

*National Data Collection Programme under
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Commission Regulation (EC) N° 655/2008 and
Commission Decision N° 2010/93/EU*

National Programme 2011-2013

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Ministry of Agriculture and Forestry
Finnish Game and Fisheries Research Institute

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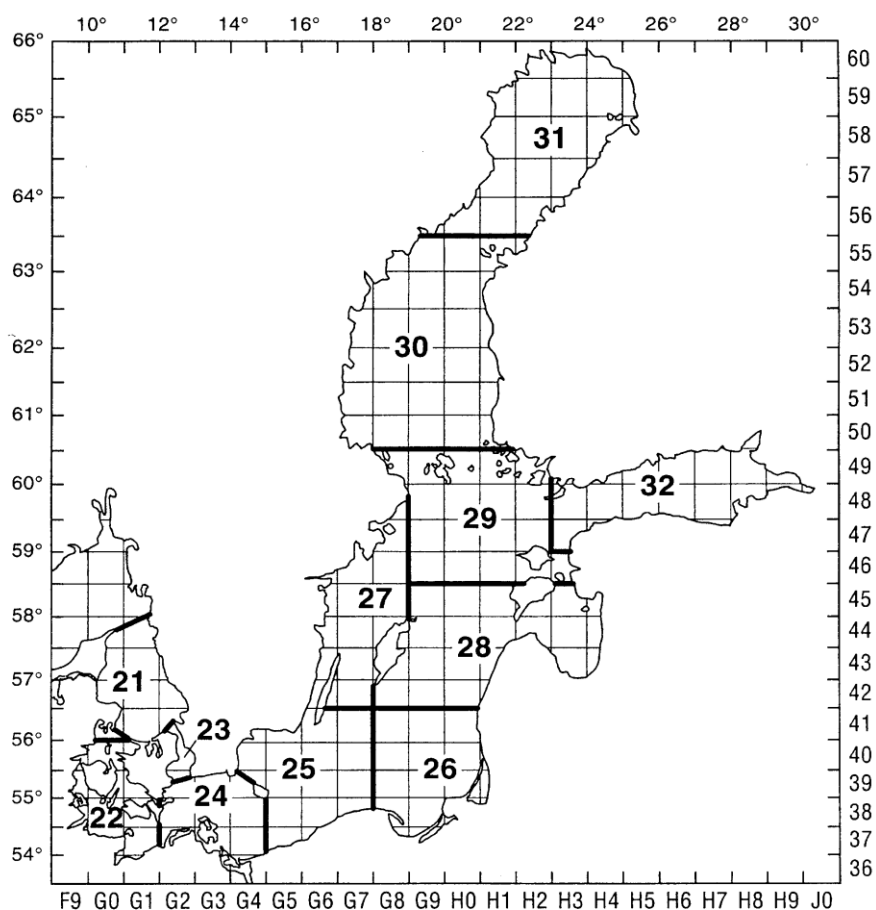


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I General framework

This is the Finnish National Programme proposal for 2011-2013 (NP 2011-2013). The work will be done under DCF: Council Regulation (EC) N° 199/2008, Commission Regulation (EC) N° 655/2008 and Commission Decision N° 2010/93/EU.

II Organisation of the National Programme

II.A National organisation and co-ordination

National correspondent

The administration of this national data collection programme in Finland is in the responsibility of the Ministry of Agriculture and Forestry (MAF), which designates a national correspondent in charge of the implementation of this programme and the DCR.

The contact information of the Ministry of Agriculture and Forestry and the national correspondent are as follows:

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Participating institutes

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Two national co-ordination meetings will be organised annually at FGFRI by the national correspondent and the contact persons from FGFRI. The main aim of the 1st meeting (in

spring) will be (a) to plan/ organise in detail the data collection tasks of the year and (b) to organise/ initiate the planning and reporting tasks of the data collection. This meeting will be attended by the FGFRI personnel involved in implementation of the data collection, representing 10 separate research units of FGFRI located around Finland. The 2nd meeting, which will convene in the autumn, will have the main emphasis on the general co-ordination of the implementation of the DCF. Participation of the 2nd meeting will consist of the FGFRI personnel responsible for specific parts of data collection (± 10 persons) and 1-2 participants from MAF.

II.B International co-ordination

The Finnish engagement in international co-ordination of the NP 2011-2013 consists of attendance in 1.) ICES PGCCDBS work (plenary meeting + 2-3 workshops/ year); 2.) Meetings linked to surveys at sea (ICES WGBIFS; ICES WGFAST), and 3) Stock assessment WG's of ICES (WGBFAS, WGBAST; see also chapter VI.B). Finland aim to participate annually in the meetings listed above. Additionally, Finland aims to attend any occasional meeting fundamental for the international co-ordination of the NP 2011-2013.

The list of meetings (financial form for co-ordination and/or Standard table II.B.1) will be updated annually when the list of meetings financed under DCF is available.

II.C Regional co-ordination

The regional co-ordination will mainly take place within the framework of RCM Baltic. In addition, an economist will participate the RCM meeting covering supra-regional (economic) issues of the DCF. The elements of regional co-ordination and co-operation are given in the relevant NP Proposal sections.

III Module of evaluation of the fishing sector

III.A General description of the fishing sector

Finnish vessels fish only in the Baltic Sea. There is no deep water fishery in Finland. In the beginning of 2009, the Finnish fishing fleet numbered 3240 registered vessels. Most of the vessels (3130) were less than 12 meter (LOA), and they were used in coastal fishing. The overall capacity of the vessels in the beginning of 2009 was 16 000 GT and power 170 000 kW. The fleet is divided into three segments: trawlers (109 vessels) and vessels with passive gears (36) that use nets and lines. The remaining vessels belong to a segment of small scale coastal fishing vessels under 12 meters.

A big part of the vessels are used seasonally only. One should keep in mind too, that depending on the winter and latitude, the coastal waters in Finland are ice covered over several months, and then fishing vessels are not in use. Regardless that, fishing can be conducted under ice cover. Then fishing vessels can be replaced for instance by snowmobiles.

The total fish catch level in Finland has been 120-160 000 tons in the previous years. In 2008 commercial marine catch was about 112 000 tons. The bulk of the catch consisted of Baltic herring, 83 000 tons, followed by sprat, 24 000 tons. Commercial catch in inland waters was 3 900 tons in 2008. Half of that consisted of vendace. Total catch of recreational fishermen in 2008 was 33 000 tons, of which 7 800 tons was caught in the Baltic Sea and the rest in the inland waters.

III.B Economic variables - Baltic Sea (ICES areas III b-d)

III.B.1 Data acquisition

(a) Definition of variables

The variables for Finland are the same as listed in Appendix VI.

Capital value and Depreciation will be estimated by vessel with respect to vessel age, tonnage and engine power (vessel register) and finally summarized by segments. Capital value and depreciation are estimated based on the so-called Danish method presented in the publication 'Return on capital in the European fishery industry' (1997).

FTE data is based on the database of the Statistics Finland (business register), and the basic estimation is made according to procedures of official statistics, and will be further estimated as far as possible according to the STECF guidelines. Statistics Finland uses annual income data from tax authority and their own annual employment statistics for the FTE estimation. More specific description of their calculation method (in Finnish) can be found in Annex V.

Opportunity costs for unpaid labour will be estimated based on the working time of unpaid labour and the average wage of an employee in the company or (if not available) the average wage of an employee in the particular industry.

(b) Type of data collection

Vessel register, logbook data (including coastal fishing) and business register are basically census data. Financial statements from the Statistics Finland and account surveys are expected to be probability sample surveys. Fish price data of quota species is basically census (fish first hand sales data). For non-quota species the price data is collected as a sample of the biggest fish wholesalers.

The details of the variables are given in Standard table III.B.3.

(c) Target and frame population

The evaluation of the economic situation in the fishing sector covers all fishing vessels in the fishing vessel register. Each vessel is owned by fishing unit: fishing unit can be a company, fisherman or household. One unit may have one or several vessels.

The fleet segmentation is given in Standard table III.B.1, and the segmentation follows exactly the given DCF guidance. Some minor segments are added to major segments taken into account data confidentiality principles (Standard table III.B.2).

The Target and the frame population are the same. Inactive vessels are managed as independent groups without gear based information, and for that practical reason they are divided only by length. The population information is provided in Standard table III.B.1.

(d) Data sources

Economic data collection is based on hierarchical multi-stage survey that combines information from different data sources. Main sources are the central control register on commercial fishery 'KAKE' (includes log book and coastal fishing data, fishing vessel register, and price data of quota species), financial database in the Statistics Finland (SF) and account surveys. In addition a supplementary survey on fishermen is planned to update the registers and enquire additional information concerning the fishing operation and employment (activity survey) might be done. The consistency of the data is controlled with enterprise identity code.

(e) Sampling frame and allocation scheme

As said, economic data collection is conducted with hierarchical multi-stage survey. Information on catches by species, value of landings by species, effort data and vessel capacity information is collected by vessel. This data is collected exhaustively for all vessels. Economic data is collected by fishing unit: company or fisherman (including family members). Economic parameters will be collected by strata based on fishing method and activity. These parameters are then disaggregated by vessels to follow the segmentation in the regulation.

We have two economic data sources. The first one is for open sea fishing (mostly trawlers). The basic data for that strata is financial statements data and is obtained from the Statistics Finland. Supplementing information of cost structure is collected with a specific sample survey. The second one is for coastal fishing. The coastal fishermen are allowed for an economic compensation for consequences of increased seal population. The compensation is paid by Ministry of Agriculture and Forestry. For the application of compensation, the fishermen need to attach detailed account data. This data is made available for the use in the DCF. These two data sets cover the whole fishing fleet.

Primary sources of financial statements data in the Statistics Finland are direct inquiries and business taxation material supplemented by the Business Register data. The data is based on corporate balance sheet and profit and loss account data. The Statistics Finland will check for the validity of the data.

III.B.2 Estimation

Cost and earnings estimates will be done by design-based and model assisted regression and ratio estimation. First, the total revenue (by fleet segment) is estimated with regression using the total value of catches as explanatory variable with the following formula: $Y = \alpha + \beta X$, where Y is total revenue, α =constant, β =regression coefficient, X =total value of catches. Then total costs are estimated for total population per segments from total revenue with the following formula: $Z = \alpha + \beta Y$, where Z is total costs, α =constant, β =regression coefficient, Y =total revenue. The cost variables are estimated as ratio estimates from the total costs as follows: $C = CR/TCR * Z$, where C =estimated value of the cost variable, CR =value of a cost variable as reported in the account survey. TCR =value of total costs as reported in the account survey, Z =estimated total costs from the regression.

Capital value and costs will be collected by account survey and from balance sheets in financial statements. PIM method will be attempted to utilise in estimation of capital value and costs according to the guidelines by STECF.

Employment will be presented in engaged persons and FTE. FTE data is based on the database of the Statistics Finland (business register), and the basic estimation is made according to procedures of official statistics, and will be further estimated as far as possible according to the STECF guidelines. The employment data would be supplemented with activity survey and log book information. Opportunity costs for unpaid labour will be estimated based on these employment estimators

Fuel costs will be estimated based on account surveys. Fuel consumption will be estimated based on the costs by fleet segments.

The price data on fish subject to quota (Baltic herring, sprat, salmon, and cod) are calculated from the purchasing notifications submitted by the first hand purchasers of fish to regional fisheries control authorities. The price data are checked with a sample of the book keepings of 20 fish wholesalers in coastal areas. The prices on other fish species (non quota) are

calculated from that data. The prices are calculated by species, size-class, degree of processing, and by quarter/month.

III.B.3 Data quality evaluation

Capacity, landings and effort data covers all vessels. Financial statements are collected for all firms in Business register. However, there is under-coverage in the Business Register (compared to target frame population) that has to be considered and estimated. This register survey gives good coverage in number of firms and share of production. By assuming randomness in under-coverage, the conditional variation of the total costs is expected minor for financial statements originating from Business register (relative standard error of the mean). The estimation of total costs originating from account survey is expected to yield conditional variation of around 10% for the active part of the fleet. The variation of separated cost variables would be higher.

For the coastal vessels the planned account survey is expected to give conditional variation for the total costs around 20% (relative standard error of the mean). The variation of separated cost variables will be higher. This would yield an estimated conditional variation (relative standard error of the mean) of total costs to be around 15% for total active coastal fleet.

The coefficients of variation and the standard errors for revenue and cost variables are calculated to evaluate the variability and accuracy of the data collected. The data quality indicators are presented by variable in the Standard table III.B.3.

III.B.4 Data presentation

The reference year of economic data collection is the preceding year. Preliminary financial statements data will be available at end of the 4th quarter after the reference year. Therefore information of the economic situation of fishing sector will be provided not earlier than one year after the reference year investigated. Confidentiality is basically taken into consideration in clustering of the segments. However, the actually caught response rates and fluctuation in the vessel numbers might cause pressure to revise the clustering.

III.B.5 Regional coordination

RCM recommendations will be applied if applicable.

III.B.6 Derogations and non-conformities

The estimates of total cost structure is expected to be reasonable, but the reliability estimates of separate cost items depends on the success of the account survey. All cost items will be inquired in the questionnaire but the reliable estimates cannot be fully guaranteed.

Fuel consumption will be estimated based on fuel costs. Offshore vessels use same fuel type (light fuel oil) and fuel consumption can be estimated. Coastal vessels use different kind of engines with different fuel types. Therefore reliable estimates of fuel consumption for this segment are challenging.

III.C Biological - metier-related variables - Baltic Sea (ICES areas III b-d)

III.C.1 Data acquisition

(a) Codification and naming convention

Finland has used the fishing grounds, mesh size ranges and metiers naming convention agreed by the RCM Baltic (see Tables 2, 4 and 5, and Annex 4 in RCM Baltic 2009 report).

(b) Selection of metiers to sample

The selection of metiers to sample was carried out following the ranking system described in the Commission Decision 2010/93/EU. The information used for ranking was obtained from logbooks (census), coastal fishery reports (census), price data [purchase notifications (TAC regulated species); price data from 20 wholesalers (all species)], and vessel register data (census).

All metiers are given in Standard table III.C.1. The selected metiers to be sampled are listed below (see also metier descriptions in Annex I):

FYK_ANA_>0_0_0

Fyke net fishery targeting anadromous species, Salmon (*Salmo salar*) and Sea trout (*Salmo trutta*). The metier 'FYK_ANA_>0_0_0' is the major salmon fishery in Finland. The metier consists of coastal fyke net fishery in two management units of salmon, SD22-31 and SD32. The metier targets on salmon on spawning migration mainly in June-July. Also some sea trout are caught as a by-catch in this fishery. Landings cannot be distinguished from 'FPN_ANA_>0_0_0' in the Finnish landing statistics.

FYK_FWS_>0_0_0

Fyke net fishery targeting a variety of freshwater species. The most important target species are Perch (*Perca fluviatilis*), Pike-perch (*Sander lucioperca*), and Common whitefish (*Coregonus lavaretus*). Landings cannot be distinguished from 'FPN_FWS_>0_0_0' in the Finnish landing statistics.

FYK_SPF_>0_0_0

Fyke net fishery for herring (*Clupea harengus*). Finnish landings cannot be distinguished from 'FPN_SPF_>0_0_0' in the Finnish landing statistics.

GNS_FWS_>0_0_0

Coastal gillnet fishery targeting a variety of freshwater species. The most important target species are Perch (*Perca fluviatilis*), Pike-perch (*Sander lucioperca*), and Common whitefish (*Coregonus lavaretus*).

OTM_SPF_16-104_0_0, PTM_SPF_16-104_0_0

Midwater trawls targeting Herring (*Clupea harengus*) and Sprat (*Sprattus sprattus*).

The fishing ground for all metiers planned to be sampled under the Finnish NP 2011-2013 is SD 25-32 (ICES Sub-divisions 25-32, 'Eastern Baltic Sea').

The merging and disaggregating of metiers is presented in Standard table III.C.2.

(c) Type of data collection**FYK_ANA_>0_0_0:**

Non-Probability Sample Survey/ Strategy: Other [self-sampling at sea]. The fishery is targeting Salmon on spawning migration, and partly on Sea trout. Spawning migration of salmon occurs in June-July. Sampling takes place in three (adjacent) areas along the migration route, and in between part of the salmon stocks separate out to their home rivers, causing difference in the catch composition between the areas. In each area about 3-5 trips (max. 20 individuals per trip) are sampled per week resulting to 300-500 salmon per area in one season (altogether about 1900 samples from all areas). Such amounts of samples ensure that the striven precision targets will be met. A modest number of sea trout is caught in this fishery and these are sampled along with salmon.

FYK_FWS_>0_0_0

Non-Probability Sample Survey/ Strategy: Concurrent sampling, Scheme 1. The metier is divided into two national metiers; 'FYK_FWS_>0_0_0 PERCIF', fyke net fishery targeting Perch and Pike-perch, and 'FYK_FWS_>0_0_0 COREG', fyke net fishery targeting Common whitefish. The sampling is shore based due to small vessels used in this metier which do not allow extra persons onboard.

FYK_SPF_>0_0_0

Non-Probability Sample Survey/ Strategy: Concurrent sampling, Scheme 1. This metier includes 'FPN_SPF_>0_0_0' because both are targeting spawning herring (*Clupea harengus*) in coastal areas in spring and Finnish landing statistics do not distinguish between 'FYK_SPF_>0_0_0' and 'FPN_SPF_>0_0_0'. The fishery has occasional by-catches of coastal freshwater species (mainly cyprinids), which can be released from fyke nets uninjured, resulting insignificant discards. The sampling is mostly shore based due to small vessels used in this metier which do not allow extra persons onboard.

GNS_FWS_>0_0_0

Non-Probability Sample Survey/ Strategy: Concurrent sampling, Scheme 1. The metier is divided into two national metiers; 'GNS_FWS_>0_0_0 PERCIF', gillnet fishery targeting Perch and Pike-perch, and 'GNS_FWS_>0_0_0 COREG', gillnet fishery targeting Common whitefish. The sampling is mostly shore based due to small vessels used in this metier which do not allow extra persons onboard. On request fishermen bring the whole catch on shore for e.g. discard sampling.

OTM_SPF_16-104_0_0

Non-Probability Sample Survey/ Strategy: Concurrent sampling, Scheme 1. The metier is midwater trawl fishery for herring or mixed fishery for herring and sprat with occasional bycatches consisting mainly of G3 species. This metier is merged with 'PTM_SPF_16-104_0_0', because statistical comparisons of exploitation patterns (fish length distributions) show no difference between their catches (Annex II). Sampling is conducted at harbours because discarding is insignificant in this fishery. Regardless of the species-composition in the catches, they are valuable at least as animal fodder and therefore always landed.

(d) Target and frame population

The target populations and frame populations for metiers to be sampled are given in Standard tables III.C.3 and III.C.4. The total number of trips is not available in the landing statistics for passive gears (with exception of metier 'FYK_ANA_>0_0_0'). In these cases, the total numbers of fishing days are given instead.

FYK_ANA_>0_0_0:

About 265 fisherman using <10 m vessels participate in this fyke net fishery at the coastal areas in the Gulf of Bothnia and about 35 fishermen in the Gulf of Finland. In the Gulf of Bothnia there are two sampling areas, the Åland Islands and the Quark area, and in the Gulf of Finland one sampling area. In each area 2-4 fisherman contribute to the sampling by 2 fishing trips per week during the whole fishing season in June-July. Altogether about 130 fishing trips are sampled.

FYK_FWS_>0_0_0

There are ca. 200 Finnish fishermen catching freshwater species with fyke nets in the Eastern Baltic SD 25-32. The number of fishing trips in this metier are not recorded in the monthly coastal landings reports and thus they are not available in the landings statistics. The basis for sampling is derived from effort ranking (i.e. fishing days). The sampling frame is further divided into two groups according to main target species in the fishermen's operations – percids or common whitefish. In Finnish fyke net fishery operates only in the eastern Baltic, and metier level 6 is almost always known in advance, which makes planning relatively easy.

FYK_SPF_>0_0_0:

The number of fishing trips in this metier are not recorded in the monthly coastal landings reports and thus they are not available in the landings statistics. The basis for sampling is derived from effort ranking (i.e. fishing days). During a relatively short season (about 2 months) the metier is targeting the spawning component of 3 herring stocks in 4 ICES subdivisions in 2 management areas. The sampling is planned to cover the whole season in all areas and it's following the minimum rule of at least 1 sample/month/area and 5 measured specimen/length-class. The sampling strategy is concurrent sampling (Scheme 1) on shore due to small vessels used in this metier which usually do not allow extra persons onboard.

GNS_FWS_>0_0_0

There are ca. 700 Finnish fishermen catching freshwater species with gillnets in the Eastern Baltic SD 25-32. The number of fishing trips in this metier are not recorded in the monthly coastal landings reports and thus they are not available in the landings statistics. The basis for sampling is derived from effort ranking (i.e. fishing days). The sampling frame is further divided into two groups according to main target species in the fishermen's operations – percids or common whitefish. In Finnish gillnet fishery operates only in the eastern Baltic, and metier level 6 is almost always known in advance, which makes planning relatively easy.

OTM_SPF_16-104_0_0:

The sampling frame is based on the target population of the (average) annual total number of trips, further divided to 4 ICES subdivisions according to their share of the total effort. The sampling strategy is concurrent sampling (Scheme 1) on shore because discards in Finnish herring and sprat trawl fishery are extremely rare (all species are valuable at least as animal fodder) and negligible. Therefore there is no need for sampling at sea.

(e) Sampling stratification and allocation scheme

Standard table III.C.4 summarises the sampling effort that have been adopted for the different sampling frames and Standard table III.C.3 gives a prediction of the resulting sampling intensity by metier. Standard table III.C.5 shows the planned targets and requirements for national and regional length measurements for all metiers combined. Justifications for the allocation of sampling effort for each metier are given below.

FYK_ANA_>0_0_0:

During the relatively short fishing season in June-July the catch composition in terms of age, size and stock vary during the course of salmon spawning migration. In order to get a thorough picture of overall composition of the salmon population, a temporally covering sampling is needed. The implemented sampling strategy execute in practice about 3-5 sampling trips per week in each area. Sampling areas have been selected so that they represent the population of the region as well as possible.

The catch sampling has been designed to give good data on catch composition in terms of spatial and temporal distribution in the metier. Number of trips is calculated as follows: 3 fishermen/area * 3 areas * 7 weeks * 2 samples/week. On each trip scale samples are taken from about 15 individuals (catch consists on 4 age groups). The mean daily catch per fisherman was about 15 salmon (1-80 salmon, 95 % interval) in year 2009. In total 1400 salmon will be sampled from the coastal fisheries in ICES subdivisions 29-31 in order to obtain catch composition data of salmon on spawning migration entering the Gulf of Bothnia and Bothnian Bay. In addition 500 salmon will be sampled from the Gulf of Finland fishery. Similar sampling design has been performed in the Finnish NPs in 2002-2010.

For sea trout the length measurements and other biological parameters are obtained from the by-catch alongside with sampling the salmon. In total about 500 (scale) samples of sea trout are anticipated from this metier in ICES subdivisions 29-32.

The stratification of salmon samples by area is presented below.

Fishery	Months	SD22-28	SD29	SD30	SD31	SD32	Total
Coastal fyke net	5-8		400	500	500	500	1900
Samples marked as grey are optional							

The share of the various river-stocks in unsorted landings of salmon in the Baltic Sea with genetic stock composition analysis

According to the Commission Decision 2010/93/EU, section III.B.B1.1.(2) “[...] additional biological sampling programmes of the unsorted landings have to be carried out in order to estimate: (a) The share of the various stocks in these landings for [...] salmon in the Baltic Sea. The ICES WGBAST (WGBAST 2005, ICES 2006) has estimated the minimum sample sizes for the DNA analysis to obtain the stock and stock group proportions in the Main Basin

and Gulf of Bothnia. The calculations have been based on the probability intervals in the stock proportion estimates of stock groups from different assessment units. WGBAST recommended in all 1300 samples to be analysed from salmon catches in the following areas to cover the main fisheries targeted to Gulf of Bothnia salmon stocks (see text table below). Regarding the sampling and analysis of catch composition has been confirmed by bilateral agreements between Finland, Sweden, Denmark and Poland (see Annex III).

The numbers of salmon individuals planned to be sampled by season, fishery, gear and ICES subdivision for genetic stock composition analysis are presented below.

Fishery	Months	22-28	29	31	Total
Off-shore longline*	1-4 and 9-12	500*			500
Coastal fyke net	5-8		400	400	800
	Total	500	400	400	1300

*) A stratified sample from SWE, DEN and POL samples

FYK_FWS_>0_0_0

Whitefish stock consists of sea-spawning and anadromous forms, whose growth rate is different. The sampling covers the main fishing season May-October and both forms. The total number of sampled trips (9) is based on the minimum rule of 1 trip/month/season and subdivision and the number of length measures (75) on the rule of 5 times the average number of length-classes (1 cm) in each sample.

Perch and pike-perch are sampled in April-June from the catches of fyke nets in SD 29 and 30. The total number of sampled trips is 11 and is based on the distribution of catches to SDs and months and the planned number of length measures per trip is 4 times the average number of length-classes (1 cm) in samples in previous years; 13 for perch and 15 for pike-perch.

	Months	SD 29	SD 30	SD 31	SD 32	Total
Whitefish	5-9		225	450		675
Perch	4-6	300	300			600
Pike-perch	4-6	360	300			660

FYK_SPF_>0_0_0

The spawning fishery of herring in Finland is conducted along coast in SD's 29-32 by fyke nets (Metier 'FYK_SPF_>0_0_0') during second and third year-quarters. The start and duration of spawning in spring are dependent on e.g. latitude. The fishery is targeting spawning components of three herring stocks in these four ICES subdivisions. The sampling is allocated to the subdivisions according to the fishing effort allocation to the three herring stocks (see below).

Fishing area	Herring stock	Share of effort	Number of trips
SD 29	Central Baltic Herring stock	20 %	4
SD 32	Central Baltic Herring stock	4 %	1
SD 31	Bothnian Bay Herring stock	26 %	5
SD 30	Bothnian Sea Herring stock	50 %	10

The total of 20 sampled trips planned is in accordance with minimum rule of 1 trip/month/season and subdivision (or stock). Taking into account the number of length classes in previous year's catches and the rule of at least 5 specimen measured/ length-class, the number of length measurements is 4000 at minimum.

GNS_FWS_>0_0_0

Whitefish stock consists of sea-spawning and anadromous forms, whose growth rate is different. Mesh size of gillnets ranges between 50-100 mm. The sampling effort consists of the main season April-November and both forms. The total number of trips (23) is based on the minimum rule of 1 trip/month/season and subdivision and number of length measures (50) on the rule of 5 times the average number of length-classes (1 cm) in each sample.

Perch and pike-perch are sampled in January-December from the catches of gill-nets in SD 29 and 30. The total number of sampled trips is 29 and is based on the distribution of catches to SDs and months and the planned number of length measures per trip is 4 times the average number of length-classes (1 cm) in samples in previous years; 12 for perch and 13 for pike-perch.

	Months	SD 29	SD 30	SD 31	SD 32	Total
Whitefish	4-11	150	500	400		1150
Perch	1-12	540	1200			1740
Pike-perch	1-12	740	400		400	1540

OTM_SPF_16-104_0_0

The Finnish trawl fisheries is conducted mainly in ICES SD's 29-32, but the fishing effort concentrates to the Bothnian Sea (SD 30) where the main part (84%) of the catches are also taken from.

The Finnish trawl catches consist mostly of herring and sprat, but the share of sprat in the catch diminishes towards north in the Gulf of Bothnia. The main part of the catch is used as animal fodder, especially in fur-industry. Unsorted catches are sampled fresh from vessels arriving in harbours and there is no need to carry out sea-sampling, because all catches are valuable at least as fodder, and therefore landed.

The sampling effort is concentrated to Bothnian Sea according to effort ranking and high catch levels, and depth-dependent variability in length-distributions (i.e. differences in any size of fish targeting fodder-fishery and big herring targeting human-consumption fishery with the same gear).

Planned total number of trips for the whole fishing area is 84. The sampling is allocated to the subdivisions and year-quarters according to the fishing effort allocation to the three herring

stocks, following the rule of 1 trip at minimum /month/ (ice-free) season and subdivision or stock (see table below).

Fishing area	Herring stock	Share of effort	Number of trips
SD 29	Central Baltic Herring stock	18 %	12
SD 32	Central Baltic Herring stock	6 %	10
SD 31	Bothnian Bay Herring stock	4 %	14
SD 30	Bothnian Sea Herring stock	72 %	48

Taking into account the number of the prevailing length-classes in previous years' catches and the rule of at least 5 measured fish/length class, the resulting minimum number of length-measurements for herring is 20 250 and 8 100 for sprat.

III.C.2 Estimation procedures

Descriptions of the methods that will be used for estimating the discards volumes and the length and age structure of the catches are given below for each metier.

FYK_ANA_>0_0_0:

The age and origin of fish (by wild/reared category) is determined by scale reading. Stock composition of the catches is determined by the microsatellite DNA analysis.

Amount of discards is estimated from the log-book records. Discards of salmon consist almost solely of the seal mauled fish. Fish are usually so badly damaged that they are impossible to make any measurements (only counts are possible). The composition of discards in terms of size and origin is assumed to correspond with the unharmed part of the catch, which is measured appropriately (age determination by means of scale reading and origin by stock with microsatellite DNA analysis).

FYK_FWS_>0_0_0

The amount, species composition and length distributions of discarded species are monitored in port sampling by purchasing the whole catch of the fishing trip from the fishermen. This includes unwanted bycatch and fish smaller than the minimum landing size. For data collection purposes, some of the fishermen have a special, temporarily admitted permit to land even undersized part of the catch, which they would normally discard. In this metier every third sample is taken from the whole catch, including discards. This procedure enables the follow-up of catch distributions to species and size-classes throughout the fishing season and areas. Fish age is determined from sliced and stained otoliths. Individual samples for ageing are collected every third year. This data is used for the intermediate years as well.

FYK_SPF_>0_0_0

The discards in this metier are estimated from monthly reports of coastal fishery. Discards of herring in this metier are insignificant (< 1% of total removals of this metier) and they comprise almost merely from seal mauled fish. The age and length distributions of the discards can be assumed to be the same as in the landings.

GNS_FWS_>0_0_0

The amount, species composition and length distributions of discarded species are monitored in port sampling by purchasing the whole catch of the fishing trip from the fishermen. This includes unwanted bycatch and fish smaller than the minimum landing size. For data collection purposes, some of the fishermen have a special, temporarily admitted permit to land even undersized part of the catch, which they would normally discard. In this metier every third sample is taken from the whole catch, including discards. This procedure enables the follow-up of catch distributions to species and size-classes throughout the fishing season and areas. Fish age is determined from sliced and stained otoliths. Individual samples for ageing are collected every third year. This data is used for the intermediate years as well.

OTM_SPF_16-104_0_0

The discards in herring and sprat trawl fishery are estimated from the log-books. They are extremely rare (all species are valuable at least as animal fodder) and negligible. The magnitude of total discards is usually less than 1 ton / year and thus not sampled.

III.C.3 Data quality evaluation

Issues dealing with bias, precision, and procedures for validation and quality checks on each metier are discussed below.

FYK_ANA_>0_0_0:

The composition of catch based on sampling results may differ from the composition of the population, particularly in the youngest age group (1 sea winter salmon), which is only partly selected to the catch. In addition in the Gulf of Bothnia the coastal fishing regulations prevent fishing in early summer, which means that early migrating part of the population become only partly attainable for the sampling. This potential bias is taken into account in the interpretation of the results.

For this metier it is inappropriate to compute the sample sizes based on the CVs of length per age because such parameter is not used in stock assessment (no need for age-length keys). Only age and stock composition data has been used.

FYK_FWS_>0_0_0

The mesh size of the fyke nets is size-selective allowing the small-sized fish to escape from the gear. Both whitefish and percid fishery peaks during or just before the spawning season. Whitefish is also caught during the feeding migration in June. Therefore also the size, age and sex distribution may change according to the period. Discard sampling is carried out on shore (from the whole catch, see chapter III.C.2) because small boats do not allow for observers or at-sea-sampling. This is a potential source for error, but it seems to be impossible to sample in any other way. After we have gained some years experience in this sampling procedure, we will probably be able to evaluate the correctness of the data (by e.g. comparing to catches of test fishing).

FYK_SPF_>0_0_0

This metier is targeting the spawning schools of herring and therefore the catches are mostly adult herring. The gear itself does not have any further selection. The sampling season is quite short, but temporally well covered. Planned total annual number of trips is 20 according to minimum rule of 1 trip/month/season and subdivision (or stock). According to the rule of 5 specimen measured/ length-class, the total annual number of length measurements is 4000 at minimum.

GNS_FWS_>0_0_0

The whitefish fishery peaks during the spawning migration and spawning season in late summer and in autumn. The gillnet catches are size-selected, and fishermen use gill-nets targeting spawning-sized fish. Therefore the samples represent the catches and not the fish population. Also in pike-perch fishing, mesh sizes used target allowed sizes of pike-perch (37 cm). Discard sampling is carried out on shore (from the whole catch, see chapter III.C.2) because small boats do not allow for observers or at-sea-sampling. This is a potential source for error, but it seems to be impossible to sample in any other way. After we have gained some years experience in this sampling procedure, we will probably be able to evaluate the correctness of the data (by e.g. comparing to catches of test fishing).

OTM_SPF_16-104_0_0

The metier is very straightforward and simple (midwater trawl fishery for herring or mixed fishery for herring and sprat with occasional bycatches consisting mainly of G3 species) and without discarding. The sampling strategy is shore-based concurrent sampling covering all the vessel population targeting 3 herring stocks in 4 ICES subdivisions and all open-water seasons. The precision levels for the sampling years will be included in the Annual Reports.

In order to secure the quality of the biological data, bilateral calibration-workshops for ageing and gonadal maturity determination of Baltic herring have been held and are also planned to be held regularly in the future with the research staff of the Coastal laboratory of the Swedish board of Fisheries. Calibration occurs also during international surveys-at-sea between Finland and Estonia, Finland and Denmark & Finland and Sweden. However, the major risk for bias in data derives from possible false reporting of the mixed landings, which are occasionally spot-checked by local authorities of fishery units of the Centres for Economic Development, Transport and the Environment.

III.C.4 Data presentation

Issues dealing with data presentation (time lag, confidentiality, production and use of data, etc.) on each metier are discussed below.

FYK_ANA_>0_0_0

The scale reading results will be recorded to the data base and will be available by the end of the sampling year. The genetic analysis results will be available by March of the following year. All analysis results will be available for the ICES WGBAST by its annual meeting.

FYK_FWS_>0_0_0

The age-reading results for Common whitefish are usually ready by the end of April of the following year, while all other sampling data is recorded in January. For perch and pike-perch the age-reading results are available in 15 months following the sampling year, e.g. age reading results for the year 2008 are ready in March 2010.

FYK_SPF_>0_0_0

The age-reading results for herring are usually ready by the end of March of the following year, while all other sampling data is recorded in January. The primary end user, ICES WGBFAS, has its meeting in April, by which time the data is analysed and prepared for its use. However, for landings statistics, the estimates are still provisional at that time due to later date of completion.

GNS_FWS_>0_0_0

The age-reading results for Common whitefish are usually ready by the end of April of the following year, while all other sampling data is recorded in January. For perch and pike-perch the age-reading results are available in 15 months following the sampling year, e.g. age reading results for the year 2008 are ready in March 2010.

OTM_SPF_16-104_0_0

The age-reading results for herring and sprat are usually ready by the end of March of the following year, while all other sampling data is recorded in January. The primary end user, ICES WGBFAS, has its meeting in April, by which time the data is analysed and prepared for its use. However, for landings statistics, the estimates are still provisional at that time due to later date of completion.

III.C.5 Regional co-ordination

Salmo salar

The sampling plan for the Baltic salmon is annually audited by the ICES WGBAST and the RCM Baltic. Consequently the sampling of salmon landings in the Main Basin is conducted by Poland, Denmark and Sweden, and the samples are analysed by microsatellite DNA – method by Finland. Also in the Quark area the sampling and analysis of samples is coordinated between Finland and Sweden (see Bilateral agreements in Annex III)

III.C.6 Derogations and non-conformities

Derogations on discard sampling

Discards data is available in the logbooks/landings declarations (Finnish vessels use logbooks that include separately the landings and discards). Target population of catch and landings data consists of all the vessels used in commercial fishing and all professional fishermen have a reporting obligation. This means that the data is complete, also for <10m vessels. Catches and landings of vessels >10 meters will be collected by fishing occasion-based reports (logbooks) and in case of vessels <10 meters (so called coastal fishery) the data will be collected by monthly reports. In addition, catches and landings of salmon in coastal fishery will be collected by fishing occasion-based reports. This data can be reported yearly on quarterly basis. No additional discard sampling is planned within the Finnish National Programme 2011-2013 in case of Baltic herring, sprat, cod, salmon, and sea trout. Reports of the appropriate pilot studies and other data supporting the request have been delivered in previous years. The overview of derogations dealing with discard sampling in the Finnish NP 2011-2013 is presented below (see Standard table III.C.1 for corresponding metiers).

Species	Actions in NP 2011-2013	Basis for actions	STECF-SGRN
Baltic herring and sprat	Logbook/landing data collection Derogation applied for additional sampling	Catch used entirely either for human consumption or for animal fodder	Agreed with NP's 2003-2010
Cod	Logbook/landing data collection Derogation applied for additional sampling	Pilot study carried out in NP 2003 showed discards to be negligible	Agreed with NP's 2004-2010
Salmon and sea trout	Logbook/landing data collection Derogation applied for additional sampling	Discard data (age/size) is not needed/used in assessment	Agreed with NP's 2003-2010

In addition, the sampling of landings of two metiers - 'OTB_DEF_>=105_1_110' targeting cod and 'OTM_SPF_16-31_0_0' targeting sprat- which were selected up based on ranking system, are not included in the Finnish National Programme 2011-2013.

Justifications for these derogations are included in chapters below.

Request for derogation on discard sampling of Baltic herring and sprat, and justification for not sampling the landings on metier 'OTM_SPF_16-31_0_0' targeting sprat

According to the catch statistics, the Finnish commercial catch of Baltic herring in 2009 was 90 377 tonnes and, as reported by the fishermen, total discards of herring 45 tonnes (0.05%).

Of these herring discards, 43 tonnes (97%) were reported as seal eaten from catches of static gears, and the remaining part originate from trawl catches (FGFRI 2009).

All herring and sprat catches are usually valuable to the fishermen since they are sold either for human consumption or for fodder markets. Therefore no need for fishermen to discard is anticipated and no separate discard sampling will be conducted for Baltic herring and sprat by Finland in 2011-13. This derogation has been applied and accepted in previous years.

The metier 'OTM_SPF_16-31_0_0' is targeting sprat in the southern parts of Baltic sea (ICES subdivisions 25 – 28) but the first sales of the landings take place entirely in other MS, which are therefore responsible for the biological sampling of these landings, as stated in the Commission Decision 2010/93/EU, section III.B.B1.3.(1)(a). Hence the metier

'OTM_SPF_16-31_0 0' is not planned to be sampled under the Finnish NP 2011-2013. We will inform the MS concerned about the situation.

Request for derogation on discard sampling and justification for not sampling the landings on metier 'OTB_DEF_>=105_1_110' targeting cod

The Finnish reported catches of cod in 2007 was 853 tons which corresponds to less than 1 % of the total cod catches in Baltic, and according to the logbooks/landings declarations, there were only 680 kilos of discards (the corresponding landings in 2009 were 886 tonnes). The effect of discarding in Finnish cod fisheries and fleets has been evaluated by a pilot study in 2003 and was shown to be negligible. Based on the pilot study, derogation for cod discard sampling has been applied and accepted annually (see text table above; corresponding metiers are presented in Standard table III.C.1).

The metier 'OTB_DEF_>=105_1_110' targeting cod was included in the selection of metiers to be sampled based on the total value of the commercial landings. Nevertheless, the first sales of the landings from this metier takes place entirely in other MS, which are therefore responsible for the biological sampling of these landings, as stated in the Commission Decision 2010/93/EU, section III.B.B1.3.(1)(a). Hence the metier 'OTB_DEF_>=105_1_110' is not planned to be sampled under the Finnish NP 2011-2013. We will inform the MS concerned about the situation.

Request for derogation on discard sampling of salmon and sea trout

According to the log-books about 4600 salmon (23 t) salmon were discarded due to seal damages in 2009. Seals caused damages to all fisheries mainly in ICES subdivisions 29-32 where seal damage discards comprised 8 % of the total commercial salmon catch in the region. Other discards were about 560 salmon (2 t).

Finnish log-books separate the landings and discards. The discards of undersized (<60 cm) salmon released from the gear back to the sea are usually not entered in the logbooks. All undersize salmon belong to the same year-class (the latest recruited). Fish released from the long-line the fish are assumed to die, meanwhile the salmon released from the fyke nets mostly survive (>80 % survival assumed based on studies).

According to logbook data, discards has constituted about 10 % of the total commercial salmon catch in the last few years. About 99 % of the reported discards were seal mauled salmon, mainly occurring in the coastal fyke net fishery. Although seals often leave only remnants of fish in the trap, which makes exact measurements difficult, the fish mauled by seals are likely to have the same length distributions as the unharmed part of the catch.

At present the assessment utilises the total catches including the discards. However, the age composition data of the catches (or discards either) has not been used. Estimate on the amount of discards obtained from the log books meets the precision requirements for the assessment purposes. Although no analytical studies has been conducted to explore possible differences in age composition between catch and discards of seal mauled fish, it is seen justifiable by experts to assume similar age distribution for both catch fractions. However, so far the age distributions of neither catch nor discards have been used as an input data in the assessment model of salmon in the Baltic Sea. Based on this the Finnish salmon discards will not be sampled in 2011-2013 (see text table above; corresponding metiers are presented in Standard table III.C.1).

About 7 t of commercial sea trout catch was discarded due to seal damage in 2009. Commercial sea trout catches are low and geographically so scattered that it will be practically impossible to sample the discards. Therefore no discard sampling will be performed for sea trout by Finland in 2011-2013 (see text table above; corresponding métiers are presented in Standard table III.C.1). Sea trout is caught by the coastal gillnet fishery targeting other species like common whitefish, pike-perch, and perch. This fishery causes some mortality on sea trout since undersized fish entangle to gillnets as a by catch. The sampling of this fishery is included in the NP and accumulates data, which enable us to estimate these discards in terms of volume and age distribution.

III.D Biological - Recreational fisheries - Baltic Sea (ICES areas III b-d)

III.D.1 Data acquisition

Recreational catches in the sea area

In 2008, there were nearly 1.8 million recreational fishermen in about one million households in Finland. Of those, about 225 000 fishermen participated in fishing only by rowing or steering a boat. The proportion of recreational fishermen of the total Finnish population was 34 per cent. The total catch amounted to 33 million kg, of which 76 per cent was taken in inland waters. The marine recreational catch in 2008 was about 7.8 million kg of which perch and pike made up over half. The salmon catch in the sea area was estimated to be 54 and the eel catch 13 tons. The cod catch in 2008 was only one ton. The total commercial marine catch was 111.6 million kg in 2008. The share of recreational catch in total marine catch in 2008 was about 7 %. Excluding the Baltic herring and sprat the share was 63 percent.

Recreational salmon catches in rivers

Fishing in the Finnish rivers with wild Baltic salmon stocks (Rivers Tornionjoki and Simojoki) is 100% for recreational/household purposes. Annually almost 10,000 persons are fishing in these rivers and over 90% of the fishers are Finnish citizens. The total annual catch from the two rivers is typically in thousands of specimen. The vast majority of catch is caught by angling due to strict restrictions allowing only a marginal use of more efficient types of gear. Fishing season starts in May and ends in August in River Tornionjoki and in September in River Simojoki.

(a) Type of data collection

Recreational catches in the sea area

The data on recreational fishing will be collected every second year by a probability sample survey using a sample drawn from the population register maintained by the Finnish Population Register Centre. The whole recreational catch is surveyed, but a special attention is drawn to marine catches of salmon, cod and eel for instance in terms of sample allocation.

Recreational salmon catches in rivers

A) Census is applied for the small group of fishers who use efficient traditional fishing methods in the Tornionjoki (special nets/seines), and B) Probability Sample Survey is applied for the rest of the fishers who are predominantly anglers.

(b) Target and frame population

Recreational catches in the sea area

The Finnish population register will be the frame population, because there is no covering and usable register on the marine recreational fishermen which is the target population. On the other hand, one can not predestinate, whether a contacted fisherman would have been fished at the sea, in inland waters or both. The statistical unit in the recreational fishing statistics is the household. The term recreational fishing includes all the fishing carried out by Finnish households with the exception of professional fishermen and their households.

Recreational salmon catches in rivers

The target population is all the fishers who have a Finnish permission for salmon fishing in the Tornionjoki or Simojoki.

The frame population is the Finnish fishers who either have a special permission using traditional fishing methods (a small group of local fishers in the Tornionjoki, census), or who have bought the normal salmon angling licence for the main river stretches (vast majority of fishers, prob. sample survey).

Periodically (once every 5-10 years) the frame population includes also the Finnish fishers who have bought a fishing licence (angling or net fishing) allowing fishing on certain headwater river stretches of the Tornionjoki.

(c) Data sources

Recreational catches in the sea area

The process of collecting catches of recreational fishing in 2010 will start in the end of 2010 by planning and a preparatory work of the survey. This includes planning the inquiry forms, commissioning the frame register and designing and extracting the sample. The postal inquires will be sent in the beginning of 2011.

The sample will comprise about 6000 household-dwelling units. One household-dwelling unit consists of the persons living permanently in the same dwelling and comprises one or more households. The sampling will be targeted at persons aged 18-74 years. For those who will not respond to the postal questionnaire, post-sampling will be conducted as a telephone interview. The size of the sample is planned to be about 1000. The purpose of the post-sampling is to establish the proportion of fishing households among non-respondents.

Recreational salmon catches in rivers

River-specific registers on recreational fishers are created first by storing the information (fisher's name and address, type of licence) from the receipts of sold angling licences. Then, samples will be drawn from the registers and postal fishing questionnaires will be sent to the sampled fishers. Mailed questionnaires supplemented (if necessary) by phone surveys are addressed to the groups of fishers using traditional fishing methods.

In Simojoki, the fishermen will acquire with their fishing licence a catch questionnaire, which is asked to be returned after the fishing is over. The fishers, who have not returned the questionnaires voluntarily (about 90%), will be sampled for the postal questionnaire.

(d) Sampling stratification and allocation scheme

Recreational catches in the sea area

The sample design is stratified sampling. The strata will be formed taking into account the location of the person's municipality of residence (Helsinki metropolitan area, other Southern Finland, Western Finland, Eastern Finland, Province of Oulu, Lapland and Åland), the type of municipality (urban, densely populated or rural) and the location of the municipality in relation to the sea (archipelago, coast, inland). There will be about six strata in all.

Recreational salmon catches in rivers

The key parameters to be collected from fishing are

- Fishing method (traditional fishing gear/fly fishing/rod fishing from shore/rod fishing from boat)
- Number of days with fishing
- Fishing area
- Period of fishing (season is divided in 2-week periods)
- Number and total weight of catch

In Tornionjoki, the key parameters of the local and non-local anglers are considered separately due to the marked differences in fishing practices between these groups. In Simojoki, the key parameters of the fishers who return the catch questionnaire attached to the fishing licence and the fishers who answer to the postal questionnaire need to be considered separately.

The fishers who are fishing on certain headwater river stretches of Tornionjoki and who are periodically sampled for the catch surveys are treated separately, to allow for inference made about the proportional contribution of their catches to the total catches.

III.D.2 Estimation procedures

Recreational catches in the sea area

For the computation, a weighting factor will be formed for each statistical unit, or household. The survey data (catch size) for the household will then be multiplied by that factor. The weighting factor will be formed from the inverses of the inclusion probability and response probability of the sampling unit, that is, household-dwelling unit, and from the calibration weight.

The bias caused by non-response will be corrected using the homogeneous response group model. The sample will be divided by stratum into two homogeneous response group sets within which the probability of responding is considered to be constant. The first group comprises those responding to the questionnaire at first and second contacts, and the second group those responding at the third contact.

In the calibration, the distributions to be calculated from the sample can be made to correspond to the marginal distributions. Such marginal distributions will be the number of households in six household groups obtained from the income distribution statistics of the Statistics Finland, the age distribution of men and women obtained from population statistics, and the number of fishing households by strata estimated using both postal questionnaire and telephone interview data. The household groups are formed according to the size and age distribution of the household. The calibration corrects the bias in the estimates arising from nonresponse, as the size, structure and place of residence of the household all have an effect on response activity.

The partial loss due to missing data items will be taken into account using hierarchical imputation.

Recreational salmon catches in rivers

Foreign anglers who have bought a typical salmon fishing licence (a few percent of all anglers) are also stored in the registers (i.e. their number is known) and they are assumed to have similar fishing practices and CPUE as the non-local Finnish anglers.

The catch of the fishers fishing on the headwaters of Tornionjoki is assumed to make up a similar proportion from the total catch as found by most recent periodic survey addressed to these fishers.

III.D.3 Data quality evaluation

Recreational catches in the sea area

The statistics do not include fishing by foreign visitors to Finland. However the number of foreign fishermen is very low. Because the frame is the Finnish population register it covers all Finns fishing in the sea area. The share of fishing households (40 % in 2008) is quite high in Finland which enables using the population register as a frame.

The data collection system has been in use over 10 last years. The continuity of the system has helped to maintain and improve the quality of sampling allocation, measuring and estimation

Recreational salmon catches in rivers

The fishers who will receive mailed questionnaires are sampled from the registers at a rate making it possible to estimate salmon catches at level 1 precision for the frame population (a precision of $\pm 25\%$ for a 95% confidence level):

- River Tornionjoki: 5 000 – 10 000 fishers, sampling rate 1:5;
- River Simojoki: ca. 1500 fishers, sampling rate 1:3.

The frame population does not annually cover fishing in some headwater stretches of the Tornionjoki and Simojoki. This fishing is mainly angling, but it includes also some local net fishing with salmon bycatch. The volume of the fishing is 5-10% of total, both in terms of the number of fishers and their salmon catch. Periodic (once every 5-10 years) monitoring of these fishing activities are needed to ensure a continued and consistent inclusion of this fishing in the estimation procedure of total catch.

Periodic special survey regarding the effects of non-responding and potential erroneous reporting by the respondents have been conducted twice (1998 and 2003) in the Tornionjoki. For this purposes, about 400 fishermen were interviewed by phone and the results were analysed and the resulting bias in the total catch estimate was quantified and corrected. The results of these two special surveys differed from each other relatively much. The found biases were in the order of magnitude of 0-25%, depending on the year and the key parameter in question. Continuation of these periodic quality check surveys are also needed.

Data collection during 2011-2013 is planned to include one year (2011) with the above mentioned special surveys for headwater fishers of Tornionjoki and the quality check survey.

III.D.4 Data presentation

Recreational catches in the sea area

The recreational fishing statistics are issued every other year (even years). The information is issued in pdf format in www.rktl.fi/english/publications. The results for DCF needs are available within a year after the reference year.

Recreational salmon catches in rivers

The preliminary results become annually available in January (i.e. half a year after the fishing season), and the final results are ready by the annual meeting (March-April) of the relevant ICES assessment working group (WGBAST).

III.D.5 Regional coordination

Recreational catches in the sea area

Until now there have not been meaningful needs for coordination of Finnish Recreational marine catches within the Baltic Sea Region

Recreational salmon catches in rivers

Relevant background information, data and the results are reviewed between Finland and Sweden in the case of Tornionjoki (Torneälv).

III.D.6 Derogations and non-conformities

Recreational catches in the sea area

The pilot studies on recreational salmon fishery and cod fishery were conducted earlier. A basic result of the pilot studies was that a cost-efficient data collection strategy, with respect to the reliability, is to collect data on recreational fishing every second year. Therefore the next survey will be conducted in 2011 (referring to the year 2010). This practice would produce a continuous and methodologically stable biennial time-series of recreational catches, and the results with external fishing data could be used to satisfy the data needs of recreational catches for the DCF needs.

Finland has collected recreational fishing data since the early days of EU data collection by implementing a population survey every second year and by annual estimation of the catches for the intermediate years (quarterly composition of the catch). The estimation for the intermediate years is conducted by using the distributions of corresponding biological samples and catch distribution data from the tagging experiments and coastal fishery.

The results of the pilot studies proved that, the accuracy of the catch estimates will increase, while the sample size gets larger. On the other hand, the marginal benefit will decrease while increasing the sample size. Salmon, cod and eel are caught by relatively very few fishermen, and in addition, the variation of these uncommon catches by fishermen is relatively high. Biannual sampling allows a larger sample size, which increases the accuracy of catch estimates for the uncommon species like salmon, cod and eel. Even with large sample sizes (several thousands), the confidence intervals of those catch estimates are always quite wide. Two of the pilot studies are attached.

III.E Biological - stock-related variables - Baltic Sea (ICES areas III b-d)

III.E.1 Data acquisition

(a) Selection of stocks to sample

The stocks/species which are going to be included in the sampling scheme are presented in Standard table III.E.1.

(b) Type of data collection

Herring *Clupea harengus* and Sprat *Sprattus sprattus*

Non-Probability Sample Survey; Strategy: Concurrent sampling. Stock-related variables are collected separately for 3 herring stocks (Central Baltic herring in ICES subdivisions 25-29 & 32, Bothnian sea herring in SD 30 and Bothnian bay herring in SD 31) by the staff of FGFRI, mostly from catch sampling of commercial fisheries in harbours along with the length-sampling all year round, but also from BIAS-surveys in autumn.

Common whitefish *Coregonus lavaretus*

Non-Probability Sample Survey; Strategy: Concurrent sampling. Samples are collected from commercial fishery on shore and at sea.

Perch *Perca fluviatilis* and Pike-perch *Sander lucioperca*

Non-Probability Sample Survey; Strategy: Concurrent sampling. Samples are collected from commercial fishery on shore and at sea.

Salmon *Salmo salar* and Sea trout *Salmo trutta*

Method: Other [self sampling at sea]. Commercial catches are geographically scattered, which prevent appropriate harbour sampling. Therefore the sampling will be organised by the means of self sampling carried out at the sea by the selected fishermen.

River monitoring of wild salmon stocks in (Tornionjoki and Simojoki) in Finland comprises of a set of various types of data collection, depending on variable in concern. Parr densities are monitored on an established network of selected sampling sites. Smolt runs are monitored by sampling by partial trapping combined with mark-recapture trials which are used to assess the sampling efficiency of traps. Echo sounding is aiming at detecting all the individuals entering the spawning grounds.

(c) Target and frame population

Herring *Clupea harengus*

Finnish herring fishery is targeting 3 herring stocks in the Baltic, central Baltic herring in ICES subdivisions 29 and 32, Bothnian sea herring in ICES subdivision 30 and Bothnian bay herring in ICES subdivision 31. The sampling frame is separate for each of these herring populations (assessment units).

Common whitefish *Coregonus lavaretus*

Commercial whitefish catch was 700 t in 2009. Majority of the catch was taken from ICES subdivisions 30-31. There are numerous distinct whitefish populations in the Baltic sea. Part of them are river-spawning, migratory whitefish and others local, sea-spawning whitefish. Populations differ from each other in many other aspects of their life history as well, e.g. growth rate and size at maturity. Over 90 % of the whitefish catch is caught with fyke nets and different types of gillnets. By concentrating our sampling efforts to those gears and by dividing the samples to different sea-areas and seasons, we try to cover the different whitefish populations as thoroughly as possible. We assume, that target and frame populations are very much the same.

Perch *Perca fluviatilis* and Pike-perch *Sander lucioperca*

Most of the commercial perch catch is taken in April - June with fyke nets and gillnets, and in summer and autumn with gillnets.

In recent years, the total commercial perch catch has been 800–900 tonnes/ year. In addition, there is the recreational catch that was estimated at 2500 tonnes in 2008, i.e. 75% of the total catch. On the average of 2005-2008, 55% of the commercial catch was taken from ICES subdivision 30 (Bothnian Sea) and 30% from ICES subdivision 29 (Archipelago Sea). In recent years ca. 70% of the catches were taken by gillnets and 30% by fyke nets.

The commercial pikeperch catch has been taken for the most part with gill nets in autumn, late winter and spring. In spring, pikeperch is caught also with fyke nets. In recent years, the proportion of ‘push up’ fyke nets has increased in the traditional gillnet period, as well. This is because of the increased population density of grey seals that make gillnet fishing profitless in an increasing number of areas.

Since 2006 the commercial Finnish pikeperch landings have dropped from ca. 500 tonnes to 300 tonnes / year. In addition, there is recreational pikeperch catch that was estimated at 550 tons in 2008, i.e. 64% of the total catch. On the average of 2005-2008, 45% of the commercial catches have been taken from ICES subdivision 29 (Archipelago Sea), 27% from ICES subdivision 32 (Gulf of Finland) and 28% from ICES subdivision 30 (Bothnian Sea). About 90 % of the catches are taken by gillnets.

The mesh size of gill nets plays an important role in the management of the pikeperch fishery. In order to assess the effect of mesh sizes on the pikeperch stocks and the proportions of different mesh sizes in the fishery (the official statistics on used mesh sizes is insufficient for fisheries purposes), the biological sampling of pikeperch catch should adequately cover the different mesh sizes mostly used (43 mm, 45 mm, 50 mm bar length) in each pike-perch stock. Fyke nets have a different selectivity pattern than gillnets, and a different length and age distribution in the catch.

Salmon *Salmo salar*

In 2009 Finnish fishers caught about 80 000 salmon (434 t), which was 36 % of the total salmon catch in the Baltic Sea. Commercial catch was 60 500 salmon (326 t) and recreational catch including river catches was 19600 salmon (108 t). The commercial catches are taken from two IBSFC management units, the Gulf of Bothnia – Baltic Main Basin (ICES subdivisions 22-31) and the Gulf of Finland (ICES subdivision 32), both having their own annual TACs. In both areas, two principal types of fishing are engaged, with totally different

catch age and length compositions. In the offshore fishery takes place in the southern Main Basin where long-lines are used to capture feeding salmon in winter months (XI-IV). In the coastal fishery, fyke-nets are used to capture mature salmon returning to home rivers in summer (VI-VII). Technical measures are taken to manage these fisheries.

The ICES Baltic Salmon and Trout Assessment Working Group (WGBAST) have dealt with the international collaboration of salmon sampling under the DCR, and gives the guidelines for the river monitoring, sampling of the catches and for the collection of genetic data to fulfil the data requirements for the Baltic Salmon stock assessment.

In river monitoring of the wild salmon stocks, the target and the frame populations are the same: the wild populations of the rivers Tornionjoki and Simojoki.

Sea trout *Salmo trutta*

In 2009 Finnish fishers caught about 235 tonnes of sea trout. Commercial catch was 71 t and recreational catch including river catches was 164 t. The estimate of recreational sea trout catch is uncertain. Sea trout has been caught mainly by gillnets and fyke nets at the coastal fishery. About 7 t of commercial sea trout catch was discarded due to seal damage. Catch comparison to the whole Baltic Sea catch is impossible due to partly missing recreational catch estimates from other MS.

Sprat *Sprattus sprattus*

Sprat is caught in Finnish trawl fishery targeting herring or in mixed trawl fishery for pelagic species in the Baltic in ICES sub-divisions 29, 30 and 32, which is also the frame population for sampling. Finnish sprat catches from sub-divisions 22-28 are landed in foreign ports and thus not sampled by Finland.

(d) Sampling stratification and allocation scheme

Herring *Clupea harengus*

Stock-related variables are collected mostly from catch sampling of commercial trawl- and fyke net fisheries (OTM_SPF_16-104_0_0 and FYK_SPF_>0_0_0) in harbours along with the concurrent length-sampling, but also from internationally coordinated and jointly executed BIAS-surveys in autumn.

Age-length-keys are built up year-quarterly and separately for all ICES subdivisions and herring stocks (herring in SD 25-29 and 32, herring in SD 30 and herring in SD 31). For all specimen collected for ageing, their individual weights and lengths are recorded at the same time. From commercial sampling in spring and from acoustic surveys in autumn, sex and maturity information is additionally collected from the aged individuals. Fecundity information is not collected on regular basis.

The target (maximum) number of age-readings is 10 specimen/0.5 cm length-class/SD/year-quarter, corresponding to total of 1750 age readings per year. For the maturity ogives, an enhanced sampling (for maturities at age) is carried out in spring before spawning time, corresponding to about 300-500 extra age-readings annually.

On the other hand, during the year-quarter of the BIAS survey (Q3 or Q4 depending on the area), the data will be derived from there, and regular commercial sampling for stock-related variables will be mostly conducted for lengths that are complementing survey data. The

number of age-readings (incl. all other stock related variables) from surveys is about 2000 annually. Thus the hypothetical annual target of herring age-readings adds up to over 4000 specimen, which is not usually reached due to rarity of the fish in the extreme ends of the length distribution.

Common whitefish *Coregonus lavaretus*

Whitefish samples are collected from commercial fishery in metiers FYK_FWS_>0_0_0 and GNS_FWS_>0_0_0. Concurrent length-sampling is made in harbours in every year. In fyke net fishing one sample is 75 individuals, in gill net fishing 50 individuals and total amount is 1825 individuals. Age-readings are made in 2012, total number is 1825. The individuals to be aged are measured and weighed, and sex and maturity are specified. Maturity and sex are referenced to age.

Perch *Perca fluviatilis* and Pike-perch *Sander lucioperca*

Perch samples are collected from commercial fishery in metiers FYK_FWS_>0_0_0 and GNS_FWS_>0_0_0. Concurrent length-sampling is made in harbours in every year. In fyke net fishing one sample is 52 individuals, in gill net fishing 60 individuals and total amount is 2310 individuals. Sampling for age-reading is carried out in 2013 and the total number sampled is 2310. All individuals are measured and weighed, sex and maturity are specified of fishes used in age-reading.

Pike-perch samples are collected from commercial fishery in metiers FYK_FWS_>0_0_0 and GNS_FWS_>0_0_0. Concurrent length-sampling is made in harbours in every year. In fyke net fishing one sample is 60 individuals, in gill net fishing 52 individuals and total amount is 2170 individuals. Sampling for age-reading is carried out in 2011 and the total number sampled is 2170. The individuals to be aged are measured and weighed, and sex and maturity are specified. Maturity and sex are referenced to age.

Salmon *Salmo salar*

Salmon and sea trout are sampled in metier FYK_ANA_>0_0_0. Data to derivate age and stock composition of catches (including growth curves and relations between age/length) for salmon and sea trout accumulate from the basic catch sampling programme and tag recapture data (obtained outside the DCF). Also gender of fish is determined routinely from each individual fish. Since the coastal salmon fishery targets on spawning migrants, all salmon in the catch are mature making purposeless to conduct the maturity measurements there. In case of the Finnish off-shore fishery of salmon at the Main Basin of the Baltic Sea, the vessels land all the catch to other MS', excluding the requirement for biological sampling of these catches from the Finnish NP.

In a given coastal area, the fishing season lasts only about 2 months (June-July). During the season age and stock composition of the catches varies strongly, therefore weekly sampling is needed to get representative samples. In total 1400 salmon will be sampled from the coastal fisheries in ICES subdivisions 29-31 in order to obtain adequate data on catch composition of spawn migrating salmon entering the Gulf of Bothnia and Bothnian Bay. In addition 500 salmon will be sampled from the Gulf of Finland.

Catch samples of salmon will be collected also from the fishery in the River Tornionjoki. This data collection is a part of the assessment of spawning run composition and the effects

of fishery, and it is linked to the corresponding sampling from the Finnish coastal fishery. The monitored variables include smolt age, sea-age, sex, origin (wild/reared) and size at capture (weight and length). The planned sample size is 650. Organization of the sampling as well as analysis and data treatment is similar to those of the catch samples from the sea fishery (see table below).

Number of salmon individuals to be sampled by season, fishery, gear and ICES Sub-division

Fishery	Months	22-28	29	30	31	32	Total
Coastal fyke net	5-8		400	500	500	500	1900
River	5-9				650		650
	Total		400	500	1150	500	2550
Samples marked as grey are optional							

In the river monitoring of wild salmon stocks, smolts (smolt trapping) and ascending spawners (echo sounding) passing the chosen monitoring sites in the rivers are sampled representatively across the migration period (see table below). Permanent electrofishing sites are preselected based on expert judgement, with the aim of obtaining representative abundance indices of the studied parr populations.

Activities on river monitoring of wild salmon stocks

	River Simojoki	River Tornionjoki
Smolt trapping	May-June with smolt trap and smolt screw	May-July with smolt trap
Electrofishing	August-September, 35 sites	August-September, 80 sites
Echo sounding	May-September	May-September

Sea trout *Salmo trutta*

Data to derivate fish size in catches (growth curves and relations between age/length) for salmon and sea trout accumulate from the catch sampling programme and tag recapture data (obtained outside the DCR). About 500 individual samples are anticipated, which would allow estimation of the required biological parameters every third year.

Commercial sea trout catches are low and geographically scattered, which prevent us to organise harbour sampling. Therefore the sampling will be organised by the means of self sampling carried out at the sea by the selected fishermen, who perform concurrently the salmon sampling.

Sprat *Sprattus sprattus*

Stock-related variables for sprat are collected concurrently with those of herring, mostly from catch sampling of commercial fisheries in harbours along with the length-sampling, but also from BIAS-surveys in autumn.

Age-length-keys are built up year-quarterly and separately for ICES subdivisions 29, 30 and 30, which are regularly covered by Baltic sprat stock. For all specimen collected for ageing, their individual weights and lengths are recorded at the same time. From commercial sampling in spring and from acoustic surveys in autumn, individual sex and maturity information is additionally collected.

The target (maximum) number of age-readings is 10 specimen/0.5 cm length-class/SD/year-quarter, corresponding to total of about 600 age readings per year. For the maturity ogives, an enhanced sampling (for maturities at age) is carried out in spring, corresponding to about 300 extra age-readings annually.

On the other hand, during the year-quarter of the BIAS survey (q3 or q4 depending on the area), the data will be derived from there, and regular commercial sampling for stock-related variables will be mostly conducted for lengths that are complementing survey data. The number of age-readings (incl. all other stock related variables) from surveys is about another 600 annually. Thus the hypothetical annual target of sprat age-readings adds up to over 1500 specimen, which is not usually reached due to rarity of the fish in the extreme ends of the length distribution.

III.E.2 Estimation procedures

Herring *Clupea harengus* and Sprat *Sprattus sprattus*

Stock-related variables for herring and sprat are collected mostly from catch sampling of commercial fisheries in harbours along with the length-sampling, but also from BIAS-surveys in autumn.

Age-length-keys are built up year-quarterly and separately for herring in ICES subdivisions 29, 30, 31 and 32. For sprat the ALKs are built up same way but for ICES subdivisions 29, 30 and 32 for which are regularly covered by Baltic sprat stock. For all specimen collected for ageing, their individual weights and lengths are recorded at the same time. From commercial sampling in spring and from acoustic surveys in autumn, individual sex and maturity information is additionally collected.

For both species the target (maximum) number of age-readings is 10 specimen/0.5 cm length-class/SD/year-quarter, corresponding to total of about 3200 age readings for herring annually and about 900 age readings per year for sprat. For the maturity ogives, an enhanced sampling (for maturities at age) is carried out in spring, corresponding to about 300 extra age-readings annually for both species.

On the other hand, during the year-quarter of the BIAS survey (q3 or q4 depending on the area), the data will be derived from there, and regular commercial sampling for stock-related variables will be conducted only for lengths that are complementing survey data. The number of age-readings (incl. all other stock related variables) from surveys is about 900 for herring and 600 for sprat annually. Thus the hypothetical annual target of herring age-readings incl. all other stock related variables add up to about 4050 and 1500 for sprat, which are not usually reached due to rarity of the fish in the extreme ends of the length distributions.

Common whitefish *Coregonus lavaretus*

Stock-related variables for whitefish are collected every third year. The samples collected from fyke nets are considered to be representative for pooled migratory whitefish population. The gillnet catches from spawning fishery are considered to be representative for sea-spawning populations in the SD in question.

Perch *Perca fluviatilis* and Pike-perch *Sander lucioperca*

Stock-related variables for perch and pike-perch are collected every third year. The samples are considered to be representative for the populations in SD 29 and 30.

Salmon *Salmo salar* and Sea trout *Salmo trutta*

Stock-related variables for salmon are estimated on the basis of samples collected from coastal fyke net fisheries and recreational river fisheries. Fish age is determined from scale samples. Furthermore, data obtained from large-scale tagging programs (outside DCF) offer reference material, e.g. scale material where fish age and origin (wild/hatchery) is known. This increases the reliability of the scale-readings. Age composition, length and weight at age and sex ratios are estimated on the basis of all available material; both fyke net and river samples and data from tagging programs are used. All fish caught in the coastal and river fisheries are sexually mature, so there is no need for maturity estimates.

Stock composition in salmon catches from mixed fisheries (sea and coastal fisheries) is estimated on the basis of microsatellite-DNA samples and smolt age data. The microsatellite-DNA samples are compared to microsatellite-DNA composition in reference material (baseline), which includes material from 33 salmon stocks in the Baltic, both wild and hatchery stocks, and for most of them 17 microsatellite loci. Since Finland manages and updates the baseline material, microsatellite samples are analysed and stock composition estimates are calculated in Finland for all Baltic countries. Including smolt age data in the analysis increases its accuracy, since it is possible to separate wild and hatchery originated fish on the basis of scale microstructure.

River monitoring of wild salmon stocks. Catches of salmon parr on the electrofishing sites are analysed by the established standards (e.g. Bohlin et al...) to derive site specific parr density estimates. These estimates are utilised and processed further for various purposes, but the most commonly used information is the river specific annual average parr density, divided by age groups of parr. Catches from the smolts traps are raised to total river specific smolt abundance estimates by using the results of repeated mark-recapture trials (which assess the sampling efficiency, i.e. the catchability of a trap and how the catchability changes over the migration period).

The number of ascending adult salmon is estimated by fixed location echo counting method. Counting units are programmed to save data on 24 hours per day and data collections are carried out the entire migration period. Systematic sampling across the river is used to increase the image resolution of echo sounders. The total numbers of ascending individuals are summed up and the variance estimates are calculated according to Wolter (1985).

III.E.3 Data quality evaluation

Our general aim is that the coverage and the achieved precision levels will be in accordance with those specified in Commission Decision 2010/93/EU, Chapter III, section B.B2.4.

Herring *Clupea harengus* and Sprat *Sprattus sprattus*

The precision levels for the sampling years will be included in the Annual Reports. See also section III.C.3.

Common whitefish *Coregonus lavaretus*

Whitefish is known to be very elastic species in its life history. Populations differ in their growth, migration behaviour, maturity age and size etc. In the Baltic northern whitefish populations have a very slow growth rate. However, in the northern areas both slowly growing local populations and faster growing migratory populations are caught. A five-year old whitefish caught in the northern Baltic may weight anything from 0,2 to 1 kg in weight. Therefore it seems to be impossible to reach precision targets for whitefish in the northern Baltic.

The precision levels for the sampling years will be included in the Annual Reports.

Perch *Perca fluviatilis* and Pike-perch *Sander lucioperca*

Perch form local populations along the coast and populations may differ in growth rate and other population parameters. The precision targets for perch were calculated combining all ICES subdivisions (29-32) together. Precision levels in lengths by age groups were achieved in perch sampling in age groups which make the main part of the catch in 2005. In years 2006 and 2007 precision levels were not achieved.

Pike-perch fisheries are concentrated to the Archipelago Sea (SD 29), Southern Bothnian Bay (SD 30) and Gulf of Finland (SD 32). The growth rate is fairly similar in all areas. For the length parameter estimates were calculated combining all ICES subdivisions (29-32) together and the required precision levels were achieved in 96% of the age classes, years and subdivisions analysed.

The precision levels for the sampling years will be included in the Annual Reports.

Salmon *Salmo salar*

Correspondingly with the metier 'FYK_ANA_>0_0_0' (see section III.C.3.).

In the river monitoring the precision levels cannot be applied in the specified form. E.g. no minimum number of individuals to be measured can be planned beforehand, because the total number of parr, smolts and ascending individuals varies considerable from year to year. To achieve the acceptable precision levels the number of electro fishing sites and the duration and efficiency of smolt trapping and echo sounding are planned instead of accurate individual numbers. This fulfills the national and international (ICES) requirements. The electro fishing surveys are made in the rapids reaching the whole river and the smolt trapping and echo sounding periods cover the whole migration season. The catchability of smolt trapping varies from 10 to 30% which gives acceptable smolt production estimates.

III.E.4 Data presentation

Herring *Clupea harengus* and Sprat *Sprattus sprattus*

The age-reading results for herring and sprat are usually ready by the end of the following March of the sampling year, while all other stock related data is recorded by the end of January. The primary end user, ICES WGBFAS, has its meeting in April, by which time the data is analysed and prepared for its use.

Common whitefish *Coregonus lavaretus*

Correspondingly with the metier 'FYK_FWS_>0_0_0' and 'GNS_FWS_>0_0_0' (see section III.C.4.).

Perch *Perca fluviatilis* and Pike-perch *Sander lucioperca*

Correspondingly with the metier 'FYK_FWS_>0_0_0' and 'GNS_FWS_>0_0_0' (see section III.C.4.).

Salmon *Salmo salar*

Correspondingly with the metier 'FYK_ANA_>0_0_0' (see section III.C.4.)

The data on **River monitoring of wild salmon stocks** will be available by the time of the annual meeting ICES assessment working group (WGBAST), i.e. by late March.

III.E.5 Regional co-ordination

Herring *Clupea harengus* and Sprat *Sprattus sprattus*

Part of the annually collected stock-related values for herring and sprat derive from the control-hauls of internationally performed acoustic surveys for the Central Baltic herring stock and Bothnian sea herring stock. All other data is recorded on board the research vessels during the surveys, except for age. The age-reading task from these samples is shared with Estonia from ICES subdivisions 28, 29 and 32, and with Sweden in ICES subdivision 30.

Common whitefish *Coregonus lavaretus*

This far the Baltic RCM has not given any recommendations concerning sampling of the stock-related variables of the G2-species.

Perch *Perca fluviatilis* and Pike-perch *Sander lucioperca*

This far the Baltic RCM has not given any recommendations concerning sampling of the stock-related variables of the G2-species.

Salmon *Salmo salar*

The ICES WGBAST have dealt with the international collaboration of salmon sampling under the DCF, and gives the guidelines for the river monitoring, sampling of the catches and for the collection of genetic data to fulfil the data requirements for the Baltic Salmon stock assessment.

River monitoring of wild salmon stocks. Monitoring in the Finnish-Swedish salmon river Tornionjoki/Torneälven needs special bilateral coordination between Finland and Sweden. The national monitoring plans have been regularly reviewed and agreed between the countries and there has been a constant exchange of data and other relevant information.

III.E.6 Derogations and non-conformities

None

III.F Transversal variables - Baltic Sea (ICES areas III b-d)

III.F.1 Capacity

III.F.1.1 Data acquisition

The number and characters of the vessels according to segments is available in fishing vessel register. All vessels, even non-active vessels, and auxiliary vessels are included in the vessel register. The maintenance and continuous update of the register is allocated regionally to the Centres for Economic Development, Transport and the Environment. The fleet register data is merged with the log-book and coastal fishery data. The latter two data contain complete information on catches, effort and gears for the entire fleet. For more details, see Effort and landings

III.F.1.2 Data quality evaluation

Information will be complete (census).

III.F.2 Effort

III.F.2.1 Data acquisition

Fishing effort data will be obtained besides the collection of catch data. Target population of fishing effort data consists of all the vessels that are used in commercial fishing and, of all commercial fishermen, who have a personal reporting obligation. Fishing effort will be collected by fishing occasion-based reports (logbooks) and so called coastal fishery reports for vessels <10m. Fishing effort will be collected according to categorisation corresponding to the regulation.

The reference year for the data is the preceding year of the programme year. For instance, for the programme year 2011 the reference year is 2010. The preliminary monthly data for the reference year will be available in January-March next year. Final data will be available correspondingly by June.

III.F.2.2 Data quality evaluation

The data is basically complete and required quality will be achieved.

The procedure of catch/landings and effort data compilation contains following stages:

1. The raw data is physically collected to FGFR from fisheries control system maintained by regional authorities.
2. The data is checked to find out logical errors, and corrected accordingly. Yearly number of the catch/landings reports is about 20 000.
3. The data is checked with special emphasis on the discards reporting. Especially in the salmon fishery, where seals eat a meaningful part of the catch, the fishermen often estimate the discards more in qualitative terms than with numeric data. This causes a lot of manual checking.
4. The partial non-response (of single variables in observation level) is evaluated, and corrected by statistical imputation methods. It should be noted, that errors or missing information are quite common in effort data, especially in case of non-quota species.

5. The data is crosschecked with independent data, i.e. fish first hand sales notes. The discrepancies are identified, the need for corrections is evaluated and the data is supplemented.
6. The data is complemented with the landings data from other countries.
7. The representativeness of data is evaluated against the target population. The effects of non-response are corrected by statistical estimation. For that, the data is post stratified.
8. The confidence levels (error term) of the estimates are calculated with respect to the non-response.
9. The needed tabulation and cross tabulation with background variables are calculated.
10. The principles, hypotheses and procedures are documented and the data is harmonized for the submission to the database.
11. The original data forms are returned to the regional fisheries control authorities.

III.F.2.3 Data presentation

Preliminary data for the reference year will be available in January-March next year. Final data will be available correspondingly by June.

III.F.2.4 Regional co-ordination

There is a landings data exchange between the relevant foreign authorities.

We interpret that there is no relevant RCM recommendations in nation level.

III.F.2.5 Derogations and non-conformities

None

III.F.3 Landings

III.F.3.1 Data acquisition

Target population of catch and landings data consists of all the vessels used in commercial fishing and, of all the fishermen who have a personal reporting obligation. This means that the data is basically complete, also for <10m vessels. Catches and landings will be reported according to DCR.

Catches and landings of vessels >10 meters will be collected by fishing occasion-based reports (logbooks). Catches and landings of vessels <10 meters (so called coastal fishery) will be collected by monthly reports. In addition, catches and landings of salmon in coastal fishery will be collected by fishing occasion-based reports. The landings of Finnish vessels abroad, as well as foreign vessel landings to Finnish ports are surveyed by logbooks, landings declarations and sales notes, and by the crosschecking of the different data. There is a landings data exchange between the relevant foreign authorities.

The conversion factors are presented in III.F.3, and they follow the ones used in EU member states.

The reference year for the data is the preceding year of the programme year. The preliminary monthly data for the reference year will be available in January-March next year. Final data will be available correspondingly by June.

III.F.3.2 Data quality evaluation

The data is basically complete and required precision and confidence levels will be achieved. For the data qualification procedure refer to paragraph “Effort”.

III.F.3.3 Data presentation

Yearly data on catches and landings will be available during the second quarter of the year that follows the referred statistical year. Preliminary data for the fish stock assessment is available in the 1st quarter.

III.F.3.4 Regional co-ordination

For the regional co-ordination refer to paragraph “Effort”.

III.F.3.5 Derogations and non-conformities

None

III.G Research surveys at sea

III.G.1 Planned surveys

BITS survey

Finnish personnel (scientist and/or technician) will participate and co-operate on Danish BITS 4th quarter survey in Baltic Sea area IIIb-c in collecting abundance indices for Baltic cod and other demersal species. Finland is responsible for sampling and age readings of flounder *Platichthys flesus*. The maps for this survey are presented in the Danish NP Proposal.

BIAS survey - Herring Acoustic Survey

The purpose of the BIAS Survey is to provide acoustic abundance estimates of herring and sprat in the Baltic. The sampling procedure and the level of precision are defined in the Manual for the Baltic International Acoustic surveys (ICES CM 2008/LRC:8 Add 2). The Manual is available at: <http://www.ices.dk/reports/LRC/2008/WGBIFS/directory.asp>

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

The main results of both acoustic surveys will be summarized and reported in standard report format, and the acquired data will be stored in FGFRI as well as on data bases BAD1 and BAD2 for further reporting in conjunction with international stock assessments (ICES WGBFAS).

BIAS survey in SD's 29N and 32N

Since 2006 the coverage of this survey has been extended to Finnish waters (ICES subdivisions 29N and 32N; see ANNEX IV). This extension of the survey has been performed together with Estonia, with hired R/V BALTICA, covering both Estonian and Finnish waters of northern Baltic proper and Gulf of Finland (SD's 28 (part), 29N and 32).

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

BIAS survey in SD 30E

Since 2008 the coverage of BIAS survey has been extended to Finnish waters in the Gulf of Bothnia (ICES subdivision 30E). This extension of the survey has been performed in co-operation with Sweden using R/V Argos, covering both Swedish and Finnish waters in the Sea of Bothnia (SD 30).

The map for the BIAS survey covering ICES subdivision 30E depends on planning in the future and therefore cannot be supplemented at the moment. Anyhow, the areal coverage will be similar to previous years.

The contract between Finland and Sweden on using R/V Argos in BIAS SD 30 runs out in 2010. The contract between Finland and Poland on using R/V Baltica in BIAS SD 28, 29N and 32 is re-negotiated annually. It is possible, that in some or all of the years 2011-2013 optional research vessel/-s are used in these surveys.

III.G.2 Modifications in the surveys

The surveys are internationally planned and coordinated by ICES WGBIFS. No changes in the design of the surveys are foreseen.

III.G.3 Data presentation

The surveys are internationally coordinated by ICES WGBIFS and the survey data is presented annually to this working group for elaborating it further to the use of ICES WGBFAS in April.

III.G.4 Regional coordination

Since 2006 the coverage of BIAS survey has been extended to Finnish waters (ICES Sub-divisions 29 N and 32, Gulf of Finland; ANNEX IV). This extension of the survey has been performed together with Estonia, with hired R/V BALTICA, covering both Estonian and Finnish waters of northern Baltic proper and Gulf of Finland, and sharing the expenses equally between Estonia and Finland.

Since 2008 Finland has performed the extension of the herring acoustic survey (BIAS) also to Gulf of Bothnia (ICES Sub-division 30) in co-operation with Sweden, with Swedish R/V ARGOS and with shared expenses.

The purpose of the BIAS Survey is to provide acoustic abundance estimates of herring and sprat in the Baltic. The sampling procedure and the level of precision are defined in the Manual for the Baltic International Acoustic surveys (ICES CM 2008/LRC:8 Add 2).

III.G.5 Derogations and non conformities

SPRAS survey

The springtime sprat-survey covers the southern-middle parts of Baltic main basin, which are the spawning areas of Baltic sprat (sprat spawning does not occur/succeed in the northern parts of Baltic proper due to low salinity). Therefore Finland has never taken part in this survey nor has been requested to by other Baltic member states.

Derogation for the non-participation has been requested and accepted annually.

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

IV.A Collection of data concerning the aquaculture

IV.A.1 General description of the aquaculture sector

Aquaculture production has a significant role in Finnish fishery sector. Aquaculture production dominates the fishery market in the primary production and also as a raw material supply for processing industry. In 2008, altogether 359 fish farm firms or units with natural food ponds were engaged to some extent in aquaculture. The number of enterprises having aquaculture as their primary activity (NACE 05.02) was 166 (Standard table IV.A.2).

Food fish is produced mostly at the marine farms but also in inland farms. These firms have traditionally concentrated on rainbow trout, but during the past years increasingly on European whitefish. The food fish production in 2008 was about 14,000 tons. Rainbow trout is by far most important species with over 90% of both in volume and value of food fish production.

Some of the food fish firms have integrated fry production but there are also specialised juvenile fish producers. There are two main production methods in juvenile production: tanks and natural food ponds. Hatcheries and nurseries together with natural food ponds produce numerous fish species for on-growing and stocking purposes. There are also few farms producing crayfish fry, but the number of these farms is limited and therefore it is not possible to have separate segment.

Segmentation

The Finnish aquaculture production will be divided into four main segments and one combined segment:

- Marine aquaculture (food fish production)
- Inland aquaculture (food fish production)
- Hatcheries and nurseries (inland)
- Natural food ponds (inland)
- Combined (food fish and juvenile production)

Marine aquaculture regards production in cages. Most marine farms are specialised in rainbow trout production, some produce also European whitefish. Inland food fish production regards mainly raceways, but also in cages in lakes. Some producers have integrated production of food fish and fry.

Juvenile production is an important part of the sector. It produces around one third of the sector total in value. The major part of the juvenile production in number is released to natural waters to enhance the fish production. The juvenile fish released to natural waters are valued with the data coming from the aquaculture production survey. This survey has a detailed concern on juvenile production, and the survey covers basically all juvenile production. Natural food pond production segment is very heterogeneous and fragmented. Most of the production is considered small scale and subsidiary business mainly for agriculture.

IV.A.2 Data acquisition

(a) Definition of variables

The reference year of economic data collection is the preceding year. Therefore information of the economic situation of aquaculture sector will be provided not earlier than one year after the period investigated.

The methodology of FTE estimation will be harmonized with the given guidance reference.

FTE data is based on the database of the Statistics Finland (business register), and the basic estimation is made according to procedures of the official statistics, and will be further estimated as far as possible according to the STECF guidelines. Statistics Finland uses annual income data from tax authority and their own annual employment statistics for the FTE estimation. More specific description of their calculation method (in Finnish) can be found in Annex V.

(b) Type of data collection

Economic data collection of aquaculture sector is based on hierarchical multi-stage survey that combines information from different data sources. Main sources are production survey, financial statements in the database of the Statistics Finland (SF) and an account survey. Production survey and financial statements are basically census data. The account survey is basically a probability sample survey.

(c) Target and frame population

With the production survey information, the firms are segmented according to their main activity and also further stratified to design an efficient data collection.

The population is stratified according to the farming technique, products (food fish or juveniles) and production environment (marine or freshwater).

The target population follows the definition in the DCF. Target frame is composed from Business register of enterprises with aquaculture as their main activity. This target frame is supplemented with information of the production survey that is collected from all fish farms in the Fish farm register of the Ministry of Agriculture and Forestry.

Sampling and data collection

Economic data collection is conducted with hierarchical multi-stage survey. The production survey is collected exhaustively. In the latter survey we enquire other business activities, employment, production methods and production per species. This data is used to divide firms into segments.

Financial statements should be available in the SF for all firms in Business register with aquaculture as their main activity. Primary sources of financial statements data in the Statistics Finland are direct inquiries and business taxation material supplemented by Business Register data. Data is based on corporate balance sheet and profit and loss account data. The Statistics Finland will check for the validity of the data. Any missing data will be estimated within stratum. Financial data gives a reliable estimate for cost structure as whole, but the disaggregation of cost items does not follow that in regulation. Therefore the cost and earnings data will be collected by account survey on aquaculture firms. Account data will be surveyed by stratified survey to detect the detailed cost structure of fish farms. This

questionnaire includes all variables in the regulation. Targeted sampling size for account survey is 50 firms.

(d) Data sources

Main sources are production survey, financial statements in the database of the Statistics Finland (SF) and an account survey. Production survey and financial statements are basically census data. The account survey is basically a probability sample survey.

(e) Sampling frame and allocation scheme

Production survey and financial statements are basically census data. The account survey is basically a probability sample survey, see Standard table IV.A.2

Financial statements should be available in SF for all firms in Business register with aquaculture as their main activity. Primary sources of financial statements data in the Statistics Finland are direct inquiries and business taxation material supplemented by Business Register data. Data is based on corporate balance sheet and profit and loss account data. The Statistics Finland will check for the validity of the data.

IV.A.3 Estimation

Any missing data will be estimated within stratum. Financial data gives a reliable estimate for cost structure as whole, but the disaggregation of cost items does not follow that in regulation. Therefore the cost and earnings data will be collected by account survey on aquaculture firms. Account data will be surveyed by stratified survey to detect the detailed cost structure of fish farms. This questionnaire includes all variables in the regulation. Targeted sampling size for account survey is 50 firms.

Cost and earnings estimates will be done by design-based and model assisted regression and ratio estimation. Total revenue and costs for firms with no financial statements will be estimated using regression estimation using production value. The cost variables will be estimated with ratio estimation from account data. These results will be raised to total population by strata with profitability correction of all firms derived from financial statements.

Production survey will be collected exhaustively from the producers. A supplementary telephone survey will be conducted to minimise the response loss. Any missing information will be estimated by stratum.

Employment will be estimated based on production survey. Employment will be presented in engaged persons and FTE. FTE will be estimated according to the STECF guidelines. Opportunity costs for unpaid labour will be estimated based on these employment estimators.

IV.A.4 Data quality evaluation

Financial statements should be available for all firms in Business register. However, some financial statements are missing and there is under-coverage in the Business Register (compared to target frame population) that has to be estimated. This register survey gives good coverage in number of firms and share of production. Assuming randomness in under-coverage, the conditional variation of the total costs is expected to be low, only few

percentages (relative standard error of the mean). The variation of separated cost variables will be higher.

IV.A.5 Data presentation

The reference year of economic data collection is the preceding year. Therefore information of the economic situation of aquaculture sector will be provided not earlier than one year after the period investigated. If confidentiality might be in threat, the segments are further clustered.

IV.A.6 Regional coordination

RCM recommendations will be applied if applicable.

IV.A.7 Derogations and non-conformities

The reliability of estimates of total cost structure is expected to be reasonable, but the reliability of the estimates of separate cost items depends on the success of the account survey. The survey is based on voluntary cooperation of the aquaculture firms. All cost items will be enquired in the questionnaire but the reliable estimates cannot be guaranteed.

IV.B Collection of data concerning the processing industry

IV.B.1 Data acquisition

(a) Definition of variables

The financial statements will be collected annually. The reference year of economic data collection is the preceding year. Preliminary financial statements data will be available on the 4th quarter after the reference year. Therefore information of the economic situation of processing sector will be provided not earlier than one year after the period investigated. In 2012 all firms with fish processing will be surveyed by production survey.

The variables for Finland are the same as listed in the regulation.

FTE data is based on the database of the Statistics Finland (business register), and the basic estimation is made according to procedures of the official statistics, and will be further estimated as far as possible according to the STECF guidelines. Statistics Finland uses annual income data from tax authority and their own annual employment statistics for the FTE estimation. More specific description of their calculation method (in Finnish) can be found in Annex V.

Economic data for processing industry is a census and therefore it includes all the enterprises with fish processing as their main activity as defined in the regulation.

(b) Type of data collection

Economic data for processing industry is basically a census. Economic data collection concerning the processing industry will be carried as a register survey that combines information from several data sources. The main data sources are Business register and Structural business statistics of the Statistics Finland and survey information on processing compiled by the Finnish Game and Fisheries Research Institute (FGFRI).

In 2012, the production survey will cover all fish processing firms in the Fish processing register in the FGFRI (a census). In this survey we will inquire main activity of firms, production value, use of raw materials and employment.

Financial statements should be available in SF for all firms in Business register with fish processing as their main activity. Primary sources of financial statements data in the Statistics Finland are direct inquiries and business taxation material supplemented by Business Register data. Data is based on corporate balance sheet and profit and loss account data. Data on structural business statistics covers all cost items in the DCF. The definitions of cost items follow that in the Structural Business Statistics.

(c) Target and frame population

The target population follows the definition in the DCR. The target population is all fish processing firms according to NACE. All operational firms, with fish processing as their main branch, should be listed in the Business Register of the Statistics Finland. This target frame is updated with information of the production survey. In the production survey we consider also enterprises that carry out fish processing as secondary activity.

(d) Data sources

The information on data sources used to collect each variable per segment is provided in Standard table IV.B.2.

(e) Sampling frame and allocation scheme

The sampling design is expected to be a census for both the data originating from business register and in the production survey.

IV.B.2 Estimation

Financial statements are expected to be available for all firms in the Business register. The Statistics Finland will check for the validity of the data. Any missing data will be estimated.

Capital costs will be actual costs (net) paid. Capital value is collected from the balance sheet.

Employment will be estimated based on production survey and data in SF. Employment will be presented in engaged persons and FTE. FTE will be estimated according to the STECF guidelines. Opportunity costs for unpaid labour will be estimated based on these employment estimators.

IV.B.3 Data quality evaluation

Financial statements are collected exhaustively from the fishing firms in the Business Register. Missing information, if any, will be estimated using information from production survey. Taken the exhaustive information on financial statements the precision is expected to be high.

We have revised the type of data collection scheme and the type of error in the standard tables IV_B_2 and IV_B_3 as the sampling strategy for aquaculture and fish processing industry is census and therefore there is only potential bias and no estimation of variability is needed.

IV.B.4 Data presentation

The reference year of economic data collection is the preceding year. Preliminary financial statements data will be available on the 4th quarter after the reference year. Therefore information of the economic situation of processing sector will be provided not earlier than one year after the period investigated. In 2012 all firms with fish processing will be surveyed by production survey.

IV.B.5 Regional coordination

RCM recommendations will be applied if applicable.

IV.B.6 Derogations and non-conformities

Not expected.

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

The two BIAS surveys we are participating are suitable for collection of data for calculating the ecosystem indicators 1, 2, 3 and 4. The joint Finnish-Estonian BIAS survey covers part of the ICES subdivision 28 and the ICES subdivisions 29 and 32. The survey has been carried out yearly in October-November since 2006. The joint Finnish-Swedish BIAS survey covers ICES subdivision 30. This survey has been carried out yearly in September-October since 2007.

VMS data (indicators 5, 6, and 7) for Finnish fisheries is collected and used by Finnish fisheries control system run by Ministry of agriculture and forestry. However, FGFRI now has full access to that data. Temporal resolution of that data is one hour, and the latitude and longitude of the vessels are given with accuracy of ten digits. In practise FGFRI will be the organization producing such detailed and aggregated data sets, which can be transmitted to end-users. However, the procedures to work with VMS data are not discussed and decided yet, and a co-operation covering the entire Baltic is strongly preferred by Finland in planning the use of VMS data in calculating the ecosystem indicators. Due to small number of boats in the Finnish fleet, the expected temporal and spatial resolution of the VMS data available to end users will be relatively large.

Discarding rates of the commercially important species (indicator 8) are available in the logbooks and for some species in landings declarations [landings (net catch) + discards = catch (gross catch)]. This data can be reported yearly.

Data for fuel efficiency of fish capture (indicator 9): The value of the catches is estimated on the basis of logbooks/landings declarations and fish price statistics. The fuel costs for each fleet segment are collected as a part of the economic data for fisheries.

VI Module for management and use of the data

VI.A Management of the data

Collected data is stored in the Oracle database and in the PX-Web database used for reporting (work in progress). For the time being, all parties involved in data collection, storage and calculation have access to the data through their personal usernames and passwords.

The databases are located on one of the Ministry of Agriculture and Forestry's servers. Simple data validation rules are enforced during the upload and more sophisticated tools are available for personnel to ensure data validity. When data is uploaded to the database, simple data validation rules are applied: numeric fields will not accept alphanumeric characters and vice versa. Numeric value formats are also checked for integer and decimal formats where applicable. In addition, some fields are filled-in automatically, for example, ICES subdivisions are automatically calculated based on coordinates, and vessel information is automatically retrieved from the database when the register number of a vessel is entered. These features have been implemented to minimise the possibility of errors, which, in turn, could decrease data quality. The development work of the database system is ongoing and the progress has been annually reported to the EU.

The data produced in international surveys is stored also in international databases (BAD1 and BAD2). Since the RCM Baltic has recommended the use of FishFrame as a regional database, Finland is developing procedures for extracting data from the Oracle database to FishFrame format which is compatible with the InterCatch database, used for ICES assessment work.

VI.B Use of the data

The data will be used in producing ICES advice and in relevant scientific work. The estimation of the biological parameters follows the standard ICES practises. Data sets are produced and validated according to ICES instructions. As an example, all biological data on Baltic herring and sprat collected by FGFRI from commercial fisheries and in international co-operation with Sweden and Estonia from acoustic surveys are used in annual assessments of Baltic pelagic stocks in ICES WGBFAS. The datasets are prepared by FGFRI according to agreed formats and procedures and handed over to concerned stock-coordinators, (aggregated data), uploaded to Intercatch (primary data) as well as presented in relevant working groups (aggregated data).

The biological data on salmon and sea trout are used in annual assessments of Baltic salmon and sea trout in ICES WGBAST. So far the catch composition data (age and stock composition) has been utilised only partly but there are prospects to for a wider utilisation. So far the tagging data have utilised in the assessment models to estimate the fishery specific catchability values. However, for the several reasons the tagging data has been getting sparse in the last few years and therefore the age and stock composition data will become essential supplement to the tagging data.

The estimates based on transversal variables are compiled with respect to Code of practice of European Statistics.

The scientific meetings which will be attended annually by Finnish experts are listed in Standard table II.B.1.

VII Follow-up of STECF recommendations

Basically, the relevant STECF recommendations have been applied in this NP (when applicable).

VIII List of derogations

List of requests for derogations:

Short title of derogation	NP Proposal section	Derogation approved or rejected ¹	Year of approval or rejection of past requests for derogations
Discard sampling of herring and sprat catches	III.C.5	A	-2010
Sampling of cod landings	III.C.5	A	-2010
Discard sampling of cod catches	III.C.5	A	-2010
Discard sampling of salmon and sea trout catches	III.C.5	A	-2010
Sampling of landings on metier 'OTM_SPF_16-31_0_0' targeting sprat	III.C.5		
Sprat spring survey	III.G	A	-2010

¹ Insert 'a' for approved or 'r' for rejected

IX List of acronyms and abbreviations

ACFM	Advisory Committee on Fisheries Management
ACOM	ICES Advisory Committee
BIAS	Baltic International Acoustic Survey
BITS	Baltic International Trawl Survey
DCF	Data Collection Framework i.e. Council Regulation (EC) N° 199/2008, Commission Regulation (EC) N° 655/2008 and Commission Decision N° 2010/93/EU)
DCR	Data Collection Regulation i.e. 1639/2001, 1584/2004, etc.
FGFRI	Finnish Game and Fisheries Research Institute
IBSFC	International Baltic Sea Fishery Commission
ICES	International Council for the Exploration of the Sea
MAF	Ministry of Agriculture and Forestry
NP 2009-2010	Finnish National Programme proposal 2009-2010
NP 2011-2013	Finnish National Programme proposal 2011-2013
SAP	Salmon Action Plan
SD	ICES Sub-division
SF	Statistics Finland
STECF	Scientific, Technical and Economic Committee for Fisheries
STECF-SGRN	STECF Subgroup on Research Need
WGBAST	Baltic Salmon and Trout Assessment Working Group
WGBFAS	Baltic Fisheries Assessment Working Group
WGBIFS	ICES Working Group on Baltic International Fish Surveys

X Comments, suggestions and reflections

None

XI References

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XII Annexes

ANNEX I. Metier descriptions for the selection of metiers to be sampled

Metier description template			
Name of métier:	FYK_ANA_>0_0_0		
Flag country:	Finland		
Date of update:	030310		
Description of the métier			
Spatial distribution of the fishing activity of the métier	SD 29-32		
Temporal distribution of the fishing activity of the métiers	Months 6-7		
List the fisheries within the métier, including main target and by-catch species:	<p>Fyke net fishery targeting on salmonids: Salmon (<i>Salmo salar</i>) and Sea trout (<i>Salmo trutta</i>).</p> <p>Also substantial amounts of Common whitefish (<i>Coregonus lavaretus</i>) is caught.</p>		
Indicate level of discard of major species (mostly subset of G1 or G2 species): (Text. e.g. Significant, Insignificant, Occasional high)	Stock	Level of discarding	
	Salmon	Significant	
	Sea trout	Significant	
Vessels involved in metier Magnitude in No. and predominant size : (Text)	About 300 vessels of size less than 10 m		
Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table	
	-		
Sampling of the metier			
Indicate if this Métier is merged with other metiers for sampling	Merged with FPN_ANA_>0_0_0		
Justification for merging:	Landings can not be distinguished from FPN_ANA_>0_0_0 in the Finnish landing statistics.		
Intended annual sampling level and sampling method:	Catch category	Sampling effort (Primary sampling unit)	Sampling method (concurrent, other)
	Landings		
	Discards		
	Catch	130	Other (self-sampling at sea)

Indicate if the Métier is associated with particular sampling problems:	Landing occurs to remote and geographically widely scattered small harbours or private docks, making the self-sampling by fishermen the only available method
Additional remarks (historical and others):	Discards comprise almost solely of the seal damaged fish (less than 10 % of the catch). These brought to harbour and for them the same size composition is assumed as for the unharmed part of the catch. Amount of discards can be estimated from the log-book records. <i>Seal-safe fyke nets are under development and in some areas becoming more common.</i>

Métier description template		
Name of métier:	FYK_FWS_>0_0_0 COREG	
Flag country:	Finland	
Date of update:	040310	
Description of the métier		
Spatial distribution of the fishing activity of the métier	SD 29-32	
Temporal distribution of the fishing activity of the métiers	months 5-10	
List the fisheries within the métier, including main target and by-catch species:	<i>Fyke net fishery targeting coregonids: whitefish, mainly migratory populations of whitefish. Bycatch: sea trout, salmon.</i>	
Indicate level of discard of major species (mostly subset of G1 or G2 species): <i>(Text. e.g. Significant, Insignificant, Occasional high)</i>	Stock	Level of discarding
	whitefish	Insignificant-significant
	sea trout	Insignificant-significant
	salmon	Insignificant-significant
Vessels involved in métier Magnitude in No. and predominant size : <i>(Text)</i>		
Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table
	-	
Sampling of the métier		
Indicate if this Métier is merged with other métiers for sampling	Merged with FPN_FWS_>0_0_0_COREG	
Justification for merging:	Landings can not be distinguished from FPN_FWS_>0_0_0_COREG in the Finnish landing statistics.	

Intended annual sampling level and sampling method:	Catch category	Sampling effort (Primary sampling unit)	Sampling method (concurrent, other)
	Landings	5	concurrent
	Discards	4	concurrent
	Catch	4	concurrent
Indicate if the Métier is associated with particular sampling problems:			
Additional remarks (historical and others):	<i>Discarding occurs mainly due to seal damages. Proportion of fish damaged by seals varies a lot both temporarily and spatially. Seal-safe fyke nets are under development and in some areas becoming more common.</i>		

Métier description template		
Name of métier:	FYK_FWS_>0_0_0 PERCIF	
Flag country:	Finland	
Date of update:	020310	
Description of the métier		
Spatial distribution of the fishing activity of the métier	SD 29-32	
Temporal distribution of the fishing activity of the métiers	<i>months 4-6</i>	
List the fisheries within the métier, including main target and by-catch species:	<i>Fyke net fishery targeting on percids: perch and pikeperch (sander). Number of other species, mainly G3 species, are caught as bycatch.</i>	
Indicate level of discard of major species (mostly subset of G1 or G2 species): <i>(Text. e.g. Significant, Insignificant, Occasional high)</i>	Stock	Level of discarding
	pikeperch	occasional
	perch	insignificant
Vessels involved in métier Magnitude in No. and predominant size : <i>(Text)</i>		
Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table
	-	
Sampling of the métier		
Indicate if this Métier is	Merged with FPN_FWS_>0_0_0_PERCIF	

merged with other métiers for sampling			
Justification for merging:	Landings can not be distinguished from FPN_FWS_>0_0_0_PERCIF in the Finnish landing statistics.		
Intended annual sampling level and sampling method:	Catch category	Sampling effort (Primary sampling unit)	Sampling method (concurrent, other)
	Landings	11	concurrent
	Discards	4	concurrent
	Catch	4	concurrent
Indicate if the Métier is associated with particular sampling problems:			
Additional remarks (historical and others):			

Métier description template		
Name of métier:	GNS_FWS_>0_0_0 COREG	
Flag country:	Finland	
Date of update:	040310	
Description of the métier		
Spatial distribution of the fishing activity of the métier	SD 29-32	
Temporal distribution of the fishing activity of the métiers	months 1-12: main seasons: 5-11	
List the fisheries within the métier, including main target and by-catch species:	Gill net fishery targeting on coregonids: main target whitefish; main bycatch species perch and several other G2/G3 species. Some sea-trout is caught as by-catch.	
Indicate level of discard of major species (mostly subset of G1 or G2 species): <i>(Text. e.g. Significant, Insignificant, Occasional high)</i>	Stock	Level of discarding
	whitefish	insignificant
	perch	insignificant
Vessels involved in métier Magnitude in No. and predominant size : <i>(Text)</i>		
Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table
	-	

Sampling of the metier			
Indicate if this Métier is merged with other metiers for sampling	(list which other metiers are included in the sampling metier) -		
Justification for merging:			
Intended annual sampling level and sampling method:	Catch category	Sampling effort (Primary sampling unit)	Sampling method (concurrent, other)
	Landings	15	concurrent
	Discards	8	concurrent
	Catch	8	concurrent
Indicate if the Métier is associated with particular sampling problems:			
Additional remarks (historical and others):	Wide range of different mesh sizes are used depending on the whitefish population in question. As a rule, northern populations have smaller individual growth rate than southern, and migratory whitefish have faster growth rate than local. Local restrictions and recommendations on mesh-size. Amount of seal damage has increased in recent years.		

Metier description template		
Name of métier:	GNS_FWS_>0_0_0 PERCIF	
Flag country:	Finland	
Date of update:	020310)	
Description of the métier		
Spatial distribution of the fishing activity of the métier	SD 29-32	
Temporal distribution of the fishing activity of the métiers	months 1-12: main seasons: 4-5, 9-11	
List the fisheries within the métier, including main target and by-catch species:	Gill net fishery targeting on percids: main targets perch and pikeperch (sander). Several other species, mainly G3 species are caught as bycatch.	
Indicate level of discard of major species (mostly subset of G1 or G2 species): <i>(Text. e.g. Significant, Insignificant, Occasional high)</i>	Stock	Level of discarding
	pikeperch	occasional
	perch	insignificant
Vessels involved in metier Magnitude in No.		

and predominant size : (Text)			
Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table	
	-		
Sampling of the metier			
Indicate if this Métier is merged with other metiers for sampling			
Justification for merging:			
Intended annual sampling level and sampling method:	Catch category	Sampling effort (Primary sampling unit)	Sampling method (concurrent, other)
	Landings	29	concurrent
	Discards	10	concurrent
	Catch	10	concurrent
Indicate if the Métier is associated with particular sampling problems:			
Additional remarks (historical and others):	<i>Local restrictions and recommendations on mesh size. Amount of seal damage has increased in recent years.</i>		

Metier description template		
Name of métier:	FYK_SPF_>0_0_0	
Flag country:	Finland	
Date of update:	020310	
Description of the métier		
Spatial distribution of the fishing activity of the métier	Finnish coastal areas of ICES SDs 29-32 in ICES area III d	
Temporal distribution of the fishing activity of the métiers	Fishery is targeting spawning herring in spring, starting in April in the southern areas and continuing till early July in the northernmost areas.	
List the fisheries within the métier, including main target and by-catch species:	Fyke net and poundnet fishery for spawning herring with occasional bycatches of coastal freshwater species.	
Indicate level of discard of major species (mostly subset of G1 or G2 species): (Text. e.g. Significant,	Stock	Level of discarding
	Herring in SDs 25-29 & 32	Insignificant
	Herring in	Insignificant

Insignificant, Occasional high)	SD 30		
	Herring in SD 31	Insignificant	
Vessels involved in metier Magnitude in No. and predominant size : (Text)			
Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table	
Sampling of the metier			
Indicate if this Métier is merged with other metiers for sampling	Merged with FPN_SPF_>0_0_0.		
Justification for merging:	Landings can not be distinguished from FPN_SPF_>0_0_0 in the Finnish landing statistics.		
Intended annual sampling level and sampling method:	Catch category	Sampling effort (Primary sampling unit)	Sampling method (concurrent, other)
	Landings	20	concurrent
	Discards	none	
	Catch	20 (=landings)	concurrent
Indicate if the Métier is associated with particular sampling problems:	The catches are usually sampled in the landing sites and not on sea because the boats used in this fishery are usually too small to carry extra persons on board.		
Additional remarks (historical and others):			

Metier description template			
Name of métier:	OTM_SPF_16-104_0_0 (including PTM_SPF_16-104_0_0)		
Flag country:	Finland		
Date of update:	020310		
Description of the métier			
Spatial distribution of the fishing activity of the métier	ICES areas III b-d (mainly ICES SDs 29-32)		
Temporal distribution of the fishing activity of the métiers	In Archipelago Sea and Bothnian Sea there is fishing activity all year round, while in Bothnian Bay and Gulf of Finland the fishery is usually restricted by ice-cover in winter(ICES SDs 29 & 30: Q1-Q4; ICES SD 31: Q2-Q3, ICES SD 32: Q2-Q4).		
List the fisheries within the métier, including main target and by-catch species:	Midwater trawl fishery for herring or mixed fishery for herring and sprat with occasional bycatches of G3 species.		
Indicate level of discard of major species (mostly subset of G1 or G2 species): (Text. e.g. Significant, Insignificant, Occasional high)	Stock	Level of discarding	
	Herring in SDs 25-29 & 32	Insignificant	
	Herring in SD 30	Insignificant	
	Herring in SD 31	Insignificant	
	Sprat in III b-d	Insignificant	
Vessels involved in metier Magnitude in No. and predominant size : (Text)			
Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table	
Sampling of the metier			
Indicate if this Métier is merged with other metiers for sampling	PTM_SPF_16-104_0_0		
Justification for merging:	Statistical comparisons of exploitation patterns (fish length distributions) between two gear types ('Midwater otter trawl' - OTM and 'Midwater pair trawl' - PTM) used in fishery of small pelagic fish (i.e. herring and sprat) suggest that these two metiers have similar exploitation patterns in the Finnish fishery.		
Intended annual sampling level and sampling method:	Catch category	Sampling effort (Primary sampling unit)	Sampling method (concurrent, other)

	Landings	90	concurrent
	Discards	0	
	Catch	90 (=landings)	concurrent
Indicate if the Métier is associated with particular sampling problems:			
Additional remarks (historical and others):			

ANNEX II. Statistical comparisons of exploitation patterns (fish length distributions) between two gear types (OTM and PTM)

The complete report was sent together with the revised version of the Finnish NP 2009-2010.

Background

According to DCF, metiers can be merged when they have similar and statistically proven exploitation patterns and the merging is supported by documentation. We have carried out statistical comparisons of exploitation patterns (fish length distributions) between two gear types ('Midwater otter trawl' - OTM and 'Midwater pair trawl' - PTM) used in fishery of small pelagic fish (i.e. herring and sprat).

Methods

Three statistical tools were used:

- (1): Meaningful differences between the gear types were assessed using equivalence trials (Columb and Lutz 2009).
- (2) The input for the equivalence trials (fish length probability distributions) was assessed using a Naïve Bayes Meta Classifier (Mierswa et al. 2006) by stacking (Hatami and Ebrahimpour 2007; Wolpert 1992) two base-level models that were a decision tree classifier and a k-nearest neighbor classifier.
- (3): Comparison between length distributions between the gear types without assumptions on parameter distributions and, without a-priori assumptions on relationships among variables was done using a Generalized Regression Neural Network (Specht 1991).

Results

Equivalence trials

The equivalence trials suggested that the fish length confidence intervals of the two gears are more likely equivalent, than not (Figure 1). The difference in mean coverage between the two gears was both positive and negative in all areas that suggest random selection between the years (Table 1). Table 1 summarizes the statistics of the equivalence trials.

Generalized Regression Neural Network

The Generalized Regression Neural Network suggested that the difference in fish length between the two gear types is ± 7.0 mm on average (Figure 2). The fish length estimates (OTM minus PTM) were both positive and negative in all areas i.e. the estimated fish length differences did not show temporal selection pattern in any area (Figure 2). Table 2 summarises the statistics of the Generalized Regression Neural Network.

Bayes Meta classifier

Appendix 1 shows the fish length probability distributions of the Bayes Meta classifier that were used as an input in equivalence trials (Figures 3 – 27 in Appendix 1). The probability distributions show that the difference in fish lengths between the two gear types is ± 7.7 mm on average (OTM minus PTM; most likely values). The results of the Bayes Meta classifier and the Generalized Regression Neural Network were nearly identical (corr. 0.99, $R^2 = 0.98$, OTM minus PTM, most likely values).

Conclusions

The equivalence trials suggested that the differences in fish length distributions between the two gear types are more likely meaningless, than meaningful. The two other models (models 2 and 3) suggested that the differences in fish length distributions between the two trawl gear types are small (± 7.7 and ± 7.0 mm on average). In addition, all three models suggested that the differences in fish lengths were both positive and negative in all areas. This suggests random selection between the years i.e. that the fish length differences occur by chance. This suggests that the exploitation patterns of the two gears are similar and, therefore they can be merged and sampled side by side in the Baltic Sea for collecting data on Baltic herring and sprat stocks.

ANNEX III. Bilateral agreements with Denmark, Poland and Sweden, on use of salmon samples from the Main Basin for genetic analyses by microsatellite-DNA method

Bilateral Agreement between the Finnish Game and Fisheries Research Institute and National Institute of Aquatic Resources (Denmark) for the collection and genetic analysis of salmon catch samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/74/EU

Agreement:

Salmon fishing vessels, which operate in the Baltic Sea Main Basin and land for first sale into Denmark, will be sampled as part of the Danish National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Danish National Sampling Programme for 2011- 2013.

Based on this agreement, the National Institute of Aquatic Resources (DTU Aqua) will deliver the collected salmon samples (part of the scales of each sample and associated data) to the Finnish Game and Fisheries Research Institute (FGFRI) for the genetic analysis. The genetic analysis will be carried out as part of the Finnish National Programme under the requirements of the EC Data Collection Framework (199/2008). The costs of genetic analysis will be covered within the Finnish National Sampling Programme for 2011- 2013.

Description of sampling:

The sampling of landings will be carried out in accordance with the Danish National Sampling Programme.

Sampling Intensity:

Levels and coverage as agreed at the annual meeting of RCM Baltic.

Data responsibility:

The FGFRI will deliver the results of genetic analysis to the DTU Aqua, as well as to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework.

Contact persons: In FGFRI, Tapani Pakarinen
In DTU Aqua, Frank-Ivan Hansen

<p>Finnish Game and Fisheries Research Institute</p> <p><i>Jaakko Erkinaro</i> Jaakko Erkinaro, Research Director On behalf of the Research Director</p> <p>Date: 19.3.2010</p>	<p>National Institute for Aquatic Resources</p> <p>Jørgen Dalskov, National Correspondent</p> <p>Date: 18/3-2010</p> <p><i>Jørgen Dalskov</i></p>
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Bilateral Agreement between the Finnish Game and Fisheries Research Institute and Sea Fisheries Institute (Poland) for the collection and genetic analysis of salmon catch samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/74/EU2008/949/EC.

Agreement:

Salmon fishing vessels, which operate in the Baltic Sea Main Basin and land for first sale into Poland, will be sampled as part of the Polish National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Polish National Sampling Programme for 2011 - 2013.

Based on this agreement, the Sea Fisheries Institute (SFI) will deliver the collected salmon samples (part of the scales of each sample and associated data) to the Finnish Game and Fisheries Research Institute (FGRFI) for genetic analysis. The genetic analysis will be carried out as part of the Finnish National Programme under the requirements of the EC Data Collection Framework (199/2008). The costs of genetic analysis will be covered within the Finnish National Sampling Programme for 2011 - 2013.

Description of sampling:

The sampling of landings will be carried out in accordance with the Polish National Sampling Programme.

Sampling Intensity:

Levels and coverage as agreed at the annual meeting of ICES WGBAST.

Data responsibility:


The FGRFI will deliver the results of genetic analysis to the MIR, as well as to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework.

Contact persons: In FGRFI, Tapani Pakarinen
In SFI, Wojciech Pelczarski

Signatures:

Finnish Game and Fisheries Research Institute
Jaakko Erkinaro, Research Director

Sea Fisheries Institute
Wojciech Pelczarski, Deputy
Director (Research)





Date: 19 MARCH 2010

Bilateral Agreement between the Finnish Game and Fisheries Research Institute and Swedish Board of Fisheries for the collection and genetic analysis of salmon catch samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/74/EU

Agreement:

Salmon fishing vessels, which operate in the Baltic Sea Main Basin and the Gulf of Bothna and land for first sale into Sweden, will be sampled as part of the Swedish National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Swedish National Sampling Programme for 2011- 2013.

Based on this agreement, the Swedish Board of Fisheries (SBF) will deliver the collected salmon samples (part of the scales of each sample and associated data) to the Finnish Game and Fisheries Research Institute (FGRFI) for genetic analysis. The genetic analysis will be carried out as part of the Finnish National Programme under the requirements of the EC Data Collection Framework (199/2008). The costs of genetic analysis will be covered within the Finnish National Sampling Programme for 2011- 2013.

Description of sampling:

The sampling of landings will be carried out in accordance with the Swedish National Sampling Programme.

Sampling Intensity: Levels and coverage as agreed at the annual meeting of ICES WGBAST.

Data responsibility:

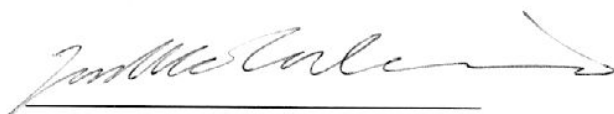
The FGRFI will deliver the results of genetic analysis to the SBF, as well as to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework.

Contact persons: In FGRFI, Tapani Pakarinen
In SBF, Johan Dannewitz

Signatures:

Finnish Game and Fisheries Research Institute
Jaakko Erkinaro, Research Director

Institute of Freshwater Research,
Swedish Board of Fisheries
Joep de Leeuw, Director of institute

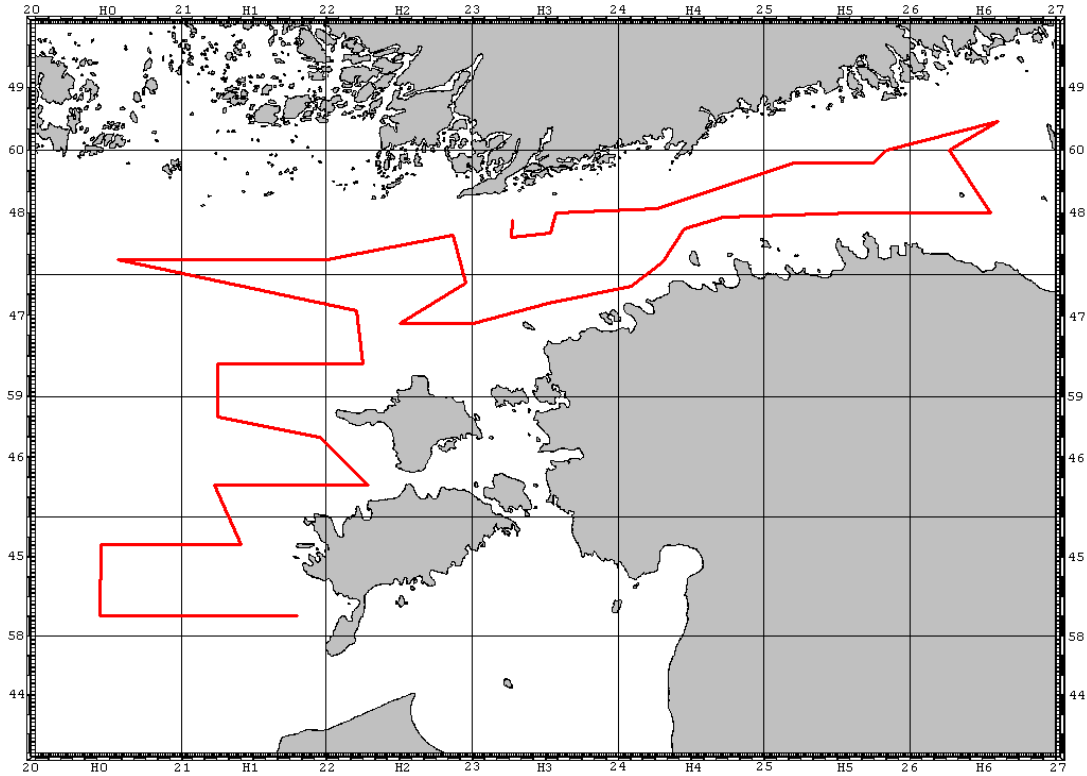




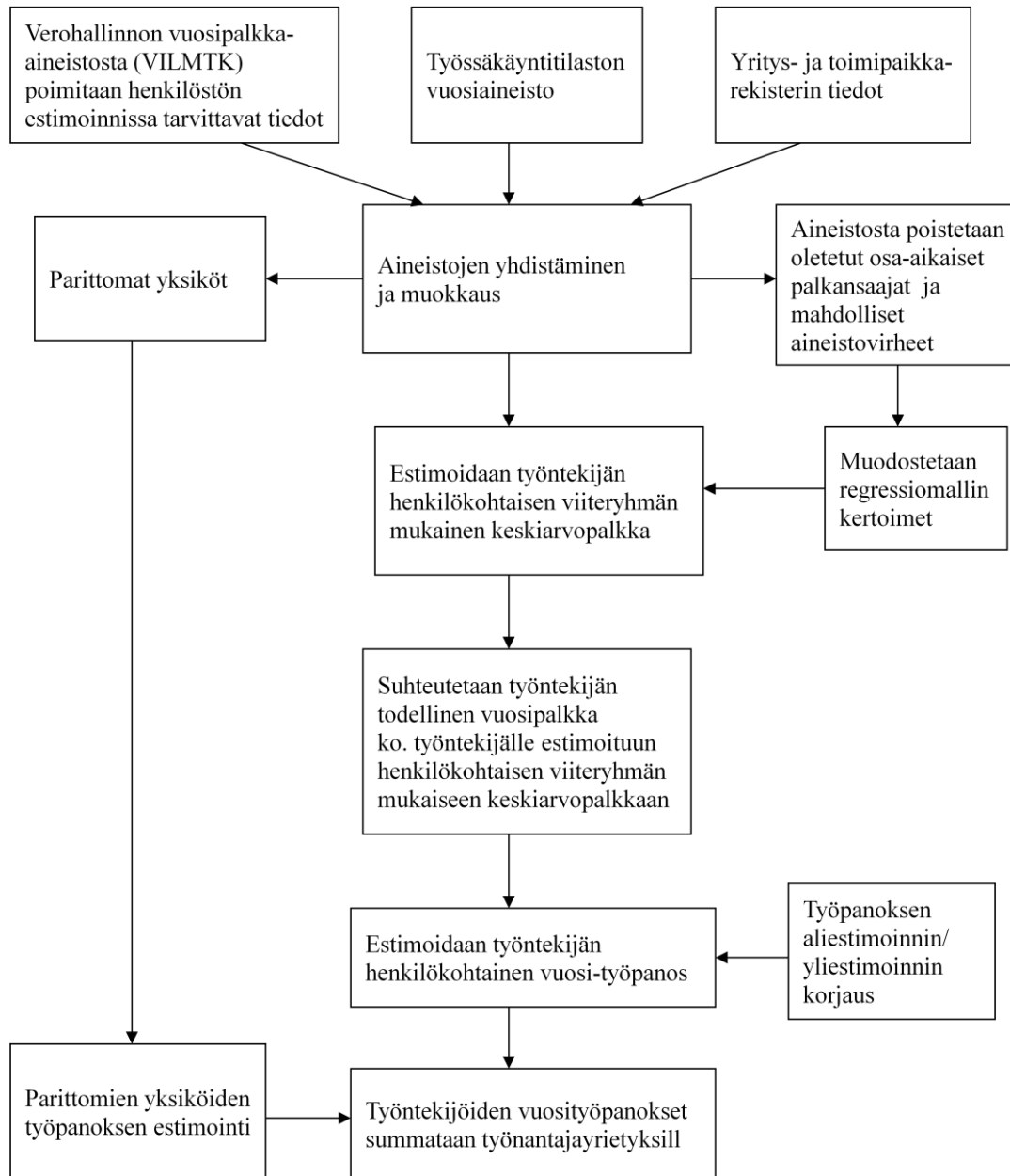
Date: 2010-03-09

ANNEX IV. **Transect plan of herring acoustic survey (preliminary)**

Herring acoustic survey in ICES Sub-divisions 28 (part), 29N and 32 (joint Estonian - Finnish survey)



ANNEX V Estimation of FTE according to Statistics Finland (in Finnish)

Henkilöstön estimointi: palkansaajien vuosi-
estimointi

Henkilöstön estimointi: palkansaajien vuosi-estimointi

Tietolähteinä palkansaajien vuosi-estimoinnissa käytetään seuraavia lähteitä ja niiden tietoja: verohallinnon vuosipalkka-aineisto (*aineisto sisältää kaikkien työnantajana toimineiden yritysten maksamat palkat henkilöittäin*), työssäkäyntitilaston vuosiaineistoa (*aineisto sisältää seuraavat tiedot: yritystunnus, henkilötunnus, ikä, sukupuoli, koulutustutkinto, ammattikoodi ja työssäkäyntikunta*) ja yritysrekisterin omia tietoja (*yritystunnus, toimialakoodi ja sektoriluokka*).

Palkansaajien vuosi-estimointi on kaksi vaiheinen siten, että ensin muodostetaan keskiarvopalkan (*vuosipalkan odotusarvon*) estimoinnissa käytettävän regressiomallin kertoimet aineistosta, josta on poistettu oletetut osa-aikaiset palkansaajat ja mahdolliset aineistovirheet. Sen jälkeen työntekijän henkilökohtaisen viiteryhmän mukainen keskiarvopalkka estimoidaan kokonaisaineistosta, jossa on mukana kaikki palkansaajat (*sekä kokoaikaiset palkansaajat että osa-aikaiset palkansaajat*).

Palkansaajien vuosi-estimointi perustuu työsuhdekohtaisiin palkkoihin ja työntekijän viitetietoihin kuten ammatti, koulutus, ikä, sukupuoli ja kotikunta sekä työnantajayrityksen toimiala ja sektori. Viitetietojen perusteella työntekijälle estimoidaan hänen henkilökohtaisen viiteryhmänsä mukainen keskiarvopalkka (*vuosipalkan odotusarvo*). Työntekijän henkilökohtaisen viiteryhmän mukaisen keskiarvopalkan estimoinnissa käytetään regressiomallia (*palkkayhtälöä*), jossa työntekijän vuosipalkan muodostumista selitetään työntekijän viitetiedoilla eli palkan muodostumiseen vaikuttaa mm. ammatti, ikä ja työnantajayrityksen toimiala.

Henkilön vuosityöpanos lasketaan jakamalla henkilön todellinen vuosipalkka henkilön estimoidulla keskiarvopalkalla (*vuosipalkan odotusarvolla*) eli henkilön todellinen palkka suhteutetaan tähän estimoituun keskiarvopalkkaan ja tästä suhteesta päätellään henkilön vuosityöpanos. Kuitenkin rajoittaen niin, että henkilön vuosityöpanoksen normaali maksimi yhdessä työsuhhteessa on yksi henkilötyövuosi.

Lopuksi henkilötason työvuodet summataan työnantajayrityksille.

Parittomia oikeudellisia yksiköitä ovat sellaiset yksiköt, jotka eivät esiinny verohallinnon vuosipalkka-aineistossa (*VILMTK*), mutta joilla on tilastovuonna palkkatietoja yritysrekisterin tuotantokannassa (*palkkatiedot tulevat pääasiassa VEROTK:sta eli verohallinnon elinkeinoverotusaineistosta*). Näiden yksiköiden palkattu henkilöstö estimoidaan jakamalla oikeudellisen yksikön tilastovuoden palkkasumma ko. oikeudellisen yksikön toimialan keskipalkalla.

Palkansaajien vuosi-estimointi tehdään ensimmäisen kerran tilastovuotta seuraavan vuoden kesäkuussa ja tilastovuoden lopullinen palkansaajien vuosi-estimointi tehdään tilastovuotta seuraavan vuoden elokuussa.

ANNEX VI INDICATIVE COST OF MULTI-ANNUAL NATIONAL PROGRAMME 2011 - 2013

Financial Forms for the data collection programmes in the framework of Council Regulation (EC) No 199/2008.

PART I

Total planned eligible cost for the implementation of the NP.

		- EURO -
Year	Planned eligible expenditure	Maximum Community contribution
2011	1 736 460,44	868 230,22
2012	1 753 701,04	876 850,52
2013	1 770 941,65	885 470,82
TOTAL	5 261 103,13	2 630 551,57