in 2009
RCM Baltic (2008)	*IN THE NP PROPOSALS, A SHORT DESCRIPTION OF ALL MÉTIERS SELECTED BY THE 90% RANKING PROCEDURE SHOULD BE PROVIDED. SUCH A TABLE WOULD ENABLE RCM TO IDENTIFY WHETHER A MÉTIER WITH THE SAME NAME COVERS THE SAME OR DIFFERENT FISHERIES IN DIFFERENT NPS.*	Sweden has already included a short description of all metiers in programme for 2009-2010.
RCM Baltic (2008)	*THE RCM BALTIC RECOMMENDS THAT MS FOLLOW THE REQUEST FOR PREPARATION OF THE WKSMRF (WORKSHOP ON SAMPLING METHODS FOR RECREATIONAL FISHERIES), GIVEN IN THE ICES RESOLUTION (see http://www.ices.dk/iceswork/recs/2008recs.asp).*	Sweden will participate in WK and action will be taken as recommended
RCM Baltic (2008)	*MEMBER STATES ARE RECOMMENDED TO SEEK FOR TASK SHARING WHEN STARTING AGEING NEW SPECIES .*	Sweden will seek for task sharing in these cases
RCM Baltic (2007)	*THE RCM BALTIC RECOMMENDS THAT ALL MS SUBMIT DATA IN THE AGREED FORMAT WHEN REQUESTED. THE COMPILED REGIONAL DATA SHOULD BE DISTRIBUTED TO THE MEMBERS OF RCM BALTIC WELL BEFORE THE MEETING*	Sweden compiled this data to the meeting in 2007 and will prepare requested data for future meeting to gain cooperation between MS in the RCM.
RCM Baltic (2007)	*THE RCM BALTIC RECOMMENDS THAT ALL MS UPLOAD DATA (EFFORT, LANDINGS-ALL SPECIES, SEA-SAMPLING, SAMPLING OF LANDINGS) FOR THE TRAWL FISHERIES TARGETING COD IN THE BALTIC IN ORDER TO ALLOW ANALYSIS OF THE FISHERIES FACILITATING FUTURE TASK SHARING OF DISCARD SAMPLING*	Done
RCM Baltic (2007)	*REGIONAL SAMPLING 4.1 UNTIL ROBUST INTERNATIONAL GUIDELINES FOR ANALYSIS OF LOGBOOK DATA IS AVAILABLE RCM BALTIC MADE A FEW RECOMMENDATIONS HOW TO DEAL WITH ALLOCATION RULES.*	Sweden has complied with interim allocation rules made up in the RCM
RCM Baltic (2007)	*THE RCM BALTIC RECOMMENDS THE DESCRIPTION OF THE SOURCE OF THE INFORMATION AND WHEN APPLYING A SAMPLING PROCEDURE A DESCRIPTION OF METHOD AND STRATEGY HAS TO BE CLEARLY DESCRIBED IN THE NATIONAL PROGRAMME TO GIVE USEFUL INFORMATION ON QUALITY OF THE OBTAINED DATA. IN THE TECHNICAL REPORT THERE SHOULD THEN BE A QUALITATIVE QUALITY REPORT CONTAINING A THOROUGH DESCRIPTION OF THE*	Sweden will describe sampling method and strategy in NP for 2009-10. A quality report in TR for 2009 will be presented in 2010.

	METHODS AND STRATEGIES USED AND THE CHARACTERISTICS OF THE GATHERED DATA. *THE RCM BALTIC RECOMMENDS TO NOT USE THE PRECISION LEVEL AS AN INDICATOR OF HETEROGENEITY BUT TO RATHER USE THE MEAN VALUE AND STANDARD DEVIATION.*	
RCM Baltic (2006)	*THE RCM BALTIC RECOMMENDS THAT FINLAND AND SWEDEN WILL EVALUATE THE COLLECTION OF BIOLOGICAL DATA OF THE HERRING FISHERY IN THE GULF OF BOTHNIA IN ORDER TO ELABORATE CONGRUENT PROCEDURES. THE POSSIBILITIES TO HARMONIZE THE COLLECTION OF CORRESPONDING ECONOMIC DATA SHOULD BE EVALUATED.*	In 2007 Finland and Sweden have conducted inter-calibration in both age reading (comparing methods) and maturity staging of herring. Harmonization of sampling methods is under discussion. Improvement of all aspects regarding the joint Acoustic survey in sd30 is also discussed and a meeting in end of May 2008 is planned for such discussions. However it is a goal of Sweden to continue the work on harmonizing both the biological and economical collection of data.
RCM Baltic (Jan 2005)	*3.1 BALTIC RCM RECOMMENDS THAT EACH MS ON MONTHLY BASIS UPDATES "REAL TIME MONITORING SPREADSHEET" GIVING THE ACTUAL SAMPLING STATUS IN EACH COUNTRY AND GIVING THE COVERAGE AS DEFINED ACCORDING TO THE DCR.*	Not used, and therefore Sweden has not filled it in.
RCM Baltic (Jan 2005)	*3.2 BALTIC RCM RECOMMENDS IN CASE WHERE MORE THAN 5 PERCENT OF THE NATIONAL QUOTA IS LANDED IN A FOREIGN COUNTRY, BILATERAL AGREEMENTS SHOULD BE MADE.*	Bilateral agreements have been done yearly. And for 2005 this was done between Sweden and Denmark in January 2005 and Sweden and Germany in May 2005.
RCM Baltic (Jan 2005)	*3.3 BALTIC RCM RECOMMENDS THAT AN ANALYSIS REVEALING AND COMPARING THE CONSEQUENCES OF DIFFERENT RAISING METHODS IS MADE AS SOON AS EFFORT INFORMATION AND MATCHING RAISING PROCEDURES ARE INCLUDED IN THE FISHFRAME DATABASE.*	Sweden will upload effort information to FishFrame database in order to be able to analyze different raising procedures.
RCM Baltic (Jan 2005)	*5.1 THE RCM RECOMMEND THAT BOTH EASTERN AND WESTERN BALTIC COD, OTOLITHS WEIGHT SHOULD ON A ROUTINE BASIS BE COLLECTED AS A COMPLEMENT TO AGE READING. THIS MUST START FROM 2005.*	Sweden is recording weight on cod otoliths on a routine basis.
RCM Baltic (Jan	*6.1 THE RCM RECOMMENDS THAT SAMPLING SHOULD BE CARRIED OUT THROUGH OUT THE ENTIRE TRI ANNUAL PERIOD.*	Sweden is sampling data on other biological parameters every year.

2005)		
Baltic RCM (Oct 2005)	*2.2. RCM BALTIC CONCLUDES THAT MS MUST CONDUCT ANALYSIS OF STABILITY ON THE NATIONAL FLEET.*	In order to test whether the segmentation of the Nantes proposal results in a more stable fleet it is important that MS conduct analysis on stability (in the way a vessel change between segments between the years) according to the present DCR and according to the Nantes proposal.
Baltic RCM (Oct 2005)	*2.3. THE RCM BALTIC CONCLUDES THAT MS MUST CONDUCT ANALYSIS OF NATIONAL DATA ON WHICH LENGTH GROUPS YIELD THE MOST HOMOGENOUS ECONOMIC STRUCTURE.*	To compile accurate and useful economic data it is important that MS analyze which length categories that achieve this goal.
Baltic RCM (Oct 2005)	*2.4. RCM BALTIC CONCLUDES THAT THE TWO ANALYSES SHOULD BE CONDUCTED BEFORE 1ST OF JANUARY 2006. THE RESULTS OF THE ANALYSIS SHOULD BE SENT TO JENNY NORD AT THE SWEDISH BOARD OF FISHERIES: (JENNY.NORD@FISKERIVERKET.SE) BEFORE THIS DATE. THE COMBINED RESULTS FROM THE BALTIC WILL THEN BE PRESENTED AT THE NEXT WORKSHOP ON FLEET BASED APPROACH IN THE BEGINNING OF 2006.*	The results from the Baltic region were complied in order to show the situation of the countries in the region. The Baltic results were presented at the Nantes training workshop, 13-17 March 2006
Baltic RCM (Oct 2005)	*2.5. THE RCM BALTIC RECOMMENDS THAT ALL MEMBER STATES ATTEMPT TO FILL IN THE MATRIX (SEE ANNEX 4) WITH READILY AVAILABLE EFFORT DATA (BY DEFAULT EXPRESSED IN DAYS AT SEA AND IN NUMBER OF VESSELS FOR 2004) WITH A VIEW TO DEFINING THE FINAL VERSION OF THE MATRIX BEFORE THE 1ST OF JANUARY 2006. THE DATA MUST BE SENT TO JENNY NORD (SWEDEN) (JENNY.NORD@FISKERIVERKET.SE) BE-FORE THIS DATE.*	The table were to be filled in order to identified possible problems and errors of the matrix proposed by Ifremer.
Baltic RCM (Oct 2005)	*3.9. CONCERNING "COASTAL" SURVEYS: THE RCM BALTIC SUGGESTS THAT THE INCLUSION OF THESE SURVEYS SHOULD BE DISCUSSED AT A NATIONAL LEVEL IN ORDER TO PREPARE A FUTURE DISCUSSION WITHIN DCR.*	National discussions have taken place and will be forwarded to the next RCM meeting in October 2006, and to the meeting regarding revision of the surveys in December.
Baltic RCM (Oct 2005)	*7.15. RCM BALTIC RECOMMENDS THAT THE WORKSHOP OF WGBIFS SUBGROUP FOR ESTIMATING ANNUAL BASED MATURITY OGIVES OF COD BASED ON TRAWL SURVEY DATA CONVENE IN THE LAST WEEK OF JANUARY 2006 AT MIR, GDYNIA, POLAND.*	Sweden was represented by two participants.
Baltic RCM	*7.16. THE RCM BALTIC STRONGLY RECOMMENDS ALL BALTIC COUNTRIES TO UPLOAD OR RE-UPLOAD QUALITY CHECKED CA*	SMALK Data from 1991 to 2005 was quality

(Oct 2005)	*DATA (SMALK DATA) TO THE ICES DATRAS DATABASE BEFORE 1. JANUARY 2006.*	checked and re-uploaded into DATRAS in January 2006.
Baltic RCM (Oct 2005)	*7.18. RCM BALTIC RECOMMENDS PROVIDING AGGREGATED MATURITY DATA TO THE ASSESSMENT WORKING GROUPS ON A YEARLY BASIS FOR THOSE STOCKS THAT ARE SAMPLED ON A ROUTINE BASIS YEARLY, IN A FORMAT AGREED BY THE WORKING GROUP.*	Sweden prepares maturity data on a yearly basis which are provided to the different working groups.
Baltic RCM (Oct 2005)	*8.21. RCM BALTIC RECOMMENDS THAT MS UPLOAD LANDING STATISTICS BY FISHING ACTIVITY (LEVEL 6) AND ICES STATISTICAL RECTANGLE FROM 2004 AND 2005 STARTING FROM THE BEGINNING OF 2006 AND PREFERABLE CAN RE-UPLOAD LANDING STATISTICS ON THIS LOW AGGREGATION LEVEL A COUPLE OF YEARS BACK.*	Sweden will upload the required data when the definition of fisheries is ready.

III.C.6 Derogations and non-conformities

The exemption rule can be applied according to the text in 2010/93/EU (Ch III section B/B1/5 1); *If Member States can not reach levels of precision and/or only at excessive costs, they can obtain, based on STECF recommendation, derogation from the Commission to reduce the precision level, sampling frequency or to implement a pilot survey provided this request is fully documented and scientifically proven.*

Sweden believe that there is a need for clarification how a derogation should be fully documented and scientifically proven. While STECF are in the position to give recommendation (see above), we suggest that STECF establish criteria for this. Thresholds, analyses needed, etc? In the meantime, while no criteria/ guidelines are established, Sweden put forward following arguments.

The six metiers in the Baltic that Sweden has requested derogations for are listed in table below. Effort and total landing together with costs for a minimum sampling program (12 sampling occations /year) are summarized. The precision level achieved based on 3 sampling occasions per quarter are assumed not to reach the precision level 1 (CV 20%).

While catch composition and amount landed is achieved through logbooks and monthly fishing journals in Sweden for these metiers, the costs involved in sampling these metiers should be put in relation to the extra information gained, which is only length composition and discard.

Table: Metiers in the Baltic that Sweden has requested derogations for.

Fishing ground	Metier	Effort days	Total tonnes landed	costs for minimum sampling (SEK)	Comments
Baltic Sea	Eel FYK CAT 0 0 0	3400	32	99 800	1
SD22-24	GNS_SPF_32-109_0_0	234	261	442 000	2
SD 25-29,32	GNS_SPF_32-109_0_0	700	13		3
SD 25-29,32	GNS_FWS_0_0_0	3700	85	106 400	4
SD30-31	FPO_FWS_0_0_0				5
SD30-31	GNS_FWS_0_0_0	7402	146	106 400	6

1. Fyke net fishery in the Baltic Sea (FYK_CAT_0_0_0)

The landings of this metier are approximately 10% of the total landings from the Swedish eel fishery in the Baltic Sea, with average landings of 32 tonnes in 2007-2008. The metier was selected due to effort alone. This fishery by its nature generates a high value of effort as the fykenets normally are fished continuously throughout the summer season, being lifted in intervals of a few days. Due to regulations of the eel fishery implemented in 2009, according to the National Management Plan for eel, the effort in this metier is expected to decrease in coming years. Discard in this fishery is assumed to be low in the Baltic coastal fishery and dominated by freshwater species. A major part of the discard is assumed to be returned alive. These assumptions are supported by experience from scientific fishing with fykenets in the area. The major metier targeting eel in the Baltic is sampled. It is not considered cost-effective to sample this fishery and Sweden thereby asks for derogation.

Costs for minimum sampling (5 occasions / year and metier, season May-Sep):
Number of trips: 5 (1 metier * 5 occasions)
Number of persons: 2
Number of days: 1,5
Daily allowance (including hotel): 1700 SEK
Overall travelling expenses: 8 000 SEK
Total travel cost: 33 500 SEK
Subcontractors: 7 500 SEK
Staff costs: 180 men hours * 260 SEK /hour = 46 800 SEK

Total cost: 87 800 SEK approx: 9 700 EUR

2 & 3. (GNS_SPF_32-109_0_0) in SD22-24 and in SD 25-29,32

For these metiers were discard levels are assumed to be low, landings are low and have low variability (99% herring), Sweden argue that the costs for additional length information are excessively high and not justifiable . The metiers are picked only due to effort. Other metiers targeting pelagic species in the two fishing grounds in the Baltic are sampled. It is not considered cost-effective to sample this fishery and Sweden thereby asks for derogation.

Costs for minimum sampling (12 occasions / year and metier):

Number of trips: 24 (2 metiers * 12 occasions)
Number of persons: 1
Number of days: 3
Daily allowance (including hotel): 1700 SEK
Overall travelling expenses: 60 000 SEK
Total travel cost: 182 400 SEK
Staff costs: 1000 men hours * 260 SEK /hour = 260 000 SEK

Total cost: 442 400 SEK approx: 46 000 EUR

4. Gill net fishery for fresh-water species in SD 25-29,32 (GNS_FWS_0_0_0)
This metier was solely selected due to effort. The primary target species are perch, pike and pike-perch, almost entirely fished on private waters close to the coast. These species are fished on a seasonal basis, normally with specific mesh sizes and on specific fishing grounds, with low catches in each of the gillnet types. Thus the discard in this fishery is assumed to be modest. All three target species are characterized by a large number of small local populations, and the actual focus in Sweden is to monitor the coastal fresh-water fish communities by fishery independent methods (test fishing programmes). It is not considered cost-effective to sample this fishery and Sweden thereby asks for derogation.

Costs for minimum sampling (6 occasions / year and metier, season May-Oct):
Number of trips: 6 (1 metier * 6 occasions)
Number of persons: 2
Number of days: 1,5
Daily allowance (including hotel): 1700 SEK
Overall travelling expenses: 9 600 SEK
Total travel cost: 40 200 SEK
Subcontractors: 9 000 SEK
Staff costs: 220 men hours * 260 SEK /hour = 57 200 SEK

Total cost: 106 400 SEK approx: 11 700 EUR

5. Pots and traps fisheries targeting freshwater species (FPO_FWS_0_0_0)
The fishery with pots and traps targeting freshwater species is restricted both geographically and over time. The main part of the landings is taken in SD 31 by a few fishermen using one specific gear type. Small sized perch (*Perca fluviatilis*) is the only targeted species in this fishery. The average annual landings in SD 30-31 were 17 tonnes only in 2007-2008. As the metier was selected by effort only, no sampling is planned for the period 2011-2013.

6. Gill net fishery for fresh-water species in SD 30-31 (GNS_FWS_0_0_0)
This metier was seleted due to effort and value. The high value is explained by vendace being one of the target species in this metier, but perch and pike-perch are also targeted. These species are fished on a seasonal basis, normally with specific mesh sizes and on specific fishing grounds with low catches in each of the gillnet types. Thus the discard in this fishery is assumed to be modest. All three target species are characterized by a number of small local populations, and the actual focus in Sweden is to monitor the coastal fresh-water fish

communities by fishery independent methods. The locally very important fishery for vendace in the Bay of Bothnia is covered by sampling the major metier, the demersal trawl fishery just before spawning in the autumn, and by national programmes. It is not considered cost-effective to sample this fishery and Sweden thereby asks for derogation.

Costs for minimum sampling (6 occasions / year and metier, season May-Oct):
Number of trips: 6 (1 metier * 6 occasions)
Number of persons: 2
Number of days: 1,5
Daily allowance (including hotel): 1700 SEK
Overall travelling expenses: 9 600 SEK
Total travel cost: 40 200 SEK
Subcontractors: 9 000 SEK
Staff costs: 220 men hours * 260 SEK /hour = 57 200 SEK

Total cost: 106 400 SEK approx: 11 700 EUR

THE NORTH SEA AND EAST ARCTIC

III.C.1 Data acquisition

(a) Codification and naming convention

The Swedish logbook is extended compared to the EU logbook. Valuable additional information in the Swedish logbook is the data on a haul to haul basis. The fishermen also provide more detailed information of the gears used and the species targeted. Sweden has, for example, 19 different national codes for the "Bottom Otter Trawl" (OTB), all describing different gear characteristics (incl. selectivity devices) and target species assemblages. Furthermore, it is mandatory for Swedish vessels not carrying logbooks to report their gear, number of fishing days, fishing areas and catches (by species) in monthly fishing journals.
When assigning fishing trips to metiers, the national gear codes have been assigned to a metier if the national code in combination with the mesh size clearly falls within one DCF metier (level 6). For example, there is a national gear code for fyke nets targeting eel. All fishing trips registered with this gear code have been assigned to FYK_CAT_0_0_0. If the definition of the national gear code allows fishing trips to be allocated to more than one DCF metier (level 6) the fishing trip have been assigned to a metier using the national gear code in combination with the landing composition *in weight*.

The ranking of metiers have been done by the fishing grounds agreed by the RCM North Sea and East Arctic.

Mesh size ranges are in agreement with the summary tables in "The 5th liaison meeting between the Chairs of the RCMs, the Chair of ICES PGCCDBS, the Chair of PGMED, the ICES representative, the chair of the SGRN and the European Commission 2009".

(b) Selection of metiers to sample

Ranking of metiers

The main input data for the ranking of metiers and the subsequent choice of metiers to sample is information from the logbooks and, in the case of small scale fisheries, information from monthly fishing journals. All metiers for which fishing activities have been recorded during the reference years are listed in table III.C.1
Total value of a metier is calculated by using mean values (and weight by species) of the different species. The value is given in EUR.
Effort is reported as fishing days. Sometimes a vessel has been active in more than one metier during a day. In such cases each metier have been allocated a day.

Merging of metiers for sampling purposes
Metiers with equal or similar catch composition have been merged for sampling purposes. All merged metiers are presented in table III.C.2. Information on gear characteristics will however be collected at all sampling occasions to identify the "original" metier sampled. This means that the original metiers can be treated as domains if necessary.
The merging of metiers is for the planned sampling in 2011-2013 not always based on a thorough scientific analysis but on the knowledge of the exploitation pattern, management of the fisheries and "common sense". Rationale for merging of metiers is expressed below within the description of the different metiers.

Splitting of metiers into national metiers for sampling purposes
In some cases metiers at level 6 have been split into national metiers. Rationale for splitting metiers is expressed below within the description of the different metiers. Metiers that have been split into national metiers are presented in table III.C.2.

Description of Swedish métiers selected for sampling
Descriptions of fisheries picked by the metier ranking system but not chosen for sampling are found in III.C.6 "Derogations and non-conformities"

Fishing ground IIIa
Metiers in area IIIa are in relevant cases (specified below) subdivided into national metiers defined by area (IIIaS and IIIaN respectively). The main reason for this is that IIIaS and IIIaN houses different cod stocks and that estimates of cod discards is a main interest for the end-users.

Trawl fisheries targeting demersal fish (OTB_DEF_90-119_0_0), IIIaN
Trawl fisheries targeting demersal fish in the Skagerrak (IIIaN) are divided into two national metiers based on target species- A trawl fishery targeting cod, saithe and haddock (OTB_DEF_90-119_0_0_GAD) and a trawl fishery targeting witch flounder (OTB_DEF_90-119_0_0_WIT). The trawl fishery targeting witch flounder is conducted in the deeper part (> 100 m, Norwegian trench) of the Skagerrak.
Both fisheries are conducted with a variety of different trawls of which some are equipped with selection panels (OTB_DEF_90-119_0_0, OTB_DEF_>120_0_0, OTT_DEF_90-119_0_0, OTT_DEF_>120_0_0, OTB_DEF_90-119_1_120 OTB_DEF_>120_1_120, OTT_DEF_90-119_1_120 OTT_DEF_>120_1_120). More scientific analysis is needed on the detailed exploitation pattern for the different trawl but initial analyses show that the overall exploitation pattern is similar. The different trawls will thereby be merged to one metier (by target species).Different mesh size ranges and/or selection panels could though be treated as domains in analysis of the data if needed.

i) national metier targeting gadoids and saithe (OTB_DEF_90-119_0_0_GAD)
In 2008 the total landing from the metier was 1200 tonnes. The landings consisted to 70 % of the main targeted species saithe, cod and haddock. The fishery is conducted all year around but the main season is usually the 2nd quarter. The metier has been included in the sea-sampling programme since 2002. Discard rates are estimated to be above 10 %. The metier will be sampled concurrently at sea throughout the main fishing season. Sampling scheme 1 will be applied.

Sampling will be stratified by quarter.

ii) national metier targeting witch flounder (OTB_DEF_90-119_0_0_WIT)
In 2008 the total landing from the metier was 310 tonnes of witch 50 % consisted of witch flounder. Important by-catch species are cod, saithe and monkfish. The fisheries are taking place in the deeper part of the Skagerrak which have an impact on the exploitation pattern, especially concerning more infrequent by-catch species (such as elasmobranches) and the discarded part of the catch. The main season for the fishery is the first and the second quarter of the year.
The metier has been included in the sea-sampling programme since 2002. Discard rates are estimated to be above 10 %. The metier will be sampled concurrently at sea throughout the main fishing season. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Trawl fisheries targeting crustaceans (OTB_CRU_90-119_0_0), IIIaN
The bottom trawl fisheries targeting crustaceans with mesh size >=90 mm is a fishery targeting *Nephrops* in connection with economically important by-catch species such as plaice and cod. In 2008 was the total landing of the metier in area IIIaN 345 tonnes. The total share of *Nephrops* was 75 %. The fisheries are conducted all year. Exploitation pattern differs to some extent between the metiers, especially concerning by-catch species. The fishery is conducted by a variety of different trawls of which some are equipped with selection panels (OTB_CRU_90-119_0_0, OTB_CRU_>120_0_0, OTT_CRU_90-119_0_0, OTB_CRU_>120_0_0, OTB_CRU_90-119_1_120, OTB_CRU_>120_1_120, OTT_CRU_90-119_1_120, OTT_CRU_>120_1_120). More scientific analysis is needed on the detailed exploitation pattern for the different trawl but initial analyses show that the overall exploitation pattern is similar. The different trawls will thereby be merged to one metier. Different mesh size ranges and/or selection panels could though be treated as domains in analysis of the data if needed.
The metiers have been included in the sea-sampling programme since the late 1990ies. Discard rates are estimated to be well above 10 % for both metiers. The metiers will be sampled concurrently at sea throughout the fishing season. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Trawl fisheries targeting crustaceans (OTB_CRU_90-119_0_0), IIIaS
The bottom trawl fisheries targeting crustaceans with mesh size >=90 mm is a fishery targeting *Nephrops* in connection with economically important by-catch species such as plaice and cod. The cod stock in area IIIaS has since the mid 90ies drastically been declining. In Sweden there are presently thereby almost no fisheries targeting demersal fish in this area (cod was the main target species). The fishery that does exist is a mixed fishery targeting Nephrops together with demersal fish. It is impossible to predict if fishing operations will result in more or less than 50 % of *Nephrops* in weight. Metiers targeting demersal fish and crustaceans are thereby merged in this area but can be treated as domains if necessary. In 2008 the total landing of the metier in area IIIaS was 745 tonnes. The total share of *Nephrops* was 55 %. The fisheries are conducted all year. Exploitation pattern differs to some extent between the metiers, especially concerning by-catch species. The fishery is conducted by a variety of different trawls of which some are equipped with selection panels (OTB_CRU_90-119_0_0, OTB_CRU_>120_0_0, OTT_CRU_90-119_0_0, OTB_CRU_>120_0_0, OTB_CRU_90-119_1_120, OTB_CRU_>120_1_120, OTT_CRU_90-119_1_120, OTT_CRU_>120_1_120, OTB_DEF_90-119_0_0, OTB_DEF_>120_0_0, OTT_DEF_90-119_0_0, OTB_DEF_>120_0_0, OTB_DEF_90-119_1_120, OTB_DEF_>120_1_120, OTT_DEF_90-119_1_120, OTT_DEF_>120_1_120). More scientific analysis is needed on the detailed exploitation pattern for the different trawl but initial analyses show that the overall exploitation pattern is similar. The different trawls will thereby be merged to one metier. Different mesh size ranges and/or selection panels could though be treated as domains in analysis of the data if needed.
The metiers have been included in the sea-sampling programme since the mid 1990ies. Discard rates are estimated to be well above 10 % for both metiers. The metiers will be sampled concurrently at sea throughout the fishing season. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Trawl fisheries targeting crustaceans (OTB_CRU_70-89_2_35), IIIaS
Trawl fisheries targeting crustaceans (OTB_CRU_70-89_2_35), IIIaN
Trawl fisheries using sorting grids and a mesh size between 70-89 mm are exclusively targeting *Nephrops*. In 2008 the total landing of the metier in area IIIaS was 140 tonnes and in area IIIaN 330 tonnes. The total share of *Nephrops* in the catches was 96 %. It is according to Swedish national legislation, mandatory to use sorting grids inside 4 nautical miles (3 in the IIIaS) in the *Nephrops* fisheries. The fisheries are conducted all year around.
The majority of the fisheries are conducted with otter bottom trawls even though some fishermen are using twin trawls. The exploitation pattern of the gears is the same and the metiers OTB_ CRU_70-89_2_35 and OTT_ CRU_70-89_2_35 are thereby merged.
The metiers have been included in the sea-sampling programme since 2004 when the gear was introduced. Discard rates are estimated to be above 10 %, mainly due to capture of undersized *Nephrops*. The metiers will be sampled concurrently at sea throughout the fishing season. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Trawl fisheries targeting crustaceans (OTB_CRU_35-69_0_0)
The bottom trawl fisheries targeting crustaceans with mesh size 35-69 mm is a fishery targeting *Pandalus*. In 2008 was the total landing of the metier 2230 tonnes of which the total share of *Pandalus* in the catches was 72 %. The fishery is conducted all year around. At the national level, the landings of the fishery are managed by weekly rations, administered by the Swedish fishermen federation. The metiers have been included in the sea-sampling programme since 1999 (1999-2008 on a tri annual basis). Discard rates are estimated to be above 10 %. The metiers will be sampled concurrently at sea throughout the fishing season. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Trawl fisheries targeting crustaceans (OTB_CRU_35-69_2_22)
Trawl fisheries using sorting grids and a mesh size between 35-69 mm are exclusively targeting *Pandalus*. In 2008 was the total landing of the metier 635 tonnes of which the total share of *Pandalus* in the catches was 99 %. It is according to Swedish national legislation, mandatory to use sorting grids inside 4 nautical miles (3 in the IIIaS) in the *Pandalus* fisheries. The fisheries are conducted all year around.
The metiers have been included in the sea-sampling programme since 1999 (1999-2008 on a tri annual basis). Discard rates are estimated to be above 10 %, mainly due to capture of undersized *Pandalus*. The metiers will be sampled concurrently at sea throughout the fishing season by fishermen bringing subsamples of the discard fraction ashore. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Pot and trap fisheries targeting crustaceans (FPO_CRU_0_0_0)
The fishery is conducted in coastal waters along the Swedish west coast (area IIIaN and IIIaS). The total annual landing was 430 tonnes in 2008. The major target species is *Nephrops* but there are also fishermen targeting crabs (*Cancer pagurus*) and lobsters (*Homarus gammarus*). The fisheries for *Nephrops* and crabs are taking place all year around while the lobster fishery is concentrated to the autumn.
Survival rates of discards are high and the discard rates (in terms of fishing mortality) are estimated to be below 10 %. The pot and trap fishery targeting *Nephrops* will be sampled concurrently at sea throughout the year. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Trawl fisheries targeting small pelagic fish (PTM_SPF_32-69_0_0),
In 2007 the total annual landing from the metier was 18065 tonnes. The landings constitutes exclusively (>99 %) of the target species herring and sprat. The fisheries are conducted all year around except for a closed period during summer. The fishery is nationally managed by transferable

individual quotas, limiting the allowed landing by vessel. The majority of the catches (93 % in 2008) are taken by pair trawlers using a mesh size >= 32 mm. However, to some extent other trawls and mesh sizes are used within the fisheries. The metiers PTM_SPF_32-69_0_0, PTM_SPF_16-31_0_0, OTM_SPF_32-69_0_0, OTM_SPF_16-31_0_0, OTB_SPF_32-69_0_0 and OTB_SPF_16-31_0_0 are thereby merged.
The metier was included in the sea sampling programme 1996-2001. Discard rates are estimated to be below 10 %. The metier will be sampled concurrently in harbours/at markets by purchasing unsorted samples. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter and fishing ground (IIIaS, IIIaN). The assumption for the planned number of trip is that the fishery is conducted all year around (except closed season) at both fishing grounds.

Purse seine fisheries targeting small pelagic fish (PS_SPF_16-31_0_0)
In 2008 the total annual landing from the metier was 5685 tonnes. The landings constitutes exclusively (>99 %) of the target species herring and sprat. The fishery is taking place in coastal waters along the Swedish west coast (area IIIaN and IIIaS) during the 1st and 4th quarter. The fishery is nationally managed by transferable individual quotas, limiting the allowed landing by vessel. The majority of the catches (90 % in 2007) are taken by pair trawlers using a mesh size 16-31 mm, but to a limited extent mesh sizes >= 32 mm are used. The metiers PS_SPF_32-69_0_0 and PS_SPF_16-31_0_0 are thereby merged.
The metier was included in the sea sampling programme 2004-2005. Discard rates are estimated to be below 10 %. The metier will be sampled concurrently in harbours/at markets. Sampling scheme 1 will be applied.
Sampling will be stratified by quarter.

Fyke net fisheries targeting catadromous species (FYK_CAT_0_0_0),
Fishing for yellow eel with small fyke nets is concentrated to the coastal areas of the Skagerrak (IIIaN) and the Kattegat (IIIaS). The total annual landings in this fishery were 142 tonnes in 2007-2008. Discards are estimated to be above 10 %. Due to a high abundance of shore crabs, eating most of the fish by-catch, concurrent sampling of catches at sea is considered not possible with reasonable costs. Survey data on catch composition exist for long time series that will provide a good proxy for discards in the commercial fyke net fishery. Stock specific sampling of yellow eel will be applied on a monthly basis with special focus on the Skagerrak area, where most of the yellow eel is landed. The métier was selected due to effort and value. Sampling strategy is presented in III.E.1, Biological – stock-related variables
Fyke net fisheries targeting catadromous species in Eel Management Units as specified in Council Regulation 1100/2007, i.e. in inland waters (FYK_CAT_0_0_0), are included under III.E – Biological – stock-related variables

(c) Type of data collection

The extended Swedish logbook and the mandatory monthly fishing journals for vessels not carrying logbooks, give Sweden the opportunity to have complete information of species composition and weight by species in landings from all metiers.

For information on length frequencies and discards Sweden apply different sampling schemes which are described below. In principal Sweden apply probability sample surveys.

Main sampling strategies

Concurrent sampling of catches at sea

This sampling scheme will be applied for metiers where discard rates are expected to be above 10 %. In the North Sea and East Arctic this sampling strategy will be the primary strategy applied to demersal trawl fisheries.

Data will be collected by staff from SBF by sampling on board randomly chosen commercial fishing vessels.
Sampling scheme 1 will be applied.
Information to be collected is:

- Total weight of discard and landing by all species caught
- Separate length distributions of discard and landings by all species caught.
  If the retained part of the catch is landed in commercial weight categories, separate length frequencies are obtained by category
- Otoliths per cm group of discard part of the catch of G1 and G2 species for which Sweden conducts age sampling of landings.

For one metier (OTB_CRU_32-69_2_22), sampling will be performed as self-sampling by fishermen. Unsorted random subsamples of the total catch, including by-catches and discard, are purchased directly from the vessel. All the samples are transported to the SBF research laboratories for analysis where information is registered as described above. The sampling procedure will be validated by SBF staff on a regular basis.

Concurrent sampling of landings at markets
This sampling scheme will be applied for metiers where discard rates are expected to be low. In the North Sea and East Arctic this sampling strategy will be the primary strategy applied for trawls targeting small pelagic fish.

Data will be collected by staff from SBF by randomly sampling landings in harbours. Samples may also be collected by the Swedish Coast Guard.
Sampling scheme 1 will be applied.
Information to be collected is:

- Total weight of landing by all species caught
- Length distributions of landings by all species caught. If the landed in commercial weight categories, separate length frequencies are obtained by category

Other-Stock specific sampling combined with survey data
In the metier of fyke net fisheries targeting catadromous species (FYK_CAT_0_0_0) sampling of discards at sea is not considered feasible in all fishing grounds (North Sea SD 20-21, Baltic SD 22-24), due to a high rate of consumption of the discard by shore crabs. Concurrent sampling at sea will be replaced by analysis of data from existing test fishing surveys using fyke nets. Survey data on catch composition and length distributions are available. As a complement, stock-specific sampling of the length distribution of landings will be performed by staff at SBF.

(d) Target and frame population

Sweden has previously strived to obtain quality in data collected within the DCF primarily by i) spreading out the sampling events in time and space mirroring the activities of the metiers and/or landings of the stocks and ii) increasing the number of sampled trips/landings in contrast to number of fish.
During 2008 and 2009 Sweden has attended the ICES workshops WKACCU, WKPRECISE and WKMERGE and realised that a more systematic approach is needed to accurately be able to evaluate possible bias and precision. Sweden have however also realised that design and in particular implementation of statistically sound catch sampling programmes is difficult and need thorough analysis (and thereby time) in order to be successful. The main reasons for the difficulties are the

complexity in the metier approach (were do we have sufficient information in advance to treat individual metiers as strata and were do we not?), cluster effects and a wide range of logistical constrains. The devil is in the details and national implementation would benefit from transparent international discussions on assumptions and experiences, as suggested by ICES PGCCDBS. It is also of importance that the statistical tools available enable analysis of data quality in cases where the primary sampling unit is something else than trip (access points, areas…). This is presently not the case for the COST tools.
In 2009 Sweden initiated the work towards a more design based approach in catch sampling by defining sampling frames in the sea sampling programme as well as applying random sampling of primary sampling units. Sweden will continue this work during 2010 and also expand it to the other sampling programmes. For the sake of this NP proposal it is thereby premature in some cases to describe sampling designs, including sampling frames. The sampling frames described in table IIIC.4 may thereby be revised during the programme period. The sampling frames are intended to cover all trips in a metier, The temporal frame (IIIC.4) are thereby in some cases "all year" even if the fishing activities are limited during certain seasons. Details on seasonal fishing pattern are in relevant cases included in the description of the different metiers.

Sea sampling
The target population is all the trips by strata (selected metier, fishing ground and temporal stratification). For the sea-sampling programme (concurrent sampling at sea) the sampling frames in most cases consist of lists of trips by vessel and sampling strata (fishing ground, temporal stratification). The assumption is made that the activity (number of trips) of individual vessels during the previous year can be used to predict the activity for the sampling year. By making this assumption Sweden can randomly select trips for sampling. Trip is then the primary sampling unit. The sampling frame covers the population of trips except in the situation were new vessels are entering the fishery within the sampling year.

(e) Sampling stratification and allocation scheme

Sampling effort has been allocated to the metier based on prior sampling, knowledge of variation in the different metiers, importance of different metiers (Swedish share of the metier / stocks at an international level (importance of Swedish data in the stock assessment)) and precision targets. Sampling effort is allocated ensuring that the number of trips sampled is at least one per month and metier throughout the fishing season. However, so far, no thorough analysis has been made to optimise number of samples and sample sizes for sampling all the Swedish metiers. Sweden was waiting for the finalisation of the COST project to start this work. The work has been initialised and is a part of the overall effort to improve our sampling designs (see section III.C.1.d). Expected number of sampled trips by metier is presented in table III.C.3 and III.C.4.

Table III.C.5 shows sampling intensity of length measurements of all G1 and G2 species listed in Appendix VII in Commission Decision 2010/93/EC. The sampling strategy for metiers is aiming for a certain number of trips and/or number of hauls, rather than targeting a certain number of individuals to be measured. In the sea sampling programme, Sweden as a "rule of thumb" takes random subsamples containing approximately:

for species with a large occurrence at the trip/haul:
Discards; 100 individuals / haul for cod and other species with a wide length frequency; 50 individuals /haul for other species.
Landings; 100 individuals / size category for cod and other species with a wide length frequency; 50 individuals /haul for other species.
for other species:
all available individuals within the trip/haul/sample

The catch composition and volume in catch is not known beforehand and therefore, numbers of length measured individuals are impossible to predict and plan exactly. In table III.C.5 number of length measured individuals sampled in 2009 are listed to give an idea of sampling levels. Cells containing "0" means that the species was not caught and length measured in 2009 but could appear in future catches

III.C.2 Estimation procedure

Different analytical methods will be used to estimate discard volumes and length structure of the catches. Were possible Sweden will use the tools provided by the COST project in this process. Historically Sweden has been using the landed weight of target species (single species (e.g OTB_CRU_70-89_2_35) or a mixture of target species (e.g. OTB_CRU_90-119_0_0) in the different metiers for raising discard data. Parameters (landed weight, effort) at the population level will be used for raising origins from the logbook (or in case of small scale fisheries from the monthly fishing journals).

Survey data on catch composition exist from long time series of fyke net fishing in Öresund area. These data will provide a good proxy for discards in the commercial fyke net fishery targeting yellow eel in the area (FYK_CAT_0_0_0), and may be used for estimation of discards and by-catches in this fishery. More importantly, the length composition information will be used in estimating mortality in the yellow eel stage, by means of catch-curve analysis; methodology for this still needs to be developed, as will be addressed in ICES SGIPEE and WGEEL.

III.C.3 Data quality evaluation

In the sea-sampling programme a main possible source of bias is the non-access to all vessels/trips. Sweden will during the programme period keep track on the refusal rate and compare fishing patterns (spatial and temporal) between accessed trips and non-access trips. Sweden is also working systematically to reduce the refusal rates.

In the market/harbour based programmes Sweden try to spread out the sampling effort in time and space, mirroring the activity of the metier. However, so far, sampling frames have not been implemented. It is thereby difficult to evaluate if certain parts of the trips have been excluded which could introduce bias.

Precision estimates from pervious sampling differ between metiers, years and quarters. For discards are the requirements in 2010/93/EC extensive and hard to reach. Sweden will during the programme periods work towards regional coordination of discard sampling in order to increase the overall precision but this requires survey designs that allows for regional task-sharing.

Sweden has quality checks in the national database. Sweden further uploads data into the regional database Fishframe which have additional quality checks. Were possible Sweden will use the tools provided by the COST project for exploratory analysis of the overall sampling

Eel
Data on coastal and inland eel fisheries have not been used for regular stock assessments before. The implementation and evaluation of the Eel Management Plan will necessitate that these data too are brought under quality control. To this end, the data (contemporary, and secondarily the historical data too) will be included in the national databases, under the regular quality control rules. This might require updating data entry procedures and business rules.

III.C.4 Data presentation

Data is prepared in the beginning of the year following the year of sampling. The main end-users for data relating to metier based sampling have so far been working groups (ICES WKNSSK, WGBFAS and STECF SGMOS) interested in discard data. These end-users usually require data during the spring and data is submitted accordingly.

Data on eel fishing will be applied in the post-evaluation of the Swedish Eel Management Plan, as foreseen in the Eel Regulation 1100/2007. This post-evaluation will cover the period before and after the implementation of protective management measures since 2009. Additionally, the data will be reported to ICES WGEEL, in traditional Country Reports, and in the newly to develop data bases of this working group. Furthermore, data and new methodology will be fed to ICES SGIPEE. Standardisation of ageing methodology across Europe is achieved through participation in ICES WKAREA. Finally, the dominance of saline water eels in the Swedish stock is of special interest to ICES SGAESAW.

All collected data is stored in the national database. Estimation of catches, including discards, can be done at the level described in the NP. If there is deviations from what is planned in the NP this will be stated in the Technical Report.

Sweden have for a long period of time advocated regional databases enabling end-users to assess what data is available as well as increase the use of data. So far no international framework around regional databases has been established.

III.C.5 Regional coordination

Recommendations made in the RCM North Sea and East Arctic and actions taken by Sweden are listed below starting with 2009 back to 2004.

Source	Recommendation	Action
RCM North Sea & East Arctic (2009)	*RCM NS&EA RECOMMENDS SWEDEN AND DENMARK TO EXPLORE WHETHER THE DISCREPANCY IDENTIFIED BETWEEN THE SWEDISH AND DANISH MÉTIER DEFINITION OF VESSELS OPERATING IN DIV. IIIA HAVE ANY EFFECT ON THE RAISING OF THE INPUT DATA DURING HAWG AND TO PROVIDE A DEFINITION OF THE MÉTIER EXPLOITING THE HERRING STOCK IN IIIA.*	Sweden has submitted a WD to the WG in 2007 which showed no discrepancy between the metiers in the Swedish fishery.
RCM North Sea & East Arctic (2009)	*RCM NS&EA RECOMMENDS SWEDEN AND DENMARK TO REVIEW INCONSISTENCIES IN THE RAISING/COMPILATION PROCEDURES OF DISCARD DATA AND TO UPLOAD DISCARD DATA INTO FISHFRAME.*	Sweden will upload all data to Fishframe including discard data.
RCM North Sea & East Arctic (2009)	*RCM NS&EA RECOMMENDS SWEDEN AND DENMARK TO COMPILE AND SUBMIT DISCARD DATA OF SOLE IN DIVISION IIIA TO WGBFAS.*	Sweden will submit all data to Fishframe including data of sole.
RCM North Sea & East	*ECONOMIC VARIABLES: THE INCLUSION OF A METHODOLOGY REPORT IN THE NPS AS PROPOSED BY SGECA, WOULD PROVIDE SIGNIFICANT BENEFITS*	Sweden will give a thorough description of the methods used to sample and estimate the economic data in the national programme

Arctic (2009)		
RCM North Sea & East Arctic (2009)	*FOR THE PURPOSES OF RANKING MÉTIERS TO SAMPLE, NATIONAL DATA ON EFFORT, LANDINGS AND VALUE BY MÉTIER AND FISHING GROUND SHOULD BE COMPILED REGIONALLY IN ADVANCE OF THE NEXT MEETING. TO ENABLE THIS, PARTICIPANTS FROM MS SHOULD STRICTLY RESPECT THE AGREED NAMING CONVENTIONS OF FISHING GROUND, MÉTIERS AND UNITS OF THE VARIABLES AS WELL AS THE DEADLINE FOR SUBMISSION OF THE NATIONAL DATA.*	Sweden will use the agreed naming of fishing ground, metiers and units of the variables as well as respect the deadline
RCM North Sea & East Arctic (2009)	*FOR THE PURPOSES OF REGIONAL UNDERSTANDING OF SAMPLING ACTIVITIES, NATIONAL INFORMATION ON SAMPLING SHOULD BE COMPILED REGIONALLY IN ADVANCE OF THE NEXT MEETING. TO ENABLE THIS, PARTICIPANTS FROM MS SHOULD STRICTLY RESPECT THE AGREED NAMING CONVENTIONS OF FISHING GROUND AND MÉTIERS AS WELL AS THE DEADLINE FOR SUBMISSION OF THE DATA.*	See above
RCM North Sea & East Arctic (2009)	*FOR THE PURPOSES OF UNDERSTANDING THE HETEROGENEITY OF MÉTIERS AND THE CONSEQUENCES FOR TASK SHARING AND DISCARD SAMPLING, NATIONAL DESCRIPTIONS OF THE REGIONALLY RANKED MÉTIERS SHOULD BE COMPILED USING THE FORMAT IN ANNEX 9. TO ENABLE THIS, PARTICIPANTS FROM THE MS SHOULD STRICTLY RESPECT THE AGREED NAMING CONVENTIONS OF FISHING GROUND AND MÉTIERS AS WELL AS THE DEADLINE FOR SUBMISSION OF THE INFORMATION. APPOINTED PERSONS ARE RESPONSIBLE FOR REQUESTING THE DATA AND COMPILING IT ON A REGIONAL LEVEL*	Sweden will produce the description of the metiers using the format in annex 3 BEFORE THE RCM 2010.
RCM North Sea & East Arctic (2009)	*IN ORDER TO USE THE TIME OF THE RCM MORE EFFICIENT AND FOR THE HARMONISATION OF THE NPS, INCLUDING THE QUALITY CHECKS, THE EXCHANGE DATA TABLES FROM ALL NPS, NAMELY PLANNED NUMBER OF INDIVIDUALS TO BE SAMPLED FOR AGE, LENGTH, WEIGHT, SEX AND MATURITY SHOULD BE COMPILED BEFORE THE NEXT RCM.*	Sweden is responsible for compiling the data from all MS to be used in RCM 2010.
RCM North Sea & East Arctic (2009)	*MS TO USE THE AVERAGE LANDING FIGURES OVER THE YEARS 2007-2008 AS THE BASIS FOR RANKING MÉTIERS WITHIN THE NP 2011-2013*	Done
RCM North Sea & East Arctic (2009)	*RCM NS&EA RECOMMENDS MS TO PROVIDE AN OVERVIEW OF THEIR INLAND SAMPLING OF THE RECREATIONAL FISHERY ON EEL.*	Provide overview of inland sampling (temporal, spatial distribution, sampling intensities, involved institutes) to RCM NS&EA 2010
RCM North Sea & East	*IN ORDER TO USE THE TIME OF THE RCM MORE EFFICIENT, THE PRE-PROCESSING OF THE EXCHANGE DATA TABLES, NAMELY THE MERGING OF THE DATA ON FISHERIES STATISTICS AND PLANNED SAMPLING NP*	Action will be taken in 2009

Arctic (2008)	*PROPOSAL TABLES IN THE NPS, FOR THE HARMONISATION OF THE NPS, INCLUDING THE QUALITY CHECKS, SHOULD BE CARRIED OUT BEFORE THE NEXT RCM.*	
RCM NS & EA (2008)	*IN THE NP PROPOSALS, A SHORT DESCRIPTION OF ALL MÉTIERS SELECTED BY THE 90% RANKING PROCEDURE SHOULD BE PROVIDED. SUCH A TABLE WOULD ENABLE RCM TO IDENTIFY WHETHER A MÉTIER WITH THE SAME NAME COVERS THE SAME OR DIFFERENT FISHERIES IN DIFFERENT NPS.*	Sweden has already included a short description of all metiers in programme for 2009-2010.
RCM NS & EA (2008)	*STOCK VARIABLES: MINIMUM REQUIRED TAXONOMICAL LEVELS FOR IDENTIFICATION*	After approval by STECF, SE will adopt the changes
RCM NS & EA (2008)	*STOCK VARIABLES: GROUP 3 ON A HIGHER TAXONOMICAL LEVEL*	After approval by STECF, SE will adopt the changes
RCM NS & EA (2008)	*STOCK VARIABLES: RECOMMENDED CHANGES IN G-STATUS*	After approval by STECF, SE will adopt the changes
RCM North Sea & East Arctic (2007)	*THE RCM NS&EA RECOMMENDS THAT ALL MS SUBMIT DATA IN THE AGREED FORMAT WHEN REQUESTED. THE REGIONAL DATA SHOULD BE COMPILED WELL BEFORE THE MEETING AND BE DISTRIBUTED TO THE RCM PARTICIPANTS.*	Sweden compiled this data to the meeting in 2007 and will prepare requested data for future meeting to gain cooperation between MS in the RCM.
RCM North Sea & East Arctic (2007)	*THE RCM NS&EA RECOMMENDS THAT, AT A TRIP LEVEL, OR AT A FISHING OPERATION LEVEL WHEN POSSIBLE, THE RETAINED PART OF THE CATCH SHOULD BE CLASSIFIED BY TARGET ASSEMBLAGE (CRUSTACEANS, CEPHALOPODS, DEMERSAL,…) AND SORTED BY WEIGHT (BY TOTAL VALUE IN THE CASE OF VALUABLE CRUSTACEAN SPECIES, E.G. NEPHROPS). THE TARGET ASSEMBLAGE THAT COMES UP AT THE FIRST POSITION SHOULD BE CONSIDERED AS THE TARGET ASSEMBLAGE TO REPORT IN THE MATRIX. THE RCM NS&EA UNDERSTANDS THAT THIS WAY OF DOING DOES NOT ALLOCATE ANY INFORMATION TO THE METIERS TARGETING MIXED TARGET ASSEMBLAGES.*	Sweden will report fishing activity data in the fleet-fishery matrix according to the recommendations made.
RCM North Sea & East Arctic (2007)	*THE RCM NS&EA RECOMMENDS THAT <u>IN GENERAL</u> IF AN AREA IS COVERED BY ONE DEDICATED TRIP PER YEAR ONLY, THE EFFORT PUT INTO THIS SINGLE TRIP COULD BETTER BE ALLOCATED TO OTHER FLEET SEGMENTS ENSURING BETTER COVERAGE OF THESE SEGMENTS. THE RCM FURTHER RECOMMENDS UPDATING THE LIST OF ONBOARD OBSERVER TRIPS BY FISHING ACTIVITY ON LEVEL 6 BEFORE THE NEXT MEETING.*	Sweden will contribute with this information.
RCM North Sea & East Arctic	*THE RCM NS&EA RECOMMENDS THAT ALL MS TAKE PART IN THE CASE STUDY ON SPATIAL ASPECTS ON GROWTH PATTERNS FOR NORTH SEA COD BY SUBMITTING DATA TO FRANCE USING THE TEMPLATE IN ANNEX 6.*	No data has been sent.

(2007)		
RCM North Sea & East Arctic (2006)	*RCM NS AND EA TO UPLOAD THE 2004-2006 LANDINGS AND EFFORT STATISTICS INTO FISHFRAME TOGETHER WITH THE ASSOCIATED DATA FROM MARKET AND ON-BOARD SAMPLING, FOR ALL SPECIES WITHIN THE REMITS OF THE WGNSSK BY APRIL 1ST, 2007.*	Done
RCM North Sea & East Arctic (2006)	*THE RCM NS &EA RECOMMENDS THAT DENMARK AND SWEDEN PREPARE A WORKING DOCUMENT PROPOSING HOW REGIONAL DATA COLLECTION COULD BE ARRANGED BY USING THE KATTEGAT AS A TEST ARE. THE WD WILL BE PRESENTED AT WGBFAS 2007 AND FOR THE RCM´S.*	Not fulfilled to WGBFAS. The process will start by filling in suggested tables describing the present sampling methods.
RCM North Sea (2005)	*7.1 RCM NORTH SEA EXPECTS THAT ALL LABS WILL UPDATE THE SPREADSHEET WITH THEIR COD SAMPLING INFORMATION ON A MONTHLY BASIS.*	Sweden has not updated the spreadsheet.
RCM North Sea (2005)	*8.1 RCM NORTH SEA RECOMMENDS THAT ALL COUNTRIES HAVING DATA ON NS COD PARTICIPATE IN THE PROPOSED WORKSHOP ON FISHFRAME (CHAIR: HENRIK DEGEL, MID-JANUARY 2006, COPENHAGEN, DENMARK).*	Sweden was represented by one participant in the FishFrame workshop
RCM North Sea (2005)	*9.1 RCM NORTH SEA RECOMMENDED THAT DATA ARE SUBMITTED TO FISHFRAME, STARTING WITH THE 2004 AND 2005 DATA FOR NORTH SEA COD BEFORE 1 MAY 2006.*	Data will be delivered before 1st June 2006.
RCM North Sea (2005)	*13.1 RCM NORTH SEA INSISTS THAT ALL COUNTRIES PARTICIPATE IN THE EXERCISE OF COMPARING SAMPLING STRATEGIES ON COMMERCIAL CATCHES AND DISCARDS BY PROVIDING THE RELEVANT INFORMATION TO THE SWEDISH COORDINATORS.*	Done
RCM North Sea (2005)	*14.1 RCM NORTH SEA AGREED THAT IN ORDER TO CO-ORDINATE ACTIVITIES EFFECTIVELY THERE WAS A NEED TO DEVELOP A BETTER METHOD OF PRESENTING THE COVERAGE DISCARD SAMPLING AND THE NETHERLANDS HAVE AGREED TO PREPARE A TEMPLATE BASED ON FLEET SEGMENTATION (CURRENTLY UNDER REVIEW) AND CIRCULATE BEFORE NEXT YEAR'S MEETING.*	Sweden will prepare data as soon as the templates are delivered.
RCM North Sea (2005)	*14.2 RCM NORTH SEA RECOMMENDED THAT WHERE DISCARD SAMPLING COVERAGE IS RESTRICTED TO A LOW LEVEL, THE COUNTRY CONCERNED, CONSIDERS THE INPUTS FROM OTHER COUNTRIES AND ENTER INTO BILATERAL AGREEMENTS WHERE APPROPRIATE.*	When greater knowledge of other countries discard sampling programmes is achieved, Sweden will do this where necessary
RCM North Sea (2005)	*14.3 RCM NORTH SEA STRONGLY SUPPORTS THE INITIATIVE TO DEVELOP A DISCARD ATLAS AS IT IS REGARDED AS A MOVE WHICH WOULD PROVIDE USEFUL INFORMATION TO SUPPORT DECISION MAKING IN THE COORDINATION OF DISCARD SURVEYS.*	Sweden was represented by one participant in the Discard Atlas meeting in Ispra (2006). Sweden will also take part in the Steering Committee.

RCM North Sea (2005)	*17.1 THE RCM NORTH SEA REITERATES ITS 2004 RECOMMENDATION ON THE CONCLUSION OF FORMAL BILATERAL AGREEMENTS ON THE SAMPLING OF FOREIGN FLAG VESSELS, AND ON THE INCLUSION OF THESE AGREEMENTS IN THE MS' NATIONAL PROGRAMME PROPOSALS.*	Bilateral agreements between Sweden and Denmark and Sweden and Germany were updated in first quarter of 2006.
RCM North Sea (2004)	*5.1.1 NS RCM RECOMMENDS THAT THE DCR SHOULD MOVE TO METIER BASED SAMPLING PROGRAMME. FURTHER IT SUGGESTS THAT RATHER THAN ESTABLISH A COMPLETE LIST OF NATIONAL METIERS WHICH COULD TAKE A CONSIDERABLE TIME TO BE AGREED, SGRN SHOULD BE REQUESTED TO ENDORSE THE DEFINITION OF A METIER BASED ON WORK OF EXPERT GROUPS SUCH AS SGDFF AS PART OF THE UPCOMING REVISION OF THE REGULATION. THIS DEFINITION SHOULD BE USED BY MS TO DETERMINE THEIR METIER LIST WHICH CAN BE REVIEWED IN FUTURE BY THE COMMISSION.*	Sweden was participating in the first Fleet based approach meetings in Nantes 2005 where the fleet matrix was suggested. We have prepared fleet data for both RCMs which were requested. We have also participated in the hands-on workshop which took place in February 2006.
RCM North Sea (2004)	*5.2.1 RCM RECOMMENDS THAT MS START BILATERAL TALKS AS SOON AS POSSIBLE, WITH A VIEW TO ESTABLISHING BILATERAL AGREEMENTS ON THE ISSUE OF FOREIGN FLAG VESSEL SAMPLING.*	A bilateral meeting was held between Denmark and Sweden in January 2005 and an agreement was established.
RCM North Sea (2004)	*5.3.1 IT WAS RECOMMENDED THAT DATA FOR THE NORTH SEA COD STOCK SHOULD BE ENTERED INTO THE SAMPLING STATUS SPREADSHEET COVERING THE DATA COLLECTED DURING 2005 WHICH WILL BE HOSTED ON THE WEBSITE OF DIFRES (WWW.DFU.MIN.DK/SAMPLINGSTATUS).*	The sampling spreadsheet was established for both the Baltic and the North Sea and Sweden took active part in the development. The spreadsheet has not been used by any country including Sweden.
RCM North Sea (2004)	*5.4.1 NS RCM RECOMMENDS THAT MS CARRY OUT A PRECISION ANALYSIS ON AT LEAST ONE SELECTED STOCK FROM WITHIN THE NS RCM REGION, USING THE GUIDELINES AND PROTOCOLS SUGGESTED AT THE PRECISION WORKSHOP HELD IN NANTES 2004. THE RESULTS OF THIS ANALYSIS SHOULD BE REPORTED BACK TO THE NS RCM IN TIME TO BE CONSIDERED AT ITS NEXT MEETING.*	Precision level on cod in Skagerrak was calculated and brought to the meeting.
RCM North Sea (2004)	*6.3.1 NS RCM RECOMMENDS THAT IN ALL CASES THE MEASURED WEIGHT (EITHER GUTTED OR WHOLE) SHOULD BE RECORDED RATHER THAT WEIGHTS DERIVED FROM GUTTED/WHOLE WEIGHT CONVERSION FACTORS.*	It´s difficult to act on this recommendation as long as data are handled on a national level.
RCM North Sea (2004)	*6.4.1 NS RCM AGREED THAT A PRELIMINARY ANALYSIS OF THE LEVEL OF MATURITY SAMPLING AND SAMPLING COVERAGE BY AREA AND TIME SHOULD BE CARRIED OUT AND PRESENTED TO THE NEXT MEETING OF THE RCM WITH A VIEW OF ESTABLISHING TASK SHARING AGREEMENTS FROM 2007 ONWARDS. IT WAS AGREED THAT BELGIUM WOULD TAKE RESPONSIBILITY FOR THE DEMERSAL SPECIES AND THE NETHERLANDS WOULD*	Level of maturity sampling and sampling coverage was reported as requested prior to the meeting. (Number individuals per ICES rectangle and month). The overview highlighted several important aspects regarding maturity sampling, staging, timing

	DESCRIBE THE SITUATION IN RELATION TO PELAGIC SPECIES.	of sampling etc. These aspects are planned to be taken care of within maturity Workshops in which Sweden will participate.
RCM North Sea (2004)	*8.1 NS RCM RECOMMENDS FURTHER WORK TO BE DONE ON HOW TO LINK BIOLOGICAL AND ECONOMIC DATA. IN THIS CONTEXT, THE POSSIBLE IMPLICATIONS ON THE COLLECTION OF ECONOMIC DATA ALSO NEED TO BE FURTHER EXPLORED. IN ANTICIPATION OF RESULT FROM SUCH WORK, NS RCM RECOMMENDS THAT MS, IN THE MEANTIME, SHOULD BE ENCOURAGED TO COLLECT ECONOMIC DATA IN A WAY THAT MAKES IT POSSIBLE TO DO REGIONAL ECONOMIC ANALYSIS.*	In order to conduct bio-economic modelling there is a need to establish a clear link between biological and economical data.
RCM North Sea (2004)	*NS RCM RECOMMENDS THAT THERE SHOULD BE A FORUM FOR REGIONAL ECONOMIC ANALYSIS ALSO IN THE FUTURE. ANALYSES OF THE ECONOMIC DEVELOPMENT IN SPECIFIC REGIONS HAVE BEEN DONE WITHIN THE FRAMEWORK OF CONCERTED ACTION PROJECT THAT WILL END THIS YEAR. THERE IS A NEED, ALSO IN FUTURE, OF A FORUM WHERE THIS KIND OF WORK IS DONE*	The Concerted Action Project will be replaced by the new data regulation analysis. The STECF subgroups on economic affairs will meet on the 15-18 May to discuss how the transition from the Concerted Action Project into the new data regulation can be made.
RCM North Sea (2004)	***9.1 THE NS RCM AGREED THAT THE** FISHFRAME DATABASE SHOULD BE USED ON A EXPLORATORY BASIS TO INPUT RAW LEVEL DATA FROM 2004 FROM BOTH EU AND NON-EU COUNTRIES. COUNTRIES SHOULD UPLOAD DATA IN TIME TO BE USED BY THE STOCK COORDINATORS OF THE WGNSSK BY MAY 2005. A DATABASE SUBGROUP (CHAIRED BY HENRIK DEGEL) WILL PROVIDE GUIDELINES FOR DATA ENTRY AND THE TIMING OF DATA SUBMISSION.*	Recommendation fulfilled.

III.C.6 Derogations and non-conformities

The exemption rule can be applied according to the text in 2010/93/EU (Ch III section B/B1/5 1); *If Member States can not reach levels of precision and/or only at excessive costs, they can obtain, based on STECF recommendation, derogation from the Commission to reduce the precision level, sampling frequency or to implement a pilot survey provided this request is fully documented and scientifically proven.*

Sweden believe that there is a need for clarification how a derogation should be fully documented and scientifically proven. While STECF are in the position to give recommendation (see above), we suggest that STECF establish criteria for this. Thresholds, analyses needed, etc. In the meantime, while no criteria/ guidelines are established, Sweden put forward following arguments.

The ten metiers in area IIIa and IV that Sweden has requested derogations for are listed in table below. Effort and total landing together with costs for a minimum sampling program (12 sampling occations

/year) are summarized. The precision level achieved based on 3 sampling occasions per quarter are assumed not to reach the precision level 1 (CV 20%).

While catch composition and amount landed is achieved through logbooks and monthly fishing journals in Sweden for these metiers, the costs involved in sampling these metiers should be put in relation to the extra information gained, which is only length composition and discard.

Table: Metiers in the North Sea that Sweden has requested derogations for.

Fishing ground	Metier	Effort days	Total tonnes landed	costs for minimum sampling (EUR)	Comments
IIIa	Eel FYK CAT 0 0 0	6288	142		1
IIIa N IIIa	OTB_DEF_<16_0_0	51	693	29 000	2
IIIa	LHM_FIF_0_0_0	1464	105	11 500	3
IIIa	GNS_DEF_120-219_0_0	1271	124	23 000	4
IV	OTB_DEF_>=120_0_0	257	1122	50 000	5
IV	OTB_DEF_<16_0_0	107	9491	29 000	6
IV	PTM_SPF_32-69_0_0	55	7741	27 000	7
IV	PS_SPF_32-69_0_0	49	9116	49 000	8
IV	LLS_DEF_0_0_0	59	98	32 000	9
IV	OTB_CRU_35-69_0_0	143	165	30 500	10

1. Fyke net fishery in area IIIa (FYK_CAT_0_0_0) IIIa

Fishing for yellow eel with small fyke nets is concentrated to the coastal areas of the Skagerrak (IIIaN) and the Kattegat (IIIaS). The total annual landings in this fishery were 142 tonnes in 2007-2008. Discards are estimated to be above 10 %. A high abundance of shore crabs, eating most of the fish by-catch within the gears makes catch estimates of by-catch species unreliable. Concurrent sampling of catches at sea is thereby not considered possible within reasonable costs. Survey data on catch composition exist for long time series and will provide a good proxy for discards in the commercial fyke net fishery. Stock specific sampling of yellow eel will be applied on a monthly basis with special focus on the Skagerrak area, where most of the yellow eel is landed. Currently there is further a national proposal for termination of this fishery from 2012 onwards. Sweden are asking for a derogation to sample this fishery concurrently at sea since i) the target species (eel) is sampled within a stock specific sampling scheme, ii) by-catch and discard estimates are unreliable due to crab predation in the gears and iii) probable termination of the fishery in 2012.

2. Trawl fisheries targeting demersal fish IIIa (OTB_DEF_<16_0_0)

In 2008 the total landing from the metier was 110 tonnes. The landings consist of 100 % sandeel. The fishery takes place during a very limited season in springtime. All landings take place in Denmark. The majority of the sandeel fishery takes in area IV. Denmark is the main contributor in the fishery and has an extensive sampling programme (300 trips RCM NS&EA 2010). Sweden has ~ 3% of the TAC. Given the small Swedish share in the overall landing and the extensive Danish sampling programme Sweden do not considered it cost-effective to initialise a Swedish sampling programme. Sweden thereby asks for derogation to sample this fishery.

Fishing is taken place only in quarter 2

Costs for minimum sampling (3 occasions / quarter):

Number of trips: 3
Number of persons: 2
Number of days: 7
Daily allowance: 1 100 SEK
Overtime: 65 500 SEK
Overall travelling expenses: 7 500 SEK
Total travel cost: 119 200 SEK

Staff costs: 600 men hours * 260 SEK /hour = 156 000 SEK

Total cost: 275 200 SEK approx: 29 000 EUR

3. Hand and pole line fishery targeting finfish IIIa (LHM_FIF_0_0_0)

The hand and pole line fishery is mainly conducted in coastal waters of Kattegat (IIIaS) and Skagerrak (IIIaN). In 2008 the total annual landing was 108 tonnes. The main target species are mackerel and cod. The fisheries are concentrated to the 2nd and 3rd quarter and are predominantly preformed by small vessels. The catches from the fishing operations are usually quite small (average 200 kg). Discard rates are assumed to be below 10 %. The metier was picked by the ranking system only because of effort. Information on species composition is achieved through logbooks and in the case of vessels below 10 m from fishing journals. It is not considered cost effective to initiate a sampling programme to achieve length frequencies from this fishery. The main reason is the overall low volume of landings. Sweden asks for derogation to sample this fishery.

Fishing taking place in two quarters, samples collected in harbour

Costs for minimum sampling (3 occasions / quarter):
Number of trips: 6
Number of persons: 2
Number of days: 1
Daily allowance(including hotel): 1 700 SEK
Overall travelling expenses: 15 000 SEK
Total travel cost: 35 400 SEK
Staff costs: 288 men hours * 260 SEK /hour = 74 880 SEK

Total cost: 110 280 SEK approx: 11 500 EUR

4. Gillnet fisheries targeting demersal fish IIIa (GNS_DEF_120-219_0_0)

In 2008 was the total annual landing 215 tonnes from gillnet fisheries targeting demersal fish in area IIIa. The fishery is very diverse and the landings constitutes of different species such as spurdog (prohibited from 2010 onwards), cod, plaice, sole and pollack. Different fishermen target different species. Target species also change with season. A variety of mesh sizes are used in the gillnet fisheries as well as a mixture of set gillnets and trammel nets. GNS_DEF_120-219_0_0 and GTR_DEF_120-219_0_0 have thereby been merged.
Discards have been sampled in 2009 and 2010 and the discard rate has been estimated to be in the size range of 10%. The vessels involved in the fishery are mostly small. Sampling have been challenging since these vessels are sensitive to bad weather which makes planning of the sampling difficult.
The high variability in catches and gear as well as the relatively low total landing in the metier makes it difficult to sample the metier for length distributions with precision in a cost-effective way. To get data of good quality the sampling need to be extensive. Information on species composition is achieved through logbooks and in the case of vessels below 10 m from fishing journals. Sweden is asking for a derogation to sample this fishery.

Fishing taking place all year round, harbour sampling

Costs for minimum sampling (12 occasions / year):
Number of trips: 12
Number of persons: 2
Number of days: 1
Daily allowance (including hotel): 1700 SEK
Overall travelling expenses: 30 000 SEK
Total travel cost: 70 800 SEK
Staff costs: 576 men hours * 260 SEK /hour = 149 760 SEK

Total cost: 220 560 SEK approx: 23 000 EUR

Fisheries in area IV

The ranking system (in 2010/93/EU) of fisheries to sample is only relative. This means that even if a Member State has a very limited fishery within a fishing ground some fisheries will be picked for sampling. (strictly speaking, if only one fishing day is carried out this would result in a requirement to sample).

The Swedish fisheries in the North Sea (fishing ground IV) are very limited (in total approximately 1000 fishing days/year). Sweden has further low shares (<1-3%) of the TAC for all the species involved. The majority of the landings usually take place in Denmark. Most of the metiers selected in the Swedish ranking are further sampled by other member states with far more substantial contribution in the fisheries (RCM NS&EA 2010). Given the low Swedish shares of the international landings as well as the limited effort it is not likely that a Swedish sampling programme in this area substantially would increase the scientific understanding of the stocks and/or the fisheries. It is thereby not considered cost-efficient to develop and implement sampling programmes for the Swedish fisheries in area IV and Sweden asks for a derogation to sample all the selected fisheries in area IV. The selected fisheries in area IV are briefly described below.

5. Trawl fisheries targeting demersal fish IV (OTB_DEF_>=120_0_0)

In 2008 the total landing from the metier was 1700 tonnes. The landings consisted to 80 % of the main targeted species saithe, cod and haddock (the Swedish share of the TAC for these stocks are >=1%). Only a few vessels (approx. 10) are involved in the fishery and the total number of fishing days are low (approx 400). The fishery is conducted during the entire year. The bulk of the landings take place in Denmark. The metier was included in the sea-sampling programme during 1999-2001. Discard rates were found to be below 10 %. The fisheries are further predominantly performed in the Norwegian zone where it is prohibited to discard.

Fishing taken place all year round, sea-sampling

Costs for minimum sampling (12 occasions / year):
Number of trips: 12
Number of persons: 2
Number of days: 3
Daily allowance: 1 100 SEK
Overtime: 112 320 SEK
Overall travelling expenses: 30 000 SEK
Total travel cost: 221 520 SEK
Staff costs: 1000 men hours * 260 SEK /hour = 260 000 SEK

Total cost: 481 520 SEK approx: 50 000 EUR

6. Trawl fisheries targeting demersal fish IV (OTB_DEF_<16_0_0)

In 2008 the total landing from the metier was 12400 tonnes. The landings consist of 100 % sandeel. The fishery takes place during a very limited season in springtime. All landings take place in Denmark. Denmark has an extensive sampling programme of the sandeel fisheries (RCM NS&EA 2010).

Fishing is taken place only in quarter 2, sea sampling

Costs for minimum sampling (3 occasions / quarter):
Number of trips: 3

Number of persons: 2
Number of days: 7
Daily allowance: 1100 SEK
Overtime: 81 120 SEK
Overall travelling expenses: 7 500 SEK
Total travel cost: 134 820 SEK
Staff costs: 550 men hours * 260 SEK /hour = 143 000 SEK

Total cost: 277 820 SEK approx: 29 000 EUR

7. Trawl fisheries targeting small pelagic fish (PTM_SPF_32-69_0_0) IV

In 2008 the total annual Swedish landing from trawl fisheries targeting small pelagic fish in the North Sea was 6 325 tonnes. The landings constitutes of the target species herring or mackerel. The fisheries could be conducted all year but were in 2008 concentrated to the 3rd and 4th quarter. Predominately the landings take place in Denmark. Sweden has a low share of the TACs (>1%) of the target species.

Fishing is taken place in two quarters, sea sampling

Costs for minimum sampling (3 occasions / quarter):
Number of trips: 6
Number of persons: 2
Number of days: 3
Daily allowance: 1100 SEK
Overtime: 56 160
Overall travelling expenses: 15 000 SEK
Total travel cost: 110 760 SEK
Staff costs: 576 men hours * 260 SEK /hour = 149 760 SEK

Total cost: 260 520 SEK approx: 27 000 EUR

8. Purse seine fisheries targeting small pelagic fish (PS_SPF_32-69_0_0) IV

In 2008 the total annual landing from purse seine fisheries targeting small pelagic fish in the North Sea was 10 655 tonnes. The landings constitutes of the target species herring and mackerel. The fisheries were in 2008 concentrated to the 2nd and 3rd quarter. The landings predominately take place in Denmark. Sweden has a low share of the TACs of the target species.

Fishing is taken place in three quarters, sea sampling

Costs for minimum sampling (3 occasions / quarter):
Number of trips: 9
Number of persons: 2
Number of days: 4
Daily allowance: 1100 SEK
Overtime: 112 320 SEK
Overall travelling expenses: 22 500 SEK
Total travel cost: 214 020 SEK
Staff costs: 1000 men hours * 260 SEK /hour = 260 000 SEK

Total cost: 474 020 SEK approx: 49 000 EUR

9. Longline fishery targeting demersal fish (LLS_DEF_0_0_0) IV

The landings constitutes primarily of the target species cod and haddock. Discards are assumed to be below 10 %. Very few vessels are involved in the fishery. The landings predominately take place in Denmark. Sweden has a low share of the TACs of the target species.

Fishing is taken place all year round, sea sampling

Costs for minimum sampling (12 occasions / year):
Number of trips: 12
Number of persons: 2
Number of days: 2
Daily allowance: 1100 SEK
Overtime: 74 880 SEK
Overall travelling expenses: 30 000 SEK
Total travel cost: 157 680 SEK
Staff costs: 576 men hours * 260 SEK /hour = 149 760 SEK

Total cost: 307 440 SEK approx: 32 000 EUR

10. Trawl fisheries targeting crustaceans (OTB_CRU_35-69_0_0) IV

The bottom trawl fisheries targeting crustaceans with mesh size 35-69 mm is a fishery targeting *Pandalus*. In 2008 was the total landing of the metier 126 tonnes of which the total share of *Pandalus* in the catches was 60 %. Saithe is a major bycatch species. The fisheries were in 2008 concentrated to the 1st and 2nd quarter. The effort in 2008 was ~100 fishing days.

Fishing is taken place in two quarters, sea sampling

Costs for minimum sampling (3 occasions / quarter):
Number of trips: 6
Number of persons: 2
Number of days: 4
Daily allowance: 1100 SEK
Overtime: 74 880 SEK
Overall travelling expenses: 15 000 SEK
Total travel cost: 142 680 SEK
Staff costs: 576 men hours * 260 SEK /hour = 149 760 SEK

Total cost: 292 440 SEK approx: 30 500 EUR

III.D Biological - Recreational fisheries

THE BALTIC SEA

Concerns salmon, cod and shark. For the eel, directed recreational fishing and any landing of eel are not allowed in Sweden.
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III.D.1 Data acquisition

The fishing rights in inland waters are in Sweden private in principle, and therefore fishing is not allowed without being either the fishing right owner or having bought or been given the right to fish by the owner. Fishing in inland water is commonly organised by an association of fishing right owner in one or several lakes and rivers, i.e. fishing management units. Sweden has 95 700 lakes, 60 000 lakes over 4 hectares area, and some 100 000 km running waters.

Fishing in coastal waters using rod and line is free of charge and so is also the case in the five major lakes. In part of this water area also net fishing and other fishing methods are allowed within limits. A minor part of this fishery is in the borderline area between commercial and recreational fishery as defined by EU. In Sweden, however, it has normally been treated as non-commercial fishery as long as it is not carried out by licensed fishermen. Fishing in the open sea is regulated within the general framework of the EU´s common fisheries policy. Sweden also has its own national regulations, primarily for coastal waters, the five major lakes and rivers emptying in these waters. It is SBF that lays down fisheries regulations at the national level.
In Sweden recreational fishing is not licensed as they are in for example Denmark or Finland. Sweden do not either have any register on recreational fishermen which is a problem when it comes to collecting data on recreational fisheries.

Studies on recreational fisheries has been commissioned by SBF and carried out by SCB latest in 2009. A postal questionnaire was sent to 10 000 randomly selected permanent residence in Sweden aged 16 to 74 (data collection type B with some elements from C). The studies showed that recreational fisheries are practised by an estimated 1 million Swedes aged 16 to 74 years. The primary motive for fishing is relaxation, to enjoy nature and consumption in the household. Ten percent of the fish consumption has it origin from recreational fisheries.

In 2008 the kept part of the catch are estimated 11 800 ton. The marine part of the catches are estimated 4 100 ton and in inland waters 7 700 ton.

The catches of cod are compared with commercial catches not important besides the recreational catches in Öresund.

Compared with commercial fisheries in inland waters are recreational fisheries dominating catches. The situation in the sea is the opposite.

The total number of fishing days in 2008 was estimated 13.0 million days. Fifty percent of the fishing days are situated in 30 km from peoples home and 80 % in 100 km from their home. Twenty percent of the fishing days are long-distance trips mainly to the Northern Sweden.

The largest number of fishing days, 87 %, is estimated for rod and reel while other methods are estimated 13 % of the fishing days. The lowest catches per fishing day are estimated for rod and line. Other methods, often fishing with net, are more effective.

Sweden will participate in the Planning Group on Recreational Fisheries Surveys (PGRFS) held in Bergen, 7-11 June 2010. The outcome of the work in the planning group can result in revision the national data collection programme 2011 – 2013. Discussion at the meeting and Regional Coordination meetings (RCMs) can result in initiatives to coordinate data collection with other member states in the region, especially recreational cod fisheries in Öresund.
Compared with commercial catches the salmon catch in recreational fisheries is in general important. In western Sweden more than 90 % of the total catches of salmon are from recreational fisheries.

In the Baltic recreational salmon catch is much less than the commercial catch. In this region recreational fishery takes place both in rivers, at the coast and in the sea. River fishery in Swedish Baltic rivers is carried out almost exclusively by non-commercial fishermen. They are divided into:

- Angling
- Broodstock fishery (catch of spawners for rearing purposes).
- Net, seine fishery or fishery with trapnets by recreational fishermen. It has not yet been decided upon by Swedish authorities if this category is belonging to the recreational fishery category or not.

Brood stock fishery does partly fulfil the definition for the aquaculture, a difference being that these fish are not in captivity their entire life and when free they are not owned by anyone. Sometimes fish from the brood stock fishery are sold. Net, seine and in particular trapnet fishery do not completely fall into the recreational fishery, as a part of the catch in some cases is sold.

Coastal salmon fishery in the Baltic takes place almost exclusively with trapnets. Most of these are operated by commercial fishermen, who are obliged to use logbooks. However, some of the trapnets are operated by recreational fishermen without obligations to report.

Recreational salmon catch in the offshore region is dominated by trolling in the southern Baltic.

(a) Type of data collection

Salmon
Data on landings from the recreational fishery for salmon in rivers, coastal areas and offshore is collected as described in the pilot study in 2003 (Anon. 2003).

1. Catch data on salmon and sea trout is collected annually from all salmon rivers (approximately 20). These are collected by censuses (type A) for brood stock fishery and some other fishery while type B and C is more applicable in other cases. In rivers there are often several Fishery Management Areas, fishing clubs or other organizations that are managing the fishery. They are also collecting statistics through censuses of the fishery. Unfortunately the interest for collection of data is highly variable among the local organizations and fishermen and this leads to a large variability in the accuracy and preciseness of the collected data. As no national regulation exists that requires collection of fishery statistics from recreational fishermen, many fishermen are difficult to motivate in following local rules in particular when the surveillance is incomplete. More detailed surveys to be carried out by SBF or subcontractors in parts or entire rivers are planned for 2011-13. These will be carried out in close cooperation with local organisations and authorities.

2. In order to estimate the coastal recreational catch, data is used on catches in nearby trapnets operated by commercial fishermen. A census of the number and distribution of trapnets between recreational and

commercial fishermen was carried out in 2003 and 2007. Information on the number of trapnets operated by different categories of fishermen in these years and the concurrent catch by commercial fishermen was used to calculate the coastal catch by recreational fishermen in these years. A new investigation of the coastal trapnets is planned for 2011.

3. In order to get an overview of the offshore trolling fishery a census together with a complementary survey (type C) was carried out to get an overview of the trolling fishery and catches in year 2002 (Anon. 2003) and again in 2007. The investigations consisted of enquiries to trolling fishermen and collection of fishery statistics from the most important trolling fishery harbours in southern Sweden. An update of these investigations is planned for 2011.

Estimated catch figures in 2002 and 2007 did not differ substantially. This suggests that an estimate of the recreational catch by trolling in the investigated years can be used either as a constant or in a model based manner in the intermediate years without investigation. The resulting catch data on recreational fisheries are summarized and reported to the relevant ICES Working Group (WGBAST).

4. A national postal enquiry (type B) which is planned to be undertaken in 2011 and 2013. 10 000 inhabitants between 16 and 74 years of age will be randomly selected from the register held by Statistics Sweden. The outcome from this investigation will be used to crosscheck the outcome from points 1 and 3 above.

Cod

Data collection will be based on two different studies:

1. Probability Sample Survey

A national postal enquiry which is planned to be undertaken in 2011 and 2013. 10 000 inhabitants between 16 and 74 years of age will be randomly selected from the register held by Statistics Sweden.

2. Census

On-site survey Öresund. Enquiry on board Swedish commercial fishing-tourism-vessels bringing recreational fishermen fishing on Öresund. Öresund is the most important recreational cod catch area in Sweden.

Shark

Data collection will be based on study:

1. Probability Sample Survey

A national postal enquiry which is planned to be undertaken in 2011 and 2013. 10 000 inhabitants between 16 and 74 years of age will be randomly selected from the register held by SCB.

(b) Target and frame population

Salmon

The dedicated salmon surveys are often based on exact knowledge of the fisherman identity so target and frame populations are often identical.

Salmon, cod and shark - Probability Sample surveys

The target population is recreational fishermen in Sweden between 16-74 years of age. The frame population is 10 000 inhabitants between 16 – 74 years of age and randomly selected from the register held by SCB.

Cod recreational fisheries on the Sound (Öresund) - Census

The survey attempts to collect data from all recreational fishermen going for fishing from commercial fishing-tourism vessels on Öresund under the period February to July.

The survey is planned to be undertaken in 2011 or 2012 in order to have a cross study to compare the data against the national postal enquiry. The population of Scania, south Sweden, is about 1 million and of the Öresund region, including the closest part of Denmark about 3 million. The resources are basically god for angling in the open sea and from the shore within only short distance from urban centres.

Öresund are the most important catch area to recreational cod fisheries in Sweden and an important part of the cod fisheries is from fishing-tourism vessels.

(c) Data sources

Salmon

Censuses are used for most parts of the river fishery. These are addressed to persons responsible for Fishery Management Areas, brood stock fisheries or recreational fishermen involved in nets, seine nets or trapnets in rivers. Censuses directly to anglers will also take place. Catch estimates for recreational coastal trapnets are collected through logbook data for nearby commercial fishermen. A census combined with a probability sample survey of the offshore trolling fishery takes place at the most important harbours

Probability Sample surveys - salmon, cod and shark

The relevant information will be obtained through a postal questionnaire to 10 000 randomly selected permanent residence in Sweden aged 16 to 74.

Census – Cod recreational fisheries on Öresund

The staff onboard the fishing-tourism vessels will distribute questionnaires to the recreational fishermen. The skipper will also fill in a questionnaire at every fishing trip.

(d) Sampling stratification and allocation scheme

Salmon in the Baltic

The present system for collection of data is assumed to remain more or less the same and it involves annual collection of data from most parts of the recreational fishery. SBF will however be more directly involved in the practical collection of data in 2011-13. It will be necessary to decide where it is essential to achieve high quality estimates of the fishery through additional censuses, for instance in index rivers.

Probability Sample surveys - salmon, cod and shark

Sampling strategy: A postal questionnaire in two steps.

Step 1. This enquiry is simple and easy to answer and the aim is to catch the inhabitants that actually performed recreational fishery during 2010 - 2012.

Step 2. In the second step, the persons who were actively fishing during 2010 - 2012 will receive a more comprehensive postal enquiry. This enquiry has 21 questions to be answered and the results will give a picture of the recreational fishery regarding gears used, number of days, species composition in the catch and the size of the catch (in kg) and fishing area. The results will be statistically analysed (with the details given in the report from this study) and presented by area (Skagerrak, Kattegat, The Sound, the Southern part, the main basin, the Northern part of the Baltic and inland waters. Fishing days, used gears and catches can also be related in areas of as smallest 60x60 km.

Some other questions is important to understand the recreational fisheries. Some of these are the fishing effort distributed over the year and the part of fishing days/the effort that has been carried out from a fishing-tourism vessel.

The questionnaire is carried out in a long term. The same type of questionnaire has been carried out 1975, 1990, 1995, 2000, 2005, 2007 and 2009. Since 2005 the fishing effort and catches is much more in focus than in earlier questionnaires.

Tasks will be carried out 2011 and 2013.

Census – Cod recreational fisheries on Öresund.

The survey attempts to collect data from all recreational fishermen carried out from Swedish commercial fishing-tourism vessels on Öresund. This is so far a study over a few years and following up the pilot study in 2010. The evaluation of the pilot study 2010 will be an important element of the on-site surveys on Öresund 2011 - 2013.

The staff onboard the fishing-tourism vessels will distribute questionnaires to the recreational fishermen. The skipper on the vessel will also fill in a questionnaire at every fishing trip. The enquiries are both about biological data and economic data related to the catches and the fishing trip

Through the probability sample survey, questions to recreational fishermen onboard fishing-tourism vessels and other sources it is possible to estimate the amount of catches from fishing-tourism vessels compared with recreational fisheries catches from the shore and from small private boats.

III.D.2 Estimation procedure

Salmon in the Baltic

For the river fishery figures are often used directly without statistical treatment. For coastal fishery estimates are based on a comparison with catches in nearby coastal trapnets. In the offshore trolling fishery catch estimates are from censuses in the largest trolling fishery harbour combined with a probability survey and censuses of the number of trolling boats.

Probability Sample surveys - salmon, cod and shark

See above.

Census – Cod recreational fisheries on Öresund

See above.

III.D.3 Data quality evaluation

In salmon rivers, the outcome from additional censuses directed to anglers in rivers in 2011-13 will be compared with estimates from the "old" method of collecting catch data through the organization organising the fishery in salmon rivers. The outcome from the national postal enquiry (type B) will be used to crosscheck data collected for the statistics collected for the salmon fishery in rivers and offshore areas. A strict statistic evaluation of accuracy and precision of certain areas of the salmon fishery may be possible to carry out in 2011-13, but an overall evaluation of the entire recreational salmon fishery is not expected be possible.

Sweden participated in the workshop on Sampling Methods for recreational Fisheries (WKSMRF) in April 2009. Experts at the meeting agreed that it would be difficult or in many cases impossible to achieve a CV of 20 % for the recreational fishery statistics.

It will not either be possible to achieve and report data for the quarterly estimates of recreational fisheries. Recreational catches on a quarterly basis is not on the other hand used by ICES or otherwise in the common fisheries policy or on a national level.

III.D.4 Data presentation

Data from the salmon fishery statistics is presented annually to the relevant ICES group (WGBAST). Cod caught in the recreational fishery is not reported and incorporated in the assessment models (WGBFAS) for the time being.

III.D.5 Regional coordination

None.

III.D.6 Derogations and non conformities

CV of 20% for the recreational fishery statistics in the Baltic .
Sweden is not asking for derogation of collection of recreational fishery statistics in the Baltic and the North Sea, but only for achieving a CV of 20% of the statistics. The section describes the expected non-conformities. A CV will be calculated, but as data are collected on an annual level, Sweden asks for derogation of the requirement to provide data on a quarterly basis.

THE NORTH SEA AND EAST ARCTIC

Concerns cod and shark. For the eel, directed recreational fishing and any landing of eel are not allowed in Sweden.

III.D.1 Data acquisition

The fishing rights in inland waters are in Sweden private in principle, and therefore fishing is not allowed without being either the fishing right owner or having bought or been given the right to fish by the owner. Fishing in inland water is commonly organised by an association of fishing right owner in one or several

lakes and rivers, i.e. fishing management units. Sweden has 95 700 lakes, 60 000 lakes over 4 hectares area, and some 100 000 km running waters.
Fishing in coastal waters using rod and line is free of charge and so is also the case in the five major lakes. In part of this water area also net fishing and other fishing methods are allowed within limits. A minor part of this fishery is in the borderline area between commercial and recreational fishery as defined by EU. In Sweden, however, it has normally been treated as non-commercial fishery as long as it is not carried out by licensed fishermen. Fishing in the open sea is regulated within the general framework of the EU´s common fisheries policy. Sweden also has its own national regulations, primarily for coastal waters, the five major lakes and rivers emptying in these waters. It is SBF that lays down fisheries regulations at the national level.
In Sweden recreational fishing is not licensed as they are in for example Denmark or Finland. Sweden do not either have any register on recreational fishermen which is a problem when it comes to collecting data on recreational fisheries.

Studies on recreational fisheries has been commissioned by SBF and carried out by Statistics Sweden latest in 2009. A postal questionnaire was sent to 10 000 randomly selected permanent residence in Sweden aged 16 to 74 (data collection type B with some elements from C). The studies showed that recreational fisheries are practised by an estimated 1 million Swedes aged 16 to 74 years. The primary motive for fishing is relaxation, to enjoy nature and consumption in the household. Ten percent of the fish consumption has it origin from recreational fisheries.

In 2008 the kept part of the catch are estimated 11 800 ton. The marine part of the catches are estimated 4 100 ton and in inland waters 7 700 ton.

The catches of cod are compared with commercial catches not important besides the recreational catches in Öresund.
Compared with commercial fisheries in inland waters are recreational fisheries dominating catches. The situation in the sea is the opposite.

The total number of fishing days in 2008 was estimated 13.0 million days. Fifty percent of the fishing days are situated in 30 km from peoples home and 80 percent in 100 km from their home. Twenty percent of the fishing days are long-distance trips mainly to the Northern Sweden.

The largest number of fishing days, 87 %, is estimated for rod and reel while other methods are estimated 13 % of the fishing days. The lowest catches per fishing day are estimated for rod and line. Other methods, often fishing with net, are more effective.

Sweden will participate in the Planning Group on Recreational Fisheries Surveys held in Bergen, 7-11 June 2010. The outcome of the work in the planning group can result in revision the national data collection programme 2011 – 2013

(a) Type of data collection

Probability Sample Survey

A national postal enquiry which is planned to be undertaken in 2011 and 2013. 10 000 inhabitants between 16 and 74 years of age will be randomly selected from the register held by Statistics Sweden and will cover the collection of data cod and shark caught in the recreational fishery.

(b) Target and frame population

Probability Sample surveys - cod and shark

The target population is recreational fishermen in Sweden between 16-74 years of age. The frame population is 10 000 inhabitants between 16 – 74 years of age and randomly selected from the register held by Statistics Sweden.

(c) Data sources

The relevant information will be obtained through a postal questionnaire to 10 000 randomly selected permanent residence in Sweden aged 16 to 74.

(d) Sampling stratification and allocation scheme

A postal questionnaire in two steps.

Step 1. This enquiry is simple and easy to answer and the aim is to catch the inhabitants that actually performed recreational fishery during 2010 - 2012.

Step 2. In the second step, the persons who were actively fishing during 2010 - 2012 will receive a more comprehensive postal enquiry. This enquiry has 21 questions to be answered and the results will give a picture of the recreational fishery regarding gears used, number of days, species composition in the catch and the size of the catch (in kg) and fishing area. The results will be statistically analysed (with the details given in the report from this study) and presented by area (Skagerrak, Kattegat, The Sound, the Southern part, the main basin, the Northern part of the Baltic and inland waters. Fishing days, used gears and catches can also be related in areas of as smallest 60x60 km.

Some other questions are important to understand the recreational fisheries. Some of these are the fishing effort distributed over the year and the part of fishing days/the effort that has been carried out from a fishing-tourism vessel.

The questionnaire is carried out in a long term. The same type of questionnaire has been carried out 1975, 1990, 1995, 2000, 2005, 2007 and 2009. Since 2005 the fishing effort and catches is much more in focus than in earlier questionnaires.

Tasks will be carried out 2011 and 2013.

III.D.2 Estimation procedure

See above.

III.D.3 Data quality evaluation

Sweden participated in the workshop on Sampling Methods for recreational Fisheries (WKSMRF) in April 2009. Experts at the meeting agreed that it would be difficult or in many cases impossible to achieve a CV of 20 % for the recreational fishery statistics.

It will not either be possible to achieve and report data for the quarterly estimates of recreational fisheries. Recreational catches on a quarterly basis is not on the other hand used by ICES or otherwise in the common fisheries policy or on a national level.

III.D.4 Data presentation

Cod caught in the recreational fishery is not reported and incorporated in the assessment models (WGNSSK) for the time being.

III.D.5 Regional coordination

None.

III.D.6 Derogations and non-conformities

CV of 20% for the recreational fishery statistics in the North Sea.
Sweden is not asking for derogation of collection of recreational fishery statistics in the Baltic and the North Sea, but only for achieving a CV of 20% of the statistics. The section describes the expected non-conformities. A CV will be calculated, but as data are collected on an annual level, Sweden asks for derogation of the requirement to provide data on a quarterly basis.

III.E Biological - stock-related variables

THE BALTIC SEA

III.E.1 Data acquisition

(a) Selection of stocks to sample

Stocks to be included in the sampling scheme for the Baltic region are listed in the upper part of table III.E.1 following the species list Appendix VII 2010/93/EU

Herring (*Clupea harengus*) IIIb-d
Sweden is considering SD22-24, SD 25-29, SD 30 and SD 31 as separate sampling units which follow the fishing ground agreed by the RCM Baltic. For western Baltic herring (SD 22-24) and main basin herring (SD 25-29), herring are collected from randomly selected fishing vessels. In Sweden, herring is mainly caught in one merged métier, constituting of trawls (OTB_SPF_16-31_0_0), (PTM_SPF_16-31_0_0) and (PTM_SPF_>=32_0_0). Samples are purchased from different landing ports (Simrishamn, Nogersund, Västervik and Rånehamn on Gotland). Each sample is constituted of 50 or 100 individuals collected randomly from about 6 - 10 kg of landed fish. All samples are transported to IMR in Lysekil for analysis. Information on age, length, weight, sex and gonadal maturity is collected routinely from each individual sampled.
For herring from SD 30 and SD 31, stock specific data on age, weight, sex, and maturity will be compiled from samples from three sources, the Swedish sampling from herring gillnets (SD 30 and 31), the Baltic International Acoustic Survey (SD 30), and Finnish sampling from bottom trawls (SD 30 and 31). These multiple sources are necessary as the gillnet fishery targets spawning aggregations of herring, and hence individuals with a different maturity status for a given age and length than the bottom trawl fishery. Sampling for stock specific data from Swedish catches in herring gillnets amount to 400 individuals per stock (SD 30 and
31), collected in quarters 2-3. The samples are collected by length stratification using 20 individuals per half centimetre. Data analysis of bottom trawl catches of herring will be coordinated with the Finnish

sampling scheme on stock specific data from this métier. Sweden and Finland apply task sharing for sampling this stock so that Sweden is sampling 3100 individuals and Finland 2000 individuals.

During the Baltic International Acoustic Survey (covering SD 25, 27, 28, 29, 30) conducted in the 4th quarter, sex and gonadal maturity are collected following the national 9 scale maturity key and converted to the international 8 scale maturity key. In addition, information on age, length and weight is collected. For sex ratio and maturity the parameters are referenced to age.

Sprat (*Sprattus sprattus*) IIIb-d
Sprat in the Baltic is sampled as one single stock, and samples containing both herring and sprat are collected from randomly selected fishing vessels. In Sweden, sprat is mainly caught in one merged métier, constituting of trawls (OTB_SPF_16-31_0_0), (PTM_SPF_16-31_0_0) and (PTM_SPF_>=32_0_0). Samples are purchased from different landing ports (see above). Each sample is constituted of 50 or 100 individuals collected randomly from about 6 - 10 kg of landed fish. All samples are transported to IMR in Lysekil for analysis. Information on age, length, weight and sex is collected routinely from each individual sampled. Gonadal maturity is recorded for the individuals collected in 1st and 2nd quarter due to the typical spawning activity of Baltic sprat in the 2nd quarter.
During the Baltic International Acoustic Survey conducted in the 4th quarter, information on age, length, weight and sex is collected. No sampling for maturity is performed during the Survey.

Cod (*Gadus morhua*) IIIb-d
Cod in the Baltic Sea is separated in two different stocks: the Western stock (SD 22-24), and the Eastern stock (SDs 25-32). Biological sampling and results are reported by stock. Samples of cod will be collected randomly within each landing size category. Cod is mainly caught in three métiers, bottom trawls (OTB_DEM_>=105_1_110), gillnet (GNS_DEF_>=110_0_0) and long line (LLS_DEM_0_0_0) and information on age, length and weight are collected from these métiers. The species is sorted with respect to weight, in accordance with EU standard 1-5. A certain number of individuals are collected from each landing size category, for example more individuals are sampled from size 1-3 because it includes more age-classes compared to size 4 and 5. The idea is to sample all age classes in the population equally in number within a sampling unit to obtain a robust Age Length Key (ALK) in terms of precision. Sweden samples approximately 500 individuals per stock and quarter. For discarded cod, age, length and weight are collected in sea sampling programme.

Sampling of the Western and Eastern stocks takes place in fishing ports situated in Karlskrona, Nogersund, Simrishamn and the islands of Gotland and Öland.

Sampling of sex and gonadal maturity (along with age, length and weight) is carried out on board R/V ARGOS during the BITS surveys conducted in the 1st and 4th quarters. Number of individuals sampled follows the BITS manual. Maturity stages are determined following the national 9 stage maturity key and then converted to the international 5 scale maturity key. Sex ratio and maturity and presented with reference to age.

Flounder (*Platichtys flesus*)
Average Swedish landings of flounder in the Baltic Sea during the last three years amount to 195 tonnes making it on the boarder for sampling. Sweden is planning to sampling flounder catches in the Baltic Sea. The sampling is based on random samples taken from demersal trawls during quarter 1 respectively 4. This sampling scheme ensures that the estimates of catch composition accounts for seasonal variation. Also, the sampling will include both landed and discarded fish.
Furthermore, both females and males will be sampled until more is known about growth patterns and selectivity. In total 400 individuals will be age determined. All age-determined individuals are also sampled for weight, length, sex and gonadal maturity status.

Eel (*Anguilla anguilla*)
The European eel is considered to belong to one single panmictic stock. According to EC

Regulation no 1100/2007 each member state (MS) has presented a national management plan (EMP). To comply with this plan the MS will have to present a credible estimate of the biomass of spawners produced annually in the entire area of Swedish eel management.

The Swedish eel stock is primarily recruited from glass eel settling in the coastal zone of Skagerrak, Kattegat and the Danish Straits and in rivers in this area. After an unknown period of time and depending on processes not fully understood, the young eels continue spreading into the Baltic basin. This process probably involves density dependence. The Swedish eel stock is thus considered one single management unit in the national EMP

The EMP has to be adaptive and national targets have to set on different time scales and to be evaluated for compliance. Assessment tools including monitoring have to be developed to meet this demand. In this process there is an urge for data, fishery dependent as well as fishery independent, from all significant habitats within a management unit. In Sweden this should be applied for yellow eel in the coastal zone as well as in freshwater and for escaping silver eels mainly in the Baltic Sea. The source of silver eels caught in the Swedish pound net fishery could be anywhere in the Baltic basin, with no information on the proportion in the catch of specific national origin. This fact must be addressed in evaluating compliance with any national EMP in the Baltic region, urging for specific research on this issue.

Fyke net fisheries targeting catadromous species in Eel Management Units as specified in Council Regulation 1100/2007, i.e. in inland waters (FYK_CAT_0_0_0)
In inland (fresh) waters, eels are targeted mostly in the (near) silver phase, and to a lesser extend in the yellow eel phase. This fishery is found in all major lakes (to a much lesser extend in smaller lakes and rivers) flowing into the Baltic and the Skagerrak/Kattegat (North Sea) areas. Since all Swedish inland waters belong to a single Eel Management Unit, and data will only be applied at the national scale, the sampling in inland waters will not be stratified spatially. Consequently, sampling inland waters will be described here in full; the subsequent section on inland waters draining into the North Sea will refer back to this section.

Landings in inland waters are just over 100 tonnes. By-catch and discards in this fishery occurs, but this does rarely involve species under international management. Sampling will therefore be concentrated on eel only, i.e. Scheme 2/3, with 100 % of samples focused on Group 1 species. Our approach is to collect six (6) samples of 125 (5*25 cm-classes) eels each for length, weight, life-stage (yellow, half-silver and silver) and sex. That sums up to 750 eels per year. The proportion of males in Swedish freshwaters is close to nil, thus they are not considered as significant in this context. As this fishery targets mainly silver eels we will not consider separate samples for the very few yellow eels landed. Sampling once a year during peak season in each lake seems appropriate at this stage to explore the spatial variation; in comparison, the temporal variation (repeated sampling) in the biological variables is presumably low, but will be assessed in a pilot study focusing on metier-related information only. All eels will be aged every year and as a matter of practicality, weight, sex, maturity and prevalence and intensity of the swim-bladder parasite *Anguillicoides crassus* will be measured in all eels at the same time.

Fyke net fisheries targeting catadromous species in Eel Management Units as specified in Council Regulation 1100/2007, i.e. in coastal waters in the Baltic Sea. (FYK_CAT_0_0_0)
The coastal fyke net fishery targeting eel is catching both yellow and silver eel. Biological sampling of this fishery is proposed to focus on estimation on regional differences in demographics, growth and mortality in regional sub-populations. The primary objective of the sampling is to detect early responses to management actions and to obtain data for assessment of escapement in regions where direct monitoring of silver eel migration is not possible. For details –see section d.

Pound net fisheries targeting catadromous species in Eel Management Units as specified in Council Regulation 1100/2007, i.e. in coastal waters in the Baltic Sea. (FYK_CAT_0_0_0)
The coastal pound net fishery is almost exclusively targeting silver eels. Biological sampling of this fishery is proposed to focus on estimation of regional differences in demographics, growth and mortality. The primary objective is to estimate the time span of the continental life cycle and of the physical fitness

of the migrating silver eels. As the geographical origin of the eel may differ in time and space, the sampling is allocated to cover the peak of the fishing season in different regions. For details –see section d.

Monitoring of incoming recruitment

For biological information on incoming recruitment and standing stock, the focus of the fisheries on large, and mostly emigrating matured eels precludes the use of metier-derived samples. Additional information is therefore derived from fishery-independent sampling, viz.:

- Riverine traps for ascending yellow eel. The collection of this information is based on legal obligations for the hydropower-companies blocking the free immigration; the sampling sites are fixed. The historical time series reasonably span all coasts where a notable recruitment occurs.
- Drop-trap sampling of young-of-the-year (glass eel, very young yellow eel) in coastal habitats, extending previous experience from localised studies. Focus on west-coast sites, where youngest recruitment is found; selecting rivers where riverine trap sampling and sampling of commercial catch is found nearby (sites used as index sites)
- Electro-fishing for the standing yellow eel stock in selected rivers. Riverine electro-fishing in relation to the Water Framework Directive is known to underrate the eel. A judicious extension focused on eel is proposed for selected rivers, in which incoming recruitment, fishing impact and silver eel emigration is also monitored (index sites).

Salmon (*Salmo salar*)

The Swedish landings from commercial and recreational fisheries of salmon in IIIb-d was on average 235 tonnes (years 2007-2009) obliging Sweden to sample this stock. Since salmon driftnets were banned from 1 January 2008 the salmon exploitation is dominated by different kinds of river fishery, coastal fishery using trapnets (FPO_ANA_0_0_0) and an offshore long line fishery ((LLD_ANA_0_0_0).

For salmon there is a sampling in the coastal fishery (FPO_ANA_0_0_0) in sub-divisions 30-31. Selected fishermen keep detailed journals and sea sampling takes place by SBF personnel. Also the recreational river fishery is sampled in rivers. Fecundity data is collected in a brood stock fishery.

River monitoring of wild salmon and sea trout stocks

In 2006-2008 river monitoring of Swedish wild salmon stocks was included in the NP and in 2009-10 salmon index rivers were added due to new requirements in the Commission Regulation for this period. The monitoring consists of annual electrofishing surveys of salmon and sea trout parr in wild salmon rivers, running of a smolt trap for emigrating smolts and maintaining counting of ascending salmon and sea trout spawners in fishladders in index rivers.

Establishment of index rivers is normally associated with major costs because basic facilities are needed for the counting activities and the operating costs are also substantial. In order to handle the new demands it has been necessary to decrease the amount of monitoring in non-index rivers. Furthermore the Swedish Board of Fisheries has decided to co-operate with other bodies, both private companies and regional and local agencies and local organizations as well as the Swedish University of Agriculture (SLU). These are used as subcontractors and some of them are also contributing considerable amounts of money to the index river projects. The Swedish Board of Fisheries is responsible for project management and in some cases also detailed planning and reporting of results. These projects are seen as important parts of a new salmon management plan that is expected to replace the SAP plan (1997-2010) in 2011.

As the Board of Fisheries will not own any of the investments in fish ladders nor the new smolt traps it will be considered as subcontracting costs. The Board has established a clear definition that investments for instance in basic constructions such as dams are not allowed in the NP. Costs that are included must be clearly related to facilitation of the basic operation of index rivers, such as installation or operation of counting equipment.

The general plan for index rivers in 2011-13 is described in the table below.

River	Smolt count	Adult count	Electro-fishing	Need for investment
Torneälven, Sub-div.31, a large river	Carried out by Finland	In cooperation between Finland and Sweden	Investigations by Finland and Sweden in national parts	No
Ume/Vindelälven, Sub-div. 31, a large river	A newly built trap and one trap used in 2009-10 will both operate in 2011-13 to allow evaluation	New fishladder first used in 2011, need for evaluation	Yes	No
Sävarån, Sub-div. 31, a small river	Existing trap will operate in 2011-13	Starting in 2011	Yes	Installation of Didson sonar in 2011
Mörrumsån, Sub-div. 25, midsize river	Trap used in 2009-10 is improved and continue to work	Existing fishladder is improved in 2010	Yes	No

Compared to 2009-10 a new element is that also River Torneälven earlier mainly operated by Finland is now also included in the Swedish program. For the other index rivers major investments in two of the rivers will according to plans be finished in 2011, while the plan for the third river (Sävarån) is to make a pilot study with a Didson sonar for counting of adults in 2010. This will be followed by investment in and operation of a Didson unit from 2011 and onwards. Even though costs for operation of a sonar has been included in the present budget, a better based detailed budget will be provided first after the pilot study in the summer 2010. One alternative may even be that Sweden seeks derogation from the requirement to have Sävarån as an index river, due to the high operation cost.

In 2009 a first operation of smolt traps in two rivers, Ume/Vindelälven and Mörrumsån, lead to suggestions for improvements. An analysis of the results showed that more precise production figures were needed to provide high quality estimates. This led to a need for a considerable improvement of the traps to get higher catch abilities in 2010. Furthermore the smolt traps needs more maintenance than originally planned. All these factors leads to higher costs compared to the original plan in 2010. It is of course not known if the planned improvements will be sufficient or if there will a need for further improvements in 2011-13. In one of the rivers, Ume/Vindelälven, a new smolt trap will be evaluated through comparison with an old trap used in 2009-10. When the new trap (starting in 2011) works adequately the trap used in 2009-10 will no longer be used. At present, however, the cost for operation of the old trap is added to the budget for the entire application period. An overview of costs for subcontracting in index rivers is shown in Annex III.

In addition to the monitoring of the index rivers operation of a fishladder in River Kalixälven and electrofishing is included in the NP. All data from electrofishing survey are collected in a national database covering all Swedish surveys (SERS). Other data are also collected and kept in a database that is partly operated by the Board of Fisheries. It is expected that it will take about two-three years to get all datasets in order. All data from river monitoring will be reported to the relevant ICES Working Group (WGBAST).

(b) Type of data collection

Samples of stock related variables are at the moment collected differently depending on stock and area. Up to 2010, data has been collected in a non probability sample survey even though samples are collected randomly at a certain point. Sweden is planning to work up a new sampling design, trying to have a general approach using the outcome from WKMERGE and move towards a probability sample survey which we plan to start in 2011. See section III.C.1.d.

(c) Target and frame population

Up to 2010, the sampling frames for harbour/market sampling were not clearly defined and sampling has tended to be concentrated on major harbous /markets. As described in section III.C.1.d, Sweden plan to use the outcome from the workshops (WKACCU, WKPRECISE and WKMERGE.) as a guidance to set the target and sampling frame. The intention is to define the port-sampling frames as area lists of access points (ports and harbours). The first level of randomisation will be selection of port visit dates within each quarter and geographic stratum, providing access to clusters of trips.

(d) Sampling stratification and allocation scheme

Sampling for all stocks is stratified by quarter. Stratification by quarter is mainly to meet the requirements for compiling stock assessment data for ICES WGs, but also accounts for seasonality.

Cod, herring, sprat
The sampling of cod are conducted by staff working at SBF. For herring and sprat, samples are collected by the staff working at the landing site or staff working at the control department. The samples are tagged and transported to IMR in Lysekil for analysis. For details regarding sampling for each stock see text in section III.E.1.a

Salmon
Index rivers are spread among areas to comply with ICES recommendations. Sampling of the stock composition by genetic methods takes place in the offshore salmon fishery. Checks of stock composition takes place in the coastal fishery (FPO_ANA_0_0_0) in SD 30-31 and it is concentrated to the northernmost part as most wild stocks and most coastal fishery occurs there.

Eel
For the sampling of eel catches in inland waters, a double sampling strategy is proposed. On the one side, a regular catch sampling stratified by lake. For each major lake (4 in total, for 2 lakes split into two trophic zones, i.e. 6 sites in total) a representative sample from the catch will be taken at the peak of the season, which yields metier-related as well as stock-related information. In comparison to the coastal fishery, the number of samples (6) is proportional to the inland landings, but this low number will not allow a statistical evaluation. On the other side, a pilot study will be carried out to establish a statistically sound protocol for monitoring of inland eel fisheries. To this end, catches (6 sites) will be sampled on a weekly basis throughout the season, using a (cost-effective) self-sampling strategy, focusing on metier-related information only.

The sampling strategy in the coastal fishery is suggested to remain unaltered from the one used in 2009-2010. Yellow eel is almost exclusively caught in the fyke net fishery (FYK_CAT_0_0_0). The samples will be collected in SD 23 and 27 where the fishery mainly is conducted. Sampling of stock specific data will be performed by purchasing samples from selected fishermen during the main fishing season, on a quarterly basis in quarters 2-3 in SD 23 and once at the peak of landings in quarter 2-3 in SD 27. At each sampling occasion in SD 23, where the majority of the yellow eel is landed, 300 eels are purchased for analysis of length distribution. Information on age, weight, sex, maturity and prevalence of the swim-bladder parasite *Anguillicoides crassus* will be derived from a total material of approx. 400 individuals in the Baltic Sea, 200 from each subdivision. In order to cover of the size- and age distribution in the catchable part of the yellow eel stock, sampling will include undersized and thus normally discarded yellow eels.

The pound net fishery (FPN_CAT_0_0_0) in the Baltic is strongly targeting silver eel.
Samples will be purchased from selected fishermen each month during the peak of the fishing season. At each sampling occasion 200 eels are purchased for analysis of length distribution. Approximately 200 individuals per SD are then extracted from the total sample to be analysed for stock specific data on age,

weight, sex, maturity and prevalence of the swim-bladder parasite *Anguillicoides crassus* . Sampling in all SDs will include undersized and thus normally discarded silver eels.

The sampling for eel recruitment analyses is based on fixed stations. Spatial variation is large, but mostly constant over time. Fixed station sampling is the most efficient for establishing time trends.

Sampling on research vessels
The sampling of biological parameters on research surveys are conducted by staff from SBF.

According to Annex VII in DCF, sampling is required on a yearly basis for the species (cod, herring, sprat, salmon and sole) and for the other species the collection of stock-based variables is required on a triennial basis. Within the RCM Baltic the issue has been discussed and following has been concluded. When samples for age are collected annually the additional costs for analysing the sex and maturity is minor. Quality aspects have to be taken into account, like maintaining skills for determine maturity staging etc.
The RCM Baltic has therefore concluded that there is no need to coordinate triennial sampling for maturity and therefore Sweden plan to collect the variables annually.

For harmonisation of the methodology regarding sampling for maturity, the ICES workshops on maturity for groups of species will be of great importance. Sweden will participate and give input in the process which will improve the quality of maturity data.

An overview of long term planning of sampling for stock related variables is given in table III.E.2, and an overview of the planned sampling for age, weight, sex, maturity and fecundity is given in table III.E.3.

III.E.2 Estimation procedure

Up to 2010, sampling from commercial catches, a quarterly target for number of individuals to measure or age were set for each stock. The target number are sampled from each landing size category or unsorted catch, independent of landing size, in order to reach an established precision level for the most abundant age classes. The ideal number of individuals to be sampled in a sampling unit (area, time, fishery) depends on number of age classes in the population, and differs between stocks.

The information from the biological sampling is raised with the information from the EU logbooks and sale slips in order to calculate CANUM and WECA (Catch in numbers and weight in catch per age group) as input data for the stock assessment WG. Data on sex and maturity sampled onboard research vessels are raised with the length measurements done for the stock in order to produce a maturity ogive, sex ratio and growth parameters.

For salmon and index rivers datasets are estimated through usual methods such as mark-recapture estimates for smolt runs and repeated sampling in electrofishing. Fish ladder data are partly giving full information of relevant variables, while in one case some variables have to be extrapolated from sub sampling.

For the statistical pilot of sampling inland eel catches, an annual evaluation will indicate what precision level has been achieved; results will be used to optimise the regular sampling, and to consider potential continuation of this pilot over multiple years.

For the ongoing recruitment sampling, existing methodology will be continued. Given the surveying approach (in the statistical sense, i.e. as opposed to sampling), total annual catches per station will be used. The new methodology (drop-trap sampling, electrofishing) will yield new data, which should be analysed in much more detail, to establish a routine procedure. Spatial, temporal as well as environmental confounding effects will be considered.

For the silver eel tagging studies, new methodology is being developed to estimate mortality rates (rather than the conventional focus on migration routes). Given the semelparous status of the eel, this will require adapting existing methodology for other animals (birds). The timely development of this DCF programme precludes further detailing, but we expect to have this off the ground before the sampling starts.

Biological data on yellow will be used to elaborate new models for estimation of silver eel escapement when quantitative data on silver eel are not available. Data on silver eel characteristics are essential to estimation of the duration of the continental life cycle and how it changes over time, and for detection of fitness factors that may be essential to migration success, as somatic condition and prevalence of parasites.

III.E.3 Data quality evaluation

Sweden has over the years calculated CV on a national level using analytical or boot strap methods. The results from the analyses have been used to adjust the sampling size (number of individuals collected) aiming to reach the CVs listed in the DCF. The new data from inland eel fisheries will be added; protocols and business rules will be adapted accordingly.

Sweden is under the process of evaluating the sampling design and methods using the exploratory analyses tools in the COST package together with the outcomes from the ICES workshops (WKPRECISE, WKACCU, WKMERGE, WKSMRF), which has provided definitions and guidelines for designing sampling schemes.

Sweden has set up a work plan for going through the different sampling schemes step by step. The analyses and conclusions will be documented and the aim is to set up a sound and transparent survey design with a general sampling approach. The outcomes from this process will in the years to come change the sampling schemes and methods used in Sweden. The sampling methods which have been used the latest years are described above in section III.E.1 and the text will be updated in line with the progress.

To reach the target precision of the international raised data that are input to the stock assessment models, internationally coordinated sampling programmes with target CVs are needed.

For the salmon and the river monitoring the quality is evaluated through comparison with data from other river monitoring projects. For electrofishing surveys SBF has extensive datasets and experiences to compare with. For smolt and adult counts estimates of catchability and checks of if the entire migration seasons have been monitored are important factors to consider. Efforts are made to improve collection of datasets However; it is difficult to estimate the future precision in collected data sets as effort.

III.E.4 Regional coordination

Bilateral agreements for the Baltic have been signed with Denmark and Finland.

*Herring and spra*t
Bilateral agreements have been made with Denmark (IV) and Finland (no formal agreement yet)

Salmon (Salmo salar)
Collaboration takes place between Sweden and Finland regarding the index river Torneälven. Furthermore it has been agreed between Sweden and Finland to cooperate on sampling for stock composition in South Baltic (Annex II).

Eel (*Anguilla anguilla*)
For eel recruitment, data are almost exclusively used at the international level; the usage for local stock management is extremely limited. Data series are coordinated and analysed at the international level; a geographical coverage of all countries and areas has been advocated.

Recommendations made in the RCM Baltic and actions taken are listed in section III.C.5

In the Baltic, two types of surveys are conducted following the international manuals defining sampling procedure and sampling size etc. The Baltic International Trawl Survey (BITS) in quarter 1 and quarter 4, follows the manuals BITS 2002 (ICES CM 2002/H), and for Baltic International Acoustic Survey (BIAS) manual version 0.8 BIAS 2008 is used. The surveys are planned within the ICES WGBIFS working group.

III.E.5 Derogations and non-conformities

Cod sampling sd 22-24
As already mentioned in the text in the NP 2011-13, Cod in SD 22-24 are not sampled for sex and maturity since the fish sampled at markets are gutted and Sweden is not covering this area during the BITS survey. The survey is planned internationally (WGBIFS) and Sweden is responsible to cover SDs 25, 27 and 28, whereas other countries (Denmark and Germany) are covering SD 22-24. The sampling responisibilities are agreed in the WGBIFS and has been running for several years.

14. Salmo Salar in the Baltic
Sweden is asking for derogation of the requirement of collecting maturity data of salmon in all fisheries. If the tentative plan can be followed, Sweden will be able to fulfill the requirement of operating all needed elements in three salmon index rivers in 2011-13.

THE NORTH SEA AND EAST ARCTIC

III.E.1 Data acquisition

(a) Selection of stocks to sample

Stocks to be included in the sampling scheme for the North Sea & East Arctic region are listed in the lower part of table III.E.1.

Herring (*Clupea harengus*) IIIa
Herring are collected from randomly selected fishing vessels. Each sample is constituted of 50 or 100 individuals collected randomly from about 6 - 10 kg of landed fish.

Sampling of herring in IIIa takes place by spawning stock (Chapter III.B1.1.2a). Herring in IIIa consist of:

a/ autumn-spawners from the North Sea
b/ spring-spawners from the Western Baltic Sea
c/ local winter and spring-spawning stocks.

The size of these stocks varies between years, seasons and age groups. The variations are evaluated annually with the help of special biological sampling (i.e. analysis of the microstructure of the otolith). From 1990 onwards, two main spawning stocks are identified: autumn-spawning and spring-spawning herring. Herring samples are collected from three metiers, trawls (PTM_SPF_32-69_0_0 and

OTM_SPF_32-69_0_0) and purse seine (PS_SPF_32-69_0_0). However, the metiers are currently targeting herring for human consumption and ALK does not differ between them (Cardinale and Hansson, pers comm). Thus, Sweden considers the three metiers as a single statistical sampling unit and precision levels as well as ALK were derived from the fleets combined. Samples of herring is purchased or performed by the Department of Fisheries control and transported to IMR in Lysekil for analysis. Information on age, length and weight, sex and gonadal maturity is collected from each individual sampled. The spawning type is determined by analyses of otoliths individual fish.
Also, information on age, length, weight, sex and gonadal maturity are collected during IBTS surveys conducted in the 1st and 3rd quarters. Sex and maturity are determined following a 9 stage national maturity key and converted to an 8 stage international key and the data is referenced to age.

Sprat (*Sprattus sprattus*) IIIa
Samples of sprat are collected from three metiers. Sprat for human consumption is caught with fine-mesh purse seines and ring nets mainly during autumn and winter in the Skagerrak (PS_SPF_32-69_0_0). Samples of sprat are also collected from fisheries taking place throughout the year using ring nets, mid-water trawls and bottom trawls. (PTM_SPF_32-69_0_0) and (OTM_SPF_32-69_0_0). Sweden considers the three metiers as a single statistical sampling unit and precision levels as well as ALK were derived from the fleets combined.

Samples of sprat is purchased or performed by the Department of Fisheries control and transported to IMR in Lysekil for analysis. Information on age, length, weight, sex and gonadal maturity is collected from each individual sampled. Information on age, length, weight and sex and gonadal maturity are also collected during IBTS surveys conducted in the 1st and 3rd quarters. Sex and maturity are determined following a national 9 stage national maturity key and converted to a 8 stage international key and data is referenced to age.

Cod (*Gadus morhua*) IIIa S and N
The cod in IIIa belong to two different stocks and are therefore sampled separately. The major part of the catch is taken during the 1st and 4th quarters. Sampling of cod regarding age, length and weight is performed at the fish auction in Göteborg on the landed part of the catch. Samples on age, length and weight for discarded cod are performed in the sea sampling programme.

Samples of cod will be collected randomly within each landing size category. Cod is sorted with respect to weight, in accordance with EU standard 1-5. A certain numbers of individuals are collected from each landing size category, for example more individuals are sampled from size 1-3 because it includes more age-classes compared to size 4 and 5. The idea is to sample all age classes in the population equally in number within a sampling unit to obtain a robust Age Length Key (ALK) in terms of precision. Samples are collected from a randomly selected number of boats representing the fishery. Cod are caught primarily in following metiers, demersal fish trawl (OTB_DEF_90-119_0_0) and as by-catch in trawls targeting *Nephrops* (OTB_CRU_90-119_0_0) and for cod, as by-catch in trawls targeting *Pandalus* (OTB_CRU_32-69_0_0) .

While landed cod is gutted, sampling of sex and gonadal maturity (along with age, length and weight is carried out on board R/V ARGOS during the IBTS surveys conducted in the 1st and 3rd quarters. Numbers of individuals sampled follow the IBTS manual. Sex and maturity are determined following the national 9 scale maturity key (transferable to the international key) and the data is referenced to age.

Plaice (*Pleuronectes platessa*) IIIa
Plaice in the Kattegat and the Skagerrak are assumed to belong to the same stock. With start in 2009 sampling of plaice is planned to be covered by Denmark, and will be an example of task sharing between Sweden and Denmark and explained in the bilateral agreement.
Sampling of sex and gonadal maturity (along with age, length and weight) will still be carried out on-board R/V ARGOS during the IBTS surveys conducted in the 1st and 3rd quarters. Number of individuals sampled follows the IBTS manual. Sex and maturity are determined following the national 9 scale maturity key (transferable to the international key) and the data is referenced to age.

Witch Flounder (*Glyptocephalus cynoglossus*) IIIaNs
2009 will be the first year for Sweden of regular sampling of witch flounder in the Skagerrak. Therefore, there will be a pilot study regarding sampling strategy and sample size. Sweden is planning to collect data on age, length and weight of the whole catch in sea sampling programme within the metier (OTB_DEF_90-119_0_0) targeting witch flounder. For discards, samples of age will be collected onboard and for the landed part, a sample of unsorted catch will be purchased and transported to IMR in Lysekil for analysis. Sampling of sex and gonadal maturity (along with age, length and weight) is carried out on board R/V ARGOS during the IBTS surveys conducted in the 1st and 3rd quarter. Sex and maturity is determined following the national 9 scale maturity key and the data is referenced to age. Sweden will read the otoliths sampled by Denmark and will be presented in the bilateral agreements.

Norway lobster (*Nephrops norvegicus*) IIIa
The sampling is carried out on board commercial Norway lobster trawlers (single and twin trawlers) separated into traditional trawls (OTB_CRU_90-119_0_0) and grid equipped ones (OTB_CRU_70-89_2_35), and onboard crustacean creel boats (FPO_CRU_0_0_0), performed by personnel from IMR. Sampling onboard trawlers is performed on the sorted catch, i.e. both on the proportion of the catch to be landed and the proportion to be discarded separated into sex, female maturity stage, and include length measurement of the carapax.
When appropriate time series of data are available for the Skagerrak creel fishery, this fishery should be assessed separately for reasons of its different exploitation pattern and explains the high level of sampling planned.

Other biological parameters such as sex and gonadal maturity are sampled as supplementary data on females for those individuals which are length measured. The analytical stock assessment is carried out on each sex separately.

Sweden and Denmark have signed an agreement of cooperation in data collection. The agreement has an emphasis on foreign landings but it also covers specific parameters. For Norway lobster it has been agreed that only Sweden will carry out sampling for weight, sex and maturity and will therefore increase its sampling intensity to compensate for the missing Danish sampling.

Eel (*Anguilla anguilla*)

The European eel is considered to belong to one single panmictic stock. According to EC Regulation no 1100/2007 each member state (MS) has presented a national management plan (EMP). To comply with this plan the MS will have to present a credible estimate of the biomass of spawners produced annually in the entire area of Swedish eel management.

The Swedish eel stock is primarily recruited from glass eel settling in the coastal zone of Skagerrak, Kattegat and the Danish Straits and in rivers in this area. After an unknown period of time and depending on processes not fully understood, the young eels continue spreading into the Baltic basin. This process probably involves density dependence. The Swedish eel stock is thus considered one single management unit in the national EMP.

The EMP has to be adaptive and national targets have to set on different time scales and to be evaluated for compliance. Assessment tools including monitoring have to be developed to meet this demand. In this process there is an urge for data, fishery dependent as well as fishery independent, from all significant habitats within a management unit. In Sweden this should be applied for yellow eel in the coastal zone as well as in freshwater and for escaping silver eels mainly in the Baltic Sea.

<u>Fyke net fisheries targeting catadromous species in Eel Management Units as specified in Council Regulation 1100/2007, i.e. in inland waters (FYK_CAT_0_0_0)</u>
In inland (fresh) waters, eels are targeted mostly in the (near) silver phase, but also in the yellow eel phase. This fishery is found in all major lakes (to a much lesser extend in smaller lakes and rivers)

flowing into the Baltic and the Skagerrak/Kattegat (North Sea) areas. Since all Swedish inland waters belong to a single Eel Management Unit, and data will only be applied at the national scale, the sampling in inland waters will not be stratified spatially. Consequently, sampling inland waters is described in full under the heading of the Baltic.

Fyke net fisheries targeting catadromous species in Eel Management Units as specified in Council Regulation 1100/2007, i.e. in coastal waters (FYK_CAT_0_0_0)
Less than 200 tonnes of eel are landed from IIIa, almost exclusively yellow eel caught in the fyke net fishery (FYK_CAT_0_0_0). Biological sampling of this fishery is proposed to focus on estimation on regional differences in demographics, growth and mortality in regional sub-populations. The primary objective of the sampling is to detect early responses to management actions and to obtain data for assessment of escapement in regions where direct monitoring of silver eel migration is not possible. For details –see section d.

Pandalid shrimps (*Pandalus borealis*) IIIa and IVa E
Pandalid shrimp is caught in two metiers, trawls with species selected grid (OTB_CRU_32-69_2_35) and traditional shrimp trawl (OTB_CRU_32-69_0_0). Samples will be collected from both metiers. Shrimps caught in traditional shrimp trawl will be sampled on board by staff from IMR. The metier catching shrimps using species sorting grid will be sampled on board during a pilot study 2009. While discard rate is low, and the catch is quite "clean" for this metier, Sweden is aiming towards a self sampling scheme. The catch is sorted on board according to size. The fraction of larger shrimps is boiled on board, the middle fraction landed fresh to the canning industry and the smallest shrimps are discarded. Samples from boiled and middle fractions will be purchased and transported to IMR for analysis in respect of carapax length, sex, maturity stage and weight. Sex and maturity is referenced to length.

(b) Type of data collection

Samples of stock related variables are at the moment collected differently depending on stock and area. Up to 2010, data has been collected in a non probability sample survey even though samples are collected randomly at a certain point. Sweden is planning to work up a new sampling design, trying to have a general approach using the outcome from WKMERGE and move towards a probability sample survey which we plan to start in 2011.

(c) Target and frame population

Up to 2010, the sampling frames for harbour/market sampling were not clearly defined and sampling has tended to be concentrated on major harbous /markets. As described in section III.C.1.d, Sweden plan to use the outcome from the workshops (WKACCU, WKPRECISE and WKMERGE.) as a guidance to set the target and sampling frame. The intention is to define the port-sampling frames as area lists of access points (ports and harbours). The first level of randomisation will be selection of port visit dates within each quarter and geographic stratum, providing access to clusters of trips.

(d) Sampling stratification and allocation scheme

Sampling for all stocks is stratified by quarter. Stratification by quarter is mainly to meet the requirements for compiling stock assessment data for ICES WGs, but also accounts for seasonality.

Cod, herring, sprat, Nephrops, Pandalus, witch flounder

The sampling are conducted mainly by staff of the SBF. For sampling of commercial landings for cod in IIIa, staff at the fish auction are hired for collecting information on length, weight, age. For the pelagic stocks, sampling of landings are collected by the staff working at the landing site or staff working at the control department. For *Nephrops* and pandalid shrimps samples are collected at commercial vessels by staff from SBF. During 2009 self sampling was initiated for shrimp trawlers using sorting grid. For sampling without staff from SBF involved, the samples are tagged and transported to IMR in Lysekil for analysis.

Eel
Sampling of stock specific data will be performed by purchasing samples from randomly selected fishermen on a monthly basis during the main fishing season in quarters 2-3. Information on age, weight, sex, and maturity will be derived from a total material of approx. 600 individuals in area IIIa. Each single sample will be based on 200 individuals. These samples will be extracted from a total of 1400 individuals that are purchased for analysis of length distribution, evenly distributed over the period May-September, when this fishery is open for access. In order to get a good coverage of the size- and age distribution in the catchable part of the yellow eel stock, sampling will include undersized and thus normally discarded yellow eels.

An overview of long term planning of sampling for stock related variables is given in table III.E.2, and an overview of the planned sampling for age, weight, sex, maturity and fecundity is given in table III.E.3.

No strict coordination between MS concerning maturity within the North Sea region has been undertaken. Before coordinating the sampling of sex and maturity an overview concerning spawning time by stock was done during the RCM 2009. In the meantime, before the RCM NS has agreed on a strategy for co-ordinating the maturity sampling, Sweden will collect the data annually for the species involved in the Swedish national program. When samples for age are collected annually the additional costs for analysing the sex and maturity is minor. Also, qualities aspects have to be taken into account, like maintaining skills for determine maturity stage.

For harmonisation of the methodology regarding sampling for maturity, the ICES workshops on maturity for groups of species will be of great importance. Sweden will participate and give input in the process which will improve the quality of maturity data.

III.E.2 Estimation procedure

Up to 2010, sampling from commercial catches, a quarterly target for number of individuals to measure or age were set for each stock. The target number are sampled from each landing size category or unsorted catch, independent of landing size, in order to reach an established precision level for the most abundant age classes. The ideal number of individuals to be sampled in a sampling unit (area, time, and fishery) depends on number of age classes in the population, and differs between stocks. For *Nephrops* and *Pandalus* number a target of length measured individuals are set by recommendation from the assessment WG. Biological data on yellow eel will be used to elaborate new models for estimation of silver eel escapement as quantitative data on migrating silver eel are not available.

The information from the biological sampling is raised with the information from the EU logbooks and sale slips in order to calculate CANUM and WECA (Catch in numbers and weight in catch per age group) as input data for the stock assessment WG. Data on sex and maturity sampled onboard research vessels are raised with the length measurements done for the stock in order to produce a maturity ogive, sex ratio and growth parameters.

III.E.3 Data quality evaluation

Sweden has over the years calculated CV on a national level using analytical or boot strap methods. The results from the analyses have been used to adjust the sampling size (number of individuals collected) aiming to reach the CVs listed in the DCF. The new data from inland eel fisheries will be added; protocols and business rules will be adapted accordingly.

Sweden is under the process of evaluating the sampling design and methods using the exploratory analyses tool in the COST package together with the outcomes from the ICES workshops (WKPRECISE, WKACCU, WKMERGE, WKSMRF), which has provided definitions and guidelines for designing sampling schemes.

Sweden has set up a work plan for going through the different sampling schemes step by step. The analyses and conclusions will be documented and the aim is to set up a sound and transparent survey design with a general sampling approach. The outcomes from this process will in the years to come change the sampling schemes and methods used in Sweden. The sampling methods which have been used the latest years are described above in section III.E.1 and the text will be updated in line with the progress.

To reach the target precision of the international raised data that are input to the stock assessment models, internationally coordinated sampling programmes with target CVs are needed.

III.E.4 Regional coordination

Bilateral agreements with Denmark have been established for the Skagerrak and Kattegat, for the period 2011-2013 see annex IV

Eel (*Anguilla anguilla*)
For eel recruitment (see BALTIC III.E.4), data are almost exclusively used at the international level; the usage for local stock management is extremely limited. Data series are coordinated and analysed at the international level; a geographical coverage of all countries and areas has been advocated.

Recommendations made in the RCM North Sea and Eastern Arctic is listed in section III.C.5.

In the Skagerrak and Kattegat, the International Bottom Trawl Surveys (IBTS) are conducted in quarter 1 and quarter 3 following the international manuals defining sampling procedure and sampling size etc. (Anon 2006). The surveys are planned within the ICES IBTS working group.

III.E.5 Derogations and non-conformities

Spurdog in IIIaN
Average landing of Spurdog in Sweden was 60 tonnes (for the period 2007-2009) while the Swedish share of EU TAC was 70 %. Since 2010 the TAC is zero for spurdog and only a limited (7 tonnes) amount of spurdog caught as bycatch are allowed to be landed. It is not cost-effective to sample biological information from this species while sampling is impossible to perform.

Mackerel in IIIa
The average landings of mackerel in area IIIa was 160 tonnes and below the threshold for sampling. In area IV, an average landing of 4 475 tonnes and less than 1 % of the EU TAC was recorded. Regarding to the evaluation made by RCM NS & EA 2010 this stock were picked out because the sum of MS having a share of quotas/landings less than 10%, altogether exceeds 25%. Sweden do not plan to sample this stock while approximately 77 % of the Swedish landing is taken place in UK and 20 % in Norway.

Haddock sampling in IIIa
As mentioned in the text, Sweden will only sample biological data (age, length, weight, sex and maturity) on surveys while there is not cost-effective to sample landings of haddock.
Average landing of Haddock in Sweden was 235 tonnes in IIIa (for the period 2007-2009) while the Swedish share of EU TAC is approximately 10 %. Analytical stock assessment on Haddock is performed on a stock level constituting of the two areas IIIa and IV (North Sea) together. The Swedish landings in IIIa are very small compared to the total landing of the whole stock (approximately 2 %) and the value of Swedish data for the overall picture of the stock is insignificant.

III.F Transversal variables

III.F.1 Capacity

III.F.1.1 Data acquisition

Capacity data, i.e. number of vessels, gross tonnage, kW and age of the vessels, will be obtained from the Swedish fishing fleet register (database Fartyg 2), which is the national register in accordance with Commission Regulation (EC) No 26/2004. The type of data collection is A (census).

To assign the vessels to their respective segment data from logbooks and monthly journals will be used. Logbooks and monthly journals contain information about days at sea per gear. The segmentation will be done in accordance with appendix III in commission decision (2010/93/EG).

III.F.1.2 Data quality evaluation

Two types of error should be distinguished: bias and variability. For data collection type A (census) there is by definition no sampling error and therefore there is no variability indicator. The indicator of bias is the response rate.

III.F.2 Effort

III.F.2.1 Data acquisition

Data will be acquired as defined in Appendix VIII of the Commission decision 2010/93/EC.

All spatial data used to calculate time in area for vessels reporting in logbook, will be based on best information from VMS, AIS, Effort reports, logbook and inspection information (sighting etc). The spatial data are stored trip by trip with information for each record on vessel, position (long/lat), time and data source. Information on activity and gear onboard is linked to each trip.

Vessel not obliged to keep logbook report there effort information in the monthly coastal journal. Data on gear capacity and activity will be collected as well as information on days at sea/fishing days. For simplicity reason calendar day will be used for the calculation of activities of vessels under 8m/10m without logbook

Variable	Data sources and methodologies
Days at sea	Spatial data sources (described above) and coastal journals for vessels without logbook
Hours fished	Effort data in logbook (haul by haul records) information.
Fishing days	Logbook and coastal journals for vessels without logbook
kW * Fishing Days	Fleet register and logbook/coastal journal
GT * Fishing days	Fleet register and logbook/coastal journal
Number of trips	Logbook/Coastal journal (gear information)
Number of rigs	Logbook/Coastal journal (gear information)
Number of fishing Operations	Logbook/Coastal journal
Number of nets, Length	Logbook/Coastal journal
Number of hooks	Logbook/Coastal journal
Number of lines	Logbook/Coastal journal
Numbers of pots, traps	Logbook/Coastal journal
Soaking time	Logbook/Coastal journal

III.F.2.2 Data quality evaluation

Effort data derive from the same datasets used to monitor quota and effort limitations. Comprehensive validations are made during the database entry process (logbook, landing declarations, sales notes, Coastal journals, effort reports). Spatial data from logbook, VMS, AIS (when available), effort reports, sightings etc are compiled trip by trip. The trip information is crosschecked in order to verify catch and effort area information in the logbook and to calculate time in different effort areas.

III.F.2.3 Data presentation

Final and validated data on 2010 will be available in the end of 2011. Final and validated data on 2011 will be available in the end of 2012. Final and validated data on 2012 will be available in the end of 2013.

III.F.2.4 Regional coordination

No initiatives to coordinate the national programme with other MS for the collection of effort data.

III.F.2.5 Derogations and non-conformities

It is difficult to, with any precision, to calculate fishing days that includes time vessels spends in port (static gears). In small scale fisheries different vessels could be used for setting gears and collecting gears or catch from gears. It is also possible that gears belonging to two different vessels could (on territorial waters) are set by only one of the vessels and later collected by each vessel. In order to have conformity with management effort calculations, fishing days for static gears are calculated in accordance provisions

in Article 26 of Council regulation (EC) No 1224/2009. Thus, calculating of fishing days will include time when a vessel is out of port and not transiting and having regulated gears on board or in sea.

For simplicity reason calendar day (not 24 hour period) will be used for the calculation of activities of vessels under 8m/10m without logbook.

III.F.3 Landings

III.F.3.1 Data acquisition

Data will be acquired as defined in Appendix VIII of the Commission decision 2010/93/EC.

Variable	Data sources and methodologies
Value of landings total and per commercial species	Logbook/Landing declaration, Coastal Journal and sales notes. Since all quantity in a landing does not necessarily end up in a sales note, an average price for the species landed is used instead of the corresponding sales note. For monthly coastal journals an average for the month is used. The average prices are based on species, landing location and landing date.
Live Weight of landings total and per species	Logbook/Landing declaration and Coastal Journal. National conversion factors (same as for quota calculation) are used to calculate live weight from product weight. EC harmonised factors are used from 1 January 2010.
Prices by commercial species	Sales notes
Conversion factor per species	National conversion factors (same as for quota calculation) are used to calculate live weight from product weight. EC harmonised factors are used from 1 January 2010.

III.F.3.2 Data quality evaluation

Landing data derive from the same datasets used to monitor quotas. Comprehensive validations are 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, sightings etc are compiled trip by trip. The trip information is crosschecked in order to verify catch and catch area information in the logbook. Crosschecking of information in the monthly coastal journals is not made on a trip by trip base and not on a regular base.

III.F.3.3 Data presentation

Final and validated data on 2010 will be available in the end of 2011. Final and validated data on 2011 will be available in the end of 2012. Final and validated data on 2012 will be available in the end of 2013.

III.F.3.4 Regional coordination

No initiatives to coordinate the national programme with other MS for the collection of landing data.

III.F.3.5 Derogations and non-conformities

There are no planned derogations or non-conformities with the requirements of the DCR.

III.G Research surveys at sea

III.G.1 Planned surveys

Member States are required to conduct scientific research at sea to enable them to evaluate the size and distribution of the stocks, regardless of the data submitted by the commercial fisheries in relation to stocks for which such evaluations are possible and appropriate. Sweden will undertake six surveys in the Baltic Sea, the Kattegat and the Skagerrak. These six surveys are defined in Appendix IX of Commission Decision (2010/93/EC).

From 2010 onwards there is not known who will be in charge for the research vessel R/V ARGOS which will be used for five of the six surveys conducted by Sweden. The R/V ARGOS is a 61 meters long stern trawler. The Institute of Marine Research, IMR, uses R/V ARGOS for conducting the Baltic International Trawl Survey (BITS), Baltic International Acoustic Survey (BIAS) and the International Bottom Trawl Survey (IBTS). The smaller R/V ASTERIX will be used for conducting the Nephrops TV Survey (see table III.G.1.).

Baltic International Trawl Survey (BITS)

The survey is conducted twice yearly, in the 1st quarter (15 days at sea, 50 trawl stations) and in the 4th quarter (10 days at sea, 30 trawl stations) with the R/V ARGOS. The surveys cover area IIId.

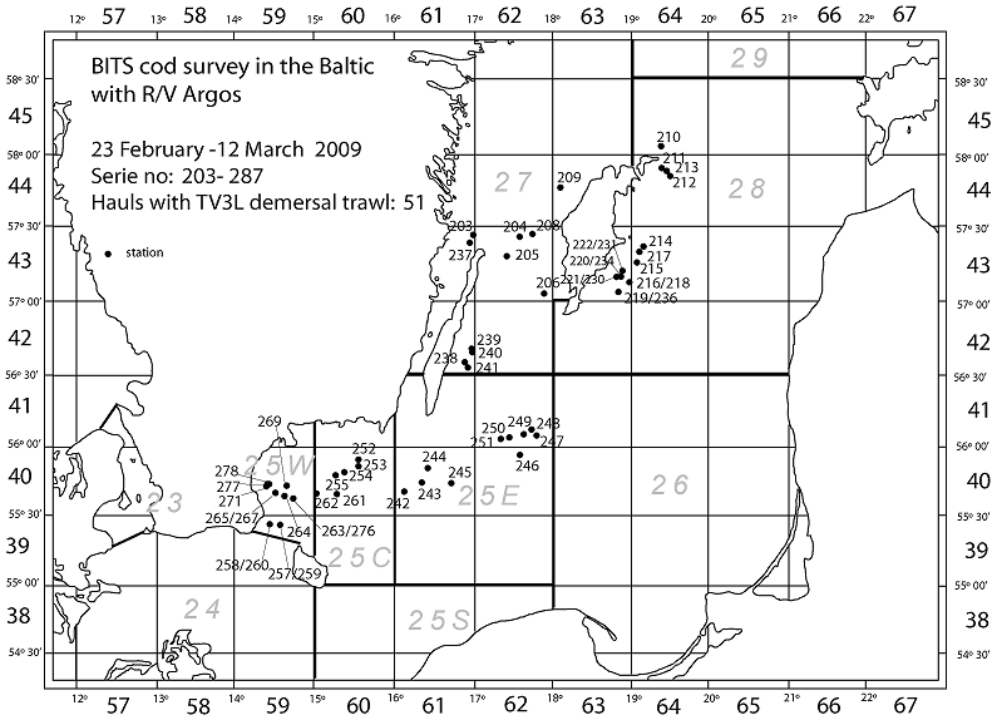
The primary purpose is to produce indices for recruitment and stock abundance of the Baltic cod stock. Sampling of individual cod includes fish length, age, weight, sex and gonadal maturity and is carried out on board the survey vessel. Data on gonadal maturity and individual weight are obtained to establish sex specific maturity ogives and mean weight at age for cod. The otoliths are analysed at IMR in Lysekil. Age determination takes place in accordance with standardised methods (Anon. 2000a).

The sampling procedure and the level of precision are defined in the Manual for the Baltic International Trawl surveys. ICES CM 2002/G:05(Addendum). The manual is available on the ICES website: http://datras.ices.dk/Documents/Manuals/Manuals.aspx

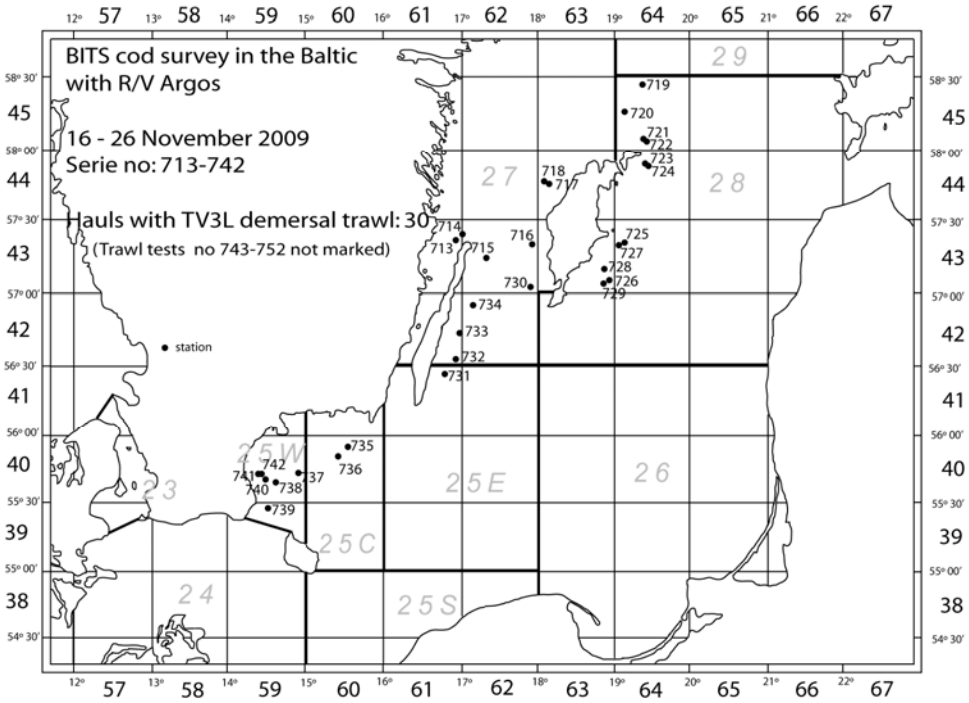
The survey is ICES coordinated and performed in collaboration with research vessels from Denmark, Germany, Poland, Latvia and Russia. However, all countries are not involved in every survey. During the survey a TV3 bottom trawl is used at day-time. This gear was developed around ten years ago and is used as a standard gear by the countries involved.
In connection with each haul, hydrographical data are collected with a CTD.

Primary survey data are stored in a fish sample database (FISKDATA) administered by IMR in Lysekil. Aggregated data are reported and used annually by relevant ICES Working Groups. Since 1997, data are also stored in an internationally coordinated database (DATRAS) at ICES in Copenhagen.

The survey is well suited for the calculation of the ecosystem indicators 1-4 as listed in Appendix XIII of Commission Decision 2008/949/EC.



Map 1. BITS (Baltic International Trawl Survey) quarter 1, cod survey in the Baltic. The dots represent the trawl stations.



Map 2. BITS (Baltic International Trawl Survey) quarter 4, cod survey in the Baltic. The dots represent the trawl stations.

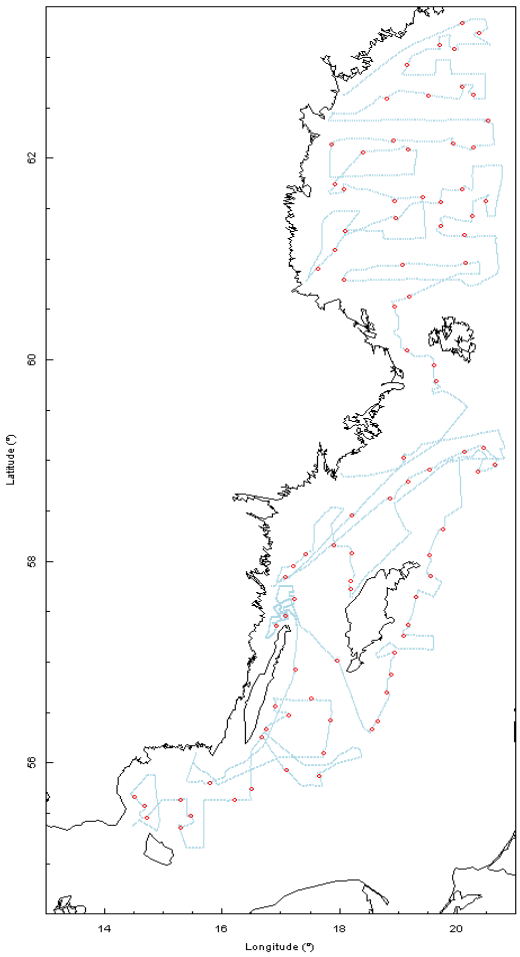
Baltic International Acoustic Survey (BIAS)

The survey is conducted in area IIId during the 4th quarter (25 days at sea, 85 trawl stations) with the R/V ARGOS. The survey have consists of two parts during 2008-2010, one which is run by Sweden, covering SD 25-29 and one joint-venture with Finland covering SD30 where scientists from both countries collaborate. Finland contributes with two persons in fishlab, one acoustician and does half part of the age reading. Sweden contributes with 4 persons in fishlab, the expedition leader, half part of the age reading and is responsible for calculating the results. The cost of the R/V ARGOS is divided in between the two countries. Meetings have been held for planning of the survey and also aiming to improve quality of the results. However, the latter part is under negotiating and will be updated at the latest 31 October 2010.

The purpose of the survey is to provide acoustic abundance estimates of herring, sprat and pelagic cod in the Baltic Sea (SDs 25-30). The sampling procedure and the level of precision are defined in the Manual for the Baltic International Acoustic surveys ICES CM 2008/LRC:8Add 2. The Manual is available at http://www.ices.dk/reports/SSGESST/2009/WGBIFS/Addendum%202.%20WGBIFS%20Bias%20Manual09.pdf
The acoustic abundance estimate is done in collaboration with Finland, Germany, Denmark, Poland, Russia, Latvia, Lithuania and Estonia. All species are length measured on board and parameters such as age, weight, and sex are analyzed on herring and sprat, the gonadal maturity is also analysed on herring. Age determination takes place in accordance with standardised methods (Anon. 2000a).

Primary catch data are stored in a fish sample database (FISKDATA) administered by IMR in Lysekil. Acoustic backscatter values are stored in two different databases and acoustic raw data are stored on disk, all administered by IMR in Lysekil. Aggregated data are reported and used annually by relevant ICES WGs. Our wish is to store the above data in an internationally coordinated database, like (Fishframe Acoustic, EC 99/06) at the moment administered by DTU Aqua in Copenhagen, Denmark, but unfortunately that database lacks funding and therefore cannot meet BIAS' data requirements.

The survey is well suited for the calculation of the ecosystem indicators 1-4 as listed in Appendix XIII of Commission Decision 2010/93/EC.



Map 3. Trek chart of the Baltic International Acoustic Survey 2009 quarter 4

International Bottom Trawl Survey (IBTS)

The survey is conducted twice a year, one in the 1st quarter (15 days at sea, 48 trawl stations) and one in the 3rd quarter (15 days at sea, 48 trawl stations) with the R/V ARGOS.
The number of hauls may differ among years, due mostly to weather condition. The surveys cover area IIIa and are the Swedish contribution to the International Bottom Trawl Survey.

The objectives of the survey are:

• to determine distribution and abundance of pre-recruits of the main commercial species (cod, haddock, whiting, herring, sprat, Norway pout and plaice) with a view of deriving recruitment indices;
• to monitor changes in stocks of commercial fish species independently of commercial fisheries data;
• to monitor stock changes for species which are currently not of commercial interest;
• to collect data for the determination of biological parameters for the more important species;
• to determine the abundance and distribution of late herring larvae (February survey);
• to collect hydrographical information (temperature, salinity, nutrients).

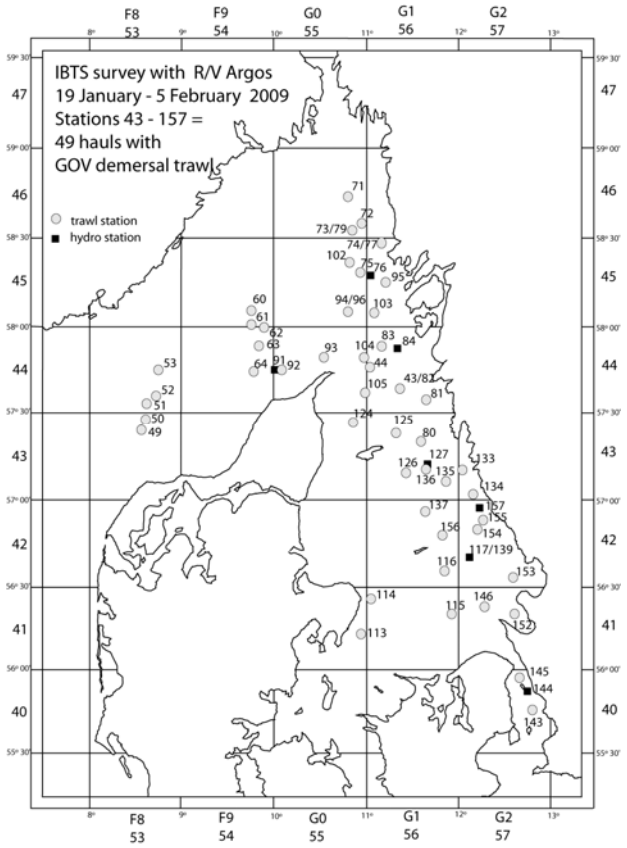
The collection of the biological data for target species includes recording of fish length, age, weight, sex and gonadal maturity and is carried out on board R/V ARGOS. The otoliths are analysed at IMR in Lysekil. Age determination takes place in accordance with standardized methods (Anon. 2000a).

The sampling procedure and the level of precision are defined in the Manual for the International Bottom Trawl Surveys ICES CM 2000/D:07. The manual can be found on the ICES website: http://datras.ices.dk/Documents/Manuals/Manuals.aspx

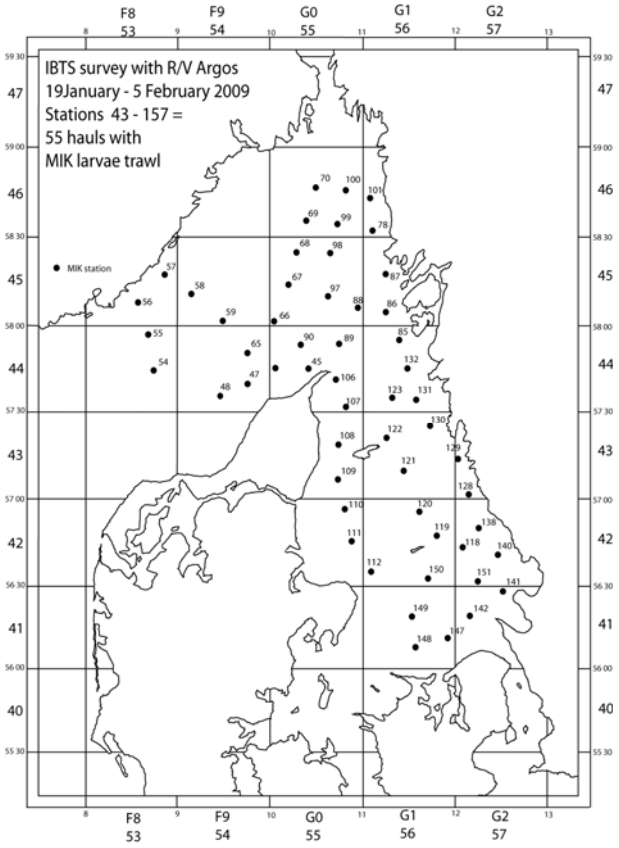
The survey is ICES coordinated and performed in collaboration with research vessels from Denmark, Norway, Germany, Netherlands, England, Scotland and France. During the surveys, a GOV bottom trawl is used at day-time. The GOV has been adopted as standard gear since 1976 and it is presently used by all countries involved. A Method Isaac Kidd (MIK) trawl is used at night-time in the quarter 1 survey (50 hauls) to estimate the abundance of fish larvae, in particular herring- and sprat larvae. In connection to each haul hydrographical data are collected with a CTD.

Primary survey data are stored in a national fish sample database (FISKDATA) administered by IMR in Lysekil. Since 1977, data are also stored in an internationally coordinated database (DATRAS) at ICES in Copenhagen. Aggregated data are annually used by IBTSWG, which coordinates the survey, as well as by other relevant ICES Working Groups.

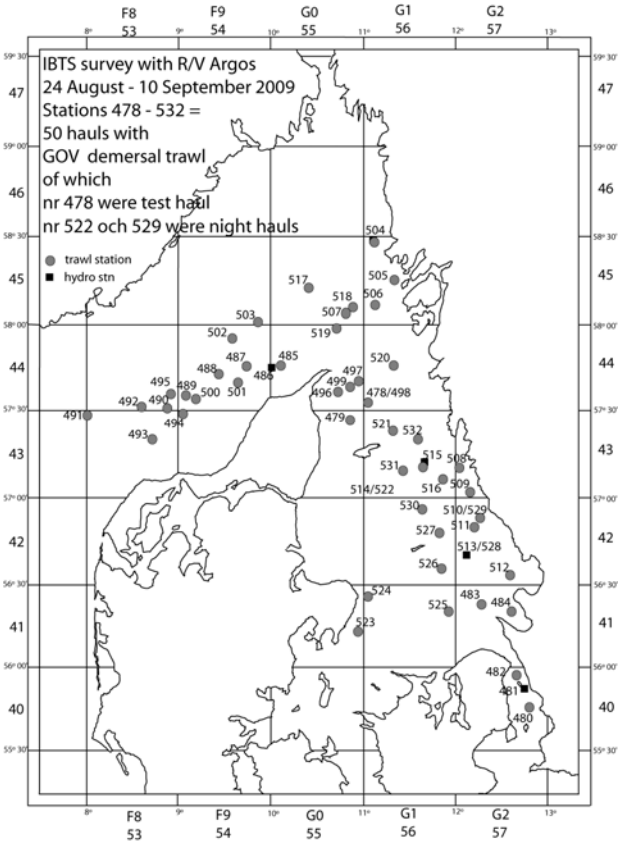
The survey is well suited for the calculation of the ecosystem indicators 1-4 as listed in Appendix XIII of Commission Decision 2010/93/EC.



Map 4. IBTS quarter 1. Stations plotted from survey conducted in 2009.



Map 5. IBTS quarter 1, Stations plotted for larvae hauls using MIK trawl in 2009



Map 6. IBTS quarter 3. Stations plotted from survey conducted in 2009.

International Ecosystem Survey in the Nordic Seas (ASH)

Sweden will participate with two staff members during two weeks of the ASH survey targeting herring and blue whiting in the Norwegian Sea, area IIa. The survey is coordinated and reported by Denmark.

Nephrops TV Survey (NTV3&4)

Uncertainty regarding landing figures and concern over some of the analytical assumptions upon which analytical assessments are based, has lead 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.

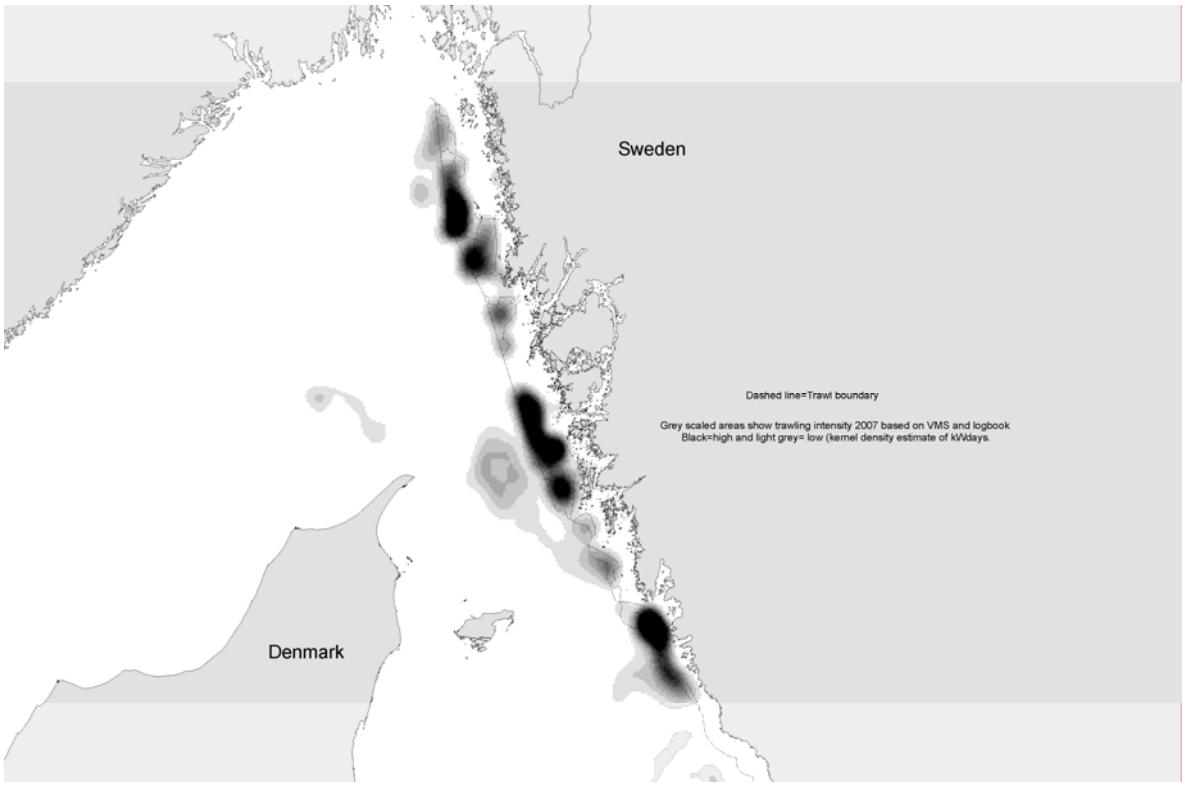
The Marine laboratory in Aberdeen developed a fishery independent UWTV survey in order to estimate stock size from burrow densities. UWTV consists of a video camera mounted on a sledge that is towed slowly on the bottom by a vessel. *Nephrops* burrows are counted and converted into densities using information on the width of the view of the camera and length of the tow.

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

Standardisation of the UWTV methodology has been established at a Workshop on TV surveys for Neprops stocks (WKNEPHTV) in April 2007 and a Workshop on edge effects will be carried out in November 2010.

The Swedish *Nephrops* fishery has got an increasing economic importance in recent years and it was suggested that Denmark and Sweden start a joint UWTV survey on *Nephrops* grounds in the Skagerrak and the Kattegat using R/V ANCYLUS and/or ASTERIX. The first joint survey was planned to take place during the autumn months in 2009 but due to extremely bad weather conditions, no useful video tracks were recorded during the three allocated weeks. Both Denmark and Sweden will use 15 days and this is necessary to cover the area.

The films will be stored on external hard-discs and DVD:s. Aggregated data will be stored in the database.



Map 7. Illustrating the Swedish UWTV-survey area.

III.G.2 Modifications in the surveys

IBTS
A change in trawl otterboards is planned in 2010. Presently the otterboards used during the survey have a larger surface than recommended in the IBTS manual. The analysis of gear performance data showed a drift in the main trawl parameters (i.e.vertical opening and door spread) during the last years, mainly due to the inadequacy of the trawl doors. Changing the otterboards has the purpose of improving the Swedish trawl performance and conform it to the IBTS manual, with a consequent improvement of data consistency.

III.G.3 Data presentation

For all surveys except from NTV3&4, primary survey data are stored in a fish sample database (FISKDATA) administered by IMR in Lysekil. For BITS and IBTS, data are also stored in an internationally coordinated database (DATRAS) at ICES in Copenhagen (since 1997). For acoustic data collected during BIAS an international coordinated database is still missing. For all surveys, aggregated data are reported and used annually by relevant ICES WGs.

III.G.4 Regional coordination

The trawl surveys described above are internationally coordinated. The planning and coordination of the surveys are done in ICES working groups connected with the surveys (WGBIFS, IBTSWG and PGHERS). Except from theses ongoing coordination meetings a few initiatives can be mentioned;

- For the NTV3&4, a close cooperation with Denmark has already been introduced to coordinate and harmonize this survey. In March 2010 a Workshop (Sweden and Denmark) will be held in Copenhagen in order to organize the joint plan for coming UWTV surveys that from 2010 will be carried out in spring each year. The Workshop will focus on 1) survey design, 2) stock size evaluation and 3) technical set-up for the future UWTV surveys.

- Task sharing between Sweden and Denmark regarding age reading of certain species collected during IBTS Q1 and Q3 are established (bilateral agreements)

- Joint survey with Finland for the acoustic survey BIAS in the Baltic (sd30) is described above.

III.G.5 Derogations and non-conformities

There are no planned derogations or non-conformities with the requirements of the DCF.

The Unit of Research Vessels, Research and Development Department, SBF, can be shifted to another authority (Swedish Maritime Administration) from next year and charter costs will be adjusted (increased) to the new authority's tariffs.

It seems to be a mistake in Appendix IX of the Commission decision 2010/93/EC which points out that there is maximal of 15 days devoted for UWTV trawling in FU 3 and 4. Both Denmark and Sweden will use 15 days and this is necessary to cover the area.

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

IV.A Collection of economic data concerning the aquaculture

IV.A.1 General description of the aquaculture sector

In 2008 the total volume of the aquaculture production in Sweden was 6 943 tonnes, and the value of the total production was 33 million EUR (excl. crayfish production). The main species produced was rainbow trout with a total volume of 5 766 tonnes and a value of 21 million EUR. The volume of mussels produced in 2008 was 1 911 tonnes with a value of 1.4 million EUR. Over the period 2000 to 2008 the volume of total production fluctuated between 5 389 and 6 943 tonnes and the value of total production fluctuated between 23 and 33 million EUR. The volume of the saltwater production varied between 2 306 and 3 892 tonnes and the freshwater production varied between 3 083 and 3 051 tonnes.

The total number of farms (excl. crayfish farms) was 201, and the total number of persons employed (excl. crayfish farms) was 180. Since one enterprise may consist of several farming units the number of enterprises is lower than the number of farms, about 150 enterprises. In addition, many Swedish aquaculture enterprises are very small and only 62 enterprises (excl. crayfish enterprises) have an income from aquaculture that exceed 50 % of their total income. Both the number of farms and the employment numbers indicate a declining trend in the long term perspective. This is an indication of a trend towards clustering of smaller farms and enterprises to larger units. The number of crayfish enterprises in Sweden is unclear and therefore not included in the data for 2008. An analysis of the number of crayfish

enterprises was initiated in 2009 and no new data on crayfish production will be presented until the analysis is implemented.

The Swedish aquaculture sector is small compared to the Swedish fishery sector. The volume of landings of the fishery sector in 2008 was about 219 000 tonnes with a value of about 101 million EUR. Of the total production of fish for consumption in Sweden aquaculture production represents about 3 % of the volume and 25 % of the value.

IV.A..2 Data acquisition

The Swedish Board of Fisheries (SBF) will be responsible for compiling and reporting statistics on the aquaculture sector. The SBF in cooperation with Statistics Sweden (SCB) will conduct two questionnaires and a tax declaration survey each year.

Data will be collected by SCB in four ways. Income tax declarations from every enterprise whose main source of income (more than 50 %) comes from aquaculture will be compiled, EUROSTAT definition under NACE Code 03.2 "Fish farming". This is an exhaustive survey. A questionnaire (Q1) about farming techniques, investments, production value and volume will be sent to all aquaculture farms. The questionnaire will give additional information that makes it possible to cluster farming units to enterprises in cases when several farming units are equal to one fiscal enterprise. It will also make it possible to compare information on value of aquaculture production with declared income from income tax declarations. These comparisons are needed to be able to classify the aquaculture farming as main acitivity of the enterprise or not. This questionnaire (Q1) is also an exhaustive survey. The second questionnaire (Q2) will be sent to a sample of the aquaculture enterprises in order to create a cost allocation key for costs that are not specified in the income tax declaration. This is a non-probability survey. Data on subsidies will be collected from the SBF, the managing authority of the European Fisheries Fund (EFF), and will be compiled by SCB.

Reference years for collection of data are 2010 – 2012. The reference year of 2010 – 2012 refers to the year for which data will be collected. Final validated data referring to 2010 will be available in February 2012 and so on. This is due to the data from tax declarations not being finalized earlier.

Segmentation: For companies using more than one farming technique or growing more than one species all production, incomes and costs will be transferred to the main technique and main species based on turnover.

(a) Definition of variables

Subsidies: Operating subsidies received from public authorities or the institutions of the European Union.
Other income: Revenue that is not included in normal sales excluding rents and licence fees.
Imputed value of unpaid labour: The imputed value of unpaid labour will be based on data concerning number of hours that unpaid labour is engaged in the production process. Data comes from questionnaire 2 (Q2) sent to a sample of the population, a non-probability sample survey. The number of unpaid hours is then estimated for the whole population and will be used for calculating the value of unpaid labour according to a model salary.
Livestock costs: The purchase of livestock during the reference period that will be either resold or stocked. Defined according to Commission Regulation (EC) No 2700/98, Code 13 11 0. Estimated from questionnaire 2 (Q2).
Feed costs: The purchase of feed during the reference period that will be either completely used up in the production process or stocked. Defined according to Commission regulation (EC) No 2700/98, Code 13 11 0. Estimated from questionnaire 2 (Q2).

Repair and maintenance: Services concerning repair and maintenance that are paid for during the reference period. Defined according to Commission regulation (EC) No 2700/98, Code 13 11 0.
Other operational costs: Costs that are not included in livestock costs, feed costs or repair and maintenance costs, Will be compiled from income tax declarations combined with estimates from questionnaire 2 (Q2).
Depreciation of capital: The value of the depreciation of tangible and intangible assets.
Financial costs, net: The result of financial investments (financial yields minus financial costs)
Extraordinary costs: Costs associated with rare events such as earthquakes, events of war, foreign affiliates or outbreak of disease.
Capital value: The total worth of all investments that belong to the enterprise.
Debt: The sum of short- and long-term liabilities.
Livestock volume: Volume of livestock that is purchased during the reference period.
Fish feed volume: Volume of feed that is purchased during the reference period.
Volume of sales: Volume of aquaculture products sold during the reference period.

(b) Type of data collection

Q1 = Questionnaire sent to all aquaculture *farms*, described above.
Q2 = Questionnaire sent to a sample of the aquaculture *enterprises*, described above

A) Census: For subsidies information will be collected from the databases of the SBF through a census. Data on turnover, other income, wages and salaries, depreciation of capital, financial costs, total value of assets, debt and number of enterprises will be gathered and compiled through a census from the income tax declarations and a questionnaire (Q1) by SCB. Net investments, number of persons employed, number of hours worked (in order to calculate FTE national) and volume of sales will also be collected through a sensus (Q1) that will be compiled with income tax declarations in order to add up data to enterprise level.

C) Non-Probability Sample Survey: Imputed value of unpaid labour will be calculated based on information on number of hours worked by unpaid labour. The information will be collected through a questionnaire (Q2). It will be a non-probability sample since the enterprises will be chosen out of information gathered from questionnaire 1 (Q1) in combination with information from income tax declarations. The aim is to cover as large part of the population as possible to reach as many different types of companies as possible. Information on energy costs, costs for/value of livestock and feed, repair and maintenance costs, other operational costs and extraordinary costs will also be collected through the same questionnaire (Q2).

(c) Target and frame population

The target population (and frame population) will be all aquaculture enterprises whose main income derives from aquaculture production. Main income means that more than fifty percent of the income declared in the income tax declaration must originate from aquaculture production. Based on registers handled by SCB farming units will be clustered into enterprises if necessary. For every enterprise answers given about sales value of aquaculture production (originating from questionnaire 1 (Q1), census data) will be compared with income tax declarations (census data) in order to find the target population.

Clustering: Data will be collected in accordance with the specified segmentation described in Commission Decision 2010/93/EC, Annex XI. Due to a small population of aquaculture enterprises some segments will have to be further clustered in order to be able to report aggregated data without identifying individual enterprises.

(d) Data sources

The Swedish Board of Fisheries (SBF) will be responsible for compiling and reporting statistics on the aquaculture sector. The SBF in cooperation with Statistics Sweden (SCB) will conduct two questionnaires and a tax declaration survey each year.

Data will be collected by Statistics Sweden in from three sources:

A questionnaire 1 (Q1) about farming techniques, investments, sales value and volume will be sent to all aquaculture farms. This survey has been conducted to collect data for Sweden's official statistics for many years in the past. It is an exhaustive survey.

Economic data collected from enterprises income tax declarations. The data is stored in a data warehouse by SCB.

A questionnaire (Q2) will be sent to a sample of the aquaculture enterprises in order to estimate costs that are not specified in the income tax declarations. This is a non-probability survey which focus on the enterprises with aquaculture as their main activity.

Subsidies will be collected from the SBF and will cover every enterprise that is part of the target population and that has received subsidies.

Income tax declarations from Statistics Sweden: SCB has a register of all income tax declarations for all businesses in Sweden called the SRU register. They will use the SRU register to compare the information on sales value from the register with the information on sales value that is given in questionnaire Q1. This will be done for every enterprise. If the information on sales value based on the SRU register is at least 70 % or at most 142.5 % of the sales value based on information from Q1 the information in the SRU register is acceptable. If the sales value from the SRU register is more than 142.5 % of the value given in Q1 and at the same time more than 50 % of the income then the income and costs originating from aquaculture production given in the income tax declaration, are assumed to be represented by the percentage of the income. In those cases when the sales value given in Q1 is 50 % or less of the income in the SRU register the enterprise will not be a part of the population according to Commission Decision 2008/949/EC, section IV.A.1.

Questionnaire (Q1): The questionnaire Q1 will be conducted by SCB and sent to the target population in order to receive information on investments and on value and volume of aquaculture production according to species and farming technique. Information on sales value is also compared to information on income received from income tax declarations, see *Income tax declarations from SCB* section IV.A.1.d. This questionnaire is also the basis for segmentation due to farming techniques and species. The segmentation is conducted according to Commission decision 2010/93/EC, Annex XI.

Questionnaire (Q2): The questionnaire Q2 will be sent to a sample of the target population (non-probability survey, see section IV.A.1.b) in order to create a cost allocation key to be able to specify costs that are included in the operational costs (given by the income tax declarations). It will also give information on the number of hours worked by unpaid labour during the year (to be used for calculation of imputed value of unpaid labour) and energy costs so that these variables can be estimated for the target population.

Assurance of consistency of data: The income tax declarations cover every enterprise in the target population. Questionnaire Q1 is sent to every enterprise in the target population and usually has a response rate of nearly 100 % since the enterprises in the target population due to national regulations have to give the type of information asked for in Q1. Any non-responses therefore originate from cases where the enterprise for different reasons suddenly have ceased their business and therefore should not be

in the target population. Questionnaire Q2 is sent to a sample of the target population. The answers will be used for estimating variables, not specified or not given in the income tax declarations, to the target population. It will be the basis for a cost allocation key. The cost allocation key will be valid for the target population since the sample is chosen out of knowledge of the population from Q1 and the income tax declarations

(e) Sampling stratification and allocation scheme

This description is valid for questionnaire Q2, see section IV.A.1.d. Questionnaire Q1 and compilation of income tax declarations both give census data.

Type of sampling strategy and further stratification within sector/segment: The sampling units will be selected in order to cover as large part of the target population as possible. Several factors will be decisive when choosing a sample. The total sales value per enterprise is of importance since we need to cover large enterprises that most probably have a good knowledge about their specified costs. If it turns out after the compilation of questionnaire Q1 and the income tax declarations that the target population consists of several types of enterprises we also need to cover all these types of companies. For example both sole companies and limited companies since limited companies are not expected to have unpaid labour while that might be more frequent in for example a sole company. Hence, the sampling strategy for Q2 will be dependent on the outcome of the compilation of Q1 and the income tax declarations. The sampling strategy will be prepared in cooperation with SCB.

Determination of sample size: The sample size of Q2 is dependent on the outcome of the compilation of Q1 and the income tax declarations. See *Type of sampling strategy and further stratification within sector/segment*.

Sample evolution over time, rotational groups: No rotation will be applied.

IV.A.3 Estimation

In order to achieve the required segmentation the data from Q1 are connected with the income tax declarations in the data warehouse. The two sources are connected by the organization number of the enterprise. Farming units are clustered into enterprises. For each enterprise the sales values from Q1 are compared to the declared income from the tax declarations stored in the data warehouse. The comparison is made in order to extract enterprises whose main source of income derives from aquaculture. It is also made to calculate a correction factor for the enterprises which does not have aquaculture as their main source of income. The correction factor is calculated as the share of sales which derive from aquaculture. The costs are collected from the data warehouse for the enterprises that have aquaculture as their main source of income. The costs are raised to population level by the correction factor. The cost structure for the enterprises with aquaculture as their main activity is assumed to represent the cost structure for all enterprises in the population.

The costs that are not specified in the income tax declaration, personnel costs, energy costs, repair and maintenance costs, raw material costs, other operational costs and extraordinary costs will be estimated based on data from Q2. A cost allocation key (weights) will be calculated from data from Q2 in order to split the costs in the income tax declaration into the required level of detail. FTE will be calculated based on information from Q2 on worked hours for entrepreneur, family members, interns and other unpaid workers respectively.

IV.A.4 Data quality evaluation

When a cost allocation key valid for 2010 is estimated (based on answers about costs out of questionnaire Q2) a prediction of the development of those costs during 2011 will be made by the SBF. The prediction will consider factors such as development of fuel prices as well as costs for live stock and feed. The prognosis for 2011 will then be compared to the cost allocation key that will be implemented in 2011 based on a new questionnaire (Q2) and will serve as a basis for decisions on the frequency of conducting questionnaire Q2 in the future. If the prognosis gives a high resemblance with the cost allocation key estimated out of answers from Q2 in 2011 and 2012 the frequency of conducting questionnaire Q2 can be changed from yearly to more rarely.

Questionnaire Q1 is evaluated by SCB. They conduct telephone interviews with aquaculture enterprises when there are incomplete answers, unreasonable answers or non-responses. Due to experience there will not be necessary to assess the likely impact of non-response bias on survey estimates since the response rate on these types of questionnaires is nearly 100 % due to legislative reasons.

Information on subsidies will come from registers at the SBF.

IV.A.5 Data presentation

Aggregated data will be stored in a database at the Swedish Board of Fisheries while individual data will be stored in a database at Statistics Sweden.

Data on 2009 will be available in mid October 2011.
Data on 2010 will be available in mid October 2012.
Data on 2011 will be available in mid October 2013.

IV.A.6 Regional coordination

Sweden will participate in the RCMs and implement their recommendations.

IV.A.7 Derogations and non-conformities

There are no planned derogations or non-conformities with the requirements of the DCF.

IV.B Collection of data concerning the processing industry

IV.B.1 Data acquisition

(a) Definition of variables

Subsidies: Consists of capital transfers without any demands of counter performance. Also includes subsidies from the EU structural funds (e.g. European Fisheries Fund).
Other income: Revenue that is not included in normal sales ex. rents, licence fees.
Imputed value of unpaid labour: Calculated as the difference between actual salaries and how much salary the enterprise would have to pay in order for all the employees to earn a normal full time salary (based on official statistics). All salaries are calculated with social costs included.
Purchase of fish and other raw material for production: Includes all costs for raw materials and other necessities required for production such as semi-manufactured goods, auxiliary materials and consumables.

Other operational costs: Includes costs for goods for resale, other external costs and other operating expenses
Depreciation of capital: The value of the depreciation of tangible and intangible assets.
Financial costs, net: The result of financial investments (financial yields minus financial costs)
Extraordinary costs: Costs associated with rare events such as earthquakes, events of war and confiscation of foreign affiliates.
Debt: The sum of short- and long-term liabilities.
FTE National: In accordance with COMMISSION REGULATION (EC) No 2700/98 of 17 December 1998 concerning the definitions of characteristics for structural business statistics, code: 16 14 0.

Data on 2009 will be collected in 2011 and available in mid October 2011.
Data on 2010 will be collected in 2012 and available in mid October 2012.
Data on 2011 will be collected in 2013 and available in mid October 2013.

(b) Type of data collection

The data consists mostly of census data from the SRU register although energy costs and subsidies are collected and estimated by a probability sample survey through a survey. The sampling method used is *Probability Proportional to Size Sampling* (PPS-Sampling) where the sum of income + the sum of costs is used as a size measure. Approximately 15 questionnaires are sent out each year. Energy costs are only collected on a total population level and can not be estimated on a segment level. Subsidies on the other hand can be estimated for each segment as well as for the whole population. The planned sample number for each segment can not be specified at this stage therefore a range is given for the variables collected by a survey.

Imputed value of unpaid labour is calculated from data based on actual salaries and data on average wage in the sector.

Turnover: (A) Census data from financial accounts
Subsidies: (B) Probability sampling through questionnaires sampled with pps-sampling
Other income: (A) Census data from financial accounts
Wages and salaries of staff: (A) Census data from financial accounts
Imputed value of unpaid labour: Calculated based on data from financial accounts
Energy costs: (B) Probability sampling through questionnaires sampled with pps-sampling
Purchase of fish and other raw material for production: (A) Census data from financial accounts
Other operational costs: (A) Census data from financial accounts
Depreciation of capital: (A) Census data from financial accounts
Financial costs, net: (A) Census data from financial accounts
Extraordinary costs, net: (A) Census data from financial accounts
Total value of assets: (A) Census data from financial accounts
Net investments: (A) Census data from financial accounts
Debt: (A) Census data from financial accounts
Number of persons employed per gender: (A) Census data from the Statistical Business Register
FTE National: (A) Collected from business annual reports by Statistics Sweden
Number of enterprises: (A) Census data from the Statistical Business Register

Regarding number of enterprises that carry out fish processing but not as a main activity data on number of enterprises and turnover attributed to fish processing data will collected and estimated by Statistics Sweden based on the same sources as for the enterprises with fish processing as a main activity.

(c) Target and frame population

Target and frame population are the same and consists of all enterprises whose main activity is defined according to EUROSTAT definition under NACE Rev. 2 Code C.10.20: “Processing and preserving of fish, crustaceans and molluscs”.

The data on total and frame population in table IV.B.1 is based on 2007 which is the last available year.

(d) Data sources

Financial accounts is collected and processed by SCB through the SRU register which is maintained by SCB and consists of all income tax declarations in Sweden

The Statistical Business Register is a central register consisting of information on all registered enterprises in Sweden which is maintained by SCB.

Questionnaires will be sent out to enterprises by SCB based on PPS-selection in the Statistical Business Register.

All data derived from different data sources is collected, estimated and checked by Statistics Sweden which will ensure the consistency of the final data. The Swedish Board of Fisheries conducts a macro analysis of the final data delivered by checking both individual variables and long term trends to ensure no errors have been made or that implausable changes have occurred. The final data delivered from Statistics Sweden is same data delivered to Eurostat.

(e) Sampling stratification and allocation scheme

The sampling method for the variables collected with probability sample survey is Probability Proportional to Size (PPS sampling) where the sum of total income and total costs is used to select which enterprises that will be sampled.

No stratification of the population is used in the probability sample survey although larger enterprises receive a higher probability of inclusion due to the sampling strategy.

For the variables collected through probability sampling approximately 15 questionnaires will be used for 2009. An equivalent number of questionnaires will be used in 2011-2013 but may vary slightly depending on the number of enterprises exiting in the specific years.

No rotation is applied to substitute non-responsive units.

IV.B.2 Estimation

Based on the answers in the questionnaires an allocation key is created and used to allocate numerical values to on energy costs and income from subsidies. Mean value imputation is used to estimate the value for the total population.

FTEs are collected by Statistics Sweden by surveying business annual reports.

IV.B.3 Data quality evaluation

The data quality evaluation is carried out by SCB before delivering it to the SBF. The SBF conducts a macro evaluation upon delivery to ensure no abnormal or implausible changes have occurred by comparing the new data with previous years. What follows is a description on how SCB evaluates the data before the final delivery.

Sampled data is reviewed on a micro level by SCB regarding summations, plausibility and relationships between variables. Outliers that may have a large effect on the estimation are checked and evaluated. Census data from the Swedish Tax Agency and the Statistical Business Register is evaluated by SCB although not to such a large extent as sample data. The evaluation of census data mostly consists of reviewing suspiciously extreme numbers that may be small or large. After reviewing the data on a micro level the data is processed to correct for non-responses. After merging the census and sample data the aggregate is checked and evaluated at a macro level. In the last step no difference is made between sample and census data.

The Swedish Board of Fisheries conducts a macro analysis of the final data delivered by checking both individual variables and long term trends to ensure no errors have been made or that implausable changes have occurred. The final data delivered from Statistics Sweden is same data delivered to Eurostat.

For variables collected through probability sample survey CV values are calculated to display uncertainties in the sampling and estimation.

IV.B.4 Data presentation

Reference years for collection of economic data are 2009, 2010 and 2011. Final and validated economic data on 2009 will be available in mid October 2011. Final and validated economic data on 2010 will be available in mid October 2012. Final and validated economic data on 2011 will be available in mid October 2013

Enterprises with ≥ 250 employees will be clustered with enterprises with 50-249 employees due to confidentiality reasons. In the previous years only two enterprises with 250 employees or more have been operating in the Swedish fish processing industry.

Complete data will only be available on a national level. On regional and municipal levels some regions and municipalities will not be available due to confidentiality reasons.

IV.B.5 Regional coordination

Sweden will participate in the RCMs and implement their recommendations.

IV.B.6 Derogations and non-conformities

There are no planned derogations or non-conformities with the requirements of the DCF.

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

Through our annual surveys, The SBF can realize the data requirements for the indicators 1-4 proposed in the Commission Decision 2010/93/EC Appendix XIII. The spatial and temporal coverage of data collection for the evaluation of effects of the fishing sector will consist of area IIIa in the first and third quarters and area IIId in the first and fourth quarters 2011 to 2013. The data collection will be fishery independent and is carried out by our R/V ARGOS 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 will be collected from all hauls including individual parameters such as age, length, sex and maturity from the target species of the survey at the required precision level.

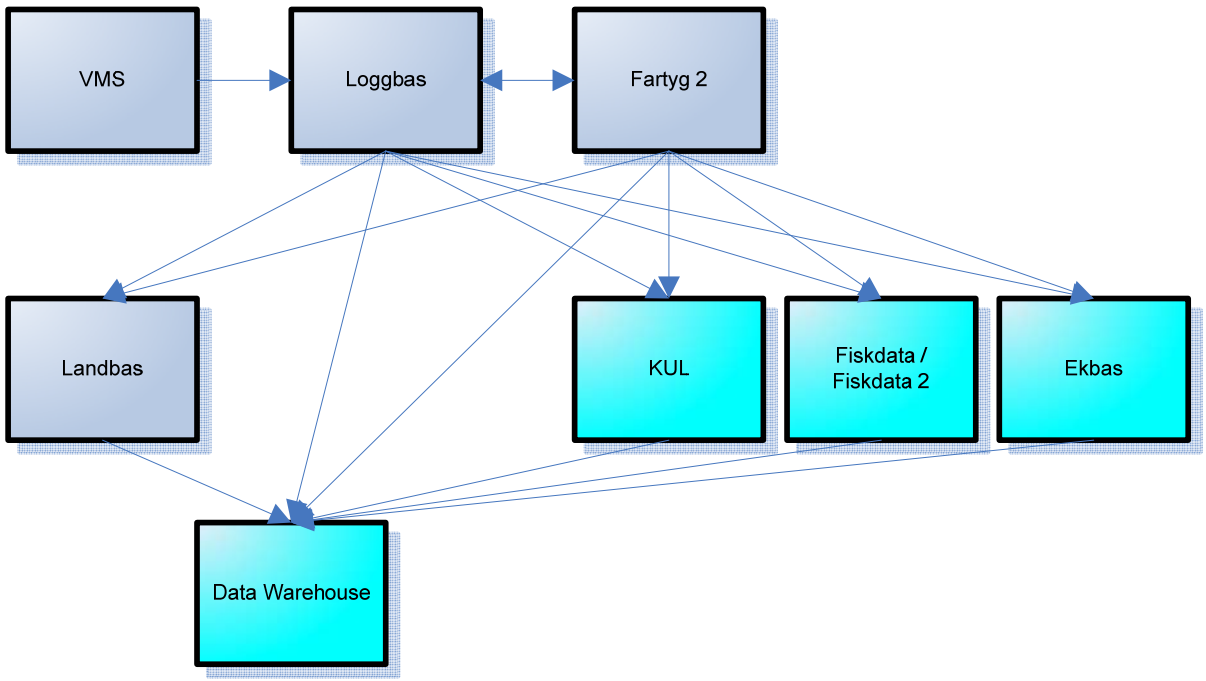
Sweden is collecting VMS data and the Research and Development Department of the Swedish Board of Fisheries has full access to VMS data from all Swedish vessels in all waters. Positions are reported once every hour for boats of 15m length or longer. Data can be aggregated at métier level 6 for environmental indicators 4, 5 and 6 and processed accordingly.

Fuel efficiency of fish capture: Sweden shall estimate fuel efficiency of fish capture by using a proportionality key based the quarterly effort by metier to distribute the fuel consumption to metiers and quarter. Fuel efficiency of fish capture will then be estimated as the ratio between value of landings and cost of fuel by quarter and by métier.

VI. Module for management and use of the data

Introduction

The biological and economical data at the SBF are stored in a six different Oracle databases. In addition, the SBF also houses a database where surveillance data from the Vessel Monitoring System (VMS) is stored.



The databases hold the following data

- VMS – vessel monitoring data.
- Loggbas – landing data.
- Fartyg 2 – data on fishing vessels and licences.
- Landbas – data from the fishery control.
- KUL – biological sampling data collected by the Institute of Costal Research (ICR).
- Fiskdata / Fiskdata 2 – survey data and biological sampling data collected by the IMR.
- EKBAS – economical data collected for the processing industry, the agricultural industry and for the fishing industry.
- Data Warehouse – a common data warehouse with a Business Intelligence (BI) portal for all data at the SBF.

Loggbas and Fartyg 2 provide look-up tables for the other systems.

Queries that are made against the data warehouses at the homepage of the SBF will not be logged, whereas queries made by personnel at the SBF on demand from end users will be logged. For this purpose a logging database will be created in accordance with article 9 in the COM Reg. (EC) no 665/2008.

IT strategy

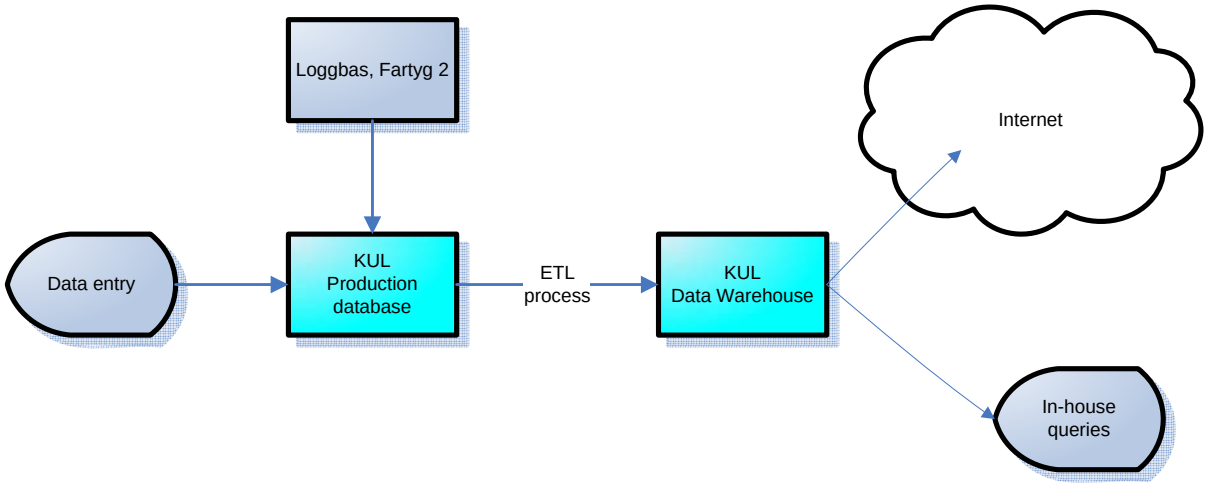
The IT strategy at the SBF includes the following key items. This describes the goal and the strategy is not fully implemented in all systems yet.

- Databases
  - Oracle databases. Currently a process is ongoing in order to transfer all systems to Oracle version 11.
  - Business logic in the database (PL/SQL) in order to secure the data as much as possible.
  - Logging of the data entered and changed in the databases in order to be able to trace who and when data was entered.
  - Authority systems that gives different users different authority.
  - Centrally localized and administered databases where nightly backups are taken.
- Data entry
  - Web applications in order to facilitate the distribution of the applications and to enable data entry wherever there is internet access.
  - Oracle development environment with JSF/ADF.
- Data warehouse
  - Data marts with star schemas (data warehouse) with data from all systems are hosted in the same database.
  - A common BI portal, based on Oracle OBIEE, is used to access all star schemas.
  - The data warehouse is accessible both from inside the fire wall of the Swedish Board of Fisheries and from the internet.
  - Depending of user authority, and from where the data warehouse is accessed, the authority is different. Some users can only see aggregated data, other detailed data. Some user can define their own queries; other can only run premade queries.
  - ETL(Extract, Transform and Load) process using Oracle Warehouse Builder (OWB).

Description of the different systems

KUL

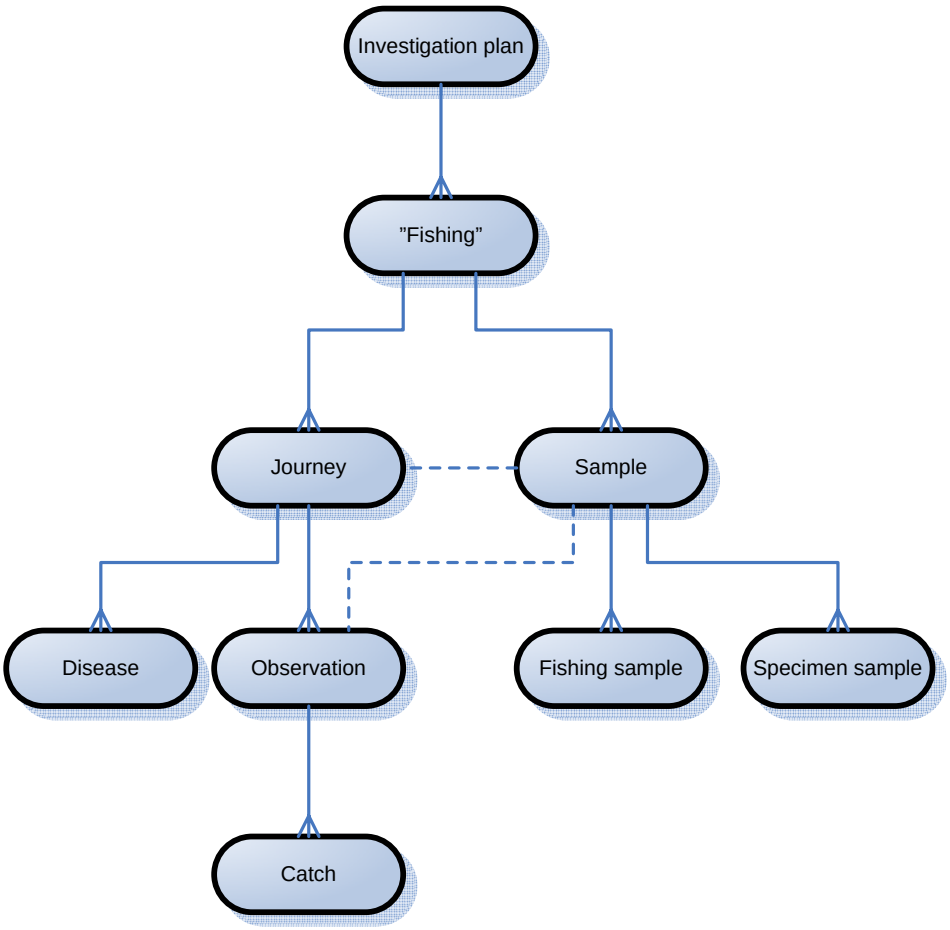
Principal outline



- Each night the data is transferred to the data warehouse. In order to be transferred, the data must be approved by a dedicated data controller. Once the data has been approved and allowed to be transferred to the data warehouse, this data can not be changed.
- Internally at the ICR, the scientists have query tools that enable them to retrieve data from the data warehouse at any level. From the data warehouse, aggregated data can be requested by any user at the homepage of the SBF.

High level concept model

Production database



The dotted lines indicates ”soft” links between the different concepts.

Data warehouse

The KUL data warehouse currently consists of eight fact tables (stars) and a numerous number of dimension tables. The fact tables are

- Catch
- Catch per length group
- Observation
- Specimen
- Sample result
- Diseases
- Fishing gear damage
- "Fishing"

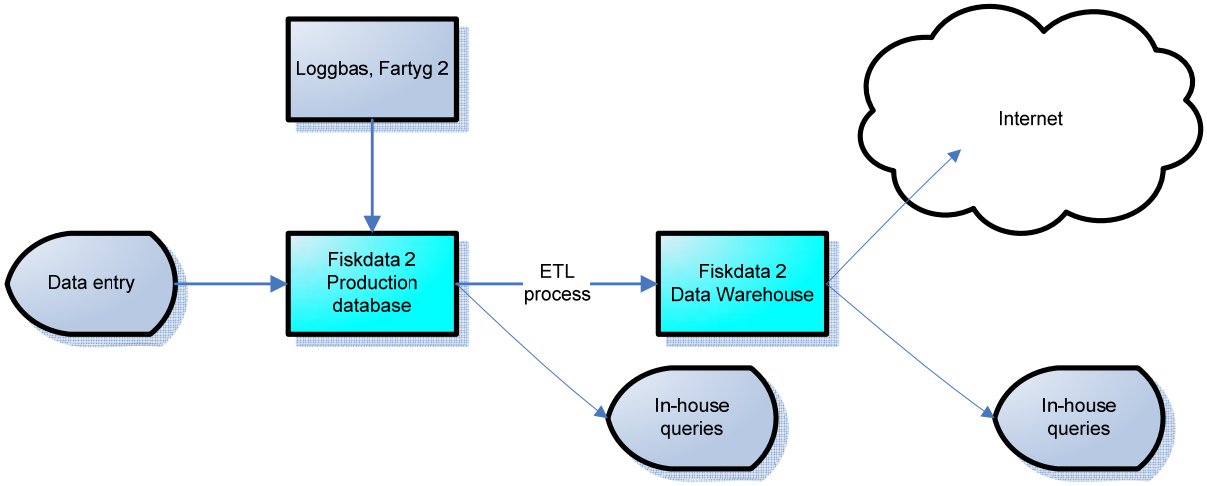
Development status and plans

The KUL system is in use since a couple of years but is undergoing constant improvements.

- The data entry system is currently being updated to JSF/ADF.
- The data warehouse is under migration from Oracle Discoverer to Oracle OBIEE.
- The fact and dimension tables in the data warehouse are constantly improved/developed.
- A conversion of data from the older systems that was replaced by KUL, is going on. More and more historical data is populated in the system.

Fiskdata 2

Principal outline



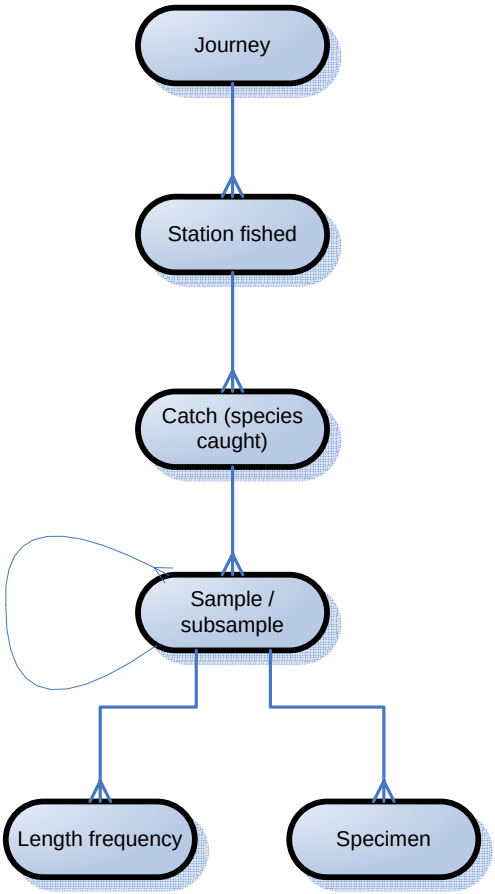
Note! The Fiskdata 2 system is not live yet. This is a planned scenario. When Fiskdata 2 has gone live, the same comments as can be found for KUL above, can be applied here.

Currently the Fiskdata is the production system. This system has no data warehouse and all reporting is done directly from the production database.

Only primary data is stored in the database, but through reports/queries aggregated data can be extracted which is submitted on regular basis to other internationally co-ordinated databases (Datras, Fishframe), or on request for instance by the JCR (for STECF related working groups).

High level concept model

Production database



Data warehouse

The development of the data warehouse has not started yet.

Development status and plans

The production database is under development and is planned to go live during 2010. The go live process also includes the converting of data from the current system, Fiskdata. When Fiskdata 2 has gone live, it will be the only system used for this purpose at the IMR, and it will hold both historical as well as new data.

The data warehouse is not designed yet, but the design and creation of the data warehouse will commence during 2010.

EKBAS

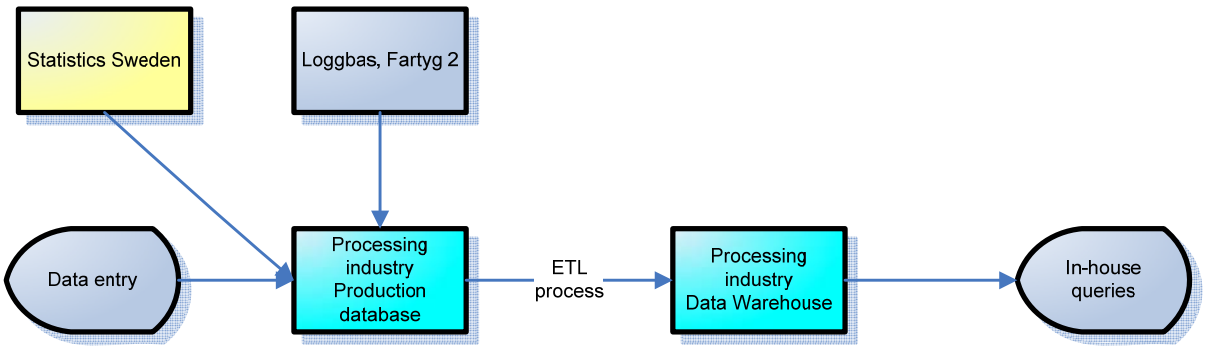
General

No query possibilities through the internet are planned. Ekbas contains confidential economic information that will not be made public. Only approved personnel at the Swedish Board of Fisheries have access to both the production database and the data warehouse.

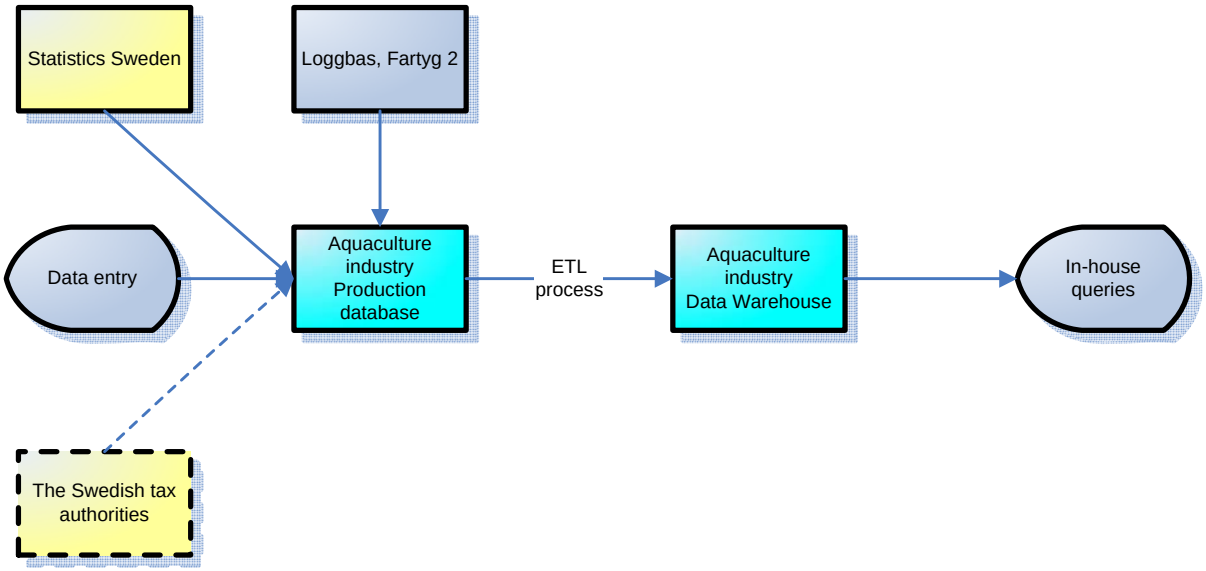
Both primary data and metadata are stored in the database. No data is deleted during the process in order to achieve traceability.

Principal outline

The processing industry

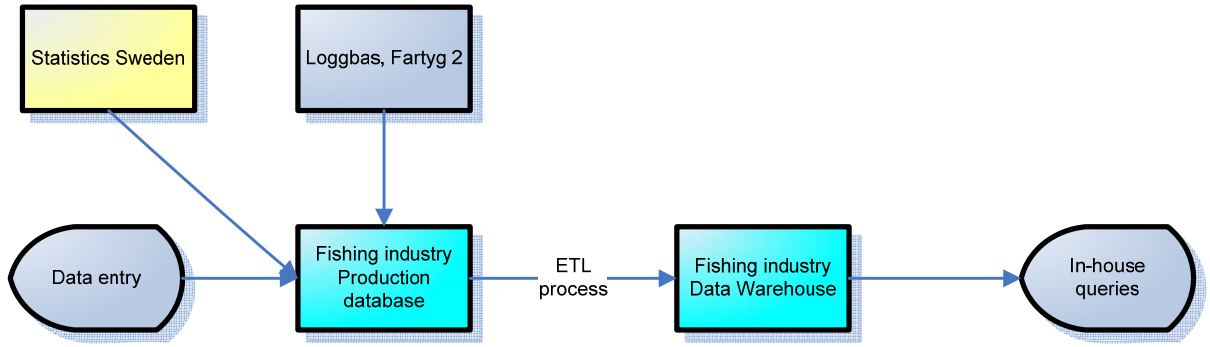


The aquaculture industry



The dotted lines indicate a planned future. Instead of buying the data from SCB, the SBF will possibly get the raw data from the Swedish tax authorities and prepare the data in-house.

The fishing industry



High level concept model

Data warehouse

The Ekbas data warehouse currently consists of seven fact tables (stars) and a numerous number of dimension tables.

Processing industry - the fact tables are

- Amount

Aquaculture industry - the fact tables are

- Amount

Fishing industry - the fact tables are

- Weight/value
- Days at see per sub division
- Days at see per division
- Days at see per area
- Fishing value

Development status and plans

Both the production databases and the data warehouses for Ekbas are under development, but have partly gone live.

- The processing industry

The data warehouse for the processing industry is in production and holds data for all the years from 2004 and forward. Improved data entry functions remains to be done.

- The aquaculture industry

The data warehouse for the aquaculture industry exists, but has not been tested yet. Reporting of the economic data for the aquaculture industry will not be done until next year.

Currently, the economic data for the aquaculture industry is bought from Statistics Sweden. The plans are that the SBF will prepare the data in-house in the future. This will require the development of a more extensive data entry system.

- The fishing industry

Both the production database and the data warehouse exist, but are not fully developed.

The data warehouse has been populated with data for the year 2008, which has been used for the reporting done in February 2010. Further development of the data warehouse tables remains and also the population of data for all historical years.

Also the production database needs further development, not the least improved data entry functions.

Use of the data

The SBF databases can provide sets of data to support scientific analysis needed to advice fisheries management. It includes parameters for assessment purposes or other scientific analysis such as number-at-age, weight-at-age and maturity-at-age which have routinely been submitted to relevant ICES governed assessment groups.
The data stored, also allow the assessment of the status of exploited stocks as well as estimating the volume of catches (defined by regional fishing types and fleet segments) including discards in the areas IIIa and IIId, on a quarterly basis.

VII. Follow-up of STECF recommendations

The evaluations made by SGRN/STECF on the Swedish proposals and Technical reports and the requests from the Commission for clarifications and explanations have in all cases been delivered in time and accepted. The recommendations made in the SGRN 09-01 report is listed below including the Swedish actions taken.

Source	Recommendation	Actions taken
SGECA/SGRN 09-01	According to DCF, merging of metiers should be supported by statistical evidence. However, MS's did not supply any documentation to justify merging of different metiers. SGRN consider that clear guidelines on statistical analysis for merging are needed. Metiers can be merged when they have similar and statically proven exploitation patterns and the merging is supported by documentation. SGRN endorses the RCM NS&EA 2008 view that all MS have proposed their own mergers based on implementation constraints (availability of fisheries statistics, reduction of strata size etc.) or on a scientific a priori grouping (e.g. gear type OTB and PTB, OTM and PTM etc.). The RCM NA&EA is of the opinion that this way of merging métiers is acceptable given the obligation to have a pragmatic start of the new sampling programmes. The scientific evidence for métier mergers required by the new DCF needs to be evaluated once the first datasets are available, (i.e. from 2010 onwards). The ICES PGCCDBS could be helpful in discussing the appropriate ways of	Sweden have in the National Programme merged metiers more from a common sense/pragmatic approach than a strict scientific analysis. Sweden have however followed the recommendations from RCM NS&EA and RCM Baltic. The reason for a pragmatic approach are several. In some cases the group of merged metiers (a sampling metier) follows the fishing opportuities (ex vessels that are allowed to fish within TR2 (1342/2008) in area IIIa. In other cases previous sampling show similarities/unsimilarities between metier. Due to the high variability in catches between trips and limited

Source	Recommendation	Actions taken
	carrying out these scientific analyses.	amount of data it can however be difficult to scientifically prove these things. In 2010 Sweden participated in ICES WKMERGE and realised that the issue on estimating catches by metiers can not completely be solved by merging. Instead we need to spend more effort in designing and implementing scientifically robust sampling schemes.
SGECA/SGRN 09-01	Several MS referred to the COST project results due in 2009, before starting the statistical analysis procedures for sample optimization. SGRN consider this as a feasible strategy to ensure standardization across MS. The COST project will finish in May 2009 and will then be reviewed. SGRN advise MS that there are many basic methods available to conduct sample optimization and encourage MS to use these.	Sweden have explored basic methods to calculate precision and optimise sampling programmes. We have however realised that the result is dependant on method. For multilevel sampling such as sampling for discards the analyses are further quite complicated. Sweden have thereby waited for a more common approach. Sweden has taken part in the COST workshop and is actively using the tools to explore our national data as well as analyse the precision level in the different sampling programmes.
SGECA/SGRN 09-01	According to the DCF, at least 12 trips per metier per year should be carried out for landings and 8 for discard. For several MSs, the planned number of trips is lower than indicated above. However, SGRN notes that some fisheries are only seasonal and therefore the minimum requirement is likely to be less than 12 trips per year. Even if it is less than 12 trips, the MS have to allocate their sampling in proportion to the seasonality of fishery. SGRN is not able to assess whether minimum requirements are respected as the length of the fishing season and fishing trip are not reported as they are not requested by the	Sweden are planning the sampling to achive (at least) the minimum levels of the DCF for the metiers that we sample.

Source	Recommendation	Actions taken
	guidelines. SGRN propose that a column indicating the length of the fishing season and average fishing trip is included in the NP (Table IIIC.3).	
SGECA/SGRN 09-01	According to DCF, all metiers selected by the ranking system should be sampled for landings and discard. There are provisions in DCF to reduce the sampling burden (e.g. merging; international co-operation). SGRN recognize that it will take time for MSs to adjust to the new DCF. SGRN would point out that derogations can be granted if reaching for target precision level implies excessive costs or if they are fully documented and scientifically proven. No such documentation has been provided by MSs. SGRN consider that derogations can only be granted if the level of discard is statistically proven and supported by documentation.	Sweden recognises the rationale behind this comments, and suggest that STECF establish criteria for what´s needed regarding documentation and scientifical analyses in the context of derogations.
SGECA/SGRN 09-01	There is no documentation or explanation about the level of discard for all metiers that are not selected by ranking to allow SGRN for evaluating derogations for discard sampling of those metiers. According to the Commission staff working paper on discards from community vessels (SGRN, November 2006), demersal trawls, seine and set nets are indicating level of discards for both cod and herring that are large than 10%. Long-lines and pelagic trawls and seine have instead level of discards less than 10% for cod. However, this classification has been done by gears and not by metiers as requested by the DCF. Although SGRN consider that this document is not applicable to the new DCF, it gives indications on the métiers using gears known as generating substantial levels of discarding that would need to be monitored. Such métiers should then be monitored regardless of their status in the ranking system. In general, all métiers operated by member states should be browsed as regards discarding behavior, derogations demanded, and if low levels of discards is statistically proven and/or supported by documentation. A first approval of low discarding métiers could be done at a regional level during the RCM's.	Sweden has given justifications for each metier in the NP 2011-2013. Sweden will welcome the idea that the first approval of low discarding métiers could be done at a regional level during the RCM's.
SGECA/SGRN	SGRN notes that some MS are using both	Sweden is sampling age

Source	Recommendation	Actions taken
09-01	surveys and landings sources for sampling age composition. SGRN interpretation of the DCF (Section B2-3.1) is that length composition or age composition from surveys cannot be applied to derive length and age composition of landings. SGRN recognize that the DCF does not forbid the use of age reading (i.e. age at length information) from surveys to support/complement age reading from landings for the construction of age length keys.	composition from surveys and age composition from landings separately.
SGECA/SGRN 09-01	The suitability of surveys for collecting environmental indicator 4 (on maturities) is commonly referred to in NPs, but no details are generally given as to the precise species for which these surveys are appropriate. SGRN suggest that guidance should be developed, survey by survey, to indicate for which species and in which areas it is appropriate to gather maturity data. SGRN will refer the matter to the RCMs. For environmental indicators 1-4, Annex XIII refers solely to fishery-independent surveys for data collection. However Table IIIC3, which is métier-based, indicates that fishery-dependent sources are also appropriate. SGRN considers this contradictory. SGRN recommends that this be resolved in the proposed review of the Guidelines for submission of MS National Programmes.	Details for samling environmental indicator 4 (on maturities) is described in details in the various survey manuals. An overview on the current sampling of maturity by species has been produced in the RCM´s. This is a baseline for further collaboration and coordination.
SGECA/SGRN 09-01	Regarding the ranking system, SGRN considers that MS did not interpret the rules in a consistent way leading to inconsistencies in métier selection. The strict application of the criteria may lead to too many métiers. The general feeling is that the number of métiers becomes too large and too unwieldy as a primary result of the ranking system. Interpreting the provisions of the DCF, some MSs have tried to reduce the number in a sensible and pragmatic way. The relatively fine resolution of the matrices may lead to deterioration in sample coverage (in terms of quality) for important metiers where sampling has to be spread over numerous (often small) metiers. SGRN recognizes that the interpretation of the métier rules should be given time “to bed in “. SGRN recognize that a cost efficient system is likely to require the use of alternative sampling methods and will refer the matter for discussion	Sweden follows the ranking system described in the Commission Decision and the guidelines given by the RCM’s for the NS&EA and the Baltic.

Source	Recommendation	Actions taken
	at the RCM's.	
SGECA/SGRN 09-01	Because transversal variables cover supra-regions, the review process as practiced this week (regional Sub Groups) leads to duplication of effort. SGRN will bear this in mind when developing the new guidelines for review of NP's	Sweden supports this
SGECA/SGRN 09-01	Reviewers of the NP neither found that while MS listed their bi-lateral agreements in the annexes, they did nor refer to them in the report text (Section III B). SGRN recommends MS to address this in future NP submissions.	Sweden has included signed agreement in this NP proposal.
SGECA/SGRN 09-01	Species derogations can be granted on the basis of less than 200 tons in total landing, if there is not any different provision from relevant RFMO. However, when official references such as EUROSTAT reveal inconsistencies, the derogation cannot be evaluated on the basis of the EU total landing. MS should provide these data so the derogation can be evaluated. SGRN suggests MS to provide a cost/benefit analysis in detail to determine the excessive cost as mentioned in the NP.	Not relevant for Sweden.
SGECA/SGRN 09-01	Most MS presented a sampling programme in line with the new DCF, in particular regarding fleet-fishery based sampling (metier stratification and concurrent sampling). SGRN acknowledged that it is currently impossible to have a clear perspective of the precision that will be achieved. SGRN recognise that sampling intensity will have to be adjusted based on MSs experience with the new DCF.	Sweden agrees in this comments.
SGECA/SGRN 09-01	SGRN would point out that the capital value and capital costs should be estimated according to the PIM methodology proposed in the capital valuation report of study No FISH/2005/03 (2006. Evaluation of the capital value, investments and capital costs in the fisheries sector, 203 p.). The data and estimation procedures should be explained in the national programme. In case this methodology cannot be applied, appropriate justifications should be given in the NP.	Sweden has implemented the PIM methodology proposed in the capital valuation report of study No FISH/2005/03 for reference year 2006 and onward
SGECA/SGRN 09-01	SGRN would point out that the methodology for the estimation of employment (engaged crew and FTE) should be in accordance with the Study	Sweden estimates in accordance with the Study FISH/2005/14 (2006,

Source	Recommendation	Actions taken
	FISH/2005/14 (2006, Calculation of labour including full-time equivalent (FTE) in fisheries, 142 p.) and amended by the SGECA 07-01 report and should be explained in the national programmes.	Calculation of labour including full-time equivalent (FTE) in fisheries for reference year 2006 and onward
SGECA/SGRN 09-01	SGRN recognizes the necessity to use different data sources to collect economic variables. However, SGRN reminds MS that in this case the DCF requires Member States to ensure consistency and comparability of all economic variables when derived from different sources (e.g. surveys, fleet register, logbooks, sales notes). SGRN asks MS to explain in the national program how the consistency of information derived from different data sources has been checked.	Sweden has provided this information in the NP for 2011-2013
SGECA/SGRN 09-01	SGRN reminds MS that in case of clustering of segments, the scientific evidence justifying it should be explained in the text. At the same time, SGRN recognizes that no common methodology exists on the approach to be followed and to assess whether or not clustering of fleet segments is appropriate. SGRN recommends that this issue will be discussed in the next SGECA meeting on data quality (May 2009).	Sweden uses the agreed guidelines for clustering provided by SGECA 09-02. Clustering of segments with similar characteristics is done by analysing fishing patterns in order to see if they are similar, if so clustering has been made where necessary.
SGECA/SGRN 09-01	MS has to cover all the fleet and collect the required data also for inactive vessels. Most of the MS do not provide any information about inactive vessels in the relevant tables of the national programs.	Sweden has provided information on inactive vessels in the NP for 2011-2013
SGECA/SGRN 09-01	SGRN reminds MS to indicate in the national programs when the final validated data will be available, as required in the guidelines.	Sweden has provided this information in the NP for 2011-2013
SGECA/SGRN 09-01	SGRN reminds MSs that according to the guidelines, they have to provide the method of estimation of fuel efficiency of fish capture in the Section III.B of the NP. Not all the MS provided this information in the section mentioned. SGRN reiterates that MS to follow the guidelines.	Sweden has provided this information in the NP for 2011-2013
SGECA/SGRN 09-01	SGRN reminds MS that methods of calculation of imputed value of unpaid labour have to be explained in the national programs. This request refers to fishery, as well to aquaculture and processing industry. SGRN recognizes that there is no common methodology of calculation of	Sweden has provided information on estimation of imputed value of unpaid labour in the NP for 2011-2013. When a workshop on estimation of unpaid labour

Source	Recommendation	Actions taken
	imputed value of unpaid labour and suggests that this methodology be proposed by SGECA.	will be held Sweden plans to attend.
SGECA/SGRN 09-01	SGRN states that information on data quality and representativeness of economic samples is still poor in several cases. Yet no procedures have been established which can be applied as standard by all MS. SGRN had stressed this point repeatedly, in particular since the concept of precision level as used for biological variables is not applicable for economic variables. SGRN suggests having these issues addressed in the workshop on quality of economic data, which has been announced for the 4th quarter of 2008.	Sweden will actively take part in the workshop on data quality and will incorporate the recommendations.

VIII. List of derogations

Sweden requests the following derogations:

Title of derogation	NP proposal section	Derogation approved/rejected	Year of past approval/rejection
Eel FYK CAT 0 0 0	**III.C.5 Baltic**	**2011-2103**	
Set gillnet fisheries targeting small pelagic fish (GNS_SPF_32-109_0_0) Area SD 22-24	**III.C.5 Baltic**	**2011-2103**	
Set gillnet fisheries targeting small pelagic fish (GNS_SPF_32-109_0_0) Area SD 25-29,32	**III.C.5 Baltic**	**2011-2103**	
Set gillnet fisheries targeting freshwater species (GNS_FWS_0_0_0)	**III.C.5 Baltic**	**2011-2103**	
Pots and traps fisheries targeting freshwater species (FPO_FWS_0_0_0), SD 30-31	**III.C.5 Baltic**	**2011-2103**	**2010, 2009**
Set gillnet fisheries targeting freshwater species (GNS_FWS_0_0_0), SD 30-31	**III.C.5 Baltic**	**2011-2103**	
Longline fisheries targeting demersal fish (LLS_DEF_0_0_0), Subdivision 22-24	**III.C.5 Baltic**		**2010, 2009**
FYK CAT 0 0 0	**III.C.5 IIIa**	**2011-2103**	
Trawl fisheries targeting demersal fish (OTB_DEF_<16_0_0), IIIaN	**III.C.5 IIIa**	**2011-2103**	**2010, 2009**
Gillnet fisheries targeting small	**III.C.5 IIIa**		**2010, 2009**

pelagic fish (GNS_SPF_50-69_0_0), IIIa			
Hand and pole line fishery targeting finfish (LHM_FIF_0_0_0), IIIa	**III.C.5 IIIa**	**2011-2103**	**2010, 2009**
Gillnet fisheries targeting demersal fish (GNS_DEF_120-219_0_0)	**III.C.5 IIIa**	**2011-2103**	**2010, 2009**
Trawl fisheries targeting demersal fish (OTB_DEF_90-119_0_0), IV	**III.C.5 IV**		**2010, 2009**
Trawl fisheries targeting demersal fish (OTB_DEF_>=120_0_0)	**III.C.5 IV**	**2011-2103**	
Trawl fisheries targeting demersal fish (OTB_DEF_<16_0_0)	**III.C.5 IV**	**2011-2103**	**2010, 2009**
Trawl fisheries targeting small pelagic fish (PTM_SPF_32-69_0_0)	**III.C.5 IV**	**2011-2103**	**2010, 2009**
Purse seine fisheries targeting small pelagic fish (PS_SPF_32-69_0_0)	**III.C.5 IV**	**2011-2103**	**2010, 2009**
Longline fishery targeting demersal fish (LLS_DEF_0_0_0)	**III.C.5 IV**	**2011-2103**	
Trawl fisheries targeting crustaceans (OTB_CRU_35-69_0_0)	**III.C.5 IV**	**2011-2103**	
Hand and pole line fishery targeting finfish (LHM_FIF_0_0_0), IIIa, IV	**III.C.5 IV**		**2010, 2009**
Gillnet fisheries targeting small pelagic fish (GNS_SPF_50-69_0_0), IIIa, IV	**III.C.5 IV**		**2010, 2009**
Gillnet fisheries targeting demersal fish (GNS_DEF_120-219_0_0), IV	**III.C.5 IV**		2010, 2009
CV of 20 % for the recreational fishery statistics.	**III.D.6 Baltic**	**2011-2103**	
CV of 20 % for the recreational fishery statistics.	**III.D.6 North Sea**	**2011-2103**	
Cod sampling sd 22-24	**III.E.5 Baltic**	**2011-2103**	2010, 2009
Salmo salar	**III.E.5 Baltic**	**2011-2103**	
Herring sampling sd 30	**III.E.5 Baltic**		2010, 2009
Spurdog IIIa N	**III. E.5. IIIa**	**2011-2013**	

Mackerel IIIa	**III. E.5. IIIa**	**2011-2013**	
Haddock sampling sd IIIa	**III.E.5 North Sea**	**2011-2103**	2010, 2009
Mackerel IV	**III.E.5 North Sea**	**2011-2103**	

IX. List of acronyms and abbreviations

ACOM	ICES Advisory Committee
AIS	Automatic Identification System
ASH	International Ecosystem Survey in the Nordic Seas
ALK	Age Length Key
BI	Business Intelligence
BIAS	Baltic International Acoustic Survey
BITS	Baltic International Trawl Survey
CANUM	Catch in numbers
COST	European Cooperation in Science and Technology
CTD	Conductivity, Temperature & Depth
CV	Coefficient of Variation
DATRAS	ICES' DATabase of TRAwl Surveys
DFU	Danmarks Fiskeriundersögelser
EFF	European Fisheries Fund
EMP	Eel Management Plan
FTE	Full time equivalents per vessel
GOV	"Bottom Trawl"
HELCOM	Helsinki Commission
ICR	Institute of Coastal Research
IFR	Institute of Freshwater research
IMR	Institute of Marine Research
IBTS	International Bottom Trawl Survey
ICES	International Council for the Exploration of the Sea
MIK	Method Isaac Kidd trawl
NP	National Programme
OWB	Oracle Warehouse Builder
OTB	Bottom Otter Trawl
PGCCDBS	Planning Group on Commercial Catch, Discards and Biological Sampling
PGMED	Planning Group in the Mediterranean
PGRFS	Planning Group on recreational Fisheries Surveys
PPS	Probability Proportional to Size sampling
RAC	Regional Advisory Committee
RCM	Regional Coordination Meeting
SAP	Salmon Action Plan
SBF	Swedish Board of Fisheries
SCB	Statistics Sweden
SD	Sub Division
SERS	National database covering all Swedish surveys
SGAESAW	Study Group on Anguillid Eels in Saline Waters
SGECA	STECF Subgroup on Economic Assessment
SGIPEE	The Study Group on International Post Evaluation on Eels
SLU	Swedish University of Agriculture

SRU	Standardized accounting excerpt
SPSS	Statistical Package for the Social Sciences
STECF	Scientific, Technical and Economic Committee for Fisheries
TR	Technical Report
UWTV	Underwater TV
VMS	Vessel Monitoring System
WECA	Weight in catch per age group
WGBAST	Baltic Salmon and Trout Assessment Working Group
WGBFAS	Baltic Fisheries Assessment Working Group
WGEEL	Joint EIFAC/ICES Working Group on Eels
WGNSSK	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
WKACCU	Workshop on Methods to Evaluate and Estimate the Accuracy of Fisheries Data used for Assessment
WKAREA	Workhop on Age Reading of European and American Eel
WKMERGE	Joint ICES/STECF Workshop on Methods for Merging Fleet Metiers for Fishery based Sampling
WKPRECISE	Workshop on Methods to evaluate and estimate the precision of fisheries data used for assessment
WKSMRF	Workshop on Sampling Methods for Recreational Fisheries

X. Comments, suggestions and reflections

In Sweden, the Swedish Board of Fisheries (SBF) is the administrative authority responsible for fisheries and fisheries issues. SBF will expire on 31 December 2010. The government intends to establish a new marine and aquatic authority from 1 January 2011. The final elements to be included in the new authority are not settled.

XI. References

Anon 2000a**.** Method handbook for the Swedish Board of Fisheries' Age Analysis Laboratories: the Marine Fisheries Laboratory, Coastal Laboratory, by the Freshwater Fisheries Laboratory 2000-07-01 Edition No. 3.

Anon 2000b. Manual for the International Bottom Trawl Surveys ICES CM 2000/D:07

Anon 2002. Manual for the Baltic International Trawl surveys. ICES CM 2002/G:05(Addendum)

Anon 2003**.** Game and Recreational Fishery in Sweden – Pilot Study. Institute of Marine Research, Swedish Board of Fisheries, 5 pp.

Anon 2007. Workshop on the Use of UWTV Surveys for determining abundances in *Neprops* stock in European Waters, Heraklion, Greece 17-21 April 2007. (ICES CM 2007/ACFM:14)
ICES 1994. Manual for Herring Hydro Acoustic Surveys ICES CM 1994/H:3

Anon 2008a. Report of the Baltic Fisheries Assessment Working Group. Copenhagen, 8-17 April 2008 (ICES CM 2008/ACOM:06).

Anon 2008b. Manual for the Baltic International Acoustic surveys ICES CM 2008/LRC:8Add

XII. Annexes

Annex 1. Further stratification within fleet segment

Segmentation	Further stratification by gear	Further stratification by species	Further stratification by activity	Number of vessels
Vessels using drift and/or fixed nets 12-18 m			More active	18
Vessels using drift and/or fixed nets 12-18 m			Less active	9
Demersal trawlers and seiners 0-10 m			More active	7
Demersal trawlers and seiners 0-10 m	Demersal trawlers and seiners 0-12 m		Less active	7
Demersal trawlers and seiners 10-12 m		Nephrops	More active	20
Demersal trawlers and seiners 10-12 m		Vendace	More active	21
Demersal trawlers and seiners 10-12 m		Others	More active	7
Demersal trawlers and seiners 10-12 m	Demersal trawlers and seiners 0-12 m		Less active	2
Demersal trawlers and seiners 12-18 m		Nephrops	More active	58
Demersal trawlers and seiners 12-18 m		Shrimp	More active	17
Demersal trawlers and seiners 12-18 m		Nephrops	More active	11
Demersal trawlers and seiners 12-18 m		Others	More active	18
Demersal trawlers and seiners 12-18 m	Demersal trawlers and seiners 12-40 m		Less active	4
Demersal trawlers and seiners 18-24 m		Nephrops	More active	12
Demersal trawlers and seiners 18-24 m		Shrimp	More active	8
Demersal trawlers and seiners 18-24 m		Others	More active	32
Demersal trawlers and seiners 18-24 m	Demersal trawlers and seiners 12-40 m		Less active	2
Demersal trawlers and seiners 24-40 m		Shrimp	More active	14
Demersal trawlers and seiners 24-40 m		Others	More active	16
Demersal trawlers and seiners 24-40 m	Demersal trawlers and seiners 12-40 m		Less active	2
Vessels using passive gears 0-10 m	Vessels using drift and/or fixed nets 0-10 m		More active	150
Vessels using passive gears 0-10 m	Vessels using passive gears 0-10 m		Less active	174
Vessels using passive gears 0-10 m	Vessels using fixed pots and traps 0-10 m	Nephrops	More active	46
Vessels using passive gears 0-10 m	Vessels using fixed pots and traps 0-10 m		More active	97
Vessels using passive gears 0-10 m	Vessels using passive gears 0-10 m		Less active	157
Vessels using passive gears 0-10 m	Vessels using hooks 0-10 m		More active	19

Annex II Bilateral agreement between Finland and Sweden regarding sampling of salmon for genetic analysi

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Annex III. Subcontracting in salmon rivers.

Item	*Year 2011*	*Year 2012*	*Year 2013*	*Subcontractor/Partner*	*Note*
River Mörrumsån	*Kr*	*Kr*	*Kr*		
Operation of smolt traps	355 000	283 000	283 000	Sveaskog	
Telemetry on smolts	110 000	0	0	Karlstads universitet	
Control of ascending fish in fishladder	202 000	209 000	209 000	Sveaskog	
Electrofishing	7 000	7 000	7 000	Sveaskog	Partial subc.
Total Mörrumsån	674 000	499 000	499 000		
River Ume/Vindelälven					
Operation of smolt trap in Vindelälven	515 000	532 000	547 000	Vindelälvens Fiskeråd	
Operation of smolt leader at power plant dam	336 000	336 000	336 000	Vattenfall AB	
Manual control of smolt in smolt leader	150 000	150 000	150 000	SLU	
Genetic investigation of salmon in river	50 000	50 000	50 000	SLU	
Control of ascending fish in fishladder	280 000	280 000	280 000	Vattenfall AB	
Electrofishing	75 000	75 000	75 000	Länsstyrelsen Västerbotten	
Total Ume/Vindelälven	1 406 000	1 423 000	1 438 000		
River Sävarån					
Operation of smolt trap, analysis and reporting	600 000	600 000	600 000	SLU	
Genetic investigation of salmon in river	50 000	50 000	50 000	SLU	
Control in present fishladder	30 000	30 000	30 000	Länsstyrelsen Västerbotten	
Electrofishing	55 000	55 000	55 000	Länsstyrelsen Västerbotten	
Operation Didson sonar	400 000	350 000	350 000	?	
Total Sävarån	1 135 000	1 085 000	1 085 000		
Common for all salmon index rivers					
Construction and operation of database	150 000	100 000	100 000	SLU	
Electrofishing in non index salmon rivers	120 000	120 000	120 000	Länsstyrelsen Västerbotten	
Total subcontracting	**3 485 000**	**3 227 000**	**3 242 000**		

Annex IV. Bilateral agreements have been made with Denmark
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Annex V. Bilateral agreements have been made with Germany

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Annex VI. Table of indicative costs

INDICATIVE COST OF MULTI-ANNUAL NATIONAL PROGRAMME 2011 - 2013

- EURO -

Year	Planned eligible expenditure	Maximum Community contribution
2011	5 956 869,14	2 978 434,57
2012	5 998 925,47	2 999 462,74
2013	6 244 334,24	3 122 167,12
TOTAL	18 200 128,86	9 100 064,43