

*National Data Collection Programme under
Council Regulation (EC) N° 1543/2000 and
Commission Regulation (EC) N° 1639/2001
as amended by
Commission Regulation (EC) N° 1581/2004*

National Programme 2006

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Ministry of Agriculture and Forestry
Finnish Game and Fisheries Research Institute

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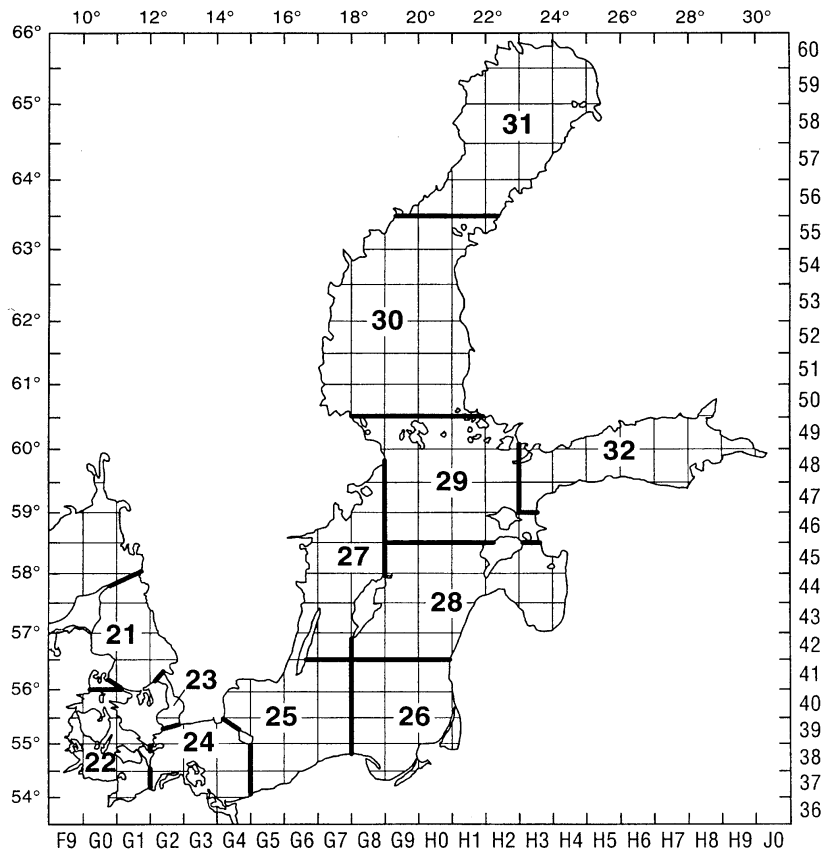


Table of contents

1	Introduction	1
1.1	<i>Derogations requested</i>	1
2	Participating institutes	3
3	Precision levels and sampling intensities	4
4	Data transmission	5
5	Module C - Collection of data concerning fishing capacities	6
5.1	<i>Minimum programme</i>	6
5.1.1	Finnish Fishing Fleet	6
5.2	<i>Extended programme</i>	6
6	Module D - Collection of data related to fishing effort	7
6.1	<i>Minimum programme</i>	7
6.1.1	Fuel consumption	7
6.1.2	Fishing effort and specific fishing effort	7
6.2	<i>Extended programme</i>	7
7	Module E -Collection of data related to catches and landings	8
7.1	<i>Minimum programme - Landings</i>	8
7.2	<i>Extended programme – Landings</i>	8
7.3	<i>Minimum programme - Discards</i>	8
7.3.1	Baltic herring and sprat	9
7.3.2	Cod	9
7.3.3	Flounder	9
7.3.4	Salmon and sea trout	10
7.4	<i>Extended programme – Discards</i>	10
7.5	<i>Minimum programme - Recreational fishing</i>	10
7.6	<i>Extended programme - Recreational fisheries</i>	11
8	Module F - Catches per unit of effort	12
8.1	<i>Minimum programme</i>	12
8.1.1	Baltic herring	12
8.1.2	Sprat	12
8.1.3	Cod	12
8.1.4	Salmon	13
8.2	<i>Extended programme</i>	13
9	Module G - Scientific evaluation surveys of stocks	14
9.1	<i>Minimum programme - Priority 1 surveys</i>	14
9.1.1	BITS survey	14
9.1.2	Herring Acoustic Survey (Pilot study)	14
9.2	<i>Extended programme - Priority 2 surveys</i>	14
10	Module H - length and age sampling	15
10.1	<i>Minimum programme - Landings</i>	15
10.1.1	Baltic herring (<i>Clupea harengus membras</i>)	16

10.1.2	Sprat (<i>Sprattus sprattus</i>)	18
10.1.3	Cod (<i>Gadus morhua callarias</i>)	19
10.1.4	Salmon (<i>Salmo salar</i>)	20
10.1.5	Sea trout (<i>Salmo trutta</i>)	21
10.1.6	Flounder (<i>Platichthys flesus</i>)	21
10.2	<i>Extended programme – Landings</i>	22
10.2.1	European whitefish (<i>Coregonus lavaretus</i>)	22
10.2.2	Pikeperch (<i>Stizostedion lucioperca</i>)	23
10.2.3	Perch (<i>Perca fluviatilis</i>)	24
11	Module I - Other biological samplings	26
11.1	<i>Minimum programme – basic parameters</i>	26
11.1.1	Herring and sprat	26
11.1.2	Cod	26
11.1.3	Flounder	26
11.1.4	Salmon and sea trout	26
11.2	<i>Minimum Programme - Proportions of wild and reared fish in the landings of salmon</i>	27
11.3	<i>Minimum Programme - Monitoring of salmon in wild salmon rivers</i>	28
11.4	<i>Extended programme - Monitoring of juvenile salmon in potential salmon rivers</i>	28
12	Module J - Economic data on fishing vessels	30
12.1	<i>Minimum programme</i>	30
12.2	<i>Extended programme</i>	31
13	Module K - Data concerning the fish processing industry	32
13.1	<i>Minimum programme</i>	32
13.2	<i>Extended programme</i>	33
14	Data bases	34
15	National and international co-ordination	35
15.1	<i>National co-ordination</i>	35
15.2	<i>International co-ordination</i>	35
15.3	<i>Other relevant issues</i>	35
16	List of acronyms and abbreviations	36
17	Comments, suggestions and reflections	36
18	References	36
19	Annexes	37

1 Introduction

This is the Finnish National Programme proposed for 2006 (NP 2006). The work will be done under DCR: Council Regulation (EC) N° 1543/2000 and Commission Regulation (EC) N° 1639/2001 as amended by Commission Regulation (EC) N° 1581/2004.

The major changes in comparison to year 2005 within the minimum programme are following:

- Herring acoustic survey for SD 29N and SD 32 added in module G
- River Tornionjoki included in monitoring of salmon in rivers (chapter 11.3)
- Data base build-up work included in in chapter 14

The proposed extended programme does not have any major changes in comparison to year 2005.

1.1 Derogations requested

Finland is asking three derogations in respect to DCR.

1. Cod sampling (Modules E, H, I)

The abundance of cod in the northern Baltic is assumed to be negligible. Finnish fishing vessels is assumed to be operate in the southern Baltic in ICES Sub-divisions 24-26. The total catch of Finnish fishing fleet was about 885 tonnes in 2004. Finnish catches represented 1% of the total reported cod catches in Sub-divisions 25-32 in 2004. In the northern Baltic (ICES Sub-divisions 29, 30 and 32), where the abundance of cod was presently zero (2004), no special sampling is planned to be organized in 2005 for cod by Finland. Cod catch sampling from gill-net and trawl fisheries in the southern Baltic is planned to be organized by Danish and Swedish institutions in ICES Sub-divisions 24-27 and this data will be applied to Finnish catches operating in same fishing grounds. **Therefore no special sampling will be organized for cod by Finland in 2006. This derogation has been applied already in earlier years.**

2. Baltic herring and sprat acoustic surveys (Module G)

For the two herring stocks in the Gulf of Bothnia (herring stock in SD 30 and herring stock in SD 31) the tuning series for assessment have been and will be constructed from the age and length sampling of catches and available commercial CPUE information. Since year 2000, the CPUE-tuned XSA-assessment of the main herring stock in Gulf of Bothnia (herring stock in SD 30, Bothnian Sea) has been accepted by ACFM (reports of ICES ACFM 2000-2004). **Therefore no acoustic surveys will be conducted for Baltic herring by Finland in SD 30 during 2006. This derogation has been applied already in earlier years.**

In case of sprat, Finland has historically not participated, nor carried out it's own sprat acoustic surveys (second quarter survey in Appendix XIV of DCR). Furthermore, there has never been specific need for Finnish participation. The geographical distribution of the sprat is more southern than that of herring and therefore sprat is not abundant all year in Finnish fishing zone. The current sprat acoustic study of the Main Basin, performed by other Baltic institutes, covers fairly well most of the biomass of this stock.

Finland's opinion has been that there is no reasonable justification to include second quarter sprat survey into Finnish MP. This request for derogation has been annually endorsed by STECF sub-group on research needs (SGRN) and recurrently accepted by EC. **Therefore no acoustic surveys will be conducted for sprat by Finland in 2006. This derogation has been applied already in earlier years.**

3. Discard sampling (Modules E, H)

All herring and sprat are valuable to the fishermen and are sold either for human consumption or for fodder markets. Therefore no need for fishermen to discard is anticipated and Because of this, no

separate discard sampling is assumed to be needed for Baltic herring and sprat. **Therefore no discard sampling will be conducted for Baltic herring and sprat by Finland in 2006. This derogation has been applied already in earlier years.**

STECF recommended for Finland a pilot study to be performed in co-operation with neighbouring countries for comparison of cod discards estimates. The pilot study in 2003 contained analysis of the existing primary data of discarding practice in the southern Baltic in 2001-2002 in ICES Sub-divisions 25-28, where the main body of the Finnish cod catches has been taken. In co-operation with Danish and Swedish scientist, an ad hoc group met and compiled information on catch composition and amount of discards. The effect of discarding in Finnish cod fisheries and fleets have been evaluated and shown to be negligible. **Therefore no discard sampling will be conducted for cod by Finland in 2006. This derogation has been applied already in earlier years.**

According to the catch statistics, the Finnish commercial flounder catch in 2004 was 34 tons, which is about 0,2 % of the total flounder catches in the Baltic. Most of the Finnish catches are non-commercial (estimated to be around 100–200 t annually). Of the commercial catches, 0.4 tons (1 %) were reported as discarded in the log books or coastal catch reports. **No discard sampling will be conducted for flounder by Finland in 2006.**

2 Participating institutes

The administration of this national data collection programme is in the responsibility of the Ministry of Agriculture and Forestry (MAF), who will designate 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 is as follows:

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MAF will be assisted by the Finnish Game and Fisheries Research Institute (FGFRI), which will designate two contact persons responsible to take care practical issues between the Ministry and Research Institute.

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3 Precision levels and sampling intensities

Large part of the data under modules C, D, E and F are collected from the register, EU logbooks or Finnish coastal fishery reports (Table 3.1). This means that all data or practically all data will be collected. Therefore no effort for calculation of precision levels for those parameters will be used. Fuel consumption under the Module D will be part of the economic data collection (Module J), which will be collected by a sample survey on fishing firms for the first time.

Precision levels for biological parameters under Modules H and I are planned to be calculated by analytical method based on sampling scheme. For those parameters that precision levels are not specified no calculation is planned.

Table 3.1 Planned data sources, data collection methods and calculation methods for precision levels in NP 2006.

Module	Type of data	MP EP	Required level of precision	Data sources and data collection methods used	Calculation method planned
C	Fleet capacity	MP	All or Level 3	Fishing vessel register, census	All data collected, required level of precision will be achieved
D	Fuel consumption	MP	All or Level 2	Part of the economic data collection in Module J	See module J
	Fishing effort	MP	All or Level 2	EU logbooks, Finnish coastal fishery reports; census	Practically all data collected, required level of precision will be achieved
	Species-specific fishing effort	MP	All or Level 1	EU logbooks, Finnish coastal fishery reports; census	Practically all data collected, required level of precision will be achieved
E	Landings	MP	Level 1, 2 or 3, depending on management type	EU logbooks, Finnish coastal fishery reports; census	Practically all data collected, required level of precision will be achieved
	Discards	MP	Level 1	Derogation; no discard sampling	
	Recreational fisheries	MP EP	Not specified	All Finnish households; stratified postal sample survey	
F	CPUE data series	MP	Not specified	EU logbooks, Finnish coastal fishery reports; census	
G	Surveys	MP	Not specified	Derogation (except BITS – see 9.1)	
H	Age compositions of stocks under a Recovery Plan	MP	Level 2	Market sampling, self-sampling	Analytical based on sampling scheme
	Age compositions of other mandatory stocks	MP	Level 1	Port sampling	Analytical based on sampling scheme
I	Length & weight at age for species that can be aged	MP	Level 3	Port sampling, market sampling, self-sampling; compilation 2006	Analytical based on sampling scheme
	Length & weight at age for species that cannot be aged			Not applicable	
	Sexual maturity	MP	Level 3	Port sampling; compilation 2006	Analytical based on sampling scheme
	Fecundity			Not applicable	
	Sex ratios	MP	Level 3	Port sampling; compilation 2006	Analytical based on sampling scheme
J	Economic data fishing vessels	MP	Level 1	Register survey	Not available, see chapter 12.1
K	Data processing industry	MP EP	Not specified	Register survey	

4 Data transmission

The data collected under DCR will be transmitted to relevant working groups and other bodies, including possible data requests from the Commission.

5 Module C - Collection of data concerning fishing capacities

Fishing capacity and fishing effort describe the total capacity, and the volume and capacity of different fishing techniques as well as operation amounts of different fishing techniques.

5.1 Minimum programme

5.1.1 Finnish Fishing Fleet

In the beginning of 2005, the Finnish fishing fleet numbered 3393 registered vessels. Most of the vessels (3237) were under 12 meter (LOA), and they were used in coastal fishing. The overall capacity of the vessels in the beginning of 2005 was 18 000 GT and power 179 000 kW. There has been some reduction in fleet size during the last years. The fleet is divided into four segments: pelagic trawlers (142 vessels), demersal trawlers (2) and vessels with passive gears (51), that use nets and lines. The remaining vessels belong to a segment of small scale coastal fishing vessels under 12 meter.

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 many months, and fishing vessels are not in use. Regardless that, fishing can be conducted under ice cover. Then fishing vessels can be replaced for instance by snow vehicles.

Data

The number of vessels according to segments is available in fishing vessel register. Information is collected from all vessels included into the MAGP IV programme. The maintenance and continuous update of the register is allocated regionally to the Fishery Units of the Employment and Economic Development Centres (EEDCs). Following information is available in fishing vessel register that consists of all vessels used in commercial marine fishing irrespective of the vessel length:

- Tonnage in gross tonnage (GT).
- The continuous maximum output of main engine (kW) independently of possible delimitation of the main engine output.
- Age of the vessel

Information on fishing capacity will be collected according to table 5.1 classification.

Reliability

- Information will be collected completely.

Costs included in Finland NP 2006 FinForms.xls, Worksheet C. Fish cap.

Table 5.1. Classification of fishing capacity

Vessel length		< 12 m	12 - < 24 m	24 - < 40 m
Type of fishing technique				
Mobile gears	Pelagic trawlers			
	Demersal trawlers			
Passive gears	Drift nets and -lines			
	Fixed gears			

5.2 Extended programme

None.

6 Module D - Collection of data related to fishing effort

6.1 Minimum programme

6.1.1 Fuel consumption

Data

The information on consumption of fuel and fuel costs are obtained from National Board of Customs and their fuel tax register. The segmentation is as shown in table 5.1. All fishermen having more than 30 % of their income from fishing (commercial fishermen in class 1) are included into the refunding system of fuel taxation. The register of fuel taxation is maintained by regional customs districts and the register of commercial fishermen is maintained by Fishery Units of the Employment and Economic Development Centres (EEDCs). Information on fuel consumption rates will be combined with the economic data (see chapter 12.1).

Finnish Game and Fisheries Research Institute has made an arrangement with National Board of Customs of getting access to the register of fuel taxation. Coverage and reliability of the data are not known. Fuel costs will be estimated on the basis of special survey based on fuel taxation information and economic information of the fishing firms (see also 12.1).

Time scale and delay

As it is stated in the regulation, fuel consumption is considered as a part of the economic evaluation, and so it is assumed that the data on fuel consumption will be ready by the end of the year following the referred year.

6.1.2 Fishing effort and specific fishing effort

Data

Fishing effort data and specific fishing effort data for minimum programme will be obtained besides the collection of catch data (see 7.1). Target population of fishing effort data consists of all the vessels that are used in commercial fishing and, of all professional fishermen, who have a personal reporting obligation. Fishing effort will be collected by fishing occasion-based reports (logbooks) and so called coastal fishery reports. Fishing effort will be collected according to categorisation corresponding to the regulation.

Exceptions

For small-scale coastal fishing (vessels of under 10 meter) fishing effort can be calculated by gear, not by vessel. Therefore fishing effort can be presented only by fishing days not multiplied by tonnage. It should be noted that the tonnage of vessels would not necessary correlate with fishing effort of fixed gears at all, for example if fixed nets are kept under ice cover in winter fishing. Then fishing is not carried out by a fishing vessel at all.

Reliability

The data is basically complete, and required precision and confidence levels will be achieved.

Time scale and delay

Preliminary data will be available in January-March 2006. Final data referring to the year 2005 will be available by June 2006.

Costs included in Finland NP 2006 FinForms.xls, Worksheet D. Fish eff.

6.2 Extended programme

None.

7 Module E -Collection of data related to catches and landings

Measures of total catch and the share of landings

The total fish catch level in Finland has been 120-160 000 tons in the previous years. In 2004 commercial marine catch was about 92 000 tons. The bulk of the catch consisted of Baltic herring, 71,000 tons, followed by sprat, 17,000 tons. Commercial catch in inland waters was 5 000 tons in 2002. Half of that consisted of vendace. Total catch of recreational fishermen in 2002 was 39 000 tons, of which 8 000 tons was caught in the Baltic Sea and the rest in the inland waters.

7.1 Minimum programme - Landings

Data

Target population of catch and landings data for minimum programme consists principally of all the vessels used in commercial fishing and, of all the fishermen who have a personal reporting obligation. Catches and landings will be reported according to DCR.

Catches and landings of vessels over 10 meters will be collected by fishing occasion-based reports (logbooks). Catches and landings of vessels under 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.

Reliability

The data is basically complete, and required precision and confidence levels will be achieved.

Time scale and delay

Yearly data on catches and landings will be available during the 3rd quarter of the year that follows the referred statistical year. Preliminary data for the fish stock assessment is available in the 1st quarter.

Catch and landings data collection is described more closely in Annex I.

Costs included in Finland NP 2006 FinForms.xls, Worksheet E. Catch&Land.

7.2 Extended programme – Landings

None

7.3 Minimum programme - Discards

There are six species in the Finnish catch that are included in the list of stocks for landings and discards monitoring (MP) in DCR: herring, sprat, cod, flounder, salmon and sea trout. Norway lobster that does not live in the Baltic Sea is thus not caught by the Finnish vessels, and this also applies to plaice that is found in the ICES area IIIb-d, but not in the northern Baltic Sea.

Discards data is available in the logbooks/landings declarations (landings (net catch) + discards = catch (gross catch)). This data can be reported yearly. No additional discard sampling is planned within the Finnish National Programme 2006 (Table 7.1).

Table 7.1. Overview of activities dealing with discard sampling in Finnish NP 2006

Species	Actions in NP 2006	Basis for actions	STECF-SGRN
Baltic herring and sprat	Logbook/landing data collection Derogation applied for additional sampling	Catch used either for human consumption or for animal fodder	Agreed with NP's 2003-2005
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 2004-2005
Salmon and sea trout	Logbook/landing data collection Derogation applied for additional sampling	Discard data (age/size) is not needed/used in assessment	
Flounder	Logbook/landing data collection Derogation applied for additional sampling	Discard data (age/size) is not needed/used in assessment	

7.3.1 Baltic herring and sprat

According to the catch statistics, the Finnish catch of Baltic herring in 2004 was 70 500 tons and, as reported by the fishermen, total discards of herring 21 tons (0,03%). Of these herring discards, 6 tons (27%) were reported as seal eaten (pound net catch, Finnish Game and Fisheries Research Institute 2004). Half of the negligible sprat discards in 2004 were also reported as seal eaten. Excluding the catches damaged by seals, all herring and sprat catches are valuable to the fishermen and 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 2006. This derogation has been applied already in earlier years.

7.3.2 Cod

Finnish vessels use log-books that include separately the landings and discards. The Finnish reported catches of cod in 2004 was 885 tons, and according to the reports by the fishermen, the discards were negligible (reported less than 1.5 ton). In the NP, Finnish authorities requested derogation for sampling discards of cod. The reason for this request was that Finnish vessels operate in the southern part of the Baltic Sea, and landings take place in Sweden and Denmark. It would thus be both difficult and expensive to organise the sampling using Finnish observers. Furthermore, cod catch sampling from similar gill-net and trawl fisheries is annually organized by Danish and Swedish institutions in ICES Sub-divisions 24-27 in their fishing zone. Data from these fisheries most likely represent reasonably well also the Finnish cod fishery.

As a reasonable solution to this problem, STECF recommended a pilot study to be performed in co-operation with neighbouring countries for comparison of cod discards estimates. In 2003, such a comparison has been done as a pilot study as suggested by the STECF. The pilot study in 2003 contained analysis of the existing primary data of discarding practice in the southern Baltic in 2001-2002 in ICES Sub-divisions 25-28, where the main body of the Finnish cod catches are taken. In co-operation with Danish and Swedish scientist, an ad hoc group met and compiled information on catch composition and amount of discards. The effect of discarding in Finnish cod fisheries and fleets have been evaluated and shown to be negligible. Therefore no discard sampling will be conducted for cod by Finland in 2006. This derogation has been applied already in earlier years.

7.3.3 Flounder

According to the catch statistics, the Finnish commercial flounder catch in 2004 was 34 tons, which is about 0,2 % of the total flounder catches in the Baltic. Most of the Finnish catches are non-commercial (estimated to be around 100–200 t annually). Of the commercial catches, 0.4 tons (1 %) were reported as discarded in the log books or coastal catch reports.

Although the information is not used in assessment, it is assumed by the ICES WGBFAS (2005) that the amount of discarded flounder is high in the Baltic cod fisheries. Since Finnish catches of Baltic cod constitute on average only 1 % of the total catches, the assumed Finnish share of total flounder discards is negligible and thus inconsequential. However, the amount of the flounder discards in cod fishery can easily be estimated from the similar Swedish and Danish fisheries in the same area.

No discard sampling will be conducted for flounder by Finland in 2006.

7.3.4 Salmon and sea trout

Finnish vessels use log-books that include separately the landings and discards. However, in the salmon vessels the reported discards consist almost solely of the seal damaged fish (and to a little extent seagull damaged fish). 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 trap nets mostly survive (>80 % survival assumed).

Finnish commercial salmon catch is mainly caught by trap nets and driftnets each gear having about half of the total commercial catch. Long line catches constitute less than 10% of the total catch (8 % in 2004). Driftnets do not practically catch any undersized salmon. Trap nets do catch undersized salmon, but in these gear fish can mostly be released unharmed. Long lines catch occasionally some amounts of young salmon. The data on the discards in long-line fishery was collected from two Finnish vessels in Dec 2004 – Jan 2005, and the results indicated an average share of 0.6 % being undersized salmon. According to logbook data, discards constituted about 11 % of the total commercial salmon catch in year 2004. About 99 % of the reported discards were seal mauled fish. However, these data contain a lot of qualitative notifications because seals often tear up fish in gear so badly that fishermen have not been able to quantify them. It has been considered that actual amount of discards caused by seals may be 20-30 % higher than the recorded.

For the present the assessment utilises the total coastal catches including the discards, meanwhile the offshore catches are excluded. However, the age composition data of the catches (or discards either) has not been used. The DCR 1581/2004 allows for the derogation in the discards sampling if discarded share of the total catch is less than 10 % or if the discard data (age/size) is not used in the assessment. Based on this the Finnish salmon discards will not be sampled in 2006. Nevertheless, to follow the amounts of discarded undersized salmon in each fishery, a group of fishermen will be committed to keep an extra log-book on their catches, including all discards of dead and alive fish.

Costs included in Finland NP 2006 FinForms.xls, Worksheet E. Discards.

7.4 Extended programme – Discards

None

7.5 Minimum programme - Recreational fishing

Data

The pilot study on recreational fishery was conducted in 2003. A basic result of the pilot study was, that a cost-efficient data collection strategy, with respect to the reliability, is to collect data on recreational fishing every second year. Therefore there will be no survey for salmon in 2006, but the survey will be conducted in 2007 (referring to the year 2006). In addition, the survey results for the year 2004 could be updated for the year 2005 by recalculating salmon catch in numbers with a help of mean individual catch weight data of salmon of 2005.

The survey methods will be based on the results of the pilot study and will be described more closely in the National program for 2007. The process of collecting salmon catches of recreational fishing in 2007 will start in the end of 2006 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

Reliability

The results of the pilot study proved that, the accuracy of the estimates will increase, while the sample size gets larger. On the other hand, the marginal benefit will decrease while increasing the sample size. Salmon is caught by relatively very few fishermen, and in addition, the variation of these uncommon catches by fishermen is relatively high. Because of these facts, the confidence intervals of salmon catch estimates are always quite wide, even in the case of large sample sizes (sample size several thousands)

For instance in 2002, the sample size was 6000 households. The 95 % confidence interval was +/- 29% of the salmon catch estimate.

The post-sampling for non-respondents helps to correct the bias resulting from the differences between respondents and non-respondents. If the bias is not taken into account, the catch and number of fishermen would be overestimated.

No precision levels are required for the recreational fishing in the regulations.

Time scale

The data for the year 2006 will be available by the end of October 2007. The conclusions of the previous surveys will be forwarded to the Commission by the end of March 2007.

Costs included in Finland NP 2006 FinForms.xls, Worksheet E. Recr Fish.

7.6 Extended programme - Recreational fisheries

Salmon catches in rivers

The annual scientific advice of ICES on the management of Baltic salmon fishery is based on stock assessment by state-space modelling of the salmon life cycle. Essential inputs of the abundance estimation are salmon catches and fishing effort on the whole distribution area of salmon. Riverine salmon catches and salmon fishing effort are used for estimating abundance of future recruitment.

Data concerning recreational catches of salmon in rivers will be collected using postal fishing questionnaires. Questionnaires will be carried out in two rivers with original wild salmon stocks (Rivers Tornionjoki and Simojoki) and in three rivers, where salmon is being reintroduced, following the international Salmon Action Plan (Rivers Kiiminkijoki, Kuivajoki and Pyhäjoki). In Finland, only in these five rivers have significant production of wild salmon, or potential to it. Information on river catches is used for estimating the number of spawners entering these rivers annually, and for planning fisheries management actions needed to safeguard and enhance the stocks of wild salmon.

The samples for the fishing questionnaires will be drawn from the local registers on recreational fishermen. The compiled registers will cover at least 90% of all licensed fishing in each river. For Tornionjoki and Simojoki, the compiled registers will then be sampled (using simple random sampling) at a rate making it possible to estimate salmon catches at level 1 precision (a precision of $\pm 25\%$ for a 95% confidence level). 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 fishermen, who returned voluntarily the questionnaires (only ~10%), are not included in the postal questionnaire. In the Rivers Kiiminkijoki, Kuivajoki and Pyhäjoki, the target is the precision of + 30-40% for a 95% confidence level. Because of the very low catches, a level 1 precision would in these rivers require 100% sampling which, due to the high costs, is not reasonable. To get a better view from the salmon catch of the restocked salmon populations in the rivers Kiiminkijoki, Kuivajoki and Pyhäjoki, the fishing questionnaires have been widened to the estuaries of these rivers.

- River Tornionjoki: the compiled registers will include 5,000 – 10,000 recreational fishermen, covering 100% of all licensed fishing on the Finnish side of the river. Sampling rate 1:4.
- River Simojoki: ca. 3000 fishermen, covering 100% of licensed fishing in the river. Sampling rate 1:4.
- River Pyhäjoki: ca. 1,300 fishermen, covering 100 % of licensed fishing along river and river mouth area at sea. Sampling rate 1:2.
- River Kiiminkijoki: ca. 2,500 fishermen, covering 100 % of licensed fishing along river and river mouth area at sea. Sampling rate 1:3.
- River Kuivajoki: ca. 200 fishermen, covering 100 % of licensed fishing along river and river mouth area at sea. Sampling rate 1:1.

Costs included in Finland NP 2006 FinForms.xls, Worksheet E. Recr Fish (EP).

8 Module F - Catches per unit of effort

8.1 Minimum programme

In Finnish fisheries CPUE data is obtained from the log-books and coastal fishery records. For stock assessments, CPUE is usually calculated according to effective fishing time of the gear, and weighting by engine power is normally not used in the Baltic Sea area as proposed in Annex, Chapter III in Council regulation.

The Finnish commercial fishing effort and catch per unit of effort (CPUE) data are regularly used in some stock assessments. Finnish CPUE data has been used in assessments for two Baltic herring stocks (SD 30 and 31 stock) and for two Baltic salmon stocks (SD 22-31 and SD 32 stock).

Within the MP of national programme, we are sampling presently 12 fleets, which are used for stock assessments. Some of these fleets are not active every year in certain areas due to low catches, fishing regulations or restrictive weather conditions. These CPUE data series are used for tuning the assessments of Baltic herring and as an input data of Baltic salmon life history model (mainly efforts). The uses of commercial CPUE data for the stock assessments are following:

8.1.1 Baltic herring

Stock assessment of Baltic herring in the Bothnian Sea (Sub-division 30) is based on catches, catch composition and information of fishing effort and Finnish CPUE information on pelagic single- and pair trawling, demersal trawling and trap net fishery. When calculating and estimating total fishing effort by trawl gears, the increase in trawl size since 1980 as well as changes in catchability has been taken into account by using a correction coefficient for effort data in herring trawl fishery. The annual correction coefficient is derived using a model, which estimates the average size of fishing circle of trawl. (*Rahikainen and Kuikka 2002*). In most recent years about 3 % increase in effort has been taken into account in catchability.

In the Bothnian Bay (ICES Sub-division 31) we use total effort and CPUE data from pelagic trawling, demersal trawling and trap net fishery for stock assessment. In the Bothnian Bay area there has not been substantial changes in trawl size as in ICES Sub-division 30.

In the northern Baltic Proper (ICES Sub-divisions 28, 29 and 32; new exploratory assessment unit, stock assessed in ICES 2001), Finnish CPUE and effort data from trawl fisheries was used to estimate the dynamics of the northern part of the Baltic Main Basin herring stock. The results of this assessment indicated that the abundance indices from commercial CPUE data are in accordance with hydroacoustic indices.

In the Baltic Main Basin, Archipelago Sea and Gulf of Finland herring stock (ICES Sub-divisions 25-29 and 32 excluding Gulf of Riga) the assessment is mainly based on hydroacoustic survey indices, total catches and catch compositions. The stock is composed of large number of stocks/populations that have been identified on biological grounds.

8.1.2 Sprat

In the Baltic, there is one sprat assessment unit (ICES Sub-divisions 22-32). The main body of Finnish sprat catches come from mixed trawl fishery for herring and sprat. However, in sprat stock assessment fishery information is not used at all, and assessment is totally dependent on international hydroacoustic surveys.

8.1.3 Cod

In addition to research survey data, effort and CPUE data from Danish commercial fisheries are used to assess the western Baltic cod stock (ICES Sub-divisions 22-24). Fishery information originates from trawl-, gillnet and Danish seine fisheries.

In the stock assessment of the eastern Baltic cod stock (ICES Sub-divisions 25-32) we do not use presently effort and CPUE data from commercial fishery. The basic information for tuning assessment

is from BITS surveys from the first quarter. In 1997 International Baltic Sea Fishery Commission (IBSFC) Sub-group tried to standardize fishing effort and catch per unit of effort information for period 1994-1996 for stock assessment purposes. The results showed that the precision of the information was not adequate and since 1997 fishery information has not been used in stock evaluations.

8.1.4 Salmon

For the assessment of Baltic salmon stock complex (ICES Sub-divisions 22-29, 30, 31 and 32), information on commercial fishery (catches, total effort by gears and CPUE) is collected annually. In addition the tagging data is used to estimate the fisheries specific catchability across the Baltic Sea. This information is included into the report of Working Group of Baltic Salmon Assessment. Time series covers at the moment years 1969-2003. Information on commercial fishery is, however used only in short-term predictions of the stock complex and to describe the development of fishery in recent years.

Costs included in Finland NP 2006 FinForms.xls, Worksheet F. CPUE.

8.2 Extended programme

None.

9 Module G - Scientific evaluation surveys of stocks

9.1 Minimum programme - Priority 1 surveys

9.1.1 BITS survey

According to the spirit of Council regulation (Appendix XIV), Finnish scientists will participate and cooperate BITS 1st and/or 4th quarter surveys in Baltic Sea area IIIb-c for Baltic cod and other demersal species. This is useful and very practical and it is continuation of the co-operation between Danish and Swedish institutions and research activities established in 1983.

Costs included in Finland NP 2006 FinForms.xls, Worksheet G. Surveys 1.1.

9.1.2 Herring Acoustic Survey (Pilot study)

Finland will follow the considerations of STECF-SGRN and the Regional Coordination Meeting for the Baltic (RCMB) concerning the Herring Acoustic Survey in the Baltic. The coverage of this survey will be extended to Finnish waters (ICES Sub-divisions 29 N and 32, Gulf of Finland) by 2006. At first year/s the survey will be included as a pilot study and its usefulness for the herring stock assessment will be evaluated based on the results of the pilot phase.

In order to carry out the survey in 2006 Finland participated the work of WGBIFS in April 2005. In WGBIFS meeting 2005, the statistical rectangles of Baltic proper and the Gulf of Finland were divided between countries in order to assess proper coverage of acoustic surveys and to ensure only one valid estimate of fish density at issue rectangle (ICES CM 2005/G:08). The working group recommended also that the coverage of the autumn hydroacoustic survey by different nations in the Baltic Sea should be maintained at the actual high level.

The main results of acoustic survey will be summarized and reported in standard report format, and will be stored on data bases BAD1 and BAD2 for further reporting in conjunction with international stock assessment (ICES WGBFAS). The acoustic survey will be conducted in coordination with other Baltic countries.

Costs included in Finland NP 2006 FinForms.xls, Worksheet G. Surveys 1.2.

9.2 Extended programme - Priority 2 surveys

None

10 Module H - length and age sampling

10.1 Minimum programme - Landings

The total commercial catches of Baltic herring, sprat, cod, salmon, sea trout, flounder, whitefish, pikeperch and perch in Finnish fisheries in 1995-2004 are presented in Table 10.1. The mean volume of commercial catches by species in years 2002-2004 is used as a basis for sampling for length distributions and age compositions of catches. Sampling of Baltic herring and sprat are based on length stratified sub-sampling scheme and simple random sampling is not applied. Sampling of salmon, sea trout and flounder as well as European whitefish, pikeperch and perch included in extended programme are based on Simple Random Sampling (SRS) design. Cod samples are not collected because of negligible catches in the Finnish fishing zone. In comparison to our sampling intensity and sampling design presented in chapters 10.1-10.2, Table 10.2 summarizes the numbers of samples and the number of individual fish to be processed according to regulation. These numbers are calculated according to recent catch rates for all those species, which are included either in our minimum programme or in extended programme.

Table 10.1. Commercial catches (tonnes) by species in minimum programme (Baltic herring, sprat, cod, salmon, sea trout and flounder) and in extended programme (whitefish, pikeperch and perch) in 1995-2004

Species	1995	1996	1997	1998	1999	2000	2001	Reference period			Mean 2002-2004
								2002	2003	2004	
<i>MP</i>											
Herring	94612	93338	90334	85545	82237	80697	81916	75580	64508	70552	70213
Sprat	4104	14351	19851	27014	18886	23134	15742	17245	8951	16576	14257
Cod	1852	3132	1536	1034	1569	1817	1716	1044	1163	885	1031
Salmon	1160	975	1051	720	720	591	444	441	355	505	434
Sea trout	128	152	141	122	103	113	92	72	58	53	61
Flounder	89	99	86	80	83	75	130	77	43	34	51
<i>EP</i>											
Whitefish	1161	1280	1157	1425	1246	1176	882	811	822	825	819
Pikeperch	532	594	748	491	438	450	412	607	847	546	667
Perch	663	546	759	848	821	782	803	885	1095	757	912

Table 10.2. Intensity of sampling by species according to DCR: The number of length- and age samples (A) and total number of samples (B) in 2006 according to catch rates in 2002-2004 in commercial fishery.

A) The number of length and age samples and number of individuals for mandatory (M) and optional (O) species according to catch rates based on Appendix XV of 1581/2004.

Species	Mandatory/ Optional species	Area/ Stock	Age-length sampling scheme of catch samples		Number of samples for length and age per catch in tonnes	
			Length	Age	Length n/t	Age n/t
Herring	M	25-29, 32/ 39/ 31	F2	F2	1/1000	100/1000
Sprat	M	IIIb-d	G2	G3	1/2000	50/2000
Salmon	M	IIIb-d, 22-31/ 32	C3	C3	1/100	50/100
Sea trout	M	IIIb-d	C3	C3	1/100	50/100
Flounder	M	IIIb-d	C3	C3	1/200	50/200
Whitefish	O	IIIId	C3	C3	1/100	50/100
Pikeperch	O	IIIId	C3	C3	1/100	50/100
Perch	O	IIIId	C3	C3	1/100	50/100

B) The number of samples and number of individuals in length distribution and age distribution sampling based on average catches in 2002-2004 and on Appendix XV of 1581/2004.

Species	Mandatory/ Optional species	Catch 2002-2004	Number of samples		Number of individuals	
			Length	Age	Length	Age
Herring	M	70213	70	70	7000	7000
Sprat	M	14257	7	7	700	350
Salmon	M	434	4	4	200	200
Sea trout	M	61	1	1	50	50
Flounder	M	51	1	1	25	25
Whitefish	O	819	8	8	400	400
Pikeperch	O	667	7	7	350	350
Perch	O	912	9	9	450	450

10.1.1 Baltic herring (*Clupea harengus membras*)

Finnish herring fishery in the Baltic Sea is conducted mainly in ICES Sub-divisions (SDs) 29-32.

In 2004 the total Finnish herring landings were 71 500 tonnes, comprising about 32 % of the total Baltic herring landings in the Baltic Sea. From the total catches, 71 % have been taken from SD 30 (Bothnian Sea), 16 % from SD 29 (Åland Sea and Archipelago Sea), 8 % from SD 31 (Bothnian Bay), 4 % from SD 32 (Gulf of Finland) and less than 1 % from SD's 24-28. More than 89 % of the catches were taken by pelagic- and demersal trawl fisheries and 10 % from trap-nets during spawning time.

Finnish herring fishery is exploiting mainly three different Baltic herring stocks (assessment units): Baltic herring stock in SD 30 (Bothnian Sea), Baltic herring stock in SD 31 (Bothnian Bay) and Baltic herring stock in SDs 25-29, 32 in the Baltic main Basin and Gulf of Finland.

Because all the main fisheries (pelagic trawls, demersal trawls and trap-nets) have different exploitation patterns, they also need to be sampled separately. Furthermore, in the two herring stocks in Gulf of Bothnia, these fisheries are used as separate tuning fleets in stock evaluations

Instead of following the DCR 1639 sampling scheme, which is based on simple random sampling of total annual catches by species, the primary requirement in Finnish herring sampling is to properly cover all the strata (3 stocks, 3 fleets and 4 year-quarters) in order to meet the assessment-criteria.

Since the study projects funded by DG XIV (International Baltic Sea Sampling Programs I & II) in 1998-2001, we have used length stratified sub-sampling scheme to estimate age compositions of Baltic herring. This sampling scheme is designed to support the development of international databases and standardized methodologies in data processing (e.g. Fishframe).

Compared to the simple random sampling, the advantage of this kind of sampling scheme is that it is rather fast to collect length distributions and there is no need to make as much age readings, which are more costly and time consuming. The results are, however, comparable and the quality and accuracy is similar. The sampling scheme for 2006 is presented in Table 10.3, is. This kind of sampling scheme has been in force since 1998 and will be implemented also in 2005. Sampling frequency will be modified during fishing season, depending on ice coverage, TAC, spatial and temporal fishing restrictions, catch rates and fishing activities.

The following text table shows 2002-2004 average catch rates regionally, number of samples required by regulation, planned number of samples according to data requirements and corresponding number of length measurements. The reference year for number of age readings (40 per length interval per year) is 2004.

HERRING					
ICES Sub-divisions	SD 29	SD 30	SD 31	SD 32	Total
Average catch rates in 2002-2004 (tons):	12 390	47 494	4 406	5 482	70210⁽¹⁾
Number of samples required by regulation	12	48	4	9	73
Number of samples in 2004	26	81	27	16	150
Number of length measurements in 2004	8271	39423	14092	6313	68099
Number of age readings in 2004	1151	1494	608	693	3946
Number of samples (planned for 2006):	30	50	28	22	130
Length measurements (planned according to N of samples in 2006):	14250	23750	13300	10450	61750
Age determinations (planned according to available length-classes in 2004; implementation in 2006 is dependent on existing future length-classes):	900	1450	870	740	3960

¹⁾ including also 2002-2004 average catches from SD's 22-28

Baltic herring samples are collected mainly in fishing harbours and, if necessary, also onboard commercial fishing vessels. In sampling scheme we have taken into account the annual life cycle of Baltic herring and the presence of the ice coverage during the winter in the northern Baltic. Because of these conditions, all three fishing gears are not in use in all year quarters. Trap net fishery is conducted only in quarter 2 and 3, and in the Bothnian Bay (ICES Sub-division 31) fishing season covers 3 quarters.

Taking into account the exceptions for ICES Sub-division 31 and trap-net fisheries, the 2006 sampling plan is roughly based on the average catches of 2002-2004 in different regions and fisheries. Moreover, the sampling intensity in general is locally adjusted during the year according to temporal and regional changes in fisheries. The seasonal herring fishing intensity in each area is predominantly dependent on the TAC, which causes fishing restrictions in certain fisheries and/or seasons, as in 2002-2004, and may therefore influence the sampling intensity from the planned.

According to assumed catches by ICES Sub-divisions, gears in use, fishing intensity and taking into account, regardless of the amount of catches, a minimum coverage requirement of one sample by fishery per month (or a minimum of 3 samples by fishery per quarter), the total number of samples in 2006 are as in Table 10.3 The sampling covers three stocks, which are distributed in two management units and included into the assessment units as follows:

- Assessment unit ICES Sub-divisions 25-29 and 32 (also 28, 29 & 32 separately; not assessed in 2003-2005)
- Assessment unit ICES Sub-division 30
- Assessment unit ICES Sub-division 31

No separate discard sampling is regarded to be needed for Baltic herring, see chapter 7.3.

Table 10.3. Total number of Baltic herring samples according to area, year quarter and fleet in 2006 weighted by average catch rates in 2002-2004 and taking into account the minimum coverage requirement for each stratum.

Fleet	Year quarter	ICES Sub-division				Fleet / year quarter
		29	32	30	31	
Trapnet	1	0	0	0	0	0
	2	3	3	3	3	12
	3	3	3	3	3	12
	4	0	0	0	0	0
	Fleet / SD total:	6	6	6	6	24
Demersal trawl	1	3	3	6	0	12
	2	3	2	6	4	15
	3	3	2	4	4	13
	4	3	0	6	3	12
	Fleet / SD total:	12	7	22	11	52
Pelagic trawl	1	3	2	6	0	11
	2	3	2	6	4	15
	3	3	2	4	4	13
	4	3	3	6	3	15
	Fleet / SD total:	12	9	22	11	54
GRAND TOTAL	30	22	50	28	130	

Whole otoliths and thin cut slices of otoliths are used for ageing Baltic herring. The preparations for microscopic determinations, is contracted out to a subcontractor, and the staff of FGFR conducts the age readings microscopically.

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land.

10.1.2 Sprat (*Sprattus sprattus*)

The total catch of sprat in 2004 in the whole Baltic Sea was about 374 000 tonnes. Finnish sprat catch totalled 16.600 tonnes in 2004, and it was about 4 % of the total catches. Finnish sprat catches are taken entirely by trawl fisheries (pelagic trawls and demersal trawls). The main body of Finnish sprat catches is taken in the northern parts of the Baltic Main Basin, southern parts of the Bothnian Sea and in the Gulf of Finland. The distribution of catches in 2004 were: In the Gulf of Finland (ICES Sub-division 32) 7 %, Åland Sea and Archipelago Sea (ICES Sub-division 29) 56 % and in the Bothnian Sea (ICES Sub-division 30) 18 % of the total catches. In 2004, 19 % of the Finnish sprat catches were taken from Baltic Main Basin or Southern Baltic (Sub-divisions 24-28) and landed outside Finland.

Sprat sampling is carried out in Finnish fishing harbours together with Baltic herring sampling from herring trawl fishery and mixed trawl fishery for herring and sprat. Whenever sprat is present in these samples, it has to be separated from herring. Consequently, and as a benefit, the share of sprat in catches can thus be estimated, and if the number of individuals is sufficient for defining length distributions, length measurements are carried out with almost negligible additional costs. Moreover, in length-stratified sampling for quarterly compiled age-length-keys, a sufficient temporal length-class coverage has to be ensured, and the need for age readings exceeds the requirements of simple random sampling, but it is, however, in compliance with the requirement of 40 individuals aged within each (existing) length interval per year, as given in paragraph (d) in appendix XV of DCR 1581.

Sampling intensity in 2006 is planned to cover various year quarters, relevant areas and gears.

The text table below shows our length-stratified sampling practice of sprat from ICES Sub-divisions off the Finnish coast in reference year 2004

SPRAT

ICES Sub-divisions	SD 29	SD 30	SD 32	Total
Average catch rates in 2002-2004 (tons):	5887	3113	2880	14257 ¹⁾
Number of samples required by regulation:	4	2	1	7
Number of samples in 2004	20	24	12	56
Number of length measurements in 2004	8423	5132	5941	19496
Number of age readings in 2004	550	486	344	1380
Number of samples planned	24	24	16	64
Length measurement:	6600	6600	4400	17600
Planned age determinations according to available length classes in 2004:	450	620	480	1550

¹⁾ including also 2002-2004 average catches from SD's 22-28

In 2006 our intention is to collect about 64 samples to cover all the strata. Depending on trawl fishing activities and the abundance of sprat in the catches, the sampling intensity will be modified during the fishing season. The sampling scheme presented in Table 10.4 for 2006 corresponds to our minimum requirements.

No separate discard sampling is regarded to be needed for sprat, see chapter 7.3.

Table 10.4. The distribution of sprat samples to areas, year quarters and fleets, planned for 2006.

Fleet	Year quarter	ICES Sub-division			Fleet /year quarter
		29	30	32	
Demersal trawl	1	3	3	3	9
	2	3	3	2	8
	3	3	3	2	8
	4	3	3	0	6
	Fleet /SD total:	12	12	7	31
Pelagic trawl	1	3	3	3	9
	2	3	3	2	8
	3	3	3	2	8
	4	3	3	2	8
	Fleet /SD total:	12	12	9	33
	GRAND TOTAL	24	24	16	64

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land.

10.1.3 Cod (*Gadus morhua callarias*)

The abundance of cod in the northern Baltic is very low. Finnish fishing vessels operate in the southern Baltic in ICES Sub-divisions 24-26. The total catch of Finnish fishing fleet was about 885 tonnes in 2004. Finnish catches represented 1 % of the total reported cod catches in Sub-divisions 22-32. In the northern Baltic (ICES Sub-divisions 29, 30 and 32), where the abundance of cod is presently zero, we will not organize special sampling in 2006. Cod catch sampling from gill-net and trawl fisheries in the southern Baltic will be organized by Danish and Swedish institutions in ICES Sub-divisions 24-27 and this data is applied to Finnish catches operating in same fishing grounds.

Although cod samples are presently not collected in the northern Baltic, our intention is to preserve the potential and possibilities for sampling and sample analysis, assuming that the stock will recover in incoming years.

10.1.4 Salmon (*Salmo salar*)

The Finnish commercial catches of salmon in the Baltic Sea are taken from two IBSFC management units, the Gulf of Bothnia – Baltic Main Basin (ICES Sub-divisions 22-31) and the Gulf of Finland (ICES Sub-division 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, driftnets and long-lines are used to capture feeding salmon in autumn and winter months (IX-V). Technical measures are taken to manage both these fisheries. In the coastal fishery, trap-nets and anchored gillnets are used to capture mature salmon returning to home rivers in spring and early summer (V-VII).

The ICES Baltic Salmon and Trout Working Group (WGBAST) have dealt with the international collaboration of salmon sampling under the DCR, and gives the guidelines for the for the river surveys, sampling of the catches as well as for the collection of genetic data to fulfil the data requirements for the Baltic Salmon stock assessment (WGBAST 2005).

For samples at the Main Basin (subdivisions 22-28) the group recommends a random stratified sampling design in terms of nation, subdivision, gear and time. In total 1540 salmon need to be sampled from the Main Basin by all participating countries (ANNEX II). From this Main Basin sample 500 fish will need to be resampled for the DNA analysis (see chapter 11.2).

Sampling for offshore fishery

The sampling of the Finnish offshore salmon catches will follow the WGBAST recommendations and based on the Finnish catches in the Main Basin 350 salmon will be sampled in subdivisions 25-28. In addition 400 salmon will be sampled optionally in subdivisions 30 and 32 depending whether fisheries will take place in these areas. The Finnish sampling stratification is presented in Table 10.5.

Table 10.5. Number of salmon individuals to be sampled by season, fishery, gear and ICES Sub-division

Fishery	Months	ICES Sub-division					Fishery/year
		25-28	29	30	31	32	
Off-shore long line	1-4 and 9-12	70				200	270
Off-shore driftnet	1-4 and 9-12	280		200			480
Coastal driftnet	5-8		400				400
Coastal trapnet	5-8				200	400	600
River	5-9						650
	GRAND TOTAL	350	400	200	200	600	2400

Samples marked with gray are optional

Sampling for coastal fishery

Coastal salmon fishery targets on spawning migrants. In a given coastal area, the fishing season lasts only about 2 months (from V-VII), but during these 2 months changes occur in terms of age, length and stock composition of the catches. Due to these changes, weekly sampling is needed to get representative samples. 800 salmon need to be sampled from the coastal fisheries in subdivisions 29 and 31 in order to obtain catch composition data of spawn migrating salmon entering the Gulf of Bothnia and Bothnian Bay.

Along the long coast-line of the Gulf of Bothnia, sampling will be disaggregated regionally. The catch sampling will take place in three key areas, which are 1) Åland Sea (ICES Sub-division 29), providing the overall composition of fish schools entering the Gulf; 2) the Quark area (ICES Sub-division 31), providing the overall composition of fish schools entering the Bothnian Bay, and where fish from Swedish salmon stocks have partly departed from the schools; and 3) Gulf of Finland, providing the overall composition of the catches in the area.

The WGBAST recommends a target sample of 400 salmon to be sampled from the Finnish catches in the Åland Islands and 200 salmon in Quark area for the DNA-analysis. Because Finland is the only country fishing on migrating salmon at the Åland Islands, the samples, which need to be taken there, will have to be collected entirely by Finland. In practice the catch sampling, however, may result in a

slight oversampling to meet requirement of the temporal coverage. Afterwards this will permit a stratified resampling for the final analysis. In addition 400 salmon will be sampled from the Gulf of Finland trapnet fishery (Table 10.5).

Catch samples from rivers

Catch samples of salmon will be collected from the fishery in the wild salmon rivers of the Gulf of Bothnia (River Tornionjoki and River Simojoki). 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, of which majority are from the River Tornionjoki. Organization of the sampling as well as analysis and data treatment is similar to those of the catch samples from the sea fishery.

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land.

10.1.5 Sea trout (*Salmo trutta*)

Sea trout is present along the entire Finnish coastline in ICES Sub-divisions 29, 30, 31 and 32. Commercial fisheries take sea trout mainly as by-catch in fisheries targeting whitefish, pikeperch and salmon. The structure of the fishery taking sea trout varies considerably from one sea-area to another, and between spring, summer, autumn and winter seasons. Due to the short migration of the species, different stocks are exploited in different sea-areas. Local technical regulations are used to manage the fisheries. There is no catch quota.

The mean catch rate in 2002-2004 in Finnish commercial fisheries of sea trout was 61 tonnes, corresponding to only one sample of 50 fish according to requirements of DCR. By-catch sampling does not, however, result in a sufficient amount of samples. For example in 2004 only about 40 sea trout were collected with the other sampling in the harbours. As pointed out in earlier programme proposals, tagging is an appropriate and cost effective method to gather sufficient data on sea trout stocks for the assessment and management purposes.

The average number of tag returns from a regular tagging lot of 1000 individuals is 100-150. Releasing 2 tagging lots annually in each ICES Sub-division thus provides the basic data needed to evaluate the composition of trout catches in length and age (in total 200 – 300 tag returns). The tagging scheme is as follows:

- Archipelago Sea (ICES Sub-division 29): 2 tagging lots * 1000 fish = 2000 fish
- Bothnian Sea (ICES Sub-division 30): 2 tagging lots * 1000 fish = 2000 fish
- Bothnian Bay (ICES Sub-division 31): 2 tagging lots * 1000 fish = 2000 fish
- Gulf of Finland (ICES Sub-division 32): 2 tagging lots * 1000 fish = 2000 fish

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land.

10.1.6 Flounder (*Platichthys flesus*)

Flounder fishery is regulated by the fishing rules of IBSFC and in revised data collection regulation 1581/2004 flounder was moved to minimum programme. The commercial flounder catches are annually low: In 2004 the reported commercial catch in Finnish fisheries was 34 tons. Catches in recreational fisheries were about 137 tonnes in 2004. In 2004 we collected flounder samples from ICES Sub-divisions (SDs) 29, 30 and 32 as follows:

Flounder

Number of samples in 2004	SD 29	SD 30	SD 32	Total
Number of samples:	7	2	9	18
Length measurement:	380	158	277	815
Age determinations:	379	157	276	812

In 2006 our intention is to collect flounder samples from commercial gill-net catches in total 20 samples of at most 50 specimens, corresponding to not more than 1000 length measurements and age-readings (Table 10.6). Part of the samples in the Gulf of Finland is collected in co-operation with City of Helsinki. Sampling is most intensive in August-October in Archipelago Sea, southern Bothnian Sea and Gulf of Finland. The sampling scheme is simple random sampling.

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land.

Table 10.6. Total number of flounder samples according to area and year quarter in 2006 weighted by the mean catch rates in 2002-2004 (1 sample = 50 individuals).

Gear	Year-quarter	ICES sub-division			Gear/year quarter
		29	30	32	
	1	0	0	0	0
Gill-net	2	2	2	2	6
	3	3	2	6	11
	4	1	1	1	3
	Total	6	5	9	20
	Grand total	6	5	9	20

10.2 Extended programme – Landings

10.2.1 European whitefish (*Coregonus lavaretus*)

There is significant commercial fishing for whitefish in the Archipelago Sea, and in the Gulf of Bothnia (ICES Sub-divisions 29, 30 and 31). In the Archipelago Sea (SD 29), gill nets are the main gear type in the whitefish fishery. In the Gulf of Bothnia (SDs 30 and 31), drift nets, set gillnets and trap nets are used as well. There are 2 whitefish forms in the sea area of Finland: river-spawning migratory whitefish and sea-spawning whitefish. The migratory whitefish is more common in the catches, the share of the sea-spawning whitefish being about 20-25 %. In some cases the catch consists of both whitefish forms.

The biological sampling should cover both whitefish forms and all gear types, including different mesh size classes of gill nets (27-30 mm, 36-45 mm, and 46-50 mm bar lengths because of the different selectivity of the different gear types and differences of the whitefish forms in e.g. their growth. According to DCR, based on the landings of commercial fishery, the estimated number of the catch samples for the Finnish sea area would be only 9 annually, with 450 individuals measured and aged.

The sampling effort needed for successful assessment of whitefish stocks, given the different gear types and whitefish forms, should be the following:

- ICES Sub-division 29: 8 samples, 400 individuals
- ICES Sub-division 30: 18 samples, 900 individuals
- ICES Sub-division 31: 18 samples, 900

Simple random sampling is applied. The numbers of individuals sampled per year quarter and gear type are presented in Table 10.7. Each individual will be measured for length and aged.

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land (EP)

Table 10.7 Number of whitefish individuals to be sampled by ICES Sub-division, gear type and year quarter. (1 sample = 50 individuals).

Gear type	Year Quarter	ICES Sub- division			Sampling per gear and year quarter
		29	30	31	
	1	0	0	0	0
Gill net 27-30 mm	2	0	0	50	50
Bar length	3	0	0	50	50
	4	0	0	200	200
	Total	0	0	300	300
	1	0	100	0	100
Gill net 36-45 mm	2	150	200	150	500
Bar length	3	150	100	100	350
	4	0	100	0	100
	Total	300	500	250	1050
	1	0	0	0	0
Gill net 46-50 mm	2	50	50	0	100
Bar length	3	50	0	50	100
	4	0	0	0	0
	Total	100	50	50	200
	1	0	0	0	0
Set gillnet	2	0	150	0	150
	3	0	0	0	0
	4	0	0	0	0
	Total	0	150		150
	1	0	0	0	0
Drift net	2	0	0	0	0
	3	0	50	0	50
	4	0	0	0	0
	Total	0	50	0	50
	1	0	0	0	0
Trap net	2	0	0	100	100
	3	0	150	200	350
	4	0	0	0	0
	Total	0	150	300	450
	Grand total	400	900	900	2200

10.2.2 Pikeperch (*Stizostedion lucioperca*)

The commercial pikeperch catch is taken for the most part with gill nets in autumn, late winter and spring. In spring, pikeperch is caught also with trap nets.

In recent years, the commercial Finnish pikeperch landings have been between 400 and 850 tonnes / year. In addition, there is recreational pikeperch catch that was estimated at 490 tons in 2002, i.e. 45% of the total catch. On the average of 2002-2004, 44% of the commercial catches have been taken from ICES Sub-division 29 (Archipelago Sea), 27% from ICES Sub-division 32 (Gulf of Finland) and 29% from ICES Sub-division 30 (Bothnian Sea). In the very good years of 2002 and 2003, exceptionally high percentage (28–29%) of the catch was caught in the SD 30, where the proportion has usually been 10–20%. More than 97 % 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 pikeperch stock. The pikeperch stocks in different ICES

sub-divisions have different growth rates and population dynamics, including maturity size. The sampling in different year quarters is needed to give information of different parts in the populations and for catch predictions. Trap nets have a different, probably lower selectivity pattern than gillnets, and a different length and age distribution in the catch. The sampling schedule based on DCR (seven samples, 350 individuals) is not adequate for these purposes.

Simple random sampling is applied. The samples needed for the assessment of pikeperch stocks in the ICES Sub-divisions 29, 30 and 32 are the following:

ICES Sub-division	29	30	32
Gill nets, randomly different mesh sizes (see text above)	12	12	12
trap nets	3	3	0

The annual sampling schedule consists of 42 samples and 2 100 individuals, which will be measured and aged (Table 10.8.).

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land (EP)

Table 10.8. Number of pikeperch individuals to be sampled by ICES Sub-division, gear type and year quarter. (1 sample = 50 individuals).

Gear type	Year Quarter	ICES Sub-division			Sampling per gear and year quarter
		29	30	32	
	1	150	150	150	450
Gill net , randomly different mesh sizes (see text above)	2	150	150	150	450
	3	0	0	0	0
	4	300	300	300	900
	Total	600	600	600	1800
	1	0	0	0	0
Trap net	2	150	150	0	300
	3	0	0	0	0
	4	0	0	0	0
	Total	150	150	0	300
	Grand total	750	750	600	2100

10.2.3 Perch (*Perca fluviatilis*)

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

In recent years, the total commercial perch catch has been 750–1100 tonnes/ year. In addition, there is the recreational catch that was estimated at 490 tonnes in 2002, i.e. 36% of the total catch. On the average of 2002-2004, 57% of the commercial catch was taken from ICES Sub-division 30 (Bothnian Sea) and 28% from ICES Sub-division 29 (Archipelago Sea). In 2004, 71 % of the catches were taken by gillnets and 28 % by trap nets.

The number of samples based on DCR (nine samples, 450 individuals) is not adequate, because the perch from trap net and gill net catches represent different parts of the populations with e.g. different growth rates. Both the trap net and gill net catch should be representatively sampled, including at least two mesh size classes of gill nets. Simple random sampling is applied. The adequate sampling schedule for perch is for both ICES Sub-divisions, 29 and 30, the following:

Gill nets < 38 mm bar length:	5 samples,	250 individuals
Gill nets 38-50 mm bar length	10 samples,	500 individuals
Trap nets	4 samples,	200 individuals

Annually this totals 38 samples and 1 900 individuals, which will all be measured and aged (Table 10.9.). To calibrate the age determination that is mostly conducted from opercular bones, a part of the specimens (circa 400 specimens) will be aged from otolith cross-sections, as well. The perch ageing workshop held in Riga 15–17 Feb 2005 agreed that otolith cross-sections give more reliable age estimates than opercular bones. The making of the otolith thin cut preparations, i.e. placing the otoliths in rows on polyester resin bases, molding the otoliths in polyester resin blocks, sawing and staining them and preparing preparations for microscopic determinations, is contracted out to a trained subcontractor.

Costs included in Finland NP 2006 FinForms.xls, Worksheet H. A&L Land (EP)

Table 10.9. Number of perch individuals to be sampled by ICES Sub-division, gear type and year quarter. (1 sample = 50 individuals).

Gear type	Year quarter	ICES Sub-division		Sampling per gear and year quarter
		29	30	
	1	0	0	0
Gill net <38 mm bar length	2	200	200	400
	3	0	0	0
	4	50	50	100
	Total	250	250	500
	1	0	0	0
Gill net 38-50 mm bar length	2	300	300	600
	3	0	0	0
	4	200	200	400
	Total	500	500	1000
	1	0	0	0
Trap net	2	200	200	400
	3	0	0	0
	4	0	0	0
	Total	200	200	400
	Grand total	950	950	1900

11 Module I - Other biological samplings

11.1 Minimum programme – basic parameters

The data concerning 'Other biological parameters' (length at age as an index for growth, sex ratios and sexual maturity) will be collected annually and compiled every third year, as requested by DCR (Appendix XVI). The compilation of the data will be partly carried out in co-operation with other Baltic countries. Table 11.1 give an overview of the long-term sampling strategy with respect to 'Other biological parameters' in years 2002-2006.

11.1.1 Herring and sprat

For annual assessment purposes, information concerning growth and age/length are collected quarterly by length stratified random sampling from Finnish fisheries in ICES sub-divisions 29-32. From late March to early June, a special sampling for maturity (and sex ratios) is conducted before spawning time, which differs depending on e.g. latitude and sea-area.

The sex ratios of herring and sprat are recorded concurrently from the individuals sampled for quarterly age-length keys in ICES sub-divisions 29-32, and also from maturity samples.

11.1.2 Cod

The growth curves age/length relationship as well as maturity are not available for the northern Baltic Sea, because of cod presently being non-existing in ICES Sub-divisions 29-32, which cover Finnish fishing zone. The information collected by other member countries will cover these aspects in the main distribution area of Baltic cod.

The sex-ratio of cod is not available for the northern Baltic Sea, because of cod presently being non-existing in ICES Sub-divisions 29-32, which cover Finnish fishing zone. The information collected by other member countries will cover these aspects in the main distribution area of Baltic cod and there is no need to organize additional sampling for this parameter.

11.1.3 Flounder

The data for growth (weight, length and age) as well as sex-ratios and maturity will be recorded routinely from all individuals in the basic catch sampling. The compilation of data will be done according to the requirements of DCR.

11.1.4 Salmon and sea trout

Data to derivate growth curves and relations between age/length for salmon and sea trout accumulate from the basic catch sampling programme and tag recapture data.

In sampling of salmon landings gender of fish is determined and recorded routinely from each individual fish. This will enable the derivation of the sex ratio for the whole duration of the programme. For the sea trout landings gender data is generally impossible to compile by harbour sampling due to low catches and high scattering of the landings to the numerous fishing harbours and private docks. Therefore the sex ratio of the sea trout landings will be mainly derived from the tag recapture data.

Costs included in Finland NP 2006 FinForms.xls, Worksheet I. Oth Bio

Table 11.1. Long-term work plan reviewing timetables of collecting and updating of 'Other biological parameters' in years 2002-2006, the availability of collected data, and whether these studies will take place within the framework of broad-scale international co-operation.

Other biological sampling				Country			FINLAND		MP	
Species	Area	Parameter	Data collected & updated		Reference period (years)			2002 - 2006		
			2002	2003	2004	2005	2006	Annual collection period (months)	Data availability	Framework
Clupea harengus	IIIId	Growth	X	X	X	X	X	I - XII	Coll. year +1	ICES WG
		Sex-ratio	X	X	X	X	X	I - V	Coll. year +1	ICES WG
		Maturity	X	X	X	X	X	I - IV	Coll. year +1	ICES WG
Sprattus sprattus	IIIb-d	Growth	X	X	X	X	X	I - XII	Coll. year +1	ICES WG
		Sex-ratio	X	X	X	X	X	I - VI	Coll. year +1	ICES WG
		Maturity	X	X	X	X	X	I - VI	Coll. year +1	ICES WG
Gadus morhua	IIIb-d	Growth	Derogation							
		Sex-ratio	Derogation							
		Maturity	Derogation							
Platichthys flesus	IIIb-d	Growth	Optional species in 1639/2001				X	IV-X	Coll. year +1	ICES WG & National management agencies
		Sex-ratio	Optional species in 1639/2001				X	IV-X	Coll. year +1	
		Maturity	Optional species in 1639/2001				X	IV-X	Coll. year +1	
Salmo salar	IIIb-d	Growth	X	X	X	X	X	I - XII	Coll. year +1	ICES WG
		Sex-ratio	X	X	X	X	X	I - XII	Coll. year +1	ICES WG
		Maturity								
Salmo trutta (*)	IIIb-d	Growth	X	X	X	X	X	I - XII	Coll. year +1	National management agencies
		Sex-ratio	X	X	X	X	X	I - XII	Coll. year +1	
		Maturity								

(*Estimates are based mainly on the tag recoveries)

11.2 Minimum Programme - Proportions of wild and reared fish in the landings of salmon

According to the regulation (Annex, Chapter III, Section I), a biological sampling programme of the landings must be implemented to estimate the share of wild and reared salmon. The data should be provided quarterly and following the fishing techniques typology described in Appendix IV. The estimates should reach level 1 precision (i.e. $\pm 25\%$ for a 95% confidence level).

The ICES Baltic Salmon and Trout Working Group recommends including the DNA analysis of salmon in the DCR in order to improve the assessment (WGBAST 2005). The group 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 uncertainty in the stock proportion estimates of stock groups from different assessment units. WGBAST recommended the following amounts of samples to be analysed:

- Baltic Main Basin driftnet and long line fisheries: 500 samples
- Aland Island coastal driftnet fishery: 400 samples
- Gulf of Bothnia: 400 samples

WGBAST also recommends pooling of the small national samples from the Main Basin to make one representative sample for the total catch taken from the area. Concerning the share of the work in DNA-analysis it has been preliminary agreed that Sweden will analyse the Main Basin samples (500 specimen) and Finland will analyse the samples from Åland Island and Gulf of Bothnia (800 samples).

The costs consist of chemicals and subcontracted laboratory work for DNA analyses.

Costs included in Finland NP 2006 FinForms.xls, Worksheet I. Oth Bio

11.3 Minimum Programme - Monitoring of salmon in wild salmon rivers

The International Baltic Sea Fisheries Commission (IBSFC) has adopted long-term management goals for the Baltic salmon fisheries (Salmon Action Plan, SAP). The most important operational management objective is to gradually increase the natural smolt production of wild Baltic salmon to attain at least 50 % of the natural production capacity of every individual river before the year 2010 (<http://www.ibsfc.org>). To evaluate the achievement of this goal two type of information are needed:

- The smolt production capacity of each Baltic river
- The current smolt production of each Baltic river

This is carried out by collection of data on spawning runs and juvenile populations. This information forms the basis of stock projections and management advice for Baltic salmon and ICES Working Group (WGBAST) has explicitly described these data as necessary for assessment of Baltic salmon.

There are two wild Baltic salmon rivers in Finland: River Simojoki and River Tornionjoki. Both of these are chosen by the IBSFC's Salmon Action Plan (SAP) as index rivers, where monitoring is recommended to include electrofishing and counts of spawners and smolts.

The data collection from the River Tornionjoki is included in the NP for the first time. The Tornionjoki flows along the border of Finland and Sweden, and it is clearly the largest of the current Baltic salmon rivers.

Monitoring of salmon stock of the river Tornionjoki is organised in close co-operation with Sweden. Finland has a large share of the total programme in this river and also higher monitoring costs than Sweden has. In particular Finland operates a large-scale smolt trapping to estimate the present production. This division of the monitoring is recognized and supported by both countries. Besides the smolt trapping in early summer, the Finnish NP for 2006 includes also electrofishing of about 80 sites in the late summer/early autumn. The planned volume of data collection follows earlier years' volume carried out on national basis.

Although counting of salmon spawners is desirable in the salmon index rivers, no counting is planned in the Tornionjoki in the NP for 2006. The reason for this is the current lack of methodology applicable with reasonable costs (e.g., absence of fish ladders in conjunction of which to establish counting) for such a large river like the Tornionjoki.

The data collection from the River Simojoki has been included already in the NP 2005. The planned volume of salmon juvenile monitoring (smolt trapping and electrofishing) in the River Simojoki follows earlier years' monitoring, with about 30 electrofishing sites and the setup of a smolt trap and a smolt screw (the screw is preferred for marking in mark-recapture trials). The counting of spawners by echo sounding consists of a set-up of two transducers (one on each bank), weirs guiding salmon to pass the site at appropriate range from the transducers, data collection and post-processing of data (identification and counting of fish traces). Expansion of the counts by a statistical treatment of the data is needed to cover unsampled periods of time/unsampled parts of the river transect.

River monitoring data are stored on databases for further reporting in conjunction with national and international stock assessment (ICES WGBAST). River monitoring is conducted in coordination with other Baltic countries with wild salmon rivers.

It is important to notice, that data collection costs depend very much on the size of the river and also, whether the river in question is an index river or not. The northern Baltic rivers located in Finland and Sweden are much larger than the salmon rivers in the middle and southern Baltic. Thus, costs for data collection per river (and per nation) are clearly highest in the northern Baltic.

Costs included in Finland NP 2006 FinForms.xls, Worksheet I. Oth Bio

11.4 Extended programme - Monitoring of juvenile salmon in potential salmon rivers

The most important operational management objective is to gradually increase the natural smolt production of wild Baltic salmon to attain at least 50 % of the natural production capacity of every

individual river before the year 2010 (<http://www.ibsfc.org>). Another agreed management objective of the Baltic Salmon Action Plan is that wild salmon populations shall be re-established in potential salmon rivers. This objective calls for collection of data on reproduction success of salmon in the rivers, where actions aiming at re-establishment of salmon population are taking place.

There are three Baltic rivers in Finland, which are nationally selected for attempts to re-establish wild salmon stocks: River Kuivajoki, River Kiiminkijoki and River Pyhäjoki. Re-establishment efforts include stocking of salmon juveniles, habitat restoration/improvement, water quality improvements and management of fisheries. Monitoring of parr densities by electrofishing is suggested here in these rivers. The volume of sampling is related to the size of the rivers so that the relative intensity of sampling is roughly similar to the sampling carried out in the wild salmon rivers (see section 11.3).

Depending on the annual variation in the river conditions (the most critical variable being discharge), in some years occurrence of extraordinary conditions may lead to failure of some data collection. On average, this happens on every 5th or 6th year.

Data from this monitoring is stored on data bases for further reporting in conjunction with national and international (ICES WGBAST) stock assessment. The monitoring is conducted in coordination with other Baltic countries.

Costs included in Finland NP 2006 FinForms.xls, Worksheet I. Oth Bio (EP)

12 Module J - Economic data on fishing vessels

12.1 Minimum programme

Collection of economic data is based on register survey that combines information from several data sources and a survey made to fishermen. For the register survey the main data sources are Business Register of Statistics Finland and data on catches and fishing vessels from Finnish Game and Fisheries Research Institute (FGFRI). This will be supplemented with a survey to fishermen to enquire additional information concerning the fishing operation and employment. Also a sample survey will be carried out to collect cost and earnings information according to the regulation.

The target population for evaluation of the economic situation in the fishing sector are all fishing vessels/units, dormant units are excluded. (In business statistics firms are considered operational when the annual turnover/catch value exceeding € 9,134.) The determination of fishing sector follows the one used in statistics. All operational firms with fishing as their main branch should be listed in the Business Register of Statistics Finland. This data is supplemented with fishing units with corresponding activity in the fishing registers of FGFRI. These registers are combined to create the frame population of the survey.

Economic data is based on a survey on fishing firms and financial statements collected by Statistics Finland. Data on catches and vessels are based on data in FGFRI. These will be linked to firms in the Business Register and classified according to the segmentation presented in the regulation. At the same time the coverage of the data will be checked. Data collected will cover the parameters mentioned in the regulation (Annex, Chapter IV and Appendix XVII; see table 12.1) according to the segmentation included in Appendix III (the segmentation of Finnish fishing fleet in table 5.1).

Table 12.1 Economic information per fleet segment as defined in Appendix XVII.

Parameter (per fleet segment)	Source of data
Income (turn-over) - Total, per species	Total turnover is available from the survey and data on financial statements. Income per species calculated from data on financial statements, data on fish landings (see. Chapter III E.1.1) and data on fish prices.
Production costs -Crew, fuel, other operational costs	Total production costs and labour costs will be available from the survey and data on financial statements. The other costs will be available from survey.
Fixed costs	Will be calculated from assets (see investment)
Financial position - Share of own/borrowed capital	Available from data on financial statements.
Investments (asset)	Insurance value from survey.
Prices per species	Available from data on fish prices.
Employment - Full time/part time/ FTE	Number of fishermen and FTE will be estimated.
Fleet, - No, GT, kW, age, gear used	Available from fishing fleet registers.
Effort	Available from data on fishing effort.

Collection of economic data

The cost and earnings data will be collected by a sample survey on fishing firms. Total of one hundred firms accounts will be surveyed by stratified survey to detect the cost structure of fishing firms by fleet segments. This data will be combined with financial statement data collected by Statistics Finland. Primary sources of financial statements data 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. Statistics Finland will check for the validity of the data. Cost and earnings data will be linked and combined to data on landings, effort and capacity data in FGFRI. Missing data will be imputed using additional information by stratum. Data will be classified according to segmentation in the regulation. Employment will be presented in number and FTE. In the survey, insurance value will be asked.

The information gathered by means of the survey will be optional of success of the effort. Participating the survey is obligatory for fishermen and thus results cannot be guaranteed in advance.

Gathering price data

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 the fish to the Regional Employment and Economic Development Centres. The price data are checked with the book keeping of 20 fish wholesalers in coastal areas. The prices on other fish species are calculated from that data. The prices are calculated by species, size-class, degree of processing and by month.

Reliability

The survey of cost and earnings data will not be done by random sampling and thus the unbiased error estimators for the parameters will not be available. Also the precision required will not be guaranteed. Financial statements in Business Register are collected exhaustively from the fishing firms. Also the information of capacity and landings and effort data covers all vessels. However, the under-coverage in the Business Register (compared to target frame) has to be estimated and remedied. This kind of register survey gives a good coverage in terms of number of vessels and proportion of value, but does not allow calculating unbiased error estimators for the parameters.

Time scale and delay

Information of the economic situation of fishing sector will be provided not earlier than one year after the period investigated. Landings and price information of year 2004 will be finalised by June 2005. Fishing vessel register is updated constantly. Preliminary information on Financial statements from year 2004 will be available on the 4th quarter of 2004.

Costs of collection of economic data by groups of vessels in 2003

Majority of the costs is labour costs. Some travels to collect data from various sources will be made. Subcontracting includes costs of getting access to databases in Statistics Finland and outsourced updating of the frame register. The survey on cost and earnings data will be collected by purchasing the data from fishermen's accountants. Also the costs of wholesalers and processors of providing price data are compensated.

Costs included in Finland NP 2006 FinForms.xls, Worksheet J. Eco Vess.

12.2 Extended programme

None.

13 Module K - Data concerning the fish processing industry

13.1 Minimum programme

Collection of economic data concerning the processing industry is based on lessons from the pilot study carried out in 2003. The data collection is a register survey that combines information from several data sources. The main data sources are Business register and Structural business statistics of Statistics Finland and data on processing in Finnish Game and Fisheries Research Institute (FGFRI).

The target population are all fish processing firms (determined in Council Regulation (EEC) No 3037/90: Nomenclature Générale des Activités Economiques dans les Communautés Européennes). All operational firms, with fish processing as their main branch, should be listed in the Business Register of Statistics Finland. This data will be supplemented with the data in FGFRI.

Economic data of fish processing firms are gathered from financial statements and by Statistics Finland. Fish processing data will be collected by a survey by FGFRI and this information will be linked to economic data of processing firms in the Business Register. Collected data will cover the parameters mentioned in Article 13 and Annex XIX (see table 13.1).

Collection of economic data

Financial statements are based on data collected by Statistics Finland. Primary sources of information 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. Statistics Finland will check for the validity of the data. Missing data will be interpolated.

Data on fish processing will be conducted by means of a survey. The survey is carried out as a stratified sampling survey according to the size of the fish processing enterprises. The amount of domestic and imported fish raw material and the amount of final products by main species, in terms of raw material used, are investigated. At the same time additional information including the job creation capacity of the sector will be inquired.

Table 13.1 Economic information from processing industry as defined in Appendix XIX.

Parameter	Source of data
Raw material - Total and per species	Survey on fish processing
Income - Total and per product	Total turnover is available from data on financial statements. Income per product not available.
Production costs - labour, energy, raw material, packaging, other running costs	Total production costs available from data on financial statements. Production costs by cost groups available data on financial statements and structural business statistics.
Fixed costs	Available from data on financial statements
Financial position - share of own and borrowed capital	Available from data on financial statements
Investment (asset)	Available from data on financial statements
Prices per product	Not available
Employment - Numbers, FTE	Available from data on financial statements
Capacity utilisation	Not available

Reliability

Financial statements are collected exhaustively from the fishing firms in Business Register. The precision of the estimation procedure cannot be assessed in advance.

Time scale and delay

Information of the economic situation of fish processing sector will be provided not earlier than one year after the period investigated. Preliminary information on Financial statements from year 2004 will be available on the 4th quarter of 2005.

Costs of Collection of data concerning the processing industry

Majority of the costs is labour costs. Some travels to collect data from various sources will be made. Subcontracting includes costs of getting access to databases in Statistics Finland and a survey on fish processing firms.

Costs included in Finland NP 2006 FinForms.xls, Worksheet K. Eco Ind

13.2 Extended programme

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 in processing industry. We will examine the importance of aquaculture production as a part of primary production and try to investigate the linkages between production and fish processing.

Target population is all fish farming firms in Finland. The frame population is based on the Business Register in Statistics Finland and the fish farming register updated by Finnish Game and Fisheries Research Institute. All the firms will be surveyed by a mail inquiry that is supplemented with a survey by telephone. In this survey it will be enquired the volume of the production by species and the use of the production (linkages to downstream activities). The job creation capacity will also be examined. The results will be assessed comparing those from processing industry.

Costs of Collection of data concerning aquaculture production

Survey will be done by a postal survey supplemented with a telephone survey. Telephone survey will be outsourced and postal survey causes mailing and survey form service costs.

Costs included in FinForms MP.xls, Worksheet K. Eco Ind (EP)

14 Data bases

The preparation work for the national database for economical data, biological data and fishery data for stock assessment has been planned to be started during 2005.

The database built-up work will start with planning phase. In this work a help of consulting company will be used. The actual build up work of the central database system are planned to be started during 2006. At the moment no plans exists for own server system but server facilities will be rented from outside service provider. Therefore no costs for computers are included for this section at this stage.

The goal is to develop a database system with easy input access system over internet to database and also an output delivery system for certain aggregated level of data. This database system will also allow an easy link to other national and international databases like FishFrame in DIFRES (Denmark), for example. The database will help us to effectively fulfil the demands of data requests from the Commission. All databases will be kept in the Finnish Game and Fisheries Research Institute.

Costs containing both the software and database development included in FinForms Finland NP 2006.xls, Worksheet Data Base

15 National and international co-ordination

15.1 National co-ordination

A national co-ordination meeting will be organised yearly at FGFRI by the national correspondent and the contact persons from FGFRI during May. The meeting will be attended by persons from those FGFRI offices (8) that are involved in the national programme on data collection in order to properly co-ordinate the tasks for the year 2006. The national correspondent will inform the Commission about time and place of this meeting when the date has been agreed.

A national steering committee, including the national correspondent and key persons from FGFRI, will convene 1-2 times per year.

15.2 International co-ordination

Regional co-ordination will mainly take place within the framework of Regional Coordination Meeting for Baltic Area (RCMB), including one annual meeting (4 persons). Our plan is to participate in the work of ICES-PGCCDBS, including plenary meeting in March (2 persons) and workshop on precision level (2 persons). We will also participate in the workshops on precision level and on economic data (2 persons) (venue to be decided). In addition, we will take part to WGBIFS in April (1 person).

Since Finland has not received the updated list of meetings for 2006, the financial form for international co-ordination meetings will be updated later.

Costs included in Finland NP 2006 FinForms.xls, Worksheet C. Fish cap.

15.3 Other relevant issues

16 List of acronyms and abbreviations

ACFM	Advisory Committee on Fisheries Management
BITS	Baltic International Trawl Survey
DCR	Data collection regulation i.e. 1639/2001, 1584/2004
DIFRES	Danish Institute for Fisheries Research
FGFRI	Finnish Game and Fisheries Research Institute
FISHFRAME	Fisheries and Stock Assessment Data Framework
IBSFC	International Baltic Sea Fishery Commission
ICES	International Council for the Exploration of the Sea
MAF	Ministry of Agriculture and Forestry
NP 2006	Finnish National Programme proposal for 2006
SAP	Salmon Action Plan
SD	ICES Sub-division
STECF	Scientific, Technical and Economic Committee for Fisheries
STECF-SGRN	STECF Subgroup on Research Need
WGBAST	Baltic Salmon and Trout Working Group
WGBFAS	Baltic Fisheries Assessment Working Group
WGBIFS	ICES Working Group on Baltic International Fish Surveys

17 Comments, suggestions and reflections

18 References

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19 Annexes

ANNEX I. COLLECTION OF THE DATA CONCERNING COMMERCIAL MARINE CATCHES

Commercial marine catch data collection is based on fishermen register and fishing vessel register maintained by the Fishery Units of the Employment and Economic Development Centres (EEDCs) and by the provincial government of Åland. All those who are engaged in professional fishing are obliged to report their catches to the EEDCs of their region. Depending on the fishery, the reporting is made by EU log books, or by coastal fishery reports. Salmon catches are reported in kilograms and in number. The data is recorded in the EEDCs and provincial government of Åland to a Access database. All the data is forwarded to the Finnish Game and Fisheries Research Institute, where the data is validated and cross checked with the abroad landings data.

The fishing data of the vessels at least 10-metres in length are entered in the EU-logbooks. The data entered are the dates on which catches were made, the type and amount of gear used in fishing, the volume of the catch by species and the catch area. The trawling time of the trawler is reported in hours. The fishing data of vessels under 10 meters are entered in a monthly coastal fishery report. The data entered are the size of the catch by species, the catch area, the type and amount of gear used in fishing, and the number of catch days. The salmon fishing data of vessels under 10 meter are entered in a salmon fishery report for coastal fishermen that has to be completed for each catch. The data entered are the size of the catch, the catch area, the type and amount of gear used in fishing, and the number of catch days.

The catch data covers all catches including those landed abroad. The catch is converted to be equal to live weight. Prepared catches in catch reports are converted to live weights with conversion factors by species. In the Finnish fishing vessels preparing of fish onboard is gutting, and very seldom filleting. Conversion factors are given in the next table.

	Gutted, with head	Fillets, with skin
Atlantic cod	1.18	
European flounder	1.18	2.44
European perch	1.32	2.44
Northern pike	1.23	2.00
Pikeperch	1.15	1.92
Baltic herring	1.18	2.33
European whitefish	1.08	1.56
Baltic Salmon	1.11	1.39
Rainbow trout	1.20	1.72
Sea trout	1.11	1.56

ANNEX II.

Table 1. WGBAST (2005) recommendation for the minimum number of salmon caught in different subdivisions of the Main Basin that need to be sampled. These sample sizes were calculated based on the catches in 2004. The sample sizes correspond to 1 sample for every 50 tonnes of salmon caught and the sampling of 70 salmon (10 salmon of each size class) within each sample. DN: driftnet; LL: longline.

Country	ICES Sub-div	Nr of samples		Total samples	Total nr of fish
		DN	LL		
Denmark	25	1	2	3	210
	26	2		2	140
	28	1		1	70
	Total	4	2	6	420
Finland	25	2	1	3	210
	26	1		1	70
	28	1		1	70
	Total	4	1	5	350
Latvia	28	1		1	70
Poland	26	2		2	140
Sweden	25	2	2	4	280
	26	2		2	140
	28	2		2	140
	Total	6	2	8	560
Total		17	5	22	1540

Table 2. WGBAST (2005) recommendation for the temporal distribution of catches and catch samples in the Baltic Main Basin offshore fisheries. DN: driftnet; LL: longline.

Month	DN	LL
1	0	0.81
2	0	0
3	0	0
4	0.05	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0.12	0
10	0.50	0
11	0.28	0.04
12	0.05	0.15