

Council Regulation (EC) No. 199/2008 of 25 February 2008
Commission Regulation (EC) No. 665/2008
concerning the establishment of a Community framework for the collection,
management of data for the implementation of the Common Fisheries Policy

**NATIONAL PROGRAMME FOR THE COLLECTION
OF BASIC FISHERIES DATA**

YEARS 2011-2013

FRANCE

Version 7 – 3 septembre 2012

CONTENTS

I. General framework	7
II. Organisation of the National Programme	8
II.A. National organisation and coordination.....	8
II.A.1 National correspondent	8
II.A.2 Partner institutions	8
II.A.3 National coordination	10
II.B. International coordination.....	10
II.C. Regional coordination.....	10
III. Module on the evaluation of the fisheries sector	12
III.A. General description of the fisheries sector	12
III.B. Economic variables	16
III.B.1 Data acquisition	16
III.B.2 Estimation	19
III.B.3 Data quality evaluation	20
III.B.4 Data presentation	22
III.B.5 Regional coordination	22
III.B.6 Derogations and non-conformities	23
III.C. Biological - metier-related variables	23
General considerations applicable for North Sea & East Arctic, North Atlantic and Mediterranean	23
North Sea (IIIa, IV and VIIId) & East Arctic (I and II)	27
NS-III.C.1 Data acquisition	27
NS-III.C.2 Estimation procedures	30
NS-III.C.3 Data quality evaluation	30
NS-III.C.4 Data presentation	30
NS-III.C.5 Regional coordination	31
NS-III.C.6 Derogations and non-conformities	31
North Atlantic (ICES areas V-XIV and NAFO areas).....	32
NA-III.C.1 Data acquisition	32
NA-III.C.2 Estimation procedures	35
NA-III.C.3 Data quality evaluation	35
NA-III.C.4 Data presentation	36
NA-III.C.5 Regional coordination	36
NA-III.C.6 Derogations and non-conformities	37
Mediterranean Sea an Black Sea.....	37
MED-III.C.1 Data acquisition.....	37
MED-III.C.2 Estimation procedures	40
MED-III.C.3 Data quality evaluation	40
MED-III.C.4 Data presentation	41
MED-III.C.5 Regional coordination	41
MED-III.C.6 Derogations and non-conformities	41
Indian Ocean (IOTC)	41
IO-III.C.1 Data acquisition	41

IO-III.C.2	Estimation procedures	44
IO-III.C.3	Data quality evaluation	44
IO-III.C.4	Data presentation	46
IO-III.C.5	Regional coordination	46
IO-III.C.6	Derogations and non-conformities	46
East Central Atlantic (ICCAT))		47
ECA-III.C.1	Data acquisition	47
ECA-III.C.2	Estimation procedures	48
ECA-III.C.3	Data quality evaluation	48
ECA-III.C.4	Data presentation	49
ECA-III.C.5	Regional coordination	49
ECA-III.C.6	Derogations and non-conformities	49
West Central Atlantic (WECAF)		49
WCA-III.C.1	Data acquisition	49
WCA-III.E.2	Estimation procedures	50
WCA-III.E.3	Data quality evaluation	50
WCA-III.C.4	Data presentation	50
WCA-III.C.5	Regional coordination	50
WCA-III.E.5	Derogations and non-conformities	50
III.D. Recreational fisheries		51
North Sea (ICES areas IIIa, IV and VIIId) & East Arctic (ICES areas I and II)		51
North Atlantic (ICES areas V-XIV and NAFO areas)		51
Mediterranean Sea an Black Sea		51
III.D.1	Data acquisition	51
III.D.2	Estimation procedures	53
III.D.3	Data quality evaluation	54
III.D.4	Data presentation	54
Inland recreational fisheries for eel (<i>Anguilla anguilla</i>) and Atlantic salmon (<i>Salmo salar</i>)		54
III.D.1-4	Data acquisition	54
III.D.5	All regions - Regional coordination	56
III.D.6	All regions - Derogations and non-conformities	56
III.E. Biological - stock-related variables		58
North Sea (IIIa, IV and VIIId) & East Arctic (I and II)		58
NS-III.E.1	Data acquisition	58
NS-III.E.2	Estimation procedures	59
NS-III.E.3	Data quality evaluation	59
NS-III.E.4	Regional coordination	59
NS-III.E.5	Derogations and non-conformities	60
North Atlantic (ICES areas V-XIV and NAFO areas)		61
NA-III.E.1	Data acquisition	61
NA-III.E.2	Estimation procedures	62
NA-III.E.3	Data quality evaluation	62
NA-III.E.4	Regional coordination	62
NA-III.E.5	Derogations and non-conformities	63
Mediterranean Sea and Black Sea		64
MED-III.E.1	Data acquisition	64
MED-III.E.2	Estimation procedures	64
MED-III.E.3	Data quality evaluation	64

MED-III.E.4	Regional coordination	65
MED-III.E.5	Derogations and non-conformities	65
Indian Ocean (IOTC)		65
IO-III.E.1	Data acquisition	65
IO-III.E.2	Estimation procedures	66
IO-III.E.3	Data quality evaluation	67
IO-III.E.4	Data presentation	67
IO-III.E.5	Regional coordination	67
IO-III.E.6	Derogations and non-conformities	67
East Central Atlantic (ICCAT)		67
ECA-III.E.1	Data acquisition	67
ECA-III.E.2	Estimation procedures	68
ECA-III.E.3	Data quality evaluation	69
ECA-III.E.4	Data presentation	69
ECA-III.E.5	Regional coordination	69
ECA-III.E.6	Derogations and non-conformities	69
West Central Atlantic (WECAF)		69
WCA-III.E.1	Data acquisition	69
WCA-III.E.2	Regional coordination	69
WCA-III.E.3	Derogations and non-conformities	69
Inland waters (eel and salmon)		70
INL-III.E.1	Data acquisition	70
INL-III.E.2	Derogations and non-conformities	70
III.F. Transversal variables		71
III.F.1	Capacity	71
III.F.1.1	Data acquisition	71
III.F.1.2	Data quality evaluation	71
III.F.2	Effort	72
III.F.2.1	Data acquisition	72
III.F.2.2	Data quality evaluation	74
III.F.2.3	Data presentation	75
III.F.2.4	Regional coordination	75
III.F.2.5	Derogations and non conformities	75
III.F.3	Landings	76
III.F.3.1	Data acquisition	76
III.F.3.2	Data quality evaluation	78
III.F.3.3	Data presentation	79
III.F.3.4	Regional coordination	79
III.F.3.5	Derogations and non conformities	79
III.G. Research surveys at sea		80
III.G.1	Planned surveys	80
North Sea (ICES areas IIIa, IV and VIId) & East Arctic (ICES areas I and II)		80
III.G.1.1	International Bottom Trawl Survey first quarter – IBTS (French naming)	80
North Atlantic (ICES areas V-XIV and NAFO areas)		81
III.G.1.2	Western IBTS fourth quarter - EVHOE (French naming)	81
III.G.1.3	Sardine, anchovy, horse mackerel acoustic survey – PELGAS (French naming)	82
III.G.1.4	Blue whiting survey	84
Mediterranean Sea and Black Sea		85

III.G.1.4	Mediterranean international bottom trawl survey – MEDITS-FR (French naming)	85
III.G.1.6	Pan-Mediterranean pelagic survey MEDIAS – PELMED (French naming)	86
III.G.2	Modifications in the surveys	87
III.G.3	Data presentation	88
III.G.4	Regional coordination	88
III.G.5	Derogations and non conformities	88
IV.	Module of the evaluation of the economic situation of the aquaculture and the processing industry	89
IV.A.	Collection of economic data for the aquaculture	89
IV.A.1	General description of the aquaculture sector	89
IV.A.2	Data acquisition	89
	Specification	90
IV.A.3	Estimation	93
IV.A.4	Data quality evaluation	93
IV.A.5	Data presentation	93
IV.A.6	Regional coordination	94
IV.A.7	Derogations and non conformities	94
IV.B.	Collection of data concerning the processing industries	95
IV.B.1	Data acquisition	95
IV.B.2	Estimation	97
IV.B.3	Data quality evaluation	97
IV.B.4	Data presentation	98
IV.B.5	Regional Coordination	98
IV.B.6	Derogations and non conformities	98
V.	Module on the evaluation of effects of the fishing sector on the marine ecosystems	99
V.1.	Indicator 1 – Conservation status of fish species Indicator 2 – Proportion of large fish Indicator 3 – Mean maximum of large fish.....	99
V.2.	Indicator 4 – Size at maturation of exploited fish species.....	99
V.3.	Indicator 5 – Distribution of fishing activities Indicator 6 – Aggregation of fishing activities Indicator 7 – Areas non impacted by mobile bottom gears	100
V.4.	Indicator 8 – Discarding rates of commercially species.....	102
V.5.	Indicator 9 – Fuel efficiency of fish capture	102
VI.	Module on data management and utilisation	104
VI.A.	National management of DCF data.....	104
VI.A.1	The data collection system	104
VI.A.2	Data management within an urbanised information system: FAIS (SIPA)	104
VI.B.	Partner's databases developments	107
VI.B.1	Ifremer	107
VI.B.2	MNHN	108
VII.	Follow-up of STECF recommendations	110
VIII.	Derogations	113
IX.	LIST OF ACRONYMS AND ABBREVIATIONS	114
X.	Comments, suggestions and other considerations	114

XI. References	115
XII. Annexes	115

I. General framework

The French national programme for the collection of basic fisheries data for the years 2011-2013 is governed by Council Regulation (EC) 199/2008 of 25 February 2008 establishing a Community framework for the collection and management of the data necessary for conducting the Common Fisheries Policy, and is also founded on implementing Commission decision 2010/93/EU of 18 December 2009.

The 2008 reform of the data collection regulation leads to very significant changes in programming, the main modifications being listed below:

- the implementation of an information system for the collection of data on fisheries and aquaculture at national level in order to comply with the requirements of the regulation on access to databases, security of those databases and the automation of systems for responding to requests for data in order to ensure that responses are prompt.
- use of a ranking system to determine the métiers sampled.
- the gradual integration of aquaculture and diadromous species.
- integration of ecosystem indicators, which become part of the data collected under the Regulation.

The programming proposed by France for the years 2011-2013 therefore sets out to achieve on a staged basis the change demanded by Regulation (EC) 199/2008.

This second round of the DCF (after the programme 2009-2010) will see a continuation of progression toward the full implementation of the new Regulation. There are still some cases where France will request derogations from the Commission.

II. Organisation of the National Programme

II.A. National organisation and coordination

II.A.1 National correspondent

Marie-Bénédicte Peyrat
Valérie Dehaut, scientific affairs mission
Ministry of Agriculture and Fisheries
Directorate of Maritime Fisheries and Aquaculture (DPMA)
3, Place de Fontenoy,
75007 Paris
Tel.: +33 (0) 1 49 55 49 90
Fax: +33 (0) 1 49 55 82 00
Email: dcf.dpma@agriculture.gouv.fr
National correspondent : valerie.dehaut@agriculture.gouv.fr
Deputies to the national coordinator: marie-benedicte.peyrat@agriculture.gouv.fr
and pierre.verdier@agriculture.gouv.fr

II.A.2 Partner institutions

IFREMER

Centre de Nantes
Rue de l'île d'Yeu, BP 21105
44311 Nantes Cedex 5
Tel.: (33)02.40.37.42.39 (extension) 40.00 (switchboard) 4213 (fax)
Email: christian.dintheer@ifremer.fr
www.ifremer.fr

Ifremer is active in the four regions in which France conducts fishing activities, these being the North Sea and East Arctic, North Atlantic, Mediterranean and Other Regions.

Ifremer contributes to the collection of data for the modules relating to economic data (carrying out activity surveys), the collection of biological data (sampling at the markets, at sea, in scientific surveys), transversal data and ecosystem data (indicators derived from scientific surveys, discard indicator, VMS, etc.).

IRD

UMR 212 – Exploited Marine Ecosystem
Centre for Mediterranean and Tropical Fisheries Research
Avenue Jean Monnet - BP 171,
34 203 Sète Cedex FRANCE
Switchboard: +33 (0) 4 99 57 32 00
Office: +33 (0) 4 99 57 32 39
Fax: +33 (0) 4 99 57 32 95
Email: Pierre.Chavance@ird.fr
www.ird.fr, <http://www.umar-eme.org/>

The IRD is active in the other regions where tropical tuna fishing is concerned. The IRD contributes to the collection of data with regard to biological data (sampling of catches landed and transhipped, observers at sea).

LEMNA

Nantes Faculty of Economic and Management Sciences,
Chemin de la Censive du tertre,
BP 52231,
44322 Nantes Cedex 3.

Tel.: 02 40 14 17 38

Fax: 02 40 14 17 40

Yves.perraudeau@univ-nantes.fr, arnaud.souffez@univ-nantes.fr

LEMNA is active in the collection of economic data relating to the North Sea and Atlantic, the Mediterranean and Other Regions (Reunion).

LEMNA is also responsible for the management of data collection in aquaculture.

FranceAgriMer

Marie Lecocq

Economics & Studies Observatory

FranceAgriMer

TSA 200020005,

12, Rue Rol Tanguy,

93555 Montreuil Sous Bois.

Switchboard: 01.73.30.37.00

Tel.: 01.73.30.37.16

Mail: marie.lecocq@franceagrimer.fr

www.franceagrimer.fr

FranceAgriMer contributes to the collection of data on the processing industries.

ONEMA

Office national de l'eau et des milieux aquatiques

The French national agency for water and aquatic habitats

"Le Nadar" Hall C, 5, Square Félix Nadar, 94300 Vincennes.

Tel.: +33 (0) 1 45 14 36 00

caroline.penil@onema.fr

www.onema.fr

ONEMA contributes to the collection of data on inland waters.

FNPF

Fédération nationale pour la pêche en France et la protection des milieux aquatiques

National federation for fisheries in France and the protection of aquatic habitats

17, Rue Bergère – 75009 PARIS – Tel. 01 48 24 96 00 – Fax 01 48 01 00 65

E-mail: fnpf@federationpeche.fr

Claude Roustan: FNPF President

Jérôme Guillouet: technical manager

FNPF joins ONEMA to carry out collection of data on inland waters

MNHN

57 rue Cuvier, CP26

75231 Paris Cedex 05

Office: +33 (0)1 40 79 37 56

Fax: +33 (0) 1 40 79 37 55

Email: duhamel@mnhn.fr; pruvost@mnhn.fr

www.mnhn.fr

The MNHN is active in the Southern Ocean and south Indian oceans Fisheries and on taxonomy studies. The MNHN contributes to the collection of biological data from North Atlantic targeted fishery species. The MNHN provides taxonomic expertise and taxonomic reference lists.

II.A.3 National coordination

Coordination at national level comprises two steering committee meetings during each of the years 2011 to 2013. These meetings gather all the partners and they aim at reviewing on the past, present and future national programmes. Conclusions of the different international meetings and RCMs recommendations are presented and discussed for implementation. A roadmap for each DCF partner is defined.

II.B. International coordination

France must ensure for all modules that there is sufficient coordination with the other Member States that are participating in the framework programme defined by Council Regulation 199/2008.

Table II.B.1 summarises all the international meetings France plans to attend in the context of the aforementioned regulation:

France will attend the four regional coordination meetings to which it is invited. To that end, a specific budget is requested under the heading of “Coordination” in order to encourage participation by the national coordinator or the latter’s representative and the relevant scientific experts at meetings and working groups to be organised at the initiative of the European Commission. For this, France requests that three experts participate in RCMs.

France also proposes to participate to meetings organised by other bodies such as ICES, GFCM, ICCAT or IOTC whenever such meetings relate to the goals of the aforementioned Regulation and are acknowledged as eligible by the Commission. Types of meetings that may be cited here: methodological workshops on discards, the Fleet-Based Approach, sampling of biological parameters (ageing calibration, maturity staging), groups for the coordination of oceanographic campaigns (IBTS, MEDITS, evaluation of small pelagic), promotion of quality assurance and sampling methods validation, the building of EU databases for storage and procedures for the exchange of aggregated data, participation in the ICES Planning Group on Commercial Catch, Discards and Biological Sampling (PGCCDBS) and its homologue for the Mediterranean (PGMed). Additionally, French experts are regular participants in meetings for the evaluation and support of the 199/2008 framework programme, especially in STECF and its subgroups such as the SGRN and expert meetings on defined topics (SGECA, ecosystem-based approach, COST, etc.).

IRD has a significant participation to main working groups of ICCAT and IOTC since their creation. Participations anticipated for the 2011-2013 period concern tropical tunas, billfishes, ecosystems and by catch, sharks. Additionally, close collaboration between the scientific staffs of IRD and IEO and, more recently, AZTI, leads, each year, to the holding, alternately in France and Spain, of a joint meeting of tuna research experts from both institutes. The objective of this meeting is detailed at point Indian Ocean-III.C.3. and in the appended note “IRD/IEO/AZTI cooperation under DCF (tropical tuna fleets). 2011-2013 period”. Part funding (4 scientific experts out of a dozen) of these meetings should be considered under the regional coordination heading. A list of suggested eligible meetings has been established by the RCM LDF (Slovenia, May 2011)

II.C. Regional coordination

France will send, insofar as this is feasible, three experts to the RCMs to which it is attached, which is to say the North Sea and East Arctic, North Atlantic, Mediterranean and Black Sea and Long distant Fisheries. France assumes fully its role in these meeting, in the Liaison meeting and also in taking in charge DCF workshops venues.

France is well-disposed to develop collaboration with neighbouring Member states : coordination for age reading in the Eastern Channel with Belgium and UK, sharing of ageing techniques with Belgium, agreement with the Netherlands and Ireland for sampling specific high-sea fleets, agreement with other Member states for sampling large pelagics in the Mediterranean...

With regard to tropical fisheries, statistics are presently collected in close collaboration with partners in the Seychelles, Côte d’Ivoire and Senegal. Development of the fishery to the south of Indian Ocean

and growing unloading activities in Antsiranana (Madagascar) and Port Louis (Mauritius) will need to reinforce collaboration and coordination with fisheries institutes in Madagascar and Mauritius.

The RCM NA 2010 recommended a steering committee for a Regional Data Base to be set up with clear terms of references and mandates in order to start the implementation of a Regional Data Base. The 7th liaison meeting endorsed this recommendation. France participated in the “interim” Regional Data Base steering committee in Copenhagen in February 2011 and expressed there willingness to be involved in the Regional Data Base(s).

III. Module on the evaluation of the fisheries sector

III.A. General description of the fisheries sector

The French fishing fleet was composed of 7412 vessels at the end of 2008 (7231 at the end of 2010), of which 4962 (4675 in 2010) were registered in metropolitan France and 2450 (2556 in 2010) in France overseas departments. The French fisheries operate in the North Sea & East Arctic, in the North Atlantic, in the Mediterranean and also in various remote areas such as Indian Ocean, and Central East & West Atlantic. The general description given below is still valid in 2011.

Table III.A.1 provides a general description of French fisheries interests. More details can be found on the Ifremer-SIH address:

http://www.ifremer.fr/sih/affichagePageStatique.do?page=/produits/rapports_syntheses/flottilles/flottilles_2008.htm.

Areas I&II

The most important French fisheries in Areas I&II are bottom otter trawls targeting cod, haddock and saithe, and midwater trawlers targeting herring. The former are large freezer vessels operating very long trips, whereas the latter are large vessels landing their catches in the Netherlands.

North Sea (IV) and Eastern Channel (VIId)

The French fisheries operate mainly in Eastern Channel (VIId) and in the southern North Sea (IVc). There is also a saithe fisheries in the northern North Sea (IVa) using otter trawl with 110-120 mm mesh size. The major métiers, by decreasing order of effort intensity include otter trawls using 80-100 mm mesh size and targeting various demersal species such as whiting, red mullet, squids, sole, cod and poor cod, dredges for scallops and trammel nets using 90-100 mm mesh size targeting sole. It is noticeable that a large majority of trawlers between 10 and 18 metres are dredgers for scallop during the winter and otter trawlers for sole during the remaining year.

Following are pots and otter trawls for cuttlefish, pots for crustaceans, beam trawls for sole, midwater otter trawls for herring and mackerel.

The vessels in VIId are mainly small-scale or less than 18 metres, operating along the French shore. Vessels between 18 and 35 metres are found in the northern VIId since these are the vessels also operating in the Southern North Sea (IVc).

Western Channel (VIIe)

The western Channel has special characteristics in the French fisheries, where the main métiers are dedicated to the catches of one species, sometimes considered as G3 species; these include dredges for scallops, dredges for small bivalves, different pot fisheries targeting cuttlefish, whelks and crustaceans. Besides these métiers operated by small scale vessels along the French shore, the most valuable métier is composed of larger vessels operating with otter trawls 80-100 mm mesh size and targeting various demersal species such as anglerfish, gurnards, poor cod, squids, sea breams, red mullets, etc...

Unlike other areas, the most valuable trammel nets are large mesh (≥ 220 mm) targeting anglerfish and spider crabs, before the trammel nets 100-120 mm targeting sole. Unlike other areas, the midwater otter trawl is used here mainly for demersal species such as sea bass and sea breams rather than small pelagics.

It is noticeable that one of the most valuable métiers in the western Channel is the harvesting of seaweeds.

Following their target species, the French midwater otter trawl targeting small pelagics and landing in the Netherlands, operate in the western Channel mainly in the fourth quarter.

Irish Sea (VIIa)

In the French statistics, there are catches in the Irish Sea with Otter and twin trawl 100-120 mm mesh size, but this is known as a northern extension of the Celtic sea otter trawl fisheries. Moreover, the RCM NA 2009 considered that UK and Ireland were the countries having the most significant activities in the area.

Celtic Sea (VIIefgh)

Celtic sea is a remote area for the French fleet, and only large vessels are operating there, doing 8-10 days trips and sometimes landing in the English coast for transporting the catches by lorry to the French auctions.

The most valuable metiers include otter and twin trawls 100-119 mm mesh size targeting anglerfish, targeting gadoids and targeting Nephrops depending on the precise locations and water depth. Some vessels/trips are specialised in one metier, other may operate different metiers during the same trip, adding to the difficulty of sampling under auction. There is also a gillnet large mesh size (≥ 120 mm) metier targeting anglerfish and hake.

Following their target species, the French midwater otter trawl targeting small pelagics and landing in the Netherlands, operate in the south part of the Celtic Sea in the beginning of the year.

West of Ireland (VIIbcjk)

The two most valuable French metiers operating in the western Ireland are otter trawl 100-119 mm mesh size targeting anglerfish, megrim, haddock and a variety of demersal species and set gillnets 120-219 mm mesh size targeting hake. Following are midwater otter trawl targeting albacore tuna, otter and twin trawl targeting Nephrops on Porcupine bank, the French midwater otter trawl targeting small pelagics mainly in quarter 2 on its way to the northern North Sea and one large vessel targeting blue whiting for its transformation on-board into surimi base.

West of Scotland (VIa)

The most valuable metiers in the west of Scotland are by far, otter and twin trawl 110-120 mm mesh size targeting saithe, hake, anglerfish and targeting deep water species. Following are by decreasing order of importance in total landed value, set gillnets for hake (120-219 mm mesh size) and set gillnets for anglerfish (≥ 220 mm).

West of Ireland is also a Northern extension of the midwater trawl targeting small pelagics and the midwater otter trawler targeting blue whiting for surimi base.

Faeroe Islands (Vb)

There are no metiers operating specifically in this area, but only extension of metiers operating in wider areas around Vb. This is the case for the trawlers targeting deep water species and set gillnetters targeting anglerfish.

Bay of Biscay (VIIIabde)

The Bay of Biscay is the area with the most number of vessels and the most various metiers operated within the French fisheries. Among this variety of metiers, four are running ahead in term of total

landed value. These are the combined otter and twin trawl for Nephrops, the combined otter and twin trawl for demersal fish such as hake, anglerfish, sole and a variety of other species, the trammel net for sole and the otter trawl for cuttlefish. Following are numerous métiers including purse seine for sardine, set longlines for conger eel, set gillnet for hake and anglerfish, pair trawl for anchovy (if access to the fishery is open), pair trawl for hake, pair trawl for albacore tuna, beam trawl for sole, dredge for scallops, etc...

The majority of vessels fishing in the Bay of Biscay are small scale vessels and the remaining mainly under 24 metres. These vessels operate along the French shore and the maximum trip duration in the area is 5 days.

Mediterranean Sea

The most part of the French Mediterranean fleet is composed of vessels less than 12 m, fishing very close to the coast or in lagoons. This component of the fleet are small-scale fisheries involved in a large panel of métiers targeting demersal fish with fyke nets, trammel nets, longlines, or shellfish using hand dredges, pots, free diving or small other gears.

Most of the trawlers (18-30 m LOA) are operating on the continental shelf of Gulf of Lions (GSA 7), targeting demersal species (bottom trawl - hake, red mullet, bass, sole) or small pelagics (pelagic trawl - anchovy, sardine). This segment is the most important considering landings.

Purse seiners fish for small pelagics (but the lampara nets segment is continuously decreasing) but mainly target blue fin tuna with modern vessels above 40 m LOA operating in the whole Mediterranean basin and supplying tuna farms of various EU and non EU countries.

The fishing fleet in Corsica (GSA 8) is small, with less than 200 vessels. Most are part-time vessels less than 12 m LOA using trammel nets to target spiny lobster (which fishing season regulation is from March to September), red mullet, sea breams, lobsters and "soupe". Some licensed bottom trawlers (8 in 2008 with only 3 really active outside the 3 NM coastal zone) are fishing off the eastern coast of the island on a small continental shelf and on the slope, targeting red mullet, John dory and nephrops.

WECAFC area -French Antilles

In Martinique more than 1170 vessels are registered (1111 in 2010). They are mainly very small: only 5 vessels were over 12 m LOA in 2008. Most of the fleet fish in coastal waters targeting demersal species (fish and shellfish) or small pelagics, or around set FAD targeting large pelagics (blue marlin and other billfishes, tunas, dolphin fish) The bigger vessels are potters fishing snappers in the French Guiana waters but landing in Martinique.

Around 930 vessels fish around the Guadeloupe and associated islands (954 in 2010). The fleet has the same structure as in Martinique (only 1 vessel over 12 m LOA in 2008) and the fishing patterns are very similar.

WECAFC area - French Guiana

Three fisheries can be identified: the most valuable one is the shrimp fishery, which involves 49 double rig Floridian trawlers. These vessels target brown and pink spotted shrimps all around the year and land their catches locally. Secondly, 41 licensed Venezuelan liners and some French potters coming from Martinique target snappers. Catches of the firsts are partly processed locally, those of the seconds are landed in Martinique. The last fishery is composed of various types of vessels (from pirogues to heavy Brazilian wooden boats). Around 120 vessels are operating from beaches or small harbours located in estuaries and target in very shallow waters (<10-15 m depth) demersal coastal fish with mainly nets (driftnets or set gillnets) or lines.

NAFO area - Saint-Pierre et Miquelon

Less than 20 vessels between 12 and 20 metres LOA are operating along the shore of the St-Pierre et Miquelon islands. They are all opportunistic, using otter trawl and set gillnets for targeting cod, pots for targeting king crab and set longlines for elasmobranchs depending on the time of the year.

Central East and West Atlantic (tunas fisheries)

The French tropical tuna surface fishery operates in the Atlantic Ocean with two different gears respectively pole and line and purse seine. Pole and line fleet is a declining fleet based in Dakar (Senegal) made of small and old vessels (3 in 2009) around 25 m LOA. It seeks major tropical tunas in a region between 10° and 25°N. Purse seine fleet is made of 10 large oceanic vessels (54-81 m LOA), exploiting an extensive zone between 20°N and 15°S and making trips 50 days long. Two modes of capture are considered: sets on free school or sets on natural or artificial aggregating devices. Catches (yellowfin, skipjack and bigeye tunas) are mainly landed in Dakar (Senegal) and Abidjan (Côte d'Ivoire).

Indian Ocean - La Reunion Island

Around 286 fishing boats are registered in this maritime district (279 in 2010). 89% of them are less than 12 m LOA and are operating in the 12 nm around the Island, using handlines, longlines or beach seines. The bigger vessels (around 30, 31 in 2008) are drift longliners targeting mainly swordfish in open sea, during relatively long trips.

Indian Ocean (tunas fisheries)

The French tropical tuna surface fishery in the Indian Ocean operates mainly in the western part of the ocean between 15°N and 25°S. It is made up of 12 large oceanic vessels (60-85 m LOA) seeking major tuna species and making trips 50 days long. Two modes of capture are considered: sets on free school or sets on natural or artificial aggregating devices. Catches (yellowfin, skipjack and bigeye tunas) are mainly landed in Victoria (Seychelles), Antsiranana (Madagascar) and Port Louis (Mauritius).

III.B. Economic variables

The economic variables are collected for vessels in three supra regions:

- the Baltic Sea (ICES areas IIIb-d), North Sea (ICES areas IIIa, IV and VIId) and East Arctic (ICES areas I and II), along with the North Atlantic (ICES areas V-XIV and NAFO areas).
- Mediterranean and the Black Sea.
- Other Regions.

The methods used are identical in all three supra regions.

III.B.1 Data acquisition

(a) Definition of variables

All the economic variables are collected in accordance with the definitions of Appendix VI of the Decision 2010/93/EU. The data sources used are indicated in Table III.B.3.

All economic variables are estimated for segments of the fleet of active fishing vessels. In the case of the inactive segments, according to the Regulation, only the groups of variables Fleet, Capital Value and Number of Enterprises per unit are estimated.

The table below summarises observations on definitions of variables:

Group of variables	Variables	Definitions
Income	Gross value of landings	Value of landed production declared at the first point of sale.
	Direct subsidies	Direct payments such as compensation for cessation of fishing activity, for diesel fuel price increases, etc.
	Other income	Revenue other than that deriving from professional fishing activity using the vessel (e.g. recreational fishing, tourism).
	Income from leasing out quota or other fishing rights	Variable=0 in France
Personnel costs	Wages and salaries of crew	All costs arising from labour: gross wages + social charges paid by employer (employer's contributions).
	Imputed labour of unpaid labour	When the crew on board is equal to 1 (the skipper only), an imputed wage is calculated for the skipper and equals 50% of the net revenue (Gross value of landings – Shared costs).
Energy costs	Energy costs	All costs for the fuel consumed by the vessel irrespective of fuel type. Fuel costs for vehicles on land and lubricants are excluded from this cost figure.
Repair and maintenance costs	Repair and maintenance	All routine expenditure for vessel maintenance and repairs.
Other operational costs	Variable costs	- Ad valorem taxes - Oil - Bait - Food supplies - Ice - Miscellaneous

Group of variables	Variables	Definitions
	Non-variable costs	- Subscriptions to accounts management centres and accounting firms, - Vessel insurance premiums - Sundry tax and duty and other owner's expenses
Capital costs	Annual depreciation	Method of depreciation based on breakdown of assets (Cf. Capital Study Report ref. FISH 2005/03 Final report). Estimation procedures and depreciation method will be described in a specific document.
Capital value	Value of physical capital: depreciated replacement value	Capital value estimated on the basis of the cost of replacing the vessel using prices in N per Capacity Unit derived from the collected data series.
	Value of physical capital : depreciated historical value	Gross fixed assets in the balance sheet of the enterprise estimated on the basis of annual historical prices per Capacity Unit derived from the collected data series.
Investments	Investments in physical capital	Acquisition of fixed assets during the year. Estimation procedures will be described in a specific document
Financial position	Debt/asset ratio	Ratio between total debt and capital value.
Employment	Engaged crew	Average number of employees on board.
	FTE National	= FTE harmonised Number of employees on board who have worked for at least 2,000 hours during the year of reference (Cf. FISH/2005/14).
	FTE harmonised	Number of employees on board who have worked for at least 2,000 hours during the year of reference (Cf. FISH/2005/14).
Fleet	Number	Number of vessels in the population of reference belonging to a level C3 fleet segment.
	Mean LOA	Length overall in metres.
	Mean vessel's tonnage	Average capacity in GT
	Mean vessel's power	Average power of propulsion in kW
	Mean age	Average vessel age in the year of reference.
Effort	Days at sea	Number of days at sea, including days spent steaming to and from fishery zones.
	Energy consumption	Volume (in litres) of fuel consumed in connection with the fishery activity, irrespective of the vessel's engine type.
Numbers of fishing enterprises/units	Numbers of fishing enterprises/units	According to size of owner's fleet (1 vessel, 2-5 vessels, or more than 5 vessels).
Production value per species	Value of landings per species	Value of landings calculated using the prices recorded at the initial point of sale.
	Average price per species	Average price observed at the initial point of sale.

With reference to the item on calculation of the “fuel efficiency of fish capture” in the Commission guidelines, it has to be noticed that this variable cannot be calculated at the required level. It could be calculated at least annually by supra-region and segment.

(b) Type of data collection

On the basis of the information derived from the fleet register and the activity survey, the population of reference can be divided into strata, in conformity with Appendix III and the level C3 of the Appendix V of the aforementioned Decision.

This stratification of the population is established before collection of the economic variables. The stratification of the population in year N-1 is used to select samples. Vessels are reclassified and stratum size adjusted later if necessary.

The type of data collection for each economic variable is described in table III.B.3.

(c) Target and frame population

The population of reference comprises the vessels appearing in the fleet register as of 31 December in year N-1 on the basis of the fleet register history available on 1 June of year N.

Economic variables are collected at fleet segment and supra region level (level C3 in Annex V). The assignment of a ship to a fleet segment and a supra region is based on the following characteristics : vessel size class, dominant gear, and supra region.

The rules for vessel assignment are :

- Vessel size class is defined on the basis of the length overall (LOA).
- The dominant gear is the gear used by the vessel for more than half the time.
- The supra region to which the vessel belongs is determined by the most recent supra region in which it is known to have been active.

The population is segmented according to the observed activity of the vessels during the reference year. (and not on the basis of the gear as identified in the fleet register).

A description of the fleet segments of the population of reference is provided in Table III.B.1.

Frame population: for all segments except inactive vessels, the frame population is the same as the target population.

Clustering will be necessary for segments where the population is under 10 vessels.. Up to now clustering has not been made before data collection but a posteriori at the stage of processing results.

In table III.B.1 no planned sampling size is mentioned for segments under 10 vessels. Table III.B.2 will be provided at a later stage once criteria have been defined.

(d) Data sources

The information sources mentioned below are used to determine the segmentation of the population of reference and to calculate the Appendix VI economic variables for each fleet segment.

- Fleet register (see III.F.1)
- Activity calendar survey (see III.F.1) : The activity calendar survey provides monthly activity schedules that will determine whether a vessel is actively fishing or not. An active vessel is one that is active for at least one day during the year. Vessels with nil activity are grouped together in the “Inactive” stratum.
- Logbooks (see III.F.2)
- Monthly declarative forms / “*fiches de pêche*” (see III.F.2)
- Sales notes (see III.F.2)
- On-site samplings of trip landings and fishing effort (see III.F.2)
- Accounting and non-accounting data : Accounting and non-accounting data are collected from a sample of vessels belonging to the population of reference. These data are collected by Nantes University, which makes use of its RICEP network (*Réseau d’Information et de*

Conseil en Économie des Pêches / Network for information and consultancy in fishery economics – University of Nantes). This information is used to assess the economic indicators defined in Appendix VI. A detailed description is provided in **Annex 1** of the present document.

- Economic data survey : Survey data are collected from a sample of vessels belonging to the population of reference. These data are collected by Ifremer from skippers using a questionnaire. Data collected are used to assess the economic indicators defined in Appendix VI. A detailed description is provided in **Annex 1** of the present document.

Information on data sources used for each variable is provided in table III.B.3.

(e) Sampling frame and allocation scheme

The economic variables are collected from two independent samples, each covering approximately 15% of the population, in order to ensure that the total sample resulting from the merging of the two initial samples covers approximately 20 to 30% of the population of reference.

The first sample is composed of vessels in the population of reference belonging to a fishing enterprise registered with an accounts management centre. Vessels are selected in each stratum of this population and this first sample is formed by retaining those vessels for which accounts information is available for the previous 12 months (at the date of collection) and those vessels that have been active without lengthy interruption over that same period. The data collected from this initial sample are accounting and non-accounting data. The detailed description is provided in **Annex 1**, part 1 of the present document.

In order to ensure that the sample is representative of the population of reference as a whole, and especially of the vessels operated by enterprises not registered with an accounts management centre, a second sample is formed. A random selection is made of vessels in each stratum of the population of reference, avoiding inclusion of vessels already in the first sample. The number of vessels selected in strata is determined by means of a Neyman-optimised allocation. The data collected from this sample derive from the economic data survey. The detailed description provided in **Annex 1**, part 2 of the present document.

The economic data sample is the outcome of the merger of these two sub-samples. When they are merged, care is taken to ensure that the two samples do not overlap and any duplicates are eliminated. This sample will therefore be representative of the whole population of reference. Aggregation of the data derived from the samples is possible due to the independence of the processes for the building the samples.

At this stage, the planned sample rate shown in Table III.B.1. is based on the results of the 2009 data collection programme and is defined as follows :

- for segments with less than 10 vessels, no planned sample.
- segments where the achieved sample rate was under 10 %: 10% planned sample rate.
- segments where the achieved sample rate was between 10 and 30 %: 20 % planned sample rate.
- segments where the achieved sample rate was above 30 %: 30 % planned sample rate.

Finally only a few segments are collected exhaustively.

III.B.2 Estimation

The economic variables are estimated for each segment using Horvitz-Thompson estimators. Stratified Horvitz-Thompson estimators are used for national estimates.

Imputed values are assigned to non responses and inconsistent answers for some important variables. The objective is to have a complete set of indicators for each vessel of the economic sample. The

imputation method is specific for each variable and each type of vessel. The calculation methods for these estimators are set out in **Annex I**, part 3 of the present document.

Where estimators are estimated from a sampling procedure, a level of precision is calculated using an analytical method. This method used to calculate precision levels is set out in **Annex I**, part 3 of the present document.

III.B.3 Data quality evaluation

Quality checks are carried out when data are collected and are applied to the estimation results.

Validation of accounting and non-accounting data is checked by :

- test of consistency: cross-validation of information from tax declarations and sales data.
- test of homogeneity: certain enterprises may present atypical values for a range of reasons. Homogeneity testing can identify indicators deviating significantly from the average for the fishery segment concerned.
- test for continuity: the differences calculated each year between observed values and “theoretical” values obtained on the basis of previous trends also allow any anomalies to be highlighted where a predetermined threshold is breached.

Within the DCF 2012 programme, the socio-economic data collection will be improved especially for the collection of data from the accountancy of fishing companies.

Thus, several objectives must be addressed to improve statistical quality of data collection :

- 1/ To identify bias of sampling for each segment of the DCF
- 2/ To reduce the number of non-responses for indicators collected

To achieve these goals, the University of Nantes will be pressed on its principal partner of the data collection for artisanal fisheries : the "Centre de Gestion de la Pêche Artisanale" (CGPA).

Consequently, CGPA will have to deploy several specific actions for this programme :

- Recovery of the “not members” vessels in order to improve the statistical coverage of the sample
- Work of expertise for the companies with several vessels
- Work of expertise for joint ownerships
- Work of expertise for the companies having an atypical activity

Data collected from the economic data survey are validated vessel by vessel and variable by variable in different steps :

- 1) tests of consistency between the questionnaire and the data within the database allowed by a specific functionality included in dedicated software.
- 2) tests of quality/consistency/continuity between the variable per vessel or indicators derived from the variable and different kind of reference values depending on specific vessel criteria (external sources available, historical reference values or confidence intervals...).
- 3) qualification of each variable per vessel according to the results of the test n°2 and based on international typology.
- 4) reassignment with the correct data written in the questionnaire or available through direct external source. If necessary, imputation of the variable.
- 5) an overall validation per vessel is made in order to check the consistency between all the variables (including imputed variables) at individual level. In rare cases, the questionnaire is discarded.
- 6) statistics, trends and precision levels are estimated, verified and interpreted for each variable and each segment to end the validation process.

Regarding consistency of data from the economic data samples, a national working group meets regularly to ensure the consistency of information derived from the economic data samples.

Endly, concerning validation of estimation calculations, comparison of estimators with national production and employment aggregates and analysis of trends to assess the consistency of estimators are performed.

III.B.4 Data presentation

Schedule for the collection and availability of the 2011 economic variables (data collection in 2011 will relate to 2010).

Data availability	Period
Determination and stratification of the population of reference in 2010	October 2011
Collection of accounting and non-accounting data	March to December 2011
Collection of data in the economic survey	February to July 2011
Availability of final data for 2010	ATL and MED: January 2012 Other regions: March 2012

Schedule for the collection and availability of the 2012 economic variables (data collection in 2011 will relate to 2011).

Data availability	Period
Determination and stratification of the population of reference in 2011	October 2012
Collection of accounting and non-accounting data	March to December 2012
Collection of data in the economic survey	February to July 2012
Availability of final data for 2011	ATL and MED: January 2013 Other regions: March 2013

Schedule for the collection and availability of the 2013 economic variables (data collection in 2013 will relate to 2012).

Data availability	Period
Determination and stratification of the population of reference in 2012	October 2013
Collection of accounting and non-accounting data	March to December 2013
Collection of data in the economic survey	February to July 2013
Availability of final data for 2011	ATL and MED: January 2014 Other regions: March 2014

Results will be presented for segments with at least 10 vessels. It is planned to cluster segments under 10 vessels at the stage of processing the results.

III.B.5 Regional coordination

France considers that coordination on data collection methods has to be made at the supra-region level. France supports RCM recommendations on regional coordination as regards :

- the need for an annual SGECA-DCF meeting responsible for methodological issues, with the TOR proposed by SGECA 09-02.
- the proposal to set up a training workshop on the estimation of capital value and capital costs and unpaid employment
- the proposal to organise a workshop on the methodology of calculation of unpaid labour
- the harmonisation of clustering techniques and principles

III.B.6 Derogations and non-conformities

Application for derogation concerning calculation of a variable not applicable to France : a derogation is requested for the variable “fuel efficiency of fish capture”, which cannot be calculated at the required level.

This variable cannot be calculated by metier and quarter given that the variable fuel consumption is not available at this level. The information source for fuel consumption is the collection of economic data, which is realised by sample surveys in order to provide annual indicators by fleet segment and supra-region, according to the Regulation requirements. The sample sizes and precision estimations do not allow to provide this indicator at a lower level and for infra-annual periods.

III.C. Biological - metier-related variables

General considerations applicable for North Sea & East Arctic, North Atlantic and Mediterranean

The variables collected in this section meet DCF requirements set out in B.B1.1 (1) and (2) of the implementing regulation 2010/93/EU. The task is to evaluate the length distribution of the species in the catches and discard volume by quarter. The data are collected by metier as defined in Appendix IV and for the fish stocks defined in Appendix VII. Additionally, a distinction will be made during sampling operations between the species contained in landings recorded by genus and quantified at international level (megrim, monkfish, elasmobranches, tuna).

The codification and naming convention used are those given by the 5th Liaison Meeting (2009) updated by the RCMs 2011. The information on fishing effort (days), total landings (tonnes) and value of landings (euros), used for ranking has made use of all sources of statistical data available (sales notes, logbooks, monthly declarations), along with the sampling data (economic sampling, sampling of landings and activity calendars). Activity calendars (see section F) are the key source for distinguishing between metiers since fishermen are exhaustively asked for information on the precise characteristics of their gears and targeted species throughout the year. This approach adheres very closely to the definition of target species as set out in the FAO glossary. The combination of all sources covers all sectors of the French fishing fleets landing into France and abroad, including exhaustive data collected for <10m vessels.

Métiers to sample were selected following the ranking system described in Decision 2010/93/UE, Chapter III B.B1.3.(1)(b). The information provided Table III_C_1 is the annual average over the years 2007 and 2008. The vessels LOA classes were not included in the ranking system, but used for splitting some metiers, where relevant. The gear mesh size were recorded for about 70% of the recorded trips, thus the unknown mesh size were allocated to the *pro rata* of the same gear in the same region.

The sampling strategies enabling estimation of the volumes of discards and catch breakdowns by length and age for all metiers identified in Table III_C_1 are detailed in Table III_C_3. The general rule is the use of concurrent sampling both at sea and at auction applying the systems defined by the implementing Regulation. Concurrent sampling on board professional fishing vessels involves firstly an estimation of the weights of all commercial species (Groups 1, 2 and 3), and secondly measurement of all species in groups 1 and 2, this applying to both discarded and retained fractions (Scheme 1). Concurrent sampling at fish auctions involves measuring all species in group 1, followed at regular intervals by the species in groups 1 and 2 (Scheme 3). The information collected at auction is invariably supplementary to the data collected at sea, for all purposes of its use in scientific working groups. Several cases are envisaged:

- metiers producing substantial quantities of discards are sampled at sea. Where the sampling effort is insufficient to guarantee the use of the data in stock evaluation working groups, extra information will be provided by auction sampling, or even specific sampling of certain fish stocks.

- the strategy involving the sampling of commercial categories at auction is retained only in the event that the fish is sorted into commercial categories on board the vessel and if those categories do not change at auction. In all other cases, it is the entire catch from the trip of the metier concerned that is sampled.
- metiers producing few or no discards are sampled at auction.

The protocol for sampling at sea emphasises data quality and provides for:

- complete sampling of fishery operations at sea for all species (all species of fish and all commercial mollusc and crustacean species) and for both discarded and retained fractions. This approach needs to be adjusted to take account of constraints in the field, but the general rule is to prefer quality to quantity, i.e. perfect sampling of fishing operations at the expense of the total number fishing operations sampled for a trip.
- real time monitoring of the sampling plan for each metier to permit any necessary readjustments to be made during the year.
- the submission of all observers to the same observation rules contained in a unified sampling protocol¹ to ensure high quality for the data collected on board.

Table III_C_2 provides the full view on metiers merging and split operated for the period 2011-2013. These merging and split are in line with recommendations from RCMs and will be the subject of further consistency analysis.

Special consideration for on-board observers

The full evaluation of the extensive 2009 on-board sampling programme has been done very recently. This analysis addressed the main issues regarding on-board observation and proposed plan for the future (see the salient points of this document in **Annex 2 and 3**). The results of this analysis were only available in September 2010, i.e. after the RCMs and SGRN evaluation. The French approach (postponing the description of the sampling plan until the outcome of the scientific analysis and after receiving the recommendations from RCMs and SGRN) was seen as positive by RCMs and SGRN but not recommendable as a way forward in the future, because of the resulting amount of work demanded during the RCM sessions.

In response of the recommendations by RCMs, SGRN and the European Commission, the new sampling plan for on-board observers has been laid down in the NP tables (III.C.3 and III.C.4). The methodology used to merge metiers is described in **annex 11**, and the methodology to calculate the number of trips to sample in order to reach the DCF precision was as follows :

A selection of species is done for each group of metiers (after the merging procedure) by taking all species accounting for a cumulative 90% of the discards. For each of these species, a bootstrap is carried out by replicating 200 times a number of samples ranging from 10 to 2*n samples by steps of 10. A number of trips to sample is then derived from this bootstrap for achieving a precision (CV) of 10, 20 and 30% for each of the retained species. The bootstrap being done on fishing operations taken as independent samples, the calculated variance is underestimated, but the method allows a relative comparison of metiers and species within metier. A table as below is then sent to regional experts in order to determine a compromise number of samples for a given metier, knowing that the procedure provides a different number of trips for each species concerned. Eventually, the table III.C.4 is filled with the compromise number of trips given by the expert and completed with the RCM recommendations, if needed.

1

http://www.ifremer.fr/sih/affichagePageStatique.do?page=collecte_donnees%2Fobservations_mer%2Fdocumentation%2Fdocumentation_obsmer.htm

ICES divisions	Metier level 4 Species	CV = 10%	CV = 20%	CV = 30%
VIIa / VIIf / VIIg / VIIh	OTB_DEF All species	1	1	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Aspitrigla cucu</i>	9	2	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Melanogramm</i>	33	5	2
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Scyliorhinus c</i>	201	3	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Trisopterus m</i>	6	2	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Capros aper</i>		11	3
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Leucoraja nae</i>	48	5	2
VIIa / VIIf / VIIg / VIIh	OTB_DEF Triglidae			
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Chelidonichthys lucernus</i>		64	6
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Trachurus trachurus</i>		14	3
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Lepidorhombu</i>	6	2	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Lophius pisca</i>	23	3	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Merluccius mē</i>	22	3	2
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Eutrigla gurnardus</i>		112	5
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Lophius budei</i>	8	2	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Trisopterus luscus</i>			18
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Gadus morhua</i>		25	4
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Maja brachyd</i>	1	1	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Dicentrarchus</i>	1	1	1
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Nephrops norvegicus</i>			
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Merlangius merlangus</i>		18611	8
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Pleuronectes platessa</i>		651	7
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Sardina pilchardus</i>			
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Solea solea</i>			
VIIa / VIIf / VIIg / VIIh	OTB_DEF <i>Cancer pagurus</i>		120	6

Table : Number of trips to achieve CV of 10, 20 and 30% by species for the trawlers targeting demersal species in the Celtic Sea. Highlighted is the figure used as a compromise number of trips to sample.

From the above table, 24 trips have been chosen (line 33 of Table III.C.4), as this number of trips allows reaching the precision of 20% CV for all species but *Chelidonichthys lucernus*, *Eutrigla gurnardus*, *Maerlangius merlangius* and *Cancer pagurus*. This table also shows that reaching the precision level for one more species would bring the total number of trips to sample to 64, which is a large increase in cost regarding the expected gain. Notice also that following RCM NA recommendation, the VIIa uptake of the French metier OTB_DEF was reallocated to the Celtic Sea.

The sampling scheme was considered as final after contrasting with RCM 2010 recommendations, which are summarised below:

RCM 2010 recommendations	Actions implemented by France
RCM NS&EA recommends France to allocate sea-sampling effort to gillnets and trammel nets targeting demersal fish and to sample these metiers for discards	40 trips of both types of nets, proportionally to their relative importance.
RCM NS&EA recommends France to allocate sea-sampling effort to OTB_DEF_100-119_0_0 and to sample this metier for discards	All trawling metiers have been merged, and 40 trips have been planned proportionally to the relative importance of each of metiers.
RCM NS&EA recommends France to allocate sea-sampling effort to OTB_DEF_70-99_0_0 and to sample this metier for discards	
RCM NS&EA recommends France to allocate sea-sampling effort to OTB_MOL_70-99_0_0 and to sample this metier for discards	

RCM NA 2010 recommends France to allocate precisely the sampling at-sea before SGRN June meeting, taking into considerations the recommendations given per fishing ground and metier in section 4.1.5	The sampling plan could not be ready by June, but is now translated into Table III.C.3 and III.C.4 respecting all the RCM recommendations by fishing ground and metier.
RCM 2011 recommendations	Actions implemented by France
RCM NA recommends MS to check in their NP proposal 2012 that sufficient coverage of deep-water fisheries on-board sampling is planned, in order to meet the EWG needs.	France, in line with Council Reg. 2347/2002 on deep-sea fisheries, is sampling on-board 5% of the total trips (40 out of 800), and will continue to do so.
RCM recommendations on filling templates (concurrent sampling metier description sheets), uploading data in Regional Database, searching for international coordination, follow-up of naming conventions,	France acknowledges that regional coordination is the way forward, and will continue its endeavour to follow such recommendations.

Special consideration on Chondrichthyans (sharks, rays and chimaeras)

In the last decades the populations of many Chondrichthyan species have undergone severe declines and some of them are now on the brink of extinction. A better understanding of the biology of the species is necessary to improve the stock assessment. To provide a good evaluation of the effect of the fisheries on those species and to get better knowledge for those species it is necessary to study their biology and life history through an ecosystemic approach. The data of length/weight/sex ratio/maturity/distribution/abundance will be obtained during surveys IBTS (IBTS-1stQ), EVHOE (WIBTS-4thQ) or MEDITS and in the French fishmarkets.

A second approach focused on the specific fish identification in fishmarket and review of fishery statistics will establish the implication of mislabelling on fishery management, trade monitoring and conservation actions. At present many Chondrichthyan species are mislabelled, masking the collapse of species. To estimate the impact of this matter on the Chondrichthyans, a large sampling of about 100000 individuals is necessary into the 42 French fishmarket's places. 2011 will serve as a testing year, and the full estimation will start in 2012.

North Sea (IIIa, IV and VIId) & East Arctic (I and II)

NS-III.C.1 Data acquisition

(a) Codification and naming convention

See general section

(b) Selection of metiers to sample

See general section for the method used.

North Sea and Eastern Channel

The metiers selected for sampling are the following:

- **DRB_MOL_0_0_0** : Scallop dredging. The sampling will be specific to this species, since any by-catch (flatfish) or discards is very limited. In line with the recommendations of RCM NS&EA 2008, 2 trips have been observed at sea in 2009 for comparison with identical observations by the United Kingdom. The preliminary results show very limited discarding (see RCM NS&EA 2009; To be further discussed at the 2010 RCM NS&EA).
- **FPO_CRU_0_0_0** : Pots for small and large crustaceans. Seasonal activity, this metier is very diluted all along the coast, and the landings are seldom presented under auction. This metier was not selected by the ranking system in 2009 because it was initially split into two components (small and large crustaceans). France will sample 8 trips on shore.
- **FPO_MOL_0_0_0** : Pots for whelks/cuttlefish. A derogation was required in the programme 2009-2010, but SGRN recommended more information before stating on the demand². France will programme some samples for length on cuttlefish from pots during the fishing season. RCM NA 2011 agreed that potting for whelk can be sampled onshore only.
- **GTR_DEF_<120_0_0** : Mainly trammel net for flatfish. The discards have already been estimated as representing less than 10% of the catch (if account is taken only of the species listed in Appendix VII). Particular attention will be paid to appropriate sampling of sole and plaice in VIId necessary to the evaluation of these stocks.
- **GTR_DEF_>=120_0_0** : Mainly set gillnets for gadoids. The discards have already been estimated as representing less than 10% of the catch (if account is taken only of the species listed in Appendix VII).
- **LHP_DEF_0_0_0** : Handline for sea bass. This metier was not selected by the ranking system because it corresponds to one of the weakest effort values in the selection. Given the importance of the sea bass as a major stock fished in the area, France will programme some samples for length on sea bass from hand liners.
- **MIS_DEF_0_0_0** : More investigation needs to be done on the importance of the different gears composing this “left-over” metier. The sampling for commercial categories of a fixed list of species (flatfishes, gadoids, red mullet, sea bass, elasmobranches) will allow a partial coverage of this component.
- **OTB_DEF_100-119_0_0_POK** : trawling for saithe. A sampling effort will be implemented at the rate of two trips per quarter, supplemented by specific auction sampling.

2 - SGRN-09-01 : Derogation for sampling metiers fishing mostly one species not listed in Appendix VII of the DCF (e.g. DRB_MOL targeting *Pecten maximus*, FPO_MOL targeting *Buccinum undatum* and GNS_CRU targeting *Maja squinado*, MISC_SWD, LHM FIN VIIe and VIII). The argument is small catches but in tables is selected by effort. Hand lines have probably negligible discards but there is no description of the fishery and what species is directed to. SGRN requests more information to be sought from the MS

- **OTB_DEF_100-119_0_0** : trawling for gadoids in the North sea. Sampling by commercial categories of a fixed list of species (see MIS_DEF_0_0_0).
- **OTB_DEF_70-99_0_0 (<18m)** : coastal trawling for gadoids, flatfish and, seasonally cuttlefish. The sampling will combine observation at sea and at auction since the catch species in group 1 are numerous and there is a high level of need for working groups evaluating these stocks.
- **OTB_DEF_70-99_0_0 (>18m)** : offshore trawling for gadoids. An identical strategy to that adopted for coastal trawling with greater effort devoted to observation at sea.
- **OTM_SPF_32-54_0_0 (>18m)**: relates essentially to freezer trawlers targeting mackerel (*Scomber scombrus*), herring (*Clupea harengus*) and horse mackerel (*Trachurus trachurus*). This metier has a small East Channel component but it is active in numerous fishing grounds. Under the French flag, this fleet lands its catches entirely in Holland. A bilateral agreement is in preparation with the Netherlands, and should be finalised during the RCM NA 2010. (2) Smaller vessels (18-30m) are also seasonally active in this metier (mackerel, herring, sardine) in conjunction with demersal bottom trawling (OTB_DEF_70-99_0_0). The sampling protocol for the latter will enable information to be obtained on the pelagic component.
- **OTM_SPF_32-54_0_0 (<18m)**: coastal trawling targeting small pelagics.
- **SSC_DEF_0_0_0** : Danish seine for demersal species. This metier appeared recently and will be monitored on-shore (see MIS_DEF_0_0_0).
- **TBB_DEF_70-99_0_0**: beam trawling targeting flatfish. This metier is declining significantly largely because of new official rules banning certain types of fishery gear similar to beam trawls.

Eastern Arctic

Two metiers are selected by the ranking system.

- **OTB_DEF_>=100_0_0** : this metier relates mainly to large freezer trawlers operating in areas I and II (EU waters and Norwegian waters) and targeting gadoids. Two sub-metiers level 7 can be identified :
 - OTB_DEF_100-119_0_0_POK targets mainly saithe in division IIa. It is an extension of the same metier sampled in sub-areas IV and VI which are the main fishing zones (see North Sea). No particular sampling scheme will be applied for IIa, as accepted by RCMs in such cases. Observers on board can collect data if vessels are operating in these northern areas.
 - OTB_DEF_>=120_0_0_COD (meshsize to be confirmed) targets cod in zones I and IIb. Vessels perform trips over 1 month long and process their catches immediately on board. Then access to fish for biological issues is very difficult and to carry out sampling by observers would be too expensive regarding its scientific interest (French cod quota is less than 0.5% of the international TAC). A derogation to dispense with sampling was granted last years according to SGRN advice (see section NS-III.C.6). France requests again a derogation for NP 2011-2013 period.
- **OTM_DEF_32-54_0_0** : this metier targets blue whiting. Only one big vessel is fishing in all the northern Atlantic division, processing the catch in surimi base. Metier related variables are collected through a self sampling programme, which will continue on the period 2011-2013 (see also section NA-III.C.1).

NAFO zone (3PS)

Vessels based in Saint Pierre and Miquelon will be sampled only for cod (*Gadus morhua*). The relevant metiers in this context are those operated with trawls, longlines and gillnets.

(c) Type of data collection

In theory, the type of data collection should be a probability based sampling, but the reality is more complex. For on-board sampling, a list of vessels by metier is provided to the samplers, so that they can pick in the list at random for sampling. The problem of on-board observers is the difficulty to get on-board the chosen vessel (administrative and security issues, refusal from the master, ...).

For auction sampling, a systematic sampling is applied, which consists in providing a monthly or quarterly sequence of metiers to sample. The choice of the auctions depend on their importance as regards the landings of the given metier. The trips to the market is often predefined (every Wednesday, twice a week, ..) for each of the auctions. The outcomes of the recent WKMERGE (2010) will be discussed in a national workshop with the objectives of improving by all means the randomness in the sampling process.

In Boulogne/Mer auction, the concurrent sampling is impossible due to obstacles on the field such as reduced time for sampling, non presentation of the full landings, etc.. In this auction, commercial categories are sampled for a fixed list of species (gadoids, flatfish, elasmobranches, red mullet, sea bass).

In consequence, and until further improvement is made, the type of data collection is considered as a non probability based sampling for on-board observer and probability based sampling for auction sampling.

(d) Target and frame population

For all metier variables, the target population is defined in the DCF as the total number of fishing trips, of a given metier, in a given time period, in a given fishing ground. The vessels considered are those listed in the fleet register, including all vessels <10 m.

The sampling population is significantly reduced from the target population :

- for on-board observers, the sampling population is the population of vessel having the administrative authorization to embark an on-board observer. This authorization accounts for the capacity of the vessel to hold one extra person on-board in terms of security, and is given only once a year at the moment of the annual security visit, and upon request from the skipper. As this process is relatively recent, a large fraction of the vessels do not have this authorization, and are thus, *de facto*, removed from the sampling population.
- vessels systematically refusing on-board observers are also removed from the sampling population. They are relatively easily aware that the authorization to embark an observer must be demanded on a voluntary basis at the beginning of the year. This behaviour is likely to lead to bias in the estimates.
- for auction sampling, the sampling population is the population of vessels presenting their landings under an auction. Going through an auction is not mandatory under French law, only weighting all landings and presenting sales notes is. The major cause for bias are vessels presenting only part of the landings under the auction, and the remaining being sold outside..

The sampling frame is given in Table III_C_4. The metiers level 6 are kept as such for on-board observation, since, thanks to the activity calendar (see section III.F), the list of vessels operating with a given gear, targeting a given assemblage of species during a given period is known *a priori*. For auction sampling, only the gear family is used as a frame.

(e) Sampling stratification and allocation scheme

For on-board observations, no stratification nor allocation scheme is proposed (see general section), only the potential sampling intensity that France is able to carry out in the Eastern Channel and North Sea. France will seek for more regionally integrated sampling plan during the forthcoming RCM NS&EA.

For auction sampling, a proposal is made (Table III_C_4 and III_C_3), but will be reconsidered at the light of the RCM recommendations for on-board observers.

NS-III.C.2 Estimation procedures

From 2011 onward, France will shift all estimation procedure for working group purpose to COST procedures. All tests have already been carried out and comparison with the former software has been made. The computer hosting the former central software will be stopped by the end of 2010 (see section VI). The new central database *Harmonie* hosting both auction and on-board samples will allow the exportation of these data into COST format. A system for archiving COST scripts and aggregated data by stock and year is currently under investigation.

For discards estimates, the outcome of the ICES WKDRP (ICES, 2007) will be used. All relevant procedures are available in the COST packages (COST final report, 2009).

NS-III.C.3 Data quality evaluation

Three levels of control are implemented. The first level happens at the moment of populating data in the central database *Harmonie*, where a number of consistency control are proposed. If a data does not pass the control, the operator is informed and must enter a modified value. A special attention is given to the validation of the data by experienced staff, which corresponds to the 2nd level of quality evaluation. This validation is plodding and time consuming, but is the condition for having qualified datasets. The third level of control is done at the moment of data exploration and raising with the COST tools. If an error is detected, the correction will have to be made in the *Harmonie* database and the dataset re-exported for processing.

The at-sea sampling scheme covers vessels of 10m and under, however in practice it is difficult to operate on-board smaller vessels, but the threshold (approx. 7m) allows for estimating the sampling bias as acceptable. A dedicated website has been developed in order to follow in real time the development of the sampling plan and archiving the refusals and their reasons. This will allow for a better evaluation of the bias, together with the follow-up of the WKACCU recommendations. The COST tools will be applied from 2010 onwards, and may lead to revisions to sampling levels by fleet segment to address any issues of poor precision.

Potential sources of bias in the on-shore sampling scheme could arise from non-accessibility of some landing sites or any departures from representative sampling caused by staffing or other logistical problems. France will develop on the same website as for the on-board sampling for following on a real-time basis the implementation of the sampling plan. In order to quantify the bias, France will be working towards applying the procedures outlined in WKACCU, and implemented using COST software, as part of the process of validating the data. Length frequencies of retained fish sampled ashore and at sea from the same métiers and fishing grounds will be compared to investigate systematic differences that could indicate bias in one or other of the sampling schemes.

Written sampling protocols are available to the sampling staff :

- Guidelines for measuring fish : <http://archimer.ifremer.fr/doc/00001/6237/7655.pdf>
- Operating procedure for on-board observers : http://www.ifremer.fr/sih/affichagePageStatique.do?page=collecte_donnees/observations_mer/documentation/documentation_obsmer.htm

Additionally, since the quality of the data is highly dependent on observer qualification, effort will be devoted to providing training in this area (explanation of protocols, recognition of species, fishing gear), and also to the validation of computer data entry.

NS-III.C.4 Data presentation

Following the availability of the raising variables (see section III.F) at N+3 months, the estimates of total discards and quarterly length and age structures will require an extra month, so are expected to be available at the end of April of year N+1.

NS-III.C.5 Regional coordination

French sampling programmes for 2011-2013 will be amended in the light of the outcomes from the North Sea & East Arctic meetings.

A bilateral agreement has been signed with the Netherlands for using their sampling of the metier OTM_SPF_32-54_0_0. This agreement is presented in **Annex 7**.

Following recommendations from the North Sea & Eastern Arctic RCM, a collaborative system of otolith collections for VIIId sole has been established between the UK, France, and Belgium and implemented since 1 January 2008.

RCM NS&EA recommendations	Actions implemented by France
RCM NS&EA recommends MS to use the average landing figures over the years 2007-2008 as the basis for ranking métiers within the NP 2011-2013	Done
The RCM NS&EA recommends MS to refer to the table in Annex 5 of this report for elaborating maturity sampling programmes, when drafting their National Programme proposals 2011-2013	Done
RCM NS&EA recommendations 2011 RCM NS&EA recommends that all MS respond to the data call in 2012 from the chair of RCM NS&EA and load their data to FishFrame or make them available in the FishFrame format. This data call will include Commercial Landings, Commercial Effort and Commercial Samples records for 2010 and 2011.	France will participate in the steering committee of the Regional Data Base and in the FishFrame workshops in order to be involved in the implementation of the RDB NS&EA.

NS-III.C.6 Derogations and non-conformities

OTB_DEF_>=100_0_0 relates to large freezer trawlers operating in areas I and II (EU waters and Norwegian waters). Moreover, the catch volumes for the main target species are minor compared with international catches (see Table III_E_1). Lastly, the cost of sampling such metiers is too high in relation to the expected level of effectiveness. For all these reasons, France requests a derogation allowing it to dispense with sampling these metiers.

Excerpts of SGRN-09-01. Bilbao, Spain, 9th to 13th February 2009:

OTB_DEF_>=100_0_0 LARGE FREEZE TRAWLERS WITH RELATIVE SMALL CATCH AND HIGH SAMPLING COSTS; SGRN supports this Derogation.

Considering the volume of the French cod catch (around 3175 tonnes) nonetheless significant, EU did not accept to grant again the derogation for sampling the metier OTB_DEF_>=100_0_0 for the 2011-2013 NP period. Then France will try to implement in 2011 a self-sampling programme for monitoring the fleet component targeting cod in I&II regions (métier OTB_DEF_>=120_0_0_COD) in order to collect required metier related variables (length structures of retained and discarded fractions of the catch). Table III_C have been updated in that way.

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

NA-III.C.1 Data acquisition

(a) Codification and naming convention

See general section

(b) Selection of metiers to sample

See general section. The metiers selected for sampling are the following:

Overlapping several fishing grounds:

- **GNS_DEF_>=100_0_0** : Deepwater gillnets targeting hake (*Merluccius merluccius*) and monkfish (*Lophius spp.*). Geographical coverage includes several different fishing grounds (V, VI, VIIbck, VIIhgij, VIIe).
- **OTB_DWS_>=100_0_0** : Trawling targeting deepwater species. Like the preceding metier, this metier covers a number of fishing grounds (V, VI, VIIbck, VIIhgij). Sampling will involve observation at sea combined with self-sampling.
- **OTM_DEF_32-54_0_0** : Pelagic trawling for blue whiting (*Micromesistius poutassou*). This metier covers several NA fishing grounds (V, VI, VIIbck, VIIhgij). Given the duration of the trips involved (approximately 3 months) and the single-species nature of this fishery, the vessel in this metier, which serves the manufacture of surimi base, will be monitored on the basis of self-sampling. This monitoring did in fact begin in 2008.
- **OTM_SPF_32-54_0_0 (>18m)** : Pelagic trawling for small pelagics. This metier, which targets herring (*Clupea harengus*), horse mackerel (*Trachurus trachurus*) and mackerel (*Scomber scombrus*) covers several fishery zones including IV and VIId. Catches are landed in Holland and are sampled at auction by the Dutch. A bilateral agreement is in preparation with the Netherlands, and should be finalised during the RCM NA 2010.

Western Scotland and Western Ireland

- **LLS_DEF_0_0_0** : Deep longline fishing. A RCM arrangement will be fit with Spain as all vessels are landing in Spanish Basque Country harbours.

Western Ireland

- **OTB_CRU_70-79_0_0** : Nephrops trawling west of Ireland (VIIbck). This metier, targeting the Norway lobster (*Nephrops norvegicus*) on the Porcupine Bank will be sampled exclusively by observation at sea.
- **PTM_LPF_100-119_0_0** : Pelagic pair trawling targeting albacore tuna (*Thunnus alalunga*). Sampled at sea and at auction.

Celtic sea, Irish sea and Western Ireland

- **OTB_DEF_100-119_0_0 Dem.** Trawling for whiting (*Merlangius merlangius*) and cod (*Gadus morhua*). Metier sampled both at sea and at auction.
- **OTB_DEF_100-119_0_0 Bent.** Trawling for benthic fish, megrim (*Lepidorhombus spp.*) and monkfish (*Lophius spp.*). Metier sampled both at sea and at auction.

Celtic sea, Bay of Biscay and Western Channel

- **FPO_CRU_0_0_0 in VIIe** : Large crustacean pots (*Homarus gammarus*, *Cancer pagurus*). This metier, which is not productive of discards, will be sampled exclusively at auction.

Celtic sea

- **GTR_DEF_>=220_0_0** : Trammel net targeting monkfish (*Lophius spp.*). Metier sampled under auction.
- **OTB_CRU_70-79_0_0** : Trawling for Norway lobster (*Nephrops norvegicus*) in the Celtic Sea will be sampled both at sea and at auction. This metier has also been chosen for a pilot study devoted to measures for the reduction of discard levels.

Western Channel

- **DRB_MOL_0_0_0** : Dredge for scallops. The sampling will be specific to this species, since any by-catch (flatfish) or discards is very limited.
- **FPO_MOL_0_0_0** : Pots for whelks and pots for cuttlefish. Derogation requested since these species are sampled by local Fisheries Organisations and Universities and data may be available for scientific purposes.
- **GTR_DEF_<120_0_0** : Trammel nets for demersal (monkfish, pollack, red mullet, sole). Sampling will be carried out under auction..
- **LLS_DEF_0_0_0** : Liners targeting conger eel (*Conger conger*) and seabass (*Dicentrarchus labrax*). No discards – then sampling only at auction.
- **OTB_DEF_70-99_0_0** : Coastal trawling essentially targeting sole (*Solea vulgaris*) and cuttlefish (*Sepia officinalis*). This metier, which is important in the west English Channel, will be sampled jointly at sea and at auction.
- **OTB_MOL_70-99_0_0** : Trawling for cuttlefish (*Sepia officinalis*) seasonally and for squid (*Loligo vulgaris*) by somewhat larger vessels all year round at the same time as other non-quota species (e.g. *Aspitrigla cuculus*, *Mullus surmuletus*). Sampling will be based solely on observation at sea.
- **PTM_DEF_70-99_0_0** : Pair trawling for seabass in the Western English Channel and the Northern Bay of Biscay. This metier will be sampled at sea at the minimum intensity required by the DCR, given that other samples will be provided by sampling at sea under the Regulation concerning cetaceans.

Bay of Biscay

- **DRB_MOL_0_0_0** : Dredge for scallops. Many small banks sparse along the coast and with specific monitoring. No landings sampling – derogation requested.
- **GTR_DEF_>100_0_0_Inshore** : Mainly trammel nets for sole and sea bass. Sampling under auction and at sea.
- **GTR_DEF_>100_0_0_Offshore** : Gillnets targeting hake (*Merluccius merluccius*), monkfish (*Lophius spp.*), sampling under auction; few discards but sampling at sea will be also provided by observation of cetaceans (not covered by DCF funding).
- **GTR_DEF_<100** : Set gillnets and trammel nets targeting sole and divers demersal species. Sampling under auction and at sea.
- **LLS_DEF_0_0_0** : Liners targeting conger eel (*Conger conger*) and seabass (*Dicentrarchus labrax*). No discards – then sampling only at auction
- **OTB_CRU_>=70_0_0_North and OTB_CRU_>=70_0_0_South**. Trawling for Norway lobster in the Bay of Biscay, producing discards: sampling at sea and at auction. This metier has two components, one in the northern Bay of Biscay and the other in the southern Bay of Biscay.

- **OTB_DEF_>=70_0_0 (<18m)** : Trawling for sole (*Solea vulgaris*), hake (*Merluccius merluccius*), and monkfish (*Lophius spp.*) in the Bay of Biscay; produces discards; sampling at sea and at auction.
- **OTB_MOL_>=70_0_0** : Trawling for cuttlefish (*Sepia officinalis*) with net mesh size subject to derogation that may generate discards; sampled at sea in the spring.
- **PTM_SPF_32-54_0_0** : Pelagic trawling for anchovy (*Engraulis encrasicolus*) and sardine (*Sardina pilchardus*). Metier sensitive to the regulations governing anchovy fisheries. Will be monitored at auction and may receive samples at sea under other Regulations (not covered by DCF funding).
- **PS_SPF_0_0_0** : Purse seine sardine (*Sardina pilchardus*) and anchovy (*Engraulis encrasicolus*) fishery; generally single-species catches without discards; sampling at auction only.
- **PTM_LPF_>=70_0_0** : Pelagic pair trawling for albacore (*Thunnus alalunga*). Will be monitored under auction and may receive samples at sea under other Regulations (not covered by DCF funding).

(c) Type of data collection

In theory, the type of data collection should be a probability based sampling, but the reality is more complex. For on-board sampling, a list of vessels by metier is provided to the samplers, so that they can pick in the list at random for sampling. The problem of on-board observers is the difficulty to get on-board the chosen vessel (administrative and security issues, refusal from the master, ...).

For auction sampling, a systematic sampling is applied, which consists in providing a monthly or quarterly sequence of metiers to sample. The choice of the auctions depends on their importance as regards the landings of the given metier. The trips to the market is often predefined (every Wednesday, twice a week...) for each of the auctions. The outcomes of the recent WKMERGE (2010) will be discussed in a national workshop with the objectives of improving by all means the randomness in the sampling process.

In consequence, and until further improvement is made, the type of data collection is considered as a non probability based sampling for on-board observer and probability based sampling for auction sampling.

(d) Target and frame population

For all metier variables, the target population is defined in the DCF as the total number of fishing trips, of a given metier, in a given time period, in a given fishing ground.

The sampling population is significantly reduced from the target population :

- for on-board observers, the sampling population is the population of vessel having the administrative authorization to embark an on-board observer. This authorization accounts for the capacity of the vessel to hold one extra person on-board in terms of security, and is given only once a year at the moment of the annual security visit, and upon request from the skipper. As this process is relatively recent, a large fraction of the vessels do not have this authorization, and are thus, *de facto*, removed from the sampling population.
- vessels systematically refusing on-board observers are also removed from the sampling population. They are relatively easy known that the authorization to embark an observer must be demanded on a voluntary basis at the beginning of the year. This behavior is likely to lead to bias in the estimates.
- for auction sampling, the sampling population is the population of vessels presenting their landings under an auction. Going through an auction is not mandatory under French law, only weighting all landings and presenting sales notes is. The major causes for bias are vessels presenting only part of the landings under the auction, and the remaining being sold outside.

The sampling frame is given in Table III_C_4. The métiers level 6 are kept as such for on-board observation, since, thanks to the activity calendar (see section III.F), the list of vessels operating with a given gear, targeting a given assemblage of species during a given period is known *a priori*. For auction sampling, only the gear family is used as a frame.

(e) Sampling stratification and allocation scheme

For on-board observations, no stratification nor allocation scheme is proposed (see general section), only the potential sampling intensity that France is able to carry out in the North Atlantic fishing grounds. France will seek for more regionally integrated sampling plan during the forthcoming RCM NA.

For auction sampling, a proposal is made (Table III_C_4 and III_C_3), but will be reconsidered at the light of the RCM recommendations for on-board observers.

NA-III.C.2 Estimation procedures

From 2011 onward, France will shift all estimation procedure for working group purpose to COST procedures. All tests have already been carried out and comparison with the former software has been made. The computer hosting the former central software will be stopped by the end of 2010 (see section VI). The new central database *Harmonie* hosting both auction and on-board samples will allow the exportation of these data into COST format. A system for archiving COST scripts and aggregated data by stock and year is currently under investigation.

For discards estimates, the outcome of the ICES WKDRP (ICES, 2007) will be used. All relevant procedures are available in the COST packages (COST final report, 2009).

NA-III.C.3 Data quality evaluation

Time stratification is quarterly. Spatial stratification will make no distinction between divisions VII e, f, g, h and j for target species such as whiting (*Merlangius merlangius*) and cod (*Gadus morhua*). However, demersal trawling in the Celtic Sea will be subdivided into two parts in order to make a distinction between vessels targeting gadoids and vessels targeting benthic species (*Lophius spp.*, *Lepidorhombus spp.*, *Raja spp.*, *Zeus faber*). Analysis of VMS data in the French EEZ is imperative in order to validate data on fishing effort derived from logbooks and other documents.

Three levels of control are implemented. The first level happens at the moment of populating data in the central database *Harmonie*, where a number of consistency control are proposed. If a data does not pass the control, the operator is informed and must enter a modified value. A special attention is given to the validation of the data by experienced staff, which corresponds to the 2nd level of quality evaluation. This validation is plodding and time consuming, but is the condition for having qualified datasets. The third level of control is done at the moment of data exploration and rising with the COST tools. If an error is detected, the correction will have to be made in the *Harmonie* database and the dataset re-exported for processing.

The at-sea sampling scheme covers vessels of 10m and under, however in practice it is difficult to operate on-board smaller vessels, but the threshold (approx. 7m) allows for estimating the sampling bias as acceptable. A dedicated website has been developed in order to follow in real time the development of the sampling plan and archiving the refusals and their reasons. This will allow for a better evaluation of the bias, together with the follow-up of the WKACCU recommendations. The COST tools will be applied from 2010 onwards, and may lead to revisions to sampling levels by fleet segment to address any issues of poor precision.

Potential sources of bias in the on-shore sampling scheme could arise from non-accessibility of some landing sites or any departures from representative sampling caused by staffing or other logistical problems. France will develop on the same website as for the on-board sampling for following on a real-time basis the implementation of the sampling plan. In order to quantify the bias, France will be working towards applying the procedures outlined in WKACCU, and implemented using COST software, as part of the process of validating the data. Length frequencies of retained fish sampled

ashore and at sea from the same métiers and fishing grounds will be compared to investigate systematic differences that could indicate bias in one or other of the sampling schemes.

Written sampling protocols are available to the sampling staff :

- Guidelines for measuring fish : <http://archimer.ifremer.fr/doc/00001/6237/7655.pdf>
- Operating procedure for on-board observers : http://www.ifremer.fr/sih/affichagePageStatique.do?page=collecte_donnees/observations_mer/documentation/documentation_obsmer.htm

Additionally, since the quality of the data is highly dependent on observer qualification, effort will be devoted to providing training in this area (explanation of protocols, recognition of species, fishing gear), and also to the validation of computer data entry.

NA-III.C.4 Data presentation

Following the availability of the raising variables (see section III.F) at N+3 months, the estimates of total discards and quarterly length and age structures will require an extra month, so are expected to be available at the end of April of year N+1.

NA-III.C.5 Regional coordination

France is an active participant in RCM NEA and will take all necessary steps to promote and implement solutions defined in this regional forum. French sampling programmes for 2011-2013 will be amended in the light of the outcomes from the North Sea & East Arctic meetings.

RCM NA recommendations	Actions implemented by France
Member States to identify appropriate participants who are involved in the statistical design of national fleet-based biological sampling programmes, and to advise the WKMERGE chairs of the names of participants in sufficient time to allow preparatory work. The chairs will also seek participation of people with particular skill sets. Participants will be asked to prepare the following material for the meeting: 1 All Member States participants to provide a Working Document describing the basis for national métier definition and merging in 2009&2010; 2 Identified participants to prepare European case studies for examining applications of métier-merging methods. The PGCCDBS will liaise with RCMs to identify suitable case studies. The data for these case studies are to be available at the Workshop in the COST format.	Not done for point 1 since data from 2009 was not available for analysis by the time of WKMERGE (mid-January). Done for point 2.
UK and France to investigate discarding rates of Group 1 and Group 2 species within the métier DRB_MOL_0_0_0 in Western Channel	Not yet done. The proposed deadline is May/June 2010. France has gathered sufficient samples now to propose an analysis, jointly with UK.
RCM NA recommendations 2011 RCM NA recommends the participation of a data manager in the steering committee of the RDB in December 2011 in Brussels.	A French data manager was designed by the French DCF steering committee to attend the meeting in Brussels in December 2011.

NA-III.C.6 Derogations and non-conformities

Action DPMA: For sampling deep longline fisheries (LLS_DEF_0_0_0) in Western Scotland and Western Ireland, a RCM arrangement will be fit with Spain as all vessels are landing in Spanish Basque Country harbours.

A derogation is demanded for sampling dredge for scallops (DRB_MOL_0_0_0) in the Bay of Biscay because scallops fishing grounds are composed of many small banks sparse along the coast, being the object of an yearly scientific monitoring independent of fisheries data (surveys carried out apart from DCF frame).

Mediterranean Sea an Black Sea

MED-III.C.1 Data acquisition

(a) Codification and naming convention

See general section

(b) Selection of metiers to sample

The data used for the Mediterranean ‘ranking system’ come from exhaustive sampling of fishing activity schedules. This system of collection makes it possible, in face-to-face interviews, to gather information on the actual metier of a vessel month by month throughout a given year. The values set out in Table III_C_1 are expressed in days. The absence of declaration statistics on fisheries makes it impossible to obtain as clear an overview of the total catch or total value landed. Nevertheless, the landing sampling programmes implemented as a pilot study in 2007/2008 and routinely from 2009 will make it possible in the near future to gather information that is more precise and more comprehensive. Then levels of landings by metier provided in table III_C_1 must be considered as primary rough estimations which reliability has to be validated.

GSA 07 (Languedoc-Rousillon and Provence-Alpes-Côte d'Azur administrative regions)

In French northern Mediterranean region, sampling of landings will be carried out in order to estimate the catches and fishing effort of vessels under 12 metres (Cf. section III.F on transversal variables). The protocol provides for the sampling of fish for length structure for 10% to 15% of the trips concerned. All in all, it can be considered that more than 250 trips will be subject to measurements of their landings, and the sampling allocation will be proportional to the fishing effort applied. Table III_C_3 provides a concise overview of the intensity of the planned sampling, based on a total of 240 trips, allocated to match the fishing effort recorded in 2008. It is to be noted that no ranking system is applied to this sampling procedure which sees samples allocated to the metiers *a posteriori*.

Supplementary to this aforementioned programme, the metiers selected for sampling are the following:

- **OTB_DES_0_0_0** : Demersal trawling. Monitoring by observation at sea as stipulated by RCM Med&BS 2009, and at auction³.
- **OTM_SPF_32-54_0_0** : Pelagic trawling for anchovy (*Engraulis encrasicolus*)⁴ and sardine (*Sardina pilchardus*)⁵. Monitoring at sea as stipulated by RCM Med&BS, and at auction.
- **GTR_DEF_>=16_0_0** : Combined set gillnets and trammel nets targeting demersal fish. Monitoring under auction.
- **PS_LPF_0_0_0** : Purse seining for bluefin tuna (*Thunnus thynnus*). The French purse seine fleet operating in the Mediterranean and traditionally targeting the juveniles of bluefin tuna

3 - Hake in the Gulf of Lion information : <http://www.gfcm.org/gfcm/resource/10555>

4 - Anchovy in the Gulf of Lion information : <http://firms.fao.org/firms/resource/10545/en>

5 - Sardine in the Gulf of Lion information : <http://firms.fao.org/firms/resource/13351/en>

(<25kg) in the Gulf of Lions and the Ligurian Sea, has over time developed production focused on large breeders (>100kg) during spawning, initially in the Balearic Islands and more recently in the Gulf of Sidra (Libya) and the east Mediterranean. Besides selling patterns have completely changed once caging of BFT began. This system, which developed very rapidly in the late 1990s, involves transferring the captured fish live in purse seines to towed cages and subsequently to farm cages where they are fattened over a period of several months (these cages were located in Spain in the early 2000s but are now mainly to be found in the central Mediterranean). The information available shows that fish kept in cages for fattening accounted for over 90% of the total catch (by weight) of the French tuna fleet.

The monitoring of French fisheries, and in particular information on catch composition in terms of fish size and the determination of various biological parameters, requires in fact that cages should be monitored (by means of the on-board observer programme in the EU countries concerned, these being Malta, Spain, Italy and Cyprus). The RCM Med&BS did in fact propose at its November 2008 and October 2009 meetings a bluefin tuna sampling plan (considered as a multilateral agreement between countries involved in the BFT fishery) to be applied at the latest from 2011. Additionally, the on-board observer programme applicable to French purse seiners (which also follows on from regulation [06-05]) may make it possible to obtain information on the fishing effort (e.g. empty purse seine hauls, *search time, and so on*) to supplement the VMS data (which would also be required).

- **PS_SPF_>=14_0_0** : Purse seines and lampara nets targeting small pelagic fish (anchovy, sardine) but sometimes demersal fish (sea breams, grey mullets). This metier is decreasing along the time and then will be sampled under auction relating to its real amount of landings.

GSA 08 (Corsica)

The main fishing activity off Corsica is netting for spiny lobster (*Palinurus elephas*) which legal fishing season is from March to September. This metier is monitored since a long period but outside the DCF framework. Even with some lack of updated transversal data (but fisheries statistics are really improving since 2008, covering today more than 50% of the vessels), relative importance of metier practised by Corsica fishing vessels are well known.

Considering the local context, concurrent sampling at sea will be applied to sample all these metiers. This strategy was proved efficient for sampling netters for several years, but requires a good estimation of the number of trips to raise the data at the fleet or metier level. Action to estimate this transversal indicator is then proposed in support of the biological sampling (see section III.B.XXX).

The metiers selected for sampling are the following:

- **GTR_DEF_>=16_0_0** : Trammel net targeting spiny lobster and at fewest level demersal fish. *Palinurus elephas* is the main target species, but considering fishing areas and soaking time some trips can be considered as targeting rather fish (*Scorpaena scrofa*, *Sparidae*, etc...). This metier will be sampled as a "set nets" domain (see WKMERGE report) since some trips can also use gillnets for fish (GNS_DEF_>=16_0_0). Doing so, France will apply RCMs recommendation relating to metier targeting GR3 species, since spiny lobster was listed as such a species by RCM Med&BS (Varna, 2010), and put clearly now the applied sampling effort within the DCF framework for the 2011-2013 period.
- **OTB_DES_>=40_0_0** : Trawling for demersal species. Most active vessels are operating offshore and on the slope, targeting *Nephrops* and *Mullus barbatus*.. To note that hake (*Merluccius merluccius*) is not a valuable commercial species for trawlers in Corsica.
- **LLS_DEF_0_0_0 and LLD_LPF_0_0_0** : many vessels are involved in longlines metiers. They are targeting a lot of species (*Sparidae*, groupers, hake, large pelagic fish..., some of them only being listed in Appendix VII of the DCF regulation) and at various fishing activity levels. France proposes to allocate its sampling effort on the most dynamic segment targeting swordfish (*Xiphias gladius*) and bluefin tuna (*Thunnus thynnus*), then metier

LLD_LPF_0_0_0. It is not excluding to sample at sea traditional longliners trips on opportunistic facilities.

In that way tables III_C have been updated to detail all the new sampling objectives in GSA 08.

(c) Type of data collection

In theory, the type of data collection should be a probability based sampling, but the reality is more complex. For on-board sampling, a list of vessels by metier is provided to the samplers, so that they can pick in the list at random for sampling. The problem of on-board observers is the difficulty to get on-board the chosen vessel (administrative and security issues, refusal from the master, ...).

For auction sampling, a systematic sampling is applied, which consists in providing a monthly or quarterly sequence of metiers to sample. The choice of the auctions depends on their importance as regards the landings of the given metier. The trips to the market is often predefined (every Wednesday, twice a week, ..) for each of the auctions. The outcomes of the recent WKMERGE (2010) will be discussed in a national workshop with the objectives of improving by all means the randomness in the sampling process.

The harbour sampling for landings and effort evaluation of the small-scale vessels, where 10% will be selected for length measurement is totally randomly drawn (groups of harbours and days drawn at random).

In consequence, and until further improvement is made, the type of data collection is considered as a non probability based sampling for on-board observer and probability based sampling for auction and harbour sampling.

(d) Target and frame population

Two cases have to be distinguished here, whether it is auction / at-sea sampling or harbour sampling.

- for on-board observers, the sampling population is the population of vessel having the administrative authorization to embark an on-board observer. This authorization accounts for the capacity of the vessel to hold one extra person on-board in terms of security, and is given only once a year at the moment of the annual security visit, and upon request from the skipper. As this process is relatively recent, a large fraction of the vessels do not have this authorization, and are thus, *de facto*, removed from the sampling population.

Vessels systematically refusing on-board observers are also removed from the sampling population. They are relatively easy known that the authorization to embark an observer must be demanded on a voluntary basis at the beginning of the year. This behaviour is likely to lead to bias in the estimates.

- for auction sampling, the sampling population is the population of vessels presenting their landings under an auction. Going through an auction is not mandatory under French law, only weighting all landings and presenting sales notes is. The major causes for bias are vessels presenting only part of the landings under the auction, and the remaining being sold outside.
- For harbour sampling, the sampling and target population are matching since they are defined as a combination of harbours groupings and days of the year.

The sampling frame is given in Table III_C_4. The metiers level 6 are kept as such for on-board observation, since, thanks to the activity calendar (see section III.F), the list of vessels operating with a given gear, targeting a given assemblage of species during a given period is known *a priori*. For auction sampling, only the gear family is used a frame.

(e) Sampling stratification and allocation scheme

The main métiers (OTB_DES_0_0_0, OTM_SPF_32-54_0_0, GTR_DEF_>=16_0_0) will be used as stratification since they are well defined and easy to distinguish. The small-scale vessels (<12 m) will be the object of a specific sampling programme where the stratification is a grouping of harbours and quarters.

As recalled in the general section, obtaining accurate estimates of discards from on-board sampling require a minimum number of at-sea observations. As regional coordination of sampling is very limited in the Gulf of Lion and in Corsica, France will increase its sampling effort and concentrate on the main fisheries.

MED-III.C.2 Estimation procedures

From 2011 onward, France will shift all estimation procedure for working group purpose to COST procedures. All tests have already been carried out and comparison with the former software has been made. The computer hosting the former central software will be stopped by the end of 2010 (see section VI). The new central database *Harmonie* hosting both auction and on-board samples will allow the exportation of these data into COST format. A system for archiving COST scripts and aggregated data by stock and year is currently under investigation.

For discards estimates, the outcome of the ICES WKDRP (ICES, 2007) will be used. All relevant procedures are available in the COST packages (COST final report, 2009).

MED-III.C.3 Data quality evaluation

Time stratification is quarterly, with the exception of the small pelagics métier, which is stratified by month.

Length measurements for landings of small-scale fisheries (<12m) will be subject to sub-sampling proportional to a large sampling effort for landing statistics beneficial to a full spatial and temporal coverage. Data quality will be evaluated using procedures specific to the sampling technique employed.

Three levels of control are implemented. The first level happens at the moment of populating data in the central database *Harmonie*, where a number of consistency control are proposed. If a data does not pass the control, the operator is informed and must enter a modified value. A special attention is given to the validation of the data by experienced staff, which corresponds to the 2nd level of quality evaluation. This validation is plodding and time consuming, but is the condition for having qualified datasets. The third level of control is done at the moment of data exploration and rising with the COST tools. If an error is detected, the correction will have to be made in the *Harmonie* database and the dataset re-exported for processing.

The at-sea sampling scheme covers vessels of 10m and under, however in practice it is difficult to operate on-board smaller vessels, but the threshold (approx. 7m) allows for estimating the sampling bias as acceptable. A dedicated website has been developed in order to follow in real time the development of the sampling plan and archiving the refusals and their reasons. This will allow for a better evaluation of the bias, together with the follow-up of the WKACCU recommendations. The COST tools will be applied from 2010 onwards, and may lead to revisions to sampling levels by fleet segment to address any issues of poor precision.

Potential sources of bias in the on-shore sampling scheme could arise from non-accessibility of some landing sites or any departures from representative sampling caused by staffing or other logistical problems. France will develop on the same website as for the on-board sampling for following on a real-time basis the implementation of the sampling plan. In order to quantify the bias, France will be working towards applying the procedures outlined in WKACCU, and implemented using COST software, as part of the process of validating the data. Length frequencies of retained fish sampled ashore and at sea from the same métiers and fishing grounds will be compared to investigate systematic differences that could indicate bias in one or other of the sampling schemes.

Written sampling protocols are available to the sampling staff :

- Guidelines for measuring fish : <http://archimer.ifremer.fr/doc/00001/6237/7655.pdf>
- Operating procedure for on-board observers : http://www.ifremer.fr/sih/affichagePageStatique.do?page=collecte_donnees/observations_mer/documentation/documentation_obsmer.htm

Additionally, since the quality of the data is highly dependent on observer qualification, effort will be devoted to providing training in this area (explanation of protocols, recognition of species, fishing gear), and also to the validation of computer data entry.

MED-III.C.4 Data presentation

Following the availability of the raising variables (see section III.F) at N+3 months, the estimates of total discards and quarterly length and age structures will require an extra month, so are expected to be available at the end of April of year N+1.

MED-III.C.5 Regional coordination

France is an active participant in the RCM Mediterranean and Black Sea and will take all necessary steps to promote and implement solutions defined in this regional forum.

The sampling obligations for large pelagics have been evaluated by PGMED 2010 (Lisbon, March 2010) and are presented in **Annex 5**. From table 1, France does not obligation for sampling swordfish, albacore, dolphinfish and bonito. From table 2, France must sample 110 bluefin tunas from its longline small-scale fishery. This figure has been noted in table III_C_5.

RCM Med&BS recommendations	Actions implemented by France
RCM Med&BS recommends that Table 3.3.3.a (length) and Table 3.3.3.b (stock related) are used for length sampling and stock related samples respectively. The number of samples to be collected for length and stock related variables will be revised during the PGMED 2010 and RCM 2009 recommends MS to adjust their NP 2011-2013 accordingly	Done

MED-III.C.6 Derogations and non-conformities

None.

Indian Ocean (IOTC)

IO-III.C.1 Data acquisition

(a) Codification and naming convention

See general section

(b) Selection of metiers to sample

The European tropical tuna fleet segment (France, Spain) is fairly homogeneous and does not require any specific system of selection for the selection of the metiers to be sampled. Since the study conducted in 1998 under the European ET project, the sampling of French and Spanish tuna fleets is carried out jointly without distinction as to neither nationality nor boat size, applying a strategy of sampling stratified by quarter, zone and fishing method (see previous reports for further details).

Two métiers are present: purse seiners (France and Spain) and longliners (France Reunion). Where the longliners are concerned, Ifremer is responsible of catch monitoring and sampling, while IRD has been tasked with a discard study: There are other European long liners operating in the Indian Ocean (Spain, Portugal, United Kingdom) but they do so on an independent basis.

RCM LDF (March 2010) has proposed the following definitions for these two métiers :

- **PS_LPF_TROP** : Purse seiners targeting tropical tunas.
- **LLD_LPF_SWO** : Long liners targeting swordfish.

(c) Type of data collection

Purse seiners

In this case, there is no need for any métier grouping, and procedures are identical in both the Atlantic and Indian Oceans.

- Landings: The majority of landings are presently taking place in the port of Victoria (Seychelles), and occasionally in Port Louis (Mauritius), Mombasa (Kenya) or Antsiranana (Madagascar). The French fleet segment has significantly diminished due to piracy in 2009 and 2010, 5 purse seiners having moved to the Atlantic Ocean. Although the fact that 3 new purse seiners have started their activities in the Indian Ocean the fleet reaches now 13 units. The French fleet is expected to reach 15 purse seiners for the period 2012-13.

Sampling is conducted concurrently in port for each of these fleet segments (France, Spain and Seychelles) in collaboration with the Seychelles Fishing Authority (SFA). For the 2011-2013 period monitoring activities will be reinforced in Port Louis (Mauritius) where 3 new seiners intend to land regularly their catches and in Antsiranana (Madagascar) where landing activities are in development due to growing piracy in the northern part of the fishing zone.

- Discards and bycatch: The level of coverage expected for 2011-2013 is 10% in the Indian Ocean, with a planned number of trips with an observer reaching a number of 9 trips in 2012 (315 days of observations) As it is difficult to find room for observers on purse seiners due to presence of military forces onboard for security., the exact number of trips that will effectively be possible to set in place remains uncertain.
- In order to prevent a total absence of sampling of bycatch and discards like in 2010 in the Indian Ocean, IRD has identified and set in place experiences of auto sampling and explore electronic monitoring like recommended by RCM LDF (March 2010). Yet these actions did not provide satisfying results in 2011 as they were not supported by fishermen. They will not be reconducted in 2012.

Furthermore, our data collection for bycatch and discards in Indian Ocean will be consolidated through an active collaboration with TAAF Administration (Terres Australes et Antarctiques Françaises). This Administration is placing observers on board European vessels asking for fishing in French EEZ of “Iles Eparses” in the Mozambique Channel. IRD has coordinated in 2011 with TAAF in order that their observers, in place mainly for surveillance, be able to make complementary observations on bycatch and discards reaching scientific standards and compatible with our collecting system. These complementary data collection reached 206 days of observations in 2011—and a number of 300 days of observation is expected (French and Spanish vessels) in 2012.

Length sampling will be applied to discards and bycatch for all species listed in Appendix VII of the Implementation Regulation 2010/93/EU.

“Faux poisson” landings are expected to grow in Victoria (Seychelles) and Antsiranana (Madagascar) and monitoring will be set in place in these ports in order to determine their quantities.

Long liners

- Landings: Longlining appeared in Reunion in the early 1990s and expanded rapidly over the period 1993-2003. The activity of this fleet segment is currently being monitored by Ifremer under SIHR (*Système d'Information Halieutique Réunionnais* / Reunion fisheries information system). Data is recorded for fishing locations, measurement of fishing effort (number of hooks), catch volumes for target species and fish length in landings. It is not foreseen any particular growth or reduction of this fleet.
- Discards and bycatch: The on board observer program on Reunion longliners (SEALOR) started in 2007. It will be continued in 2011-2013 with the aim of quantifying both bycatch kept onboard but undeclared on logbooks and discarded species (sharks in particular) and protected species such as turtles, marine birds and mammals. Taking fishing activity in 2009 as a basis, sampling has been planned for 150 fishing operations (representing 5% of the total number of long lines sets deployed in 2009).

In order to improve coverage particularly for small longliners where observers can not be embarked experiments of auto sampling will be continued like recommended by RCM LDF (March 2010).

- For auto sampling, it will be asked to longliners crew men to insure - after a short training period - simplified data collection similar to those collected by scientific observers. These observations will be paid for, and compared to real observers' data in similar zones and period. The objective is to reach a minimum of 5 % coverage of effort like in regular observer programme on large longliners (up to 20 m LOA).

The first outcomes of this study include (i) a working protocol for the setting of new French datasets and (ii) a roadmap to allow the first provision of these datasets for the 2012 IOTC stock assessments working group.

(d)Target and frame population

Purse seiners

The target population is all the fishing trips of all the French purse seiners landing in the main harbours, for the entire Indian Ocean.

For size and species composition of the unloaded catches, the frame population is a sample of sets according to the methodology described in IO-III.C.1.(e), for all landed species listed in Appendix VII.

For discards and by-catches, the frame population is a selection of fishing trips, mainly on a time stratification basis (as it is generally not possible to plan in advance the fishing areas), with an aim of a 10% coverage of the fishing activities, as recommended by IOTC.

Long liners

The target population is all the fishing trips of the entire French longliners landing in La Reunion, for the entire Indian Ocean.

For size and species composition of the unloaded catches, the frame population is a sample of sets according to the methodology described in IO-III.C.1.(e), for all landed species listed in Appendix VII of the DCF.

For discards and by-catches, the frame population is a selection of fishing trips, mainly on a time stratification basis (as it is generally not possible to plan in advance the fishing areas), with an aim of a 10% coverage of the fishing activities, as recommended by IOTC. Because of the length structure of the local fleet (size of local longliners less than 18 m LOA for the major part of the fleet) a 10 %

coverage cannot be reached, observers being not able to embark on these boats. However, this objective becomes realistic with the development of the auto sampling of capture.

(e) Sampling stratification and allocation scheme

Cf **Annex 4 & 5**

IO-III.C.2 Estimation procedures

Cf **Annex 4 & 5**

IO-III.C.3 Data quality evaluation

(a) Purse seiners

In the Indian Ocean, the IRD has one permanent member of technical staff in Victoria, backed by a support team based in France in Sète which is responsible for overall coordination of activities and the consolidation and processing of the data. He is likely to remain in post over the period 2011-2013. The coordination of activities between the various ports is handled remotely and by regular support and inspection missions for that member of technical staff with responsibility for the Indian Ocean.

Sampling is conducted in conjunction with France's partners in the countries where catches are landed and sampled. On a case-to-case basis, the programme bears the cost of staff wages and certain ancillary expenses or in the form of provision of data collection services by the partner in accordance with standards set by formal specifications. The partners involved in the Indian Ocean for the period 2011-2013 are:

- SFA (Seychelles Fisheries Authority, attached to the Ministry of Agriculture and Fisheries) in the Seychelles,
- USTA (*Unité Statistique Thonière d'Antsiranana* / Antsiranana tuna statistics unit, attached to Madagascar's Ministry of Fisheries Resources) if the level of catches in Madagascar justifies this,
- and Albion Fisheries Research Centre in Mauritius (Port Louis) where landings of a new Fishing Company from Reunion owning 3 purse seiners land its production.

Sampling activities are coordinated and funded jointly with the Spanish national programme in a context of close collaboration between the two organisations and local partners (See Annex 4: MOU IRD/IEO, May 2011)

Conventional assessments (length composition of catches by species) are then carried out in accordance with the standards laid down by IOTC (Q5: calendar quarter*CWP5) applying a processing suite specifically adapted to the sampling procedures.

Methodologies applied are as follows :

- Landings: In the case of tropical tuna fisheries, it is imperative to estimate the actual species composition of landings insofar as these are weighted according to commercial categories based more on length size than on species, which is a major source of bias. The actual catch for each species can be estimated by cross-correlation of information from fishing logs and information from landings provided by the producer organisation, as well as from the sampling of species composition at the landing site.

The landing sampling procedure in port has been described in detail in previous reports. It is recalled here for information in **Annex 5**.

Sampling is carried out concurrently in port for each of the fleet segments (which provides an assurance of a degree of proportionality to catches), and then pooled for estimates of the length and species compositions of landings. The allocation of sampling between the national (French) and regional (EU) levels is set out in Table III.C.5 for the main species.

- Discards and bycatch: Discard quantification and length sampling of discards and bycatch are conducted as part of an on-board observer programme. As far as possible, a sample of the discarded tuna species listed in Annex VII will be measured and counted for the species composition. The other species (by-catches) will also be counted and measured (all or a sample according to case). It should be noted that there are, in the case of the large pelagics, a number of inconsistencies in the listed species and the groups to which they are attached.

In June 2009, an international working group was held in Sète gathering scientists from the 4 regional tuna RFMOs (ICCAT, IOTC, IATTC, and WCPFC) to analyze and compare multispecies sampling systems used in the world oceans (WG Sète 2009). The working group showed in particular the need for the European purse seine and bait boat fleet to re-analyze the sampling scheme to estimate the biases and uncertainties associated with (i) the a-priori selection of the wells to be sampled (ii) the use of the fishing set rather than the well to be sampled (iii) the use of the sampling strata based on data from the 1990s despite the changes in the fisheries since this period. In this context, it is essential to carry out new statistical analyses for maintaining and improving the sampling and processing systems currently in use in order to:

- re-examine the spatio-temporal variability of catch/effort data from available time series (1980-2009) and super-sampling operations conducted in 2008 in the Indian Ocean,
- adjust the sampling scheme and processing of the data if needed by including the logistical constraints (e.g. unloading time) and associated costs (human resource, sampling duration),
- compute the precisions on the estimates provided within the DCF.

To reach these objectives, IRD has hired a bio-statistician for 2 years in order to carry out this study with the Spanish and French scientists in charge of tuna fisheries. Meetings dealing with the sampling strategy of the tropical tuna catch will be scheduled each year between French and Spanish researchers. The work initially planned in 2010 programme, started in June 2011.

(b) Longliners

In the Indian Ocean and more precisely based in La Reunion island, Ifremer has a fishery lab and the IRD has two permanent members (a scientist and a technician) in charge of coordination of the programme. The IRD staff is likely to remain in post over the period 2011-2012. As mentioned in section IO-III.C.1.(c), France demands, as part of its NP proposal 2012, the finalisation of a pilot study on the optimisation of data collection for La Réunion longliners. Data quality will be part of criteria to achieve this optimisation.

IO-III.C.4 Data presentation

Statistical data will be made available through the SIG DPMA website. This website integrates a dynamic atlas interface and an expert GIS tool helping user defining its own queries on data and visualization.

IO-III.C.5 Regional coordination

Two IRD scientists (one for purse seiners and one pour long liners) are planned to participate to RCM-LDF meetings. Data collections are coordinated with partners of costal countries of Seychelles, Madagascar and Mauritius in the Indian Ocean and Ivory Coast and Senegal in the Atlantic Ocean.

Joint coordination meeting between France and Spain: within the framework of tropical tuna programme, it exists since 10 years a tight cooperation between scientists from IRD and IEO and more recently from AZTI. A meeting is organized annually gathering scientist of the three institutes alternatively in France and in Spain. In 2011 this meeting will take place in France. This meeting is the opportunity to:

- i) organize and coordinate data collection on both French and Spanish fleets,
- ii) realize a common treatment of data for the whole European fleet for tropical tuna (catches, correction of species composition, bycatch and discards estimates ...),
- iii) revise collaboration themes according to ICCAT, IOTC and UE-RCM recommendations,
- iv) and prepare contributions to planned RFMO working groups.

In 2012, this working group will be associated with an inter RFMO coordination working group on observer programs on purse seine tuna fisheries.

IO-III.C.6 Derogations and non-conformities

No derogation is requested. The majority of the species in Group 1 for which no monitoring has been planned is not actually landed and cannot therefore be sampled. In some cases (shark and billfish), sampling is an integral part of observation programmes on board professional fishing vessels. In the other cases, no particular recommendation has been made by ICCAT or IOTC.

East Central Atlantic (ICCAT)

ECA-III.C.1 Data acquisition

(a) Codification and naming convention

See general section

(b) Selection of metiers to sample

The European tropical tuna fleet segment (France, Spain) is fairly homogeneous and does not require any specific system of selection for the selection of the metiers to be sampled. Since the study conducted in 1998 under the European ET project, the sampling of French and Spanish tuna fleets is carried out jointly without distinction as to neither nationality nor boat size, applying a strategy of sampling stratified by quarter, zone and fishing method (see previous reports for further details).

Two metiers are present: pole-and-lines and purse seine (France and Spain), these being homogeneous fleet segments at European level:

RCM LDF (March 2010) has proposed the following definitions for these two metiers :

- **PS_LPF_TROP** : Purse seiners targeting tropical tunas.
- **LHP_LPF_TROP** : Pole and lines targeting tropical tunas.

(c) Type of data collection

Pole-and-lines

No metier grouping is needed in the case.

- Landings: Landings are all done at the port of Dakar (Senegal), and the French fleet segment is progressively disappearing (one unit in 2010). Sampling is concurrent in port for each of the fleet segments (France, Spain and others), in conjunction with ISRA, the oceanographic research centre in Dakar.
- Discards and bycatch: Given the relatively minor importance of their catches and the fact that the discards are considered to be minor (<1%, Kelleher, 2005), no observer programme is planned for this fleet.

Purse seine

In this case, there is no need for any metier grouping, and procedures are identical in both the Atlantic and Indian Oceans.

- Landings: The majority of landings are realised in the port of Abidjan (Côte d'Ivoire), and occasionally in Tema (Ghana) or Dakar (Senegal). The French fleet segment doubled in 2009 (from 5 to 10 units) following a transfer of 5 units from the Indian Ocean due to piracy occurring in this ocean. Sampling is concurrent in port for each of the fleets (France, Spain and others), and carried out in conjunction with the Côte d'Ivoire oceanographic research centre. It is likely to be maintained at the current 2011 level.
- Discards and bycatch: Coverage for 2011-2013 period is 10% in the Atlantic which taking into account the growth of the fishery corresponding to 320 days at sea (8 trips). Length sampling is applied to discards and bycatch for all species listed in Annex VII. Monitoring of landings of "Faux poisson" – i.e. catches that do not meet the standards of the canning factories (tuna that are too small or poorly conserved, minor tuna, sometimes marlin and other species not normally marketed) that would usually have been discarded but which are kept on board if a local market exists for them – will be continued (Abidjan, Dakar). This is because such landings can be large and represent between 5% and 15% of all landings in Abidjan according to year.

It is planned to monitor all landings of “Faux poisson” in order to estimate the quantities, sizes and species composition involved. A specific database has been set in place in order to gather all the present and historical data available on “Faux poisson” since 1982 and be able to analyse the whole data series.

(d) Target and frame population

Pole and lines

The target population is all the fishing trips of the entire French bait boats landing in the main harbours, for the entire Atlantic Ocean.

For size and species composition of the unloaded catches, the frame population is a sample of unloading days according to the methodology described in ECA-III.C.1.(e), for all landed species listed in Appendix VII.

There is no observer programme on this fishery for discards and by-catches.

Purse seine

The target population is all the fishing trips of all the French purse seiners landing in the main harbours, for the entire Atlantic Ocean.

For size and species composition of the unloaded catches, the frame population is a sample of sets according to the methodology described in ECA-III.C.1.(e), for all landed species listed in Appendix VII.

For discards and by-catches, the frame population is a selection of fishing trips, mainly on a time stratification basis (as it is generally not possible to plan in advance the fishing areas), with an aim of a 10% coverage of the fishing activities, as recommended by ICCAT.

(e) Sampling stratification and allocation scheme

Cf Annex 4 & 5

ECA-III.C.2 Estimation procedures

Cf Annex 4 & 5

ECA-III.C.3 Data quality evaluation

In the Atlantic, the IRD had a permanent member of technical staff in post in Abidjan, backed by a support team in France, in Sète, responsible for the overall coordination of activities plus the consolidation and processing of the data. The local survey team (for both France and Spain) is administratively managed by a service provider on the field (RMO). The coordination of activities between the various ports is handled by the technician based in Abidjan.

Sampling is conducted in conjunction with France’s partners in the countries where catches are landed and sampled. On a case-to-case basis, the programme bears the cost of staff wages and certain ancillary expenses or in the form of provision of data collection services by the partner in accordance with standards set by formal specifications. The partners involved in the East Central Atlantic in 2011-2013 are :

- the CRO in Côte d’Ivoire (Centre de Recherches Océanologiques in Abidjan, attached to the Ministry of Research),
- the CRODT in Senegal (Centre de Recherches Océanographiques de Dakar-Thiaroye in Dakar, attached to the Senegal’s Institute for Agricultural Research).

Sampling activities are coordinated and funded jointly with the Spanish national programme in a context of close collaboration between the two organisations and local partners (see **Annex 4** “IRD/IEO/AZTI cooperation under DCF (tropical tuna fleets), 2011-2013 period”).

Conventional assessments (size composition of catches by species) are then carried out in accordance with the standards laid down by ICCAT (Q5: calendar quarter*CWP5) applying a processing suite specifically adapted to the sampling procedures.

The sampling methodology is described in **Annex 4 or 5**.

The proposition for revision of sampling procedures that are described in the Indian Ocean section also applies for Atlantic Ocean.

ECA-III.C.4 Data presentation

Refer to corresponding section for Indian Ocean

ECA-III.C.5 Regional coordination

Refer to corresponding section for Indian Ocean

ECA-III.C.6 Derogations and non-conformities

No derogation is requested. The majority of the species in Group 1 for which no monitoring has been planned is not actually landed and cannot therefore be sampled. In some cases (sharks and billfishes), sampling is an integral part of observation programmes on board professional fishing vessels. In the other cases, no particular recommendation has been made by ICCAT or IOTC.

West Central Atlantic (WECAF)

WCA-III.C.1 Data acquisition

(a) Codification and naming convention

See general section

(b) Selection of métiers to sample

In spite of no coordination exists at EU level, regional French métiers can be well identified according to the DCF matrix lead :

- **OTB_CRU_TROP** : Floridian shrimp trawling targeting shallow waters shrimps (*Penaeus subtilis* and *Penaeus brasiliensis*) in French Guiana. Landings are sampled since more thirty years by commercial categories, as shrimp markets are worldwide very codified, in terms of species and size categories. Sampling on shore will continue on the same basis for 2011-2013 period. As requested by SGRN, a discards monitoring (50 fishing days) will be carry out by observers on board during 8 trips between June 2012 and June 2013. These minor financial adjustments will be included during NP revisions in October 2011 and 2012.
- **LHP_DEF_SNAP** : Hand lines targeting snappers (*Lutjanus purpureus*, *Lutjanus synagris* and *Rhomboplites aurorubens*) in French Guiana EEZ. Regular sampling of the three above mentioned species carried out when Venezuelan liners are landing in Cayenne harbour for supplying local processing plants.
- **FPO_DEF_SNAP** : Potting for snappers in the French Guiana EEZ. This activity is practiced by some vessels coming from Martinique island. Snappers landings are sampled when vessels are coming back to Martinique.
- **GND_DEF_0_0** : Netting in French Guiana EEZ. High interest at local and regional levels. Métiers are mainly coastal and using drifnets to target coastal demersal fish. Some set gillnets can also be sampled. Trip concurrent sampling is the common protocol.
- **LLD_LPF_FAD** : Trolling lines, hand lines and drifting longlines activities will be sampled in Martinique. The métier is conducted with FAD and targets mainly billfishes with tuna and

dolphinfish by-catches. They will be sampled for the first time in 2011 under the DCF scope, as some target species are considered overexploited (billfishes).

(c) Target and frame population

Vessels populations involved in the shrimp and snappers fisheries are well known because of licenses systems to manage these fisheries. Reference population for sampling a metier is all the trips concerning it.

For coastal vessels, the sampling protocol will be similar to the one carried out in the Mediterranean for vessels less than 12 m LOA (see section MED-III.C.1)

(d) Sampling stratification and allocation scheme

Sampling effort is allocated taking in account the number of licenses and the known level of activity of the companies involved in the French Guiana shrimp and snappers fisheries. Time periodicities are the month for shrimps and the quarter for snappers.

For coastal ones, stratification is established crossing landing places and sampling dates. Observers are encouraged to carry out concurrent sampling of landings for the trips they are sampling.

WCA-III.E.2 Estimation procedures

Traditional raising procedures are applied for licenses fisheries sampled by commercial categories. For coastal fisheries, same methods as in the Mediterranean or as already tested in overseas departments will be applied.

WCA-III.E.3 Data quality evaluation

Length data collected in French overseas departments are expected to be stored in the central Ifremer's database *Harmonie* on the short term. Of course with respect to all currently validation processes before final storage.

WCA-III.C.4 Data presentation

Following the availability of the raising variables (see section III.F) at N+3 months, the estimates of total discards and quarterly length and age structures will require an extra month, so are expected to be available at the end of April of year N+1.

WCA-III.C.5 Regional coordination

There is no RCM covering the Western-Central Atlantic ocean. Regional coordination on shrimp fisheries and snappers fisheries is implemented in the scope of the FAO WECAF Commission and France is expected to produce data on its fisheries.

WCA-III.E.5 Derogations and non-conformities

None.

III.D. Recreational fisheries

Commission Decision 2010/93/EU requires that catch volume in weight is to be estimated for recreational fisheries for some significant species listed in Appendix IV and to be provided by region specified in Appendix II. Those relevant to France are cod, eel and sharks in the North Sea and the Eastern Channel (IV, VIId), seabass, salmon, eel and sharks in the North Atlantic (actually, the Western Channel and the Bay of Biscay - VIIe, VIIIab), bluefin tuna, eel and sharks in the Mediterranean. Otherwise recreational fisheries catches of eel and salmon are also to be estimated in the inland waters.

For marine waters, several sampling strategies to estimate catches of French recreational fisheries can be implemented depending of the objectives and species concerned. They are consistent with the outcome of ICES WKSMRF (Workshop on sampling methods for recreational fisheries held in Nantes, France, in April 2009⁶). As they are similar in the various DCF regions, a general description will be valid for all of them and be explained in the following paragraphs under the same header.

North Sea (ICES areas IIIa, IV and VIId) & East Arctic (ICES areas I and II)

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

Mediterranean Sea an Black Sea

III.D.1 Data acquisition

The number of marine recreational fishermen was estimated to 2.5 millions in 2005 (all fishing modes, including shellfish gathering)⁷, see). There are different types of fishing: angling from shore, boat angling, free diving spear fishing. The high season is during summer (better meteorological conditions and holidays period). At present time, the management of marine recreational fishing can be described as follow. Mostly, there is not license. Certain species are subjected to minimal sizes of capture which are equivalent to commercial fishing. The total fishes captures of recreational fishing was estimated to 24 500 tonnes for 2005, that represents about 2-3% of total commercial landings and nearly 11% of the fresh fish commercial landings. But some species are more important. For instance the seabass catches of recreational fishing are estimated at 5 000 t. Commercial landings of seabass have the same level.

(a) Type of data collection

During the NP 2011-2013, France will use two types of data collection.

- Probability Sample Survey, in which data are collected from a sample of a population members randomly selected. This type of data will be used for seabass, cod as for others fish species currently monitored (mackerel, sea breams, Pollack...). Data collection will consist in a combination of a telephone survey and volunteer fishermen filling logbooks.
- Non-Probability Sample Survey, in which data are collected from a sample of population members not randomly selected. This type of data will be use for bluefin tuna and “sharks and rays”. The catches data will be get in collaboration with recreational fishing associations and competition organisations (tournaments, games and association records).

(b) Target and frame population

The target population is the entire French population. The protocol surveys are build to get a representative sample of the French population. The samples for telephone survey for instance represents about 15 000 French households. The sampling can be adjusted to maximize the number of

⁶ ICES, 2009 - <http://www.ices.dk/reports/ACOM/2009/WKSMRF/WKSMRF%202009.pdf>

⁷ DPMA/Ifremer, 2009 - <http://agriculture.gouv.fr/sections/magazine/dossiers/littoral-peche-loisir>

responses (by over-sampling of the coastal zone...) but corrections by weighted systems give back representative sample.

(c) Data sources

- Seabass, cod and other marine fish species (mackerel, sea breams, pollack...):

The data collection will consist in a telephone survey (random-digit-dialing survey) at a national scale. The sample after correction and adjustment will be representative of the French population. That kind of survey gives a good estimation of the number of recreational fishermen at a national scale.

For these species the telephone data will be completed by logbooks of volunteer fishermen recruited during the telephone survey. The logbooks enable to precise fishing patterns and catch composition in a quantitative way, allowing to raise effort and catch data to the population. Such a sampling system, with a reference panel of fishermen, was tried out in 2009 and 2010 and gave satisfaction.

The data will be obtained via collaboration with recreational fishermen associations. This collaboration is already well established and give access to logbooks and competition records. The new regulation implemented for bluefin tuna in the Mediterranean (recreational fishermen have the obligation to tag each tuna they land (JORF n°0141 20/06/2009 page 10082, text n° 45), and to report to the administration) will assure also a second way for estimating the volume of catch.

(d) Sampling stratification and allocation scheme

- Seabass, cod and other marine fish species (mackerel, sea breams, pollack...):

First objectives for 2011-2013 are to estimate the following parameters: fishing effort, fishing modes, catches by species (weight, size, abundance, catch release). The second objective is the protocol optimisation, in order to perpetuate the follow-up. This concerns to find the best cost/benefice effectiveness, but also the improvement of the collected parameter accuracy and the control of bias in collected data. Thirdly, the participation of volunteer fishermen in the data collection is also a strong will. Their implication in the follow-up network guaranties the quality of data.

The survey design will be the following:

- a telephone survey in two waves is carried out each 3 years to update the estimate of the recreational fishermen population and to recruit new volunteers to participate in the fishermen panel. The first wave of telephone survey is planned in the middle of 2011, the second one at the end of 2011. At the same time, the telephone survey will be combined with the voluntary logbook data collection. The volunteer fishermen start to complete a logbook the month after the telephone survey. Logbooks filled by a fisherman are collected so far as at least one year.
- fishermen population data (age, profession, place of residence, fishing modes, number of fishing trips, ownership of a boat, etc.) are collected by the phone survey. Detailed data on catches (weight, size, species, release...) are preferably collected trough the logbooks. This strategy allows to improve data reliability.
- the method (telephone survey + logbooks) is flexible because it promotes the opportunity to collect wider information on real target species of recreational fishermen, whose DCF ones if they are relevant. Eel for example is not a target species in French marine water and cod is not accessible outside of Pas de Calais Strait area. But as phone questionnaires and logbooks take in account all the DCF referenced species, a minimum information will be collected on these species in the whole Atlantic supraregion.

During the NP reference period 2011-2013, France proposes to carry out the following tasks :

- regarding seabass, which is the main recreational species in France, the assessment can be achieved each year. Ifremer will be the main scientific contributor, help by the University of Brest acting as subcontractor.
- for cod, an every 3 years evaluation should be sufficient. This species concerns a very small number of anglers operating in a very small area (Pas de Calais Strait - around 50-60 km of coast line between Boulogne and Dunkerque) and catches are relatively low about 50-100 tonnes as evaluated in the 2006-07 and 2009 studies. Regarding the expensive cost of these tasks (50 k€/an) versus their low interest to improve really annual cod stock assessments, France proposes to carry out the next update in 2012 by applying the seabass methodology (telephone survey with over-sampling in the relevant sector + fishermen panel). If a panel could not be found, the already tested survey by on site interviews will be repeated to estimate the volume of cod catch by recreational fishermen. Ifremer will conduct the updating, help by a subcontractor (to be defined) for monitoring the panel or carrying out the on-site interviews).

- Bluefin tuna and Sharks and rays :

A telephone survey was made in 2009. An updating of these results is planned for 2011, with the new telephone survey. The target population will be all marine recreational fishermen fishing fish. So at least all the species of fishes listed in Appendix IV of the technical Decision 2010/93/EU may be followed with the same survey. New estimates of the number of fishermen targeting bluefin tuna and sharks may be calculated.

The work plan 2011-2013 for these species, entrusted to Ifremer, will be the following :

- bluefin tuna catch in the Mediterranean will be assessed annually. Logbooks filled by volunteer fishermen, results of fishing games given by the associations, monitoring of the catches and landings via the administrative system now in force will be the main sources of information.
- a pilot study will be carried out in 2011 to evaluate the importance of recreational fisheries targeting sharks and rays in the three DCF regions mentioned in the header. Data collected through the surveys made for last years will be also reprocessed for this specific issue.

III.D.2 Estimation procedures

(a) Seabass, Cod, other marine fish species

The catches estimations are based on telephone survey and logbooks combination. To combine the two types of survey, a classification given by expert is given. Each volunteer fishermen belonging to the panel is classified in one of the 10 categories identified in the typology established in 2009-2010. The estimations are first made for each category, and then they are raised at a national scale using the national telephone survey results for the extrapolation.

These estimations are managed by a subcontracted statistical and opinion poll institute.

(b) Bluefin tuna,

The recreational fishermen have the obligation to tag each tuna they land (JORF n°0141 20/06/2009 page 10082, text n° 45). The tag is distributed by the French administration to the national fishing federation. So the collaboration with the fishing associations will permit to obtain the entire catches for bluefin tuna.

(c) Sharks and rays

There is no procedure planned for these new DCF species before evaluating their relevance and importance for the French recreational fisheries. The first step will be to carry out a pilot study in 2011 to get a minimum knowledge on these activities (see III.D.1.d).

III.D.3 Data quality evaluation

This point is managed by the associated statistical opinion pool institute (BVA). First, quality checks of the data are performed to validate the data collected. Secondly crossing of the two sources of information (logbooks for quantitative data, telephone surveys to estimate the part of fishermen involved in given recreational activities and their level of fishing effort) is carried out regarding to a national typology of the fishermen. This process is considered as statistically robust.

Raising procedures to the national fishermen population are based on the same methods used by opinion pool institutes, in compliance with socio-demographic criteria and weighted systems applied to each fisherman interview. Precision of the estimates are currently calculated for each indicator, and final results are presented only when sampling strategies and samples sizes are considered as relevant.

III.D.4 Data presentation

According to the work plan for 2011-13, collection of data regarding DCF listed species will be as summarized in the following table.

DCF species	2009	2010	2011	2012	2013
Seabass	No	Yes	Yes	Yes	Yes
Cod	Yes	No	No	Yes	No
Eel marine waters	No	No	Yes*	Yes*	Yes*
Other fishes	No	No	Yes*	Yes*	Yes*
Bluefin tuna	Yes	Yes	Yes	Yes	Yes
Sharks and rays	No	No	Yes	?	?

*: if necessary, including eel by catch.

?: depending of 2011 pilot study.

From 2011, for sea bass and Mediterranean bluefin tuna, catches assessment will be available each year. For cod, catches assessment will be available each 3 years.

For sharks and rays and Atlantic bluefin tuna, a first assessment will be carry out for 2011 through pilot studies. Follow-up in 2012 or 2013 will depend of the results achieved, their scientific interest, and the cost efficiency of these operations.

Access to the indicators required by the regulation or detailed data will normally be possible at the same time as the technical report (May year N+1).

Inland recreational fisheries for eel (*Anguilla anguilla*) and Atlantic salmon (*Salmo salar*)**III.D.1-4 Data acquisition**

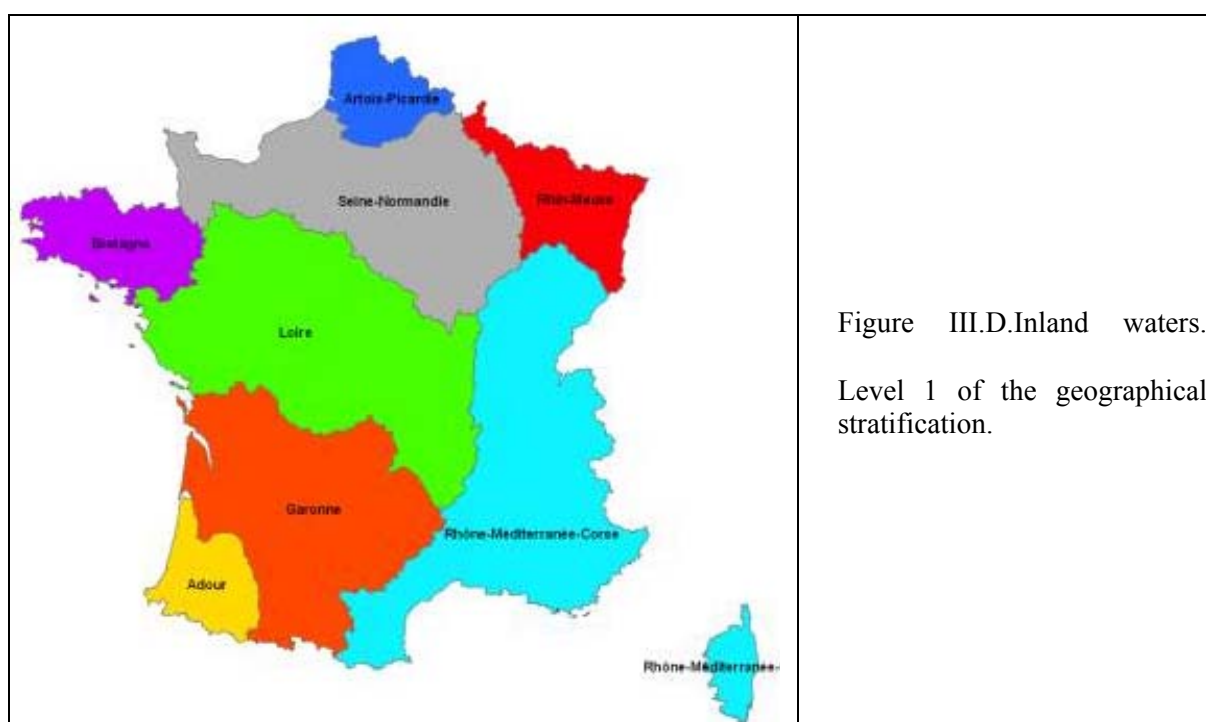
A distinction should be made between two categories of recreational fishermen on rivers : those who fish in the public river domain using nets and fishing gears (between 6 000 and 7 000) and those who fish on rivers using rod and line (1-2 million).

In the public river domain, those fishing with gears and nets are monitored under the SNPE (*Suivi National de la Pêche aux Engins* / National monitoring of fishing with gears by monthly declaration of catches) on the basis of the following metier table, as well as through declarations of salmon catches.

Level 1 type DCR	Level 2 type DCR	Level 3 type DCR	Level 4 type DCR	Level 5 type DCR	
Inland recreational fisheries	Trap	Trap	Keep net	Yellow eel	
			Fyke nets “capéchade” trap nets	Yellow and silver eel	
	Net	Net	Gillnet	Salmonids	
	Line	Line	Line	Line	Eel
				Salmonids	
Others	Other gear	Hand sieve	Elver		

Anglers are not monitored in the river domain..

Salmon catches survey is conducted in partnership with ONEMA and the *Fédération Nationale pour la Pêche en France* / National federation for fishing in France.



Where the salmon protocol is concerned, data on the fishing effort (number of lines) will be monitored at the level of the territorial department (French administrative district) on the basis of the numbers of licences paid for the fishing of migratory species. The essentially local character of recreational salmon fisheries enables the data to be aggregated to level 1 of the geographical stratification, at the level of the management units selected under the Management Plan responding to the requirements laid down by EC Regulation 1100/2007, which corresponds approximately to the areas covered by the migratory fish management committees.

Two supplementary exploratory actions are proposed with a view to enhancing the precision of the data on fishing effort :

- monitoring of fishing logs held by a minimum panel of a hundred or so volunteering fishermen, which will enable effort to be assessed in terms of number and duration of fishing trips.
- monitoring based on surveys at the end of the fishing season in order to assess the biases arising from movement of fishermen in relation to several stocks and the data derived from the review of fishing logs.

Data on catches resulting from additions to the mandatory declarations produced by a survey conducted by ONEMA field personnel.

In principle, the indicators will be provided without extrapolation and therefore solely at the level at which the investigation was conducted. Due to difficulties in implementing the eel management plan, no data on recreational eel fisheries (nets, fishing gears or lines) has been reported yet.

III.D.5 All regions - Regional coordination

France organised the ICES workshop on sampling methods for recreational fisheries (WKSMMRF) in April 2009 in Nantes, which was eligible as part of DCR international coordination for 2009. This initiative was carried on by a new workshop session in 2010 (ICES PGRFS, Bergen, Norway, co-chaired by a French economist). RCMs 2009 recommended Member states to build their NP according to ICES WKSMMRF and WGEEL outputs. This is the case of the French NP 2011-2013 as written in the second paragraph of chapter III.D.

All the RCMs consider in their 2009 meeting report "*that the room for coordination between Member states presently is small and it is premature to propose harmonisation of sampling between MS*". France agrees with this statement but France is also of opinion that recreational fisheries approach could be enlarged. France indeed implemented in 2006 an integrated, multidisciplinary and multispecies approach of national recreational fisheries, considering that stock assessment purposes are not the only objective to pursue as leisure fisheries may have also a significant weight in the economy of certain coastal zones. Therefore France will continue to prioritise sampling strategies allowing to collect information on the main target species and on inputs granted by fishermen in their activities. France would wish to share this global approach with other countries at the international level. PGRFS could be the relevant forum to develop such an approach.

RCM-NA and RCM-NS&EA adopted also in 2009 a common point of view on eel recreational fisheries in marine waters (no necessity to sample these fisheries, this activity not really being a real targeted practice). RCM-MED&BS adopted a similar recommendation during its 2010 meeting (May 2010, Varna, Bulgaria). France will apply it for its NP 2011-2013 in all the concerned regions (see III.D.6).

RCM 2011 recommendations	Actions implemented by France
RCM NA recommends MS to include recommendations and outcomes of PGRFS in the adjustment of their 2012 NP, if relevant..	France agrees with PGRFS recommendations, and found no recommendation which would have necessitated a change to the NP 2012.

III.D.6 All regions - Derogations and non-conformities

The French NP 2011-2013 proposal i) subtends some derogations consistent with 2009 RCMs recommendations, but also ii) includes some non conformities regarding the species listed in Appendix IV of Commission Decision 2010/93/EU, especially about updating periodicity.

(a) Regarding marine recreational fisheries

To justify requested derogations and proposals interpreted as non conformities, the following explanations can be noted :

- Species such as eel or salmon are not target species for marine recreational fisheries. Eel is sometimes a by-catch, near dikes or in harbours. It is extremely rare to catch salmon at

sea. The frequency and very limited volume of catches make it unnecessary to conduct any survey-based monitoring or to raise the data to any population of reference. This opinion is shared by RCM-NA and RCM-NS&EA for eel, which stated in their 2009 reports (respectively p.51 et p.42)⁸ that sampling of recreational fisheries on eel in marine fisheries is not relevant.

So France requests derogations for sampling in marine waters during the 2011-2013 period recreational fisheries targeting i) eel in the North Sea, North Atlantic and Mediterranean regions, and ii) salmon of the North Atlantic region (areas concerned VIIe and VIII). However, as mentioned former (section III.D.1), minimum information on these species will be collected since they are part of species systematically included in logbooks, questionnaires and interviews. Their contribution as by-catch will be then qualitatively evaluate.

- Cod in the North Sea and Eastern Channel region (IV, VIId) was the subject of a pilot study as part of the 2006 National programme (261 on-site interviews) and of an updating included in 2009 NP (171 on-site interviews). Conclusions of these studies showed that this species concerns a very small number of anglers operating in a highly localised area (Pas de Calais Strait - around 50-60 km of coast line between Boulogne and Dunkerque). Even in this area, a very small percentage of anglers declare that they fished for cod specifically as one of their three main target species. Estimates of the annual cod catch are relatively low : about 50-100 tonnes as evaluated in the 2006-07 and 2009 studies. This level of catch is very limited compared with the contribution of French professional fisheries in the relevant sectors (1 400 tonnes), or the 25 000 tonnes landed by the EU fishing industry as a whole in the North Sea DCF region.

Regarding the expensive cost of annually updateings (around 50 k€) to assess an activity scarcely developed as a targeted type of fishing and their low scientific interest from the French point of view for improving really annual cod stock assessments at the stock level, France proposes to update cod recreational data each three years and so to carry out the next updating in 2012, by applying the seabass methodology (telephone survey with over-sampling in the relevant sector + fishermen panel). If a sufficient panel could not be found, the already tested as applicable survey by on-site interviews will be repeated to estimate the volume of cod catch by recreational fishermen in the VIId/IVc area.

France therefore requests derogations for cod in the North Sea region for 2011 and 2013.

- Concerning sharks and rays, France will carry out a pilot study in 2011 to assess the importance of these species in the national recreational fisheries. Depending of the results, France could ask for derogation in 2012 and 2013 whether evidence of low scientific advantage in updating annually the figures for recreational fisheries catches of sharks and/or rays can be justified.
- Concerning eel in inland waters and due to difficulties in implementing the eel management plan, catch will be provided without extrapolation and therefore solely at the level at which the investigation was conducted.

⁸ RCM-NA, 2009 – " RCM-NA considers that sampling of recreational fisheries on eel in marine waters is not necessary, this activity not really being a real targeted practice."

RCM-NS&EA, 2009 – "Most recreational fisheries take place in inland waters (fresh waters). In the recreational fisheries various methods are used (traps, fykes nets, long lines). The RCM-NS&EA considers that sampling of specifically recreational fisheries on eel in marine waters is not necessary.".... "RCM-NS&EA recommends MS to provide an overview of their inland sampling of the recreational fishery on eel."

III.E. Biological - stock-related variables

General considerations applicable to all zones (major migratory species excluded)

The statistics used for Table III.E.1 come from the data for the period 2006-2008 downloaded from the Eurostat website. After filtering by eligibility criteria, the vast majority can be seen to be the same stocks as those studied since 2002 and they will be collected using the same procedures.

The general rule for the sampling of G1 species every year and G2 species every three years will be adhered to, with the exception of certain routine actions that will be repeated each year in the case of certain G2 species. The long-term planning is set out in Table III.E.2 and the numbers of individuals scheduled for sampling in Table III.E.3.

Individual biological data such as weight, sex and maturity stages often require more comprehensive access to fish than is the case for operations at auction. In addition, the need to reduce the timeframe to follow the recommendations of international workshops means that the numbers of individuals scheduled for the collection of data on weight, sex and maturity may be smaller than the numbers of individuals scheduled for the sampling of otoliths or other calcified parts. The maturity data collection period and source of information will follow as much as possible, the summary tables produced by the different RCMs.

Data quality will be estimated on the basis of (i) control methods associated with the storage database, (ii) exploratory analyses and (iii) calculations of precision carried out in a national workshop for the preparation of delivery of data to the various stock evaluation working groups. In this connection, extensive use will be made of the tools developed under the COST project.

Since 1 January 2009, the French national programme has included the Group 3 species lists (G3) defined in 2008 by RCM NS&EA, RCM NA and RCM Med&BS. The taxonomic groupings recommended for G3 were in some cases judged to be too broad (e.g. “squid”), with the result that data collection will often be more fine-grained than stipulated by the RCMs.

North Sea (IIIa, IV and VIId) & East Arctic (I and II)

NS-III.E.1 Data acquisition

(a) Selection of stocks to sample

All stocks for which fisheries yield more than 200 tonnes annually and for which the French share accounts for over 10% of all landings or TACs are included in the sampling programme. The exceptions are discussed in the section headed “Derogations and non-conformities”.

(b) Type of data collection

The collection of otoliths is either a subsample of the length sampling or subject to a specific procedure, mainly using systematic sampling. In consequence, this data collection can be considered as probability based sampling (B).

The collection of other biological parameters are done either during the scientific surveys or at the same time as the collection of age, thus can also be considered as a probability based sampling (B).

(c) Target and frame population

The target population is the population for which inferences are made, and is clearly defined from the Appendix VII of Decision 2010/93/EU to be the stocks within their geographical boundaries. With this definition, the frame population often does not match the target population, reflecting the fact that the national fisheries and/or the national scientific surveys may not cover the whole stock(s). It is therefore highly recommendable to evaluate regionally most of the stock related variables.

(d) Sampling stratification and allocation scheme

See Table III_E_2 for an overview of the long-term planning for each of the parameters, and Table III_E_3 for the number of individuals planned to be collected in the NP years.

The data come from two scientific surveys at sea: IBTS Q1 in the Eastern Channel and North Sea and CGFS Q3 in the Eastern Channel. For the purposes of age-length keys, the fish required are bought from wholesalers according to the scientific specifications (fishing ground and length classes).

Once the fish have been purchased to match the needs for age-length keys, all parameters are measured in the laboratory, these being individual weight, sex and maturity stages. Where the data come from a scientific survey at sea, all parameters except individual weight are collected. The collection of certain individual weights in surveys at sea will be a focus for specific studies.

Once the precision achieved is estimated, the allocation schemes will be adapted to the precision objectives given by the DCF, either alone or in coordination with other countries (see section regional coordination).

NS-III.E.2 Estimation procedures

Those responsible for data collection are invited every year to attend a workshop for analysis of the data and exchanges of information. It is in this workshop that the COST functions for data collected in year N-1 will be used in year N.

NS-III.E.3 Data quality evaluation

The individual data collection protocols ensure the best possible geographical and temporal coverage. Fish are purchased in multiple samples to increase the number of fishing geographical areas and cover the whole of the relevant quarter. The CGFS survey (not eligible under DCF scope) covers the whole of the Eastern Channel, which is divided into sub-areas for otolith collection. The data collected during the IBTS are exchanged with the other participants in IBTS Q1.

Sampling will take into account the recommendations of the ICES workshop on sampling and estimation of maturity (WKMAT and WKMOG), with respect to adequacy of stock coverage and timing of sampling relative to the spawning season. During ICES benchmark workshops, bias of the relevant stocks will be evaluated using WKACCU scorecard.

All protocols for otolith reading are available on a dedicated webpage : http://www.ifremer.fr/sih/affichagePageStatique.do?page=collecte_donnees/echantillonnage_terre/sclerochronologie/sclerochronologie.htm.

NS-III.E.4 Regional coordination

The individual parameters for sole in VIId are collected in accordance with an international protocol developed in RCM NS&EA in 2007. Year 2008 was therefore the first year of implementation of this protocol, which can serve as a reference for other cooperative programmes for other stocks in the future.

France is an active participant in RCM-NS&EA and will take all necessary steps to promote and implement solutions defined in this regional forum.

RCM NS&EA recommendations	Actions implemented by France
The RCM NS&EA recommends to carry out two case studies for deriving regional estimation of stock-based variables for cod in IIIa and sole in VIId. Carrying out statistical analysis and estimation of age structure of the catches, maturity-at-age, weight-at-age and sex-ratio-at-age from an international set of data. The outcomes should be presented in the 2010 ICES PGCCDBS.	Not done. A regional estimation of plaice discards had to be made for the flatfish benchmark (WKFLAT) using an international dataset on the COST format. This case study has been carried out by the same staff, and time was missing for addressing

	the RCM recommendation.
The RCM NA recommends that sampling for age should be increased in order to meet the required sampling levels for saithe (Vb), turbot (all areas) and John Dory (all areas).	Applied in NP 2011-2013, for all fish of these species caught during DCF and no DCF surveys
Métiers being extension of a neighbouring fishing ground. In some occasions, fishing activities in fishing grounds as defined by RCMs, contribute to the catches of a métier mainly operated in a neighbouring fishing ground. For example, saithe fishery in the North Sea extends to the most southern ICES rectangles of division IIa & IIIa, or redfish fishery in subarea XIV extends to NAFO subarea 1-2. RCM NS&EA 2010 disregarded the sampling obligations for the marginal catches in neighbouring fishing grounds and considered that these catches should be reallocated to the main fishing grounds for sampling considerations.	France will apply the recommendation for saithe in IIa.
RCM 2011 recommendations	Actions implemented by France
RCM NA recommends that the collection of otoliths of John Dory is continued but not proceed with age readings until an agreed standardized method is developed.	Addressed already since 2010
RCM NA recommends MS to complete properly the tables III.E.1 and III.E.2	Done for tables III.C and III.E in line with reference tables used in RCMs
RCM recommendations on seeking for coordination, intersessional studies (blue whiting), regional database, follow-up of agreed references, ...	RCM NA recommends MS to include recommendations and outcomes of PGRFS in the adjustment of their 2012 NP, if relevant..

Trachurus trachurus is eligible for derogation as it represents less than 4% of the landings share of the stock, but as the sum of MS having less than 10% share cumulates to 35% (Table III_C_1), France will seek for a regional coordination of the sampling following the provisions of the regulation 2010/93/EU.

NS-III.E.5 Derogations and non-conformities

Stocks of *Pollachius virens*, *Melanogrammus aeglefinus* and *Gadus morhua* in zones I and II are fished mostly by freezer trawlers performing long trips (over one month), really targeting saithe or cod and processing their catches at sea. Additionally, the French share of the cod quota is only marginally higher than the 10% threshold stipulated by the DCF (see Table III_E_1) and is less than 0.5% of the international TAC. So a derogation to dispense with sampling was granted last years according to SGRN advice (see section NS-III.C.6).

France requests again a derogation to permit a dispense with the sampling of these stocks but UE refused to grant it for the next 2011-2013 period. Then :

- The IIa component of the saithe fishery is the northern extension of the Iva-VIa fishery (see section NS-III.C.1), so the biological information collected for the saithe stock in IV and VI will apply to the IIa part. (according to the aforementioned recommendation adopted by the 2010 RCM NS&EA).
- But for cod, access to fish for biological issues is practically impossible (no fish landed, only frozen filets) and carrying out sampling by observers would be at too excessive cost regarding its scientific interest. France proposal is to implement a self-sampling programme by involved fishermen to collect at least metier variables during the next PN 2011-2013 (see section NS-

III.C.6) but this scheme is not applicable for collection of fine biological parameters as DCF stock variables. So France requests again exemption to collect stock related variables for cod in regions I&II.

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

NA-III.E.1 Data acquisition

(a) Selection of stocks to sample

All stocks for which fisheries yield more than 200 tonnes annually and for which the French share accounts for over 10% of all landings or TACs are included in the sampling programme. The exceptions are discussed in the section headed “Derogations and non-conformities”.

Cod (*Gadus morhua*) fished in Saint Pierre and Miquelon in the NAFO 3Ps zone is also sampled for length and age.

Deep water species will be subject to a different protocol due to problems associated with the reading of otolith age. This is so because various evaluation methods have been explored for the roundnose grenadier (*Coryphaenoides rupestris*) and the results indicate a decline in the biomass for this stock to the west of the British Isles, but the figures are not robust (Lorance *et al.* 2008)⁹. The evaluations remain exploratory in nature for all stocks of this species and the effort is being focused on estimation of the factors relevant to variations in CPUE and on the inclusion of discards in evaluations (ICES, 2008)¹⁰. Age readings show major divergence between readers, a percentage concordance of 35% between readers having been observed in 2007 in an exchange of otoliths (ICES 2007)¹¹. For this species, it is known that the demographic composition of catches depends on the depth of the fishery (Lorance *et al.* 2008) such that estimation of the demographic structure of landings does not permit the stock to be evaluated if information on the allocation of fishing effort by depth is not available concurrently. As a consequence, while awaiting possible approval of age readings, the otoliths of *Coryphenoides rupestris* will be collected and archived physically and photographically, but the age will not be read. By extension, the same approach will be considered for *Phycis blennoides*. [Last minute : this approach has been endorsed by the benchmark on deep-water species WKDEEP 2010]. It is to be noticed that deep sea sharks (including *Centroscymnus coelolepis*) and *Hoplostethus atlanticus* are banned for landings in 2010 (Council Regulation No 1359/2008/EC). No plan for sampling has thus been drawn for these species for the period 2011-2013.

The approach adopted for G2 species but for which the analytical evaluation in the working group requires an annual age structure, is to collect and read the calcified parts to estimate age annually and to update the other biological parameters every three years.

The working protocols for scientific surveys in the East North Atlantic such as EVHOE, as well as other campaigns not funded under the DCR, will be updated to include the weighing of individual specimens and the collection of data on sex ratio and stages of maturity for all Group 1 species.

(b) Type of data collection

The collection of otoliths is either a subsample of the length sampling or subject to a specific procedure, mainly using systematic sampling. In consequence, this data collection can be considered as probability based sampling (B).

9 - Lorance, P., Large, P.A., Bergstad, O.A., Gordon, J.D.M., 2008. Grenadiers of the NE Atlantic - distribution, biology, fisheries and their impacts, and developments in stock assessment and management. In: Orlov A.Iwamoto, T. (eds) Grenadiers of the world oceans: biology, stock assessment and fisheries, American Fisheries Society, Bethesda, MS, USA, 365-397.

10 - ICES, 2008. Report of the working group on the biology and assessment of deep-sea fisheries resources. ICES CM 2008/ACOM:14, 499pp.

11 - ICES, 2007. Report of the workshop on age reading of roundnose grenadier (WKARRG). ICES CM 2007/ACFM: 36, 50pp

The collection of other biological parameters is done either during the scientific surveys or at the same time as the collection of age, thus can also be considered as a probability based sampling (B).

(c) Target and frame population

The target population is the population for which inferences are made, and is clearly defined from the Appendix VII of Commission Decision 2010/93/EU to be the stocks within their geographical boundaries. With this definition, the frame population often does not match the target population, reflecting the fact that the national fisheries and/or the national scientific surveys may not cover the whole stock(s). It is therefore highly recommendable to evaluate regionally most of the stock related variables.

(d) Sampling stratification and allocation scheme

See Table III_E_2 for an overview of the long-term planning for each of the parameters, and Table III_E_3 for the number of individuals planned to be collected in the NP years.

For some species, otolith sampling is done by taking random subsamples from length sampling. For other species, individuals are purchased. Once the fish have been purchased to match the needs for age-length keys, all parameters are measured in the laboratory, these being individual weight, sex and maturity stages. Where the data come from a scientific survey at sea, all parameters except individual weight are collected. The collection of certain individual weights in surveys at sea will be a focus for specific studies.

The principal surveys occurring in the region are EVHOE (Western IBTS Q4) and PELGAS for small pelagics (see section G). Other surveys not financed through the DCF, may provide individuals for sampling. These are ORHAGO¹² (Twin trawl survey in the Bay of Biscay), and NourGas (Beam trawl survey in nursery grounds).

Once the precision achieved is estimated, the allocation schemes will be adapted to the precision objectives given by the DCF, either alone or in coordination with other countries (see section regional coordination).

NA-III.E.2 Estimation procedures

Those responsible for data collection are invited every year to attend a workshop for analysis of the data and exchanges of information. It is in this workshop that the COST functions for data collected in year N-1 will be used in year N.

NA-III.E.3 Data quality evaluation

The individual data collection protocols ensure the best possible geographical and temporal coverage. Fish are purchased in multiple samples to increase the number of fishing geographical areas and cover the whole of the relevant quarter.

Sampling will take into account the recommendations of the ICES workshop on sampling and estimation of maturity (WKMAT and WKMOG), with respect to adequacy of stock coverage and timing of sampling relative to the spawning season. During ICES benchmark workshops, bias of the relevant stocks will be evaluated using WKACCU scorecard.

All protocols for otolith reading are available on a dedicated webpage : http://www.ifremer.fr/sih/affichagePageStatique.do?page=collecte_donnees/echantillonnage_terre/scle_rochronologie/sclerochronologie.htm

NA-III.E.4 Regional coordination

Micromesistius poutassou and *Scomber scombrus* are eligible for derogation as they represent less than 7% of the landings share of the stock, but as the sum of MS having less than 10% share

12 - <http://www.ifremer.fr/docelec/doc/2004/rapport-2651.pdf>

cumulates to 33% and 37% respectively (Table III_C_1), France will seek for a regional coordination of the sampling following the provisions of the regulation 2010/93/EU.

RCM NA recommendations	Actions implemented by France
The RCM NA recommends MS to refer to the table in Annex X of this report for elaborating maturity sampling programmes, when drafting their National Programme proposals 2011-2013	Done.
The RCM NA recommends that sampling for age should be increased in order to meet the required sampling levels for saithe (Vb), turbot (all areas) and John Dory (all areas).	Turbot and John Dory are very difficult species to sample for age without damaging the fish. France does not see a cost efficient way of collecting more otoliths from these species. France will sample all fish of these species caught during all surveys whether financed through DCF or not.
Collect all available biological stock-related data on blue whiting and analyse these combined in COST. Working Document for PGCCDBS.	Not done, because of time stress in this beginning of year 2010.
Métiers being extension of a neighbouring fishing ground. In some occasions, fishing activities in fishing grounds as defined by RCMs, contribute to the catches of a métier mainly operated in a neighbouring fishing ground. For example, saithe fishery in the North Sea extends to the most southern ICES rectangles of division IIa & IIIa, or redfish fishery in subarea XIV extends to NAFO subarea 1-2. RCM NS&EA 2010 disregarded the sampling obligations for the marginal catches in neighbouring fishing grounds and considered that these catches should be reallocated to the main fishing grounds for sampling considerations.	France will apply this recommendation for saithe in Sub-area VII.

NA-III.E.5 Derogations and non-conformities

The only derogation demanded is to consider, in accordance with the aforementioned RCM recommendation, saithe (*Pollachius virens*) in VII as a Southern extension of the ICES division VI stock.. The reason is that French vessels catching saithe in VII are on the extreme Northern part of the ICES sub-area VII.

EU evaluation of the French request was reserved considering that i) there is no ICES advice on saithe in VII (or VIII) and the working group ICES on Celtic Sea ecoregion apparently does not cover it neither, ii) the important TAC for saithe in this area (3411 t in 2010 for South-Western Waters + area VII) is based on “no scientific advice”, therefore the stock falls into category 11 and iii) the improvement of scientific knowledge on category 11 stocks is an UE commitment.

Last data on France landings of saithe in VII-VIII area are 185 tonnes in VII and 5 tonnes in VIII (year 2008), then under the threshold of 200 t allowing to ask for an exemption for stock related variables sampling. In fact, it is known that the TAC for this stock is not congruent with the real level of the catch, which is very lower. Moreover access to fish for biological sampling is difficult because the low landings are sold in small quantities in various auctions.

But considering the UE recommendation for the collection of data on this category 11 stock, France will do its best to carry out opportunistic sampling of saithe VII landings (stock specific sampling), in addition to the current concurrent sampling implemented in the Brittany auctions.

Mediterranean Sea and Black Sea

MED-III.E.1 Data acquisition

(a) Selection of stocks to sample

The figures used to build Table III_E_1 come from data gathered and agreed upon during PGMED 2010 (Lisbon, Portugal, 1-4 March 2010) and PGMED 2011 (Vienna, 7-11 February 2011). These data (**Annexes 8 and 9**) constitute a regionally approved reference for levels of catch by species and by country.

All stocks for which fisheries yield more than 200 tonnes annually and for which the French share accounts for over 10% of all landings evaluated by the PGMED are included in the sampling programme.

To note that, although their landings are below 200 t, France will collect stocks métiers variables on the two main target species of netters and trawlers in Corsica (GSA 08), namely spiny lobster (*Palinurus elephas*) and Norway lobster (*Nephrops norvegicus*). See updated Tables III_E.

(b) Type of data collection

The collection of individuals for biological parameters is mainly done by purchase of fish, based on procedure using systematic sampling. Surveys (MEDITS for demersals, and MEDIAS-PELMED for small pelagics) are also used for collecting biological parameters. This data collection can be considered as probability based sampling (B).

(c) Target and frame population

The target population is the population for which inferences are made, and is clearly defined from the Appendix VII of Commission Decision 2010/93/EU to be the stocks within their geographical boundaries. Regarding demersal and small pelagics, the stocks are given to be defined in GSA07, thus frame population is considered matching the target population.

(d) Sampling stratification and allocation scheme

The purchase of fish for collecting biological parameters is done on following a systematic procedure. This means that samples are collected at regular intervals (e.g. one sample per month for the small pelagics) all through the year or during the fishing season.

The maturity staging are done following the provisions of the relevant expert workshop (WKSPMAT 2008 for small pelagics, WKMSHM 2007 for hake) otherwise, it is done following the MEDITS protocol.

MED-III.E.2 Estimation procedures

Those responsible for data collection are invited every year to attend a workshop for analysis of the data and exchanges of information. It is in this workshop that the COST functions for data collected in year N-1 will be used in year N.

MED-III.E.3 Data quality evaluation

The individual data collection protocols ensure the best possible geographical and temporal coverage. Fish are purchased in multiple samples to increase the number of fishing geographical areas and cover the whole of the relevant quarter. The MEDITS survey covers the major part of GSA07 and GSA 08, and MEDIAS-PELMED covers the GSA07 in its entirety.

Sampling will take into account the recommendations of the ICES workshop on sampling and estimation of maturity (WKMAT and WKMOG), with respect to adequacy of stock coverage and timing of sampling relative to the spawning season.

All protocols for otolith reading are available on a dedicated webpage : http://www.ifremer.fr/sih/affichagePageStatique.do?page=collecte_donnees/echantillonnage_terre/sclerochronologie/sclerochronologie.htm

MED-III.E.4 Regional coordination

France is an active participant in the RCM Mediterranean and will take all necessary steps to promote and implement solutions defined in this regional forum.

RCM Med&BS recommendations	Actions implemented by France
The RCM-Med&BS recommends Member States to conduct the regional ageing sampling scheme proposed for bluefin tuna in 2010 following the PGMed conclusions. If possible MS can start collecting samples since 2009 if they have included this task in their NP.	Done.
RCM-Med&BS 2010 endorsed the suggestion made by the PGMed and recommends that for large pelagic stocks, the next sampling period for stock related variables will be conducted in 2013 by all Member states simultaneously (as stated by the EC/93/2010, related variables have to be collected every three year period).	Included in French NP 2011-2013 for action in 2013

The sampling for large pelagics in the Mediterranean Sea has been agreed during the PGMED 2010. The tables are presented in **Annexes 8 and 9**

MED-III.E.5 Derogations and non-conformities

None.

Indian Ocean (IOTC)

IO-III.E.1 Data acquisition

(a) Selection of stocks to sample

The stocks monitored are the three main species of tropical tuna (*Thunnus albacares*, *Thunnus obesus* and *Katsuwonis pelamis*), which make up virtually the whole purse seine and pole-and-line catch in the Atlantic and Indian Oceans, the temperate albacore tuna (*Thunnus alalunga*) and the swordfish (*Xiphias gladius*) mainly targeted by longliners in the Indian Ocean (La Reunion).

Studies also provide a secondary contribution to the monitoring by on-board observers of other species caught accidentally by purse seiners and longliners (*Thunnus alalunga*, *Xiphias gladius*, along with certain epipelagic billfish and shark species caught accidentally and in most cases discarded).

There are no regulatory controls in force in the Indian Ocean other than a limitation of fishing capacity (in terms of the number of vessels >24m and gross tonnage) to the total 2006 actual figure and this is valid until 2010.

(b) Type of data collection

Age: Stock studies of tuna species have traditionally been based on catch by age deducted from the catch by length and application of the growth curve for the relevant species. No specific studies based

on ageing are therefore requested by the relevant RFMOs (ICCAT, IOTC). However some ageing work is planned in the continuation of the “Regional Tagging Tuna Programme”, financed by DG MARE which ended in 2010.

Total weight: Although this information is not formally requested by the RFMOs, weight data are systematically collected as part of sex ratio and maturity studies for the species concerned. With the development of new integrated numerical models, new requirements are likely to arise such as more systematic collection of length-weight data (condition factors) or stomach contents (trophodynamism).

Dorsal and fork length: Fish individuals larger than 70 cm are generally measured in dorsal length aboard fishing vessels for convenience (i.e. callipers are too small) while fork length is required for providing size frequency dataset to the RFMOs. The routine collection of dorsal and fork length data for large yellowfin and bigeye is therefore a major prerequisite to estimate accurate dorsal length- fork length keys used for the conversion of raw data.

Sex ratio: It is well known that for yellowfin, bigeye and albacore tuna the males substantially dominate at larger sizes. For this reason, monitoring of the sex ratio of catches of yellowfin, bigeye and, where possible, albacore tuna will be continued.

Maturity: Maturity stage estimates will be conducted to revise current estimates, which are very long-standing and to monitor spatial and temporal (seasonal and interannual) variations in sexual maturity and spawning grounds.

(c) Target and frame population

The target population includes all the fishes landed in the harbour of Victoria (Seychelles) and processed in the local tuna cannery (Indian Ocean Cannery), for the entire Indian Ocean. The frame population is the canneries processing, where sampling will be made according to a stratified sampling scheme (see below).

(d) Sampling stratification and allocation scheme

A sampling stratification by species, size, and quarter will be implemented to obtain regular data on weight, fork and dorsal length, sex ratio, maturity, and fecundity for skipjack, yellowfin, and bigeye. The objective is to sample the maximum size range for the three species and to complete the sampling scheme for each fishing quarter following:

- Yellowfin (YFT): 28 size classes (30-160 by 5 cm) * 10 ind. = 280 ind.
- Bigeye (BET): 28 size classes (30-160 by 5 cm) * 10 ind. = 280 ind.
- Skipjack (SKJ): 17 size classes (30-60 by 2 cm) * 10 ind. = 170 ind.

In a first step, the sampling scheme will not include a sex stratum. Subsequent analyses based on the identification of the sex for the sampled fishes will allow determining the need to include a sex stratum. Note that the numbers of fishes to be sampled are target numbers and might not be reached depending on the cannery arrivals.

IO-III.E.2 Estimation procedures

Weight: The total weight (kg) of each sampled fish will be estimated with a PS103 scale to the nearest 50 g.

Dorsal length: Dorsal length of each sampled fish will be estimated with a calliper to the nearest ½ cm.

Fork length: Fork length of each sampled fish will be estimated with a calliper to the nearest cm.

Laboratory processes to estimate gonad maturity stages fecundity will consist in histological analyses, stereological techniques, and image analyses. Macroscopic and microscopic maturity staging on female ovaries will be carried out to estimate size-at-maturity. Monthly gonadosomatic indices will be computed to assess population spawning period and areas. Hydrated oocyte method and stereological methods will be used to estimate batch fecundity. Relative batch fecundity will be estimated as the number of oocytes in the final maturation stage per gram of female. Spawning fraction will be

estimated by presence of different types of postovulatory follicles in samples obtained from hydrated females. The estimation of the spawning frequency will be done according to the postovulatory follicle method. The proportion of fish containing postovulatory follicles divided by the estimated persistence of these structures will indicate the spawning frequency of the species and, consequently, the average spawning interval. Total fecundity will be then derived from the estimations.

IO-III.E.3 Data quality evaluation

The collection of these data on weight/sex ratio/maturity is conducted routinely in the factory context as possibilities permit (specific treatment for large tuna). Approximately one sample is taken each week, comprising 20-30 individuals, and equivalent sampling is done by the Spanish team. This is a sex ratio related to length and maturity, estimated by means of the ratio between gonad weight and total weight for females. As far as possible, the precise origin of the sample (place and time of catch) will be specified in order to be able to elaborate map of sex ratio, maturity and fecundity.

According to the study conducted in 2010, the macroscopic scale of maturity will have been validated and more precisely defined. Fecundity will be estimated through an automatic count of oocytes diameters.

IO-III.E.4 Data presentation

Data collected as described above will allow a presentation of biological parameters (sex ratio, maturity stage and fecundity) by quarter and area for each of the three main species each three year.

IO-III.E.5 Regional coordination

This occurs in the context of other activities linked to the collection of data on tuna (IEO/IRD/AZTI meetings, IOTC working groups).

IO-III.E.6 Derogations and non-conformities

No derogation is requested.

East Central Atlantic (ICCAT)

ECA-III.E.1 Data acquisition

(a) Selection of stocks to sample

The stocks monitored are the three main species of tropical tuna (*Thunnus albacares*, *Thunnus obesus* and *Katsuwonis pelamis*), which make up virtually the whole purse seine and pole-and-line catch in the Atlantic and Indian Oceans.

Studies also provide a secondary contribution to the monitoring by on-board observers of other species caught accidentally by such tuna fishing vessels: *Thunnus alalunga*, along with certain billfish and shark species caught accidentally and in most cases discarded.

Two species are subject to regulatory controls in the Atlantic:

Bigeye tuna (*T. obesus*), which is subject to an overall quota of 85,000 tonnes (R 09-01), no allocation between Member States being defined;

Southern albacore tuna (*T. alalunga*) for which catches are limited to an overall quota of 28 000 t in 2010 and 2011 with a quota of 21 551,3 for UE (R 09-05).

French bluefin tuna (*T. thynnus*) catch in ICCAT Atlantic area is around 11% of the EU one (table III.E.1), and takes place mainly in Bay of Biscay (ICES VIIIabd). France will sample BFT for stock related variable in 2013, jointly with updating planned in the Mediterranean sea as the stock is common to two areas.

(b) Type of data collection

Age: Stock studies of tuna species have traditionally been based on catch by age deducted from the catch by length and application of the growth curve for the relevant species. No specific studies based on ageing are therefore requested by the relevant RFMOs (ICCAT, IOTC).

Weight: Although this information is not formally requested by the RFMOs, weight data are systematically collected as part of sex ratio and maturity studies for the species concerned. With the development of new integrated numerical models, new requirements are likely to arise such as more systematic collection of length-weight data (condition factors) or stomach contents (trophodynamism).

Sex ratio and maturity: It is well known that for yellowfin, bigeye and albacore tuna the males predominate very substantially in the larger sizes. For this reason, monitoring of the sex ratio of catches of yellowfin, bigeye and, where possible, albacore tuna will be continued, along with the study of sexual maturity in all three species with a view to continuing the revision of the estimates currently used, which are very long-standing, and secondly in order to monitor spatial and temporal variations in sexual maturity and spawning grounds. Such monitoring of sex ratio and sexual maturity should continue for several years in order to follow variability from year to year. This is a sex ratio mapped against length.

(c) Target and frame population

The target population includes all the fishes landed in the harbour of Abidjan (Côte d’Ivoire) and processed in the local tuna cannery (“Pêche et Froid”), for the eastern Atlantic Ocean. The frame population is the canneries processing, where sampling will be made according to a stratified sampling scheme (see below).

(d) Sampling stratification and allocation scheme

A sampling stratification by species, size, and quarter will be implemented to obtain regular data on weight, fork and dorsal length, sex ratio, maturity, and fecundity for skipjack, yellowfin, and bigeye. The objective is to sample the maximum size range for the three species and to complete the sampling scheme for each fishing quarter following:

- Yellowfin (YFT): 28 size classes (30-160 by 5 cm) * 10 ind. = 280 ind.
- Bigeye (BET): 28 size classes (30-160 by 5 cm) * 10 ind. = 280 ind.
- Skipjack (SKJ): 17 size classes (30-60 by 2 cm) * 10 ind. = 170 ind.

In a first step, the sampling scheme will not include a sex stratum. Subsequent analyses based on the identification of the sex for the sampled fishes will allow determining the need to include a sex stratum. Note that the numbers of fishes to be sampled are target numbers and might not be reached depending on the cannery arrivals.

ECA-III.E.2 Estimation procedures

Weight: The total weight (kg) of each sampled fish will be estimated with a PS103 scale to the nearest 50 g.

Dorsal length: Dorsal length of each sampled fish will be estimated with a calliper to the nearest ½ cm.

Fork length: Fork length of each sampled fish will be estimated with a calliper to the nearest cm.

Laboratory processes to estimate gonad maturity stages fecundity will consist in histological analyses, stereological techniques, and image analyses. Macroscopic and microscopic maturity staging on female ovaries will be carried out to estimate size-at-maturity. Monthly gonadosomatic indices will be computed to assess population spawning period and areas. Hydrated oocyte method and stereological methods will be used to estimate batch fecundity. Relative batch fecundity will be estimated as the number of oocytes in the final maturation stage per gram of female. Spawning fraction will be estimated by presence of different types of postovulatory follicles in samples obtained from hydrated females. The estimation of the spawning frequency will be done according to the postovulatory follicle

method. The proportion of fish containing postovulatory follicles divided by the estimated persistence of these structures will indicate the spawning frequency of the species and, consequently, the average spawning interval. Total fecundity will be then derived from the estimations.

ECA-III.E.3 Data quality evaluation

The collection of these data on weight/sex ratio/maturity is conducted routinely in the factory context as possibilities permit (specific treatment for large tuna). Approximately one sample is taken each week, comprising 20-30 individuals, and equivalent sampling is done by the Spanish team. This is a sex ratio related to length and maturity is estimated by means of the ratio between gonad weight and total weight for females. As far as possible, the precise origin of the sample (place and time of catch) will be specified in order to be able to elaborate map of sex ration, maturity and fecundity.

According to the study conducted in 2010, the macroscopic scale of maturity has been validated and more precisely defined. Fecundity will be estimated through an automatic count of oocytes diameters.

ECA-III.E.4 Data presentation

Data collected as described above will allow a presentation of biological parameters (sex ratio, maturity stage and fecundity) by quarter and area for each of the three main species each three year.

ECA-III.E.5 Regional coordination

This occurs in the context of other activities linked to the collection of data on tuna (IEO/IRD/AZTI meetings, ICCAT working groups).

ECA-III.E.6 Derogations and non-conformities

No derogation is requested.

West Central Atlantic (WECAF)

WCA-III.E.1 Data acquisition

(a) Selection of stocks to sample

Biological parameters (sex-ratios, maturity staging) are routinely collected for both shrimps *Penaeus subtilis* and *Penaeus brasiliensis*. These sampling programmes will continue during the NP 2011-13 on a monthly basis. Biological parameters for snappers (*Lutjanus purpureus*, *Lutjanus synagris* and *Rhomboplites aurorubens*) will be updated one time during the NP period as required by the regulation. All the work will be carried out in French Guiana.

As far as feasible, collection of data to estimate biological parameters for blue marlin (*Makaira nigricans*) will be undertaken in Martinique.

(b) Type of data collection

All the data will be collected at the processing plants (shrimps) or by purchasing not gutted fish samples (snappers). The feasibility to collect biological information on blue marlin at sea or at fishmarket will be studied.

WCA-III.E.2 Regional coordination

There is no RCM covering the Western-Central Atlantic ocean. Regional coordination on shrimp fisheries and snapper fisheries is implemented in the scope of the FAO WECAF Commission.

WCA-III.E.3 Derogations and non-conformities

None.

Inland waters (eel and salmon)

INL-III.E.1 Data acquisition

Atlantic salmon (*Salmo salar*)

The mandatory declarations, to which details of salmon catches are added, provide very good sampling of the fish taken from stocks in rivers by all categories of fishermen (professional and recreational). Fishermen are asked to give details of the length of the fish and to attach a sample of their scales, which are examined to determine their age and life history (time spent in fresh water, time at sea, previous spawning).

In addition, the monitoring at migration control stations using trapping (this is the case for ICES Index Rivers) supplements the collection of data with regard to fish sex.

European eel (*Anguilla anguilla*)

Given that catches contain only one age class, no sampling is done on glass-eel fisheries.

In the case of professional fishermen : surveys supplementing SNPE data will be implemented with the aim of sampling river fishermen active in the metiers in the matrix presented in Table 1 (section 1.4.1), with the exception of “other” metiers, which relates solely to elvers. Four practicing fishermen per management unit should be sampled twice during each quarter (during the statutory fishing season). In the context of this sampling, their catches will be measured, weighted and an ocular index (i.e. stage of maturity) determined for each eel up to a maximum of 100 individuals.

INL-III.E.2 Derogations and non-conformities

Due to difficulties in implementing the eel management plan, no data on recreational eel fisheries (nets, fishing gears or lines) has been reported yet.

III.F. Transversal variables

III.F.1 Capacity

III.F.1.1 Data acquisition

Capacity variables are calculated for all registered vessels by crossing information from the fleet register and typological classifications derived from activity surveys. These classifications are in conformity with the appendix III of the EC decision.

The rules for vessel assignment are:

- the vessel size class is defined on the basis of its length overall (LOA),
- the dominant gear is the gear used by the vessel for more than half the yearly fishing time,
- the supra region to which the vessel belongs is determined by its last known supra region,
- vessels with no fishing activity registered during the year, are grouped together in the “Inactive” stratum.

Description of data sources :

- **Fleet register**

The fleet register determines the reference population. It contains all the vessels having an operating permit (Permis de Mise en Exploitation – PME), a necessary prerequisite to conducting any fishing activity, with their technical characteristics (length, GT capacity, engine power, year of construction...). (Ref. CE Regulations 1799/2006 and 26/2004). Each vessel file has a unique identifier.

- **Activity calendar survey**

The activity calendar survey is conducted yearly by Ifremer on the basis of preliminary documentation provided by available declarations (logbooks, fishing notes, sales notes)¹³. It covers the whole of the reference population. In particular, it provides monthly activity schedules indicating the main fishing grounds and metiers operated by the vessels. It is to be noticed that this procedure has the benefit to provide the metiers as given by the fisherman himself throughout the year and on an exhaustive basis and provide information on the part of no fishing activity which is not included in available declarations.

This survey is currently available for the North Sea, Channel, Atlantic, Mediterranean area (including Corsica) and overseas (Reunion, French Guiana and French Antilles).

Such surveys provide input each year for the typological classifications of vessels by fleet and a description of their metiers which in return makes also possible the definition of sampling plans to structure the routine data collection actions in response to the DCF technical decision. They are particularly useful for checking the completeness of declarative data (logbooks, monthly declarative forms and sales notes) and if necessary for re-evaluating them. They are also the exhaustive basis for doing estimation based on the on-site sampling data.

III.F.1.2 Data quality evaluation

Fleet capacity data are collected annually and cover the whole reference population (census).

¹³ - ICES CM 2008/K:12 "From fleet census to sampling schemes: an original collection of data on fishing activity for the assessment of the French fisheries." - Patrick BERTHOU*, Olivier GUYADER**, Emilie LEBLOND***, Sébastien DEMANECHÉ****, Fabienne DAURES**, Claude MERRIEN**, Patrick LESPAGNOL*** - <http://www.ices.dk/products/CMdocs/CM-2008/K/K1208.pdf>.

III.F.2 Effort

III.F.2.1 Data acquisition

(a) Data sources

Effort variables are calculated for all registered active vessels by crossing information from the following sources:

- fleet register (see III.F.1.2),
- activity survey (see III.F.1.2),
- logbooks contain declarative data, on a trip basis, on fishing effort, landings and catches per species, dates, locations and gears for all registered vessels 10m and over; (see EC Regulation 2847/93).
- monthly declarative forms contain declarative monthly data on fishing effort and catches per species by dates, locations and gears for all registered vessels under 10m.
- sales notes are collected from fish auctions. They contain per vessel data on sales per species in volume and value by dates and harbours.
- VMS (Vessel Monitoring System) data provide information on the monitoring of the GPS satellite position of all registered vessels over 15m (see EC Regulation 686/97)
- on-site sampling of trips. These sampling surveys are used to estimate fishing effort and landings of the vessels for which the coverage and precision of their available declarative data are insufficient. The sampling relates to vessels under 12m in the Mediterranean continental area (GSA 07), Reunion, French Antilles and French Guiana zones.¹⁴. The sampling frame is based on a survey (Ifremer activity survey) useful to optimise the strategy of the spatial on-site sampling plan; fishing trips catches and weekly activity calendar (effort) are sampled directly on-site, when the fishers come back to the harbour. The raising method is based on a post-stratification of the fishing trips and weekly calendar sampled and the use of the percentile bootstrap to estimate the precision.

(b) Methodology of calculation of effort variables

The allocation of a single métier to a fishing trip is based on the gear used and the dominant landed specie in value. The methodology to determine the dominant landed specie is based on a cross validation of the different sources and the raw ordination of the landed species. (Following 4th Liaison Meeting recommendation. The precision of this allocation will be estimated in an ongoing European project DGMARE/2008/10Lot2. The conclusions of this project could help refining the review of fishing activities during the course of the three year programme).

The calculation methodology depends on the type of variables (three groups are considered), the type of vessels (over and under 10m) and the supra-region considered.

a) Groups of variables :

1. Number of vessels, Days at sea¹⁵, Hours fished, Fishing days¹⁶, KW*fishing days, GT*fishing days and Number of trips.

¹⁴ - ICES CM 2008 / K:14 "A new approach to estimate catches and fishing effort of small scale fisheries by sampling fishing trips on-site" - Sébastien DEMANECHÉ, Claude MERRIEN, Joël VIGNEAU, Olivier GUYADER, Patrick BERTHOU, Patrick LESPAGNOL, Emilie LEBLOND, Fabienne DAURES - <http://www.ices.dk/products/CMdocs/CM-2008/K/K1408.pdf>

¹⁵ - The day at sea of a vessel practicing N métiers in M sub-regions during the same day will be accounted for N*M days at level B1 and 1 at level C3.

¹⁶ - The fishing day of a vessel will be accounted only once in the dominant sub-region of the day according to the chapter 1 definitions in the Commission decision but could be accounted for N at level B1 when the vessel practicing N métiers during the same day. In all these cases, it will be accounted 1 at level C3.

2. Total length of nets, Number of hooks (lines and longlines), Number of pots and traps.
3. Number of rigs, Number of fishing operations, Soaking time.

b) Vessels over 10m, all supra-regions :

Data collection is of census type. The completeness of the data available will be evaluated against the exhaustive Ifremer activity survey but the quality of the census is reputed to be sufficient for an estimation.

The calculation of the 1st group of variables is made on a monthly reference period¹⁷ by an estimation based on a cross-validation and completion of the logbooks data with other available sources: VMS data and sales notes¹⁸.

Following the implementation of a new IT chain since 2009, the calculation of the 2nd group of variables proved to be problematic and it has not been possible to derive these information for the years before 2011. In fact, the new IT chain led to a less quality-controlled field to inform these data with the consequence of insufficient sub sample of logbooks data with reliable gears characteristics information for estimating the indicators.

Initiatives to improve the situation began in 2011 and will continue in 2012 to enable gear characteristics to be better informed. In particular the data capture software has been complemented with a new frame of references aimed at controlling the relevant gear characteristics information with reliable upper and lower bounds. This add-on will be implemented late 2012 for a full effective running in 2013.

The calculation of the 3rd group of variables will not be feasible following the first conclusions of the pilot study carried out in 2009-2010 (see above). Further investigation and study will be necessary during the period 2011-2013 to elaborate a procedure for their estimation.

c) Vessels under 10m, North Sea and Eastern Arctic, North Atlantic :

Data collection is of census type. The completeness of the data available will be evaluated against the exhaustive Ifremer activity survey but the quality of the census is reputed to be sufficient for an estimation.

The calculation of the 1st group of variables is made on a monthly reference period¹⁹ by an estimation based on a cross-validation and completion of the monthly declarative forms with sales notes (see aforementioned footnote 19).

Following the implementation of a new IT chain since 2009, the calculation of the 2nd group of variables proved to be problematic and it has not been possible to derive these information for the years before 2011. In fact, the new IT chain led to a less quality-controlled field to inform these data with the consequence of insufficient sub sample of monthly declarative forms with reliable gears characteristics information for estimating the indicators.

Like for the logbooks of the vessels over 10m, initiatives to improve the situation began in 2011 and will continue in 2012 to enable gear characteristics to be better informed. In particular the data capture software has been complemented with a new frame of references aimed at controlling the relevant gear characteristics information with reliable upper and lower bounds. This add-on will be implemented late 2012 for a full effective running in 2013.

The calculation of the 3rd group of variables will not be feasible following the first conclusions of the pilot study carried out in 2009-2010 (see aforementioned footnote 20). Further

17 - The effort belonging to a fishing trip which crosses more than one month is registered the month when the fish is landed.

18 - Demaneche et al. 2009: projet SACROIS Ifremer / DPMA interim report.

19 - The effort belonging to a fishing trip which crosses more than one month is registered the month when the fish is landed.

investigation and study will be necessary during the period 2011-2013 to elaborate a procedure for their estimation.

d) **Vessels under 10m, Mediterranean and Black Sea, Other regions :**

Data collection should be on census type, but the completeness of the data available compared to the exhaustive Ifremer activity survey is reputed to be insufficient for an estimation of transversal data for the fleets operating in GSA 07 and overseas. In consequence, data collection of sampling type has been programmed; based on site samplings, in order to provide complementary data for a complete estimation (see aforementioned footnote 14)

Concerning the 200 vessels belonging to the Corsica fleet (GSA 08), the coverage rate of the declarative data has been first evaluated at approximately 50% for all the fleets which can be sufficient to do an estimation. In 2011, an evaluation of the quality of these data and of the possibility to raise them will be tested in collaboration with a local scientific team (Stareso) by cross-validation with their observers-at-sea data completed by data on activity-rate collected by regular surveys on harbours. In case of deficient coverage rate of the declarative data, the Bootstrap methodology will be used to evaluate the variables and the 95% probability confidence interval of the estimates.

The calculation of the 1st group of variables is made on a yearly reference period by an estimation based on data available from the cross-validation and completion of the monthly declarative forms with sales notes (see footnote 19) and from data provided by the on-site samplings.

Concerning the 2nd group of variables, up to 2012, priority was given to improve the estimation of landings and non specific effort (In particular, the estimation of the variable “number of trips” which is important to validate as the basis for the extrapolation). This was done by mixing all sources of information available, i.e. logbooks, monthly declarative forms, sales notes and on-site survey. The only on-site sampling information has proved to be reliable in estimating landings and effort for all the fleet components and this will allow its use to derive the gear characteristics. The low quality in the declarative forms for this kind of information will prevent its use for completing the survey, and this is due to impact only the final precision of the estimates.

The calculation of the 2nd group of variables will be made on a yearly reference period by an estimation based on the data provided by the on-site samplings.

The calculation of the 3rd group of variables will not be feasible following the first conclusions of the pilot study carried out in 2009-2010 (see footnote 20). Further investigation and study will be necessary during the period 2011-2013 to elaborate a procedure for their estimation.

III.F.2.2 Data quality evaluation

(a) Vessels over 10m, all supra-regions

Good quality is expected for the 1st group of effort variables thanks to numerous available sources and cross-validation methods. The quality has to be however evaluated against the exhaustive Ifremer activity survey.

For the 2nd group of variables, on-going initiatives began in 2011 and will continue in 2012 to enable gear characteristics data to be better informed. As a result, it is attended that reference year 2013 should be the first year entirely covered and thus estimates of these variables only available as from 2014.

The 3rd group of variables will not be available.

(b) Vessels under 10m, North Sea and Eastern Artic, North Atlantic

The quality of the 1st group of effort variables is expected to be sufficient because the coverage rate of monthly declarative forms is good in these areas, compared with the exhaustive Ifremer activity

survey²⁰ The Bootstrap methodology will be used to estimate the variables and the 95% probability confidence interval of the estimates in case of a deficient coverage rate for some fisheries.

For the 2nd group of variables, on-going initiatives began in 2011 and will continue in 2012 to enable gear characteristics data to be better informed. As a result, it is attended that reference year 2013 should be the first year entirely covered and thus estimates of these variables only available as from 2014.

3rd group of variables will not be available.

(c) Vessels under 10m, Mediterranean and Black Sea, Other regions

The quality of effort variables would be insufficient if based only on the monthly declarative forms because of their low coverage rates in these areas, compared with the Ifremer exhaustive activity survey (except for Corsica fleets where the methodology above mentioned will be used). On-site samplings provide additional data to improve the accuracy and precision of the estimates. The Bootstrap methodology will be used to estimate the variables and the 95% probability confidence interval of the estimates for the two first group of variables. For the 1st group of variables, sufficient quality of data is expected to assess reliable estimates.

For the 2nd group of variables, on-going initiatives began in 2011 and will continue in 2012 to enable gear characteristics data to be better informed in the monthly declarative forms. Till then, the 2nd group of variables, on a yearly reference period, will be estimated based on the only data provided by the on-site samplings. Sufficient sample is expected to be available for estimation but less precision than the DCF requirement is probable.

The 3rd group of variables will not be available.

III.F.2.3 Data presentation

Effort data on year N will be available for all segment and regions at two different stages:

A special data processing for stock assessment purpose, will be carried out in due time before stock assessment working groups, to allow experts to work with the “best” estimates available by the time of the working groups.

So, a 1st procedure will provide estimates based on raw data from the different declarative forms, scaled to the known fishing activity of year N-1. They will be available to the scientific community on a quasi real time basis (N+3 months) bearing the inherent risk of errors and incompleteness of working with unqualified and invalidated data.

The final qualified estimates with precision associated based on all the data available (including the different declarative forms) scaled to the known fishing activity of year N will be available in February N+2.

III.F.2.4 Regional coordination

France supports the RCM Baltic 2010 recommendation to set up a workshop on transversal variables in order to improve the understanding of data collection.

III.F.2.5 Derogations and non conformities

The 3rd group of variables – Number of rigs, Number of fishing operations and soaking time - will not be available for any vessels, whatever the supra-region is.

These information are not currently required (soaking time) or mandatory (number of rigs, number of fishing operations) on logbook/declarative data. A first investigation has showed that the quality of these variables in declarative data is too poor to provide reliable results. Complementary Investigations will be carried out to see in detail the feasibility of the estimation of this 3rd group of

²⁰ - Leblond *et al.*, Synthèse des flottilles 2008.

http://www.ifremer.fr/sih/affichagePageStatique.do?page=/produits/rapports_syntheses/flottilles/flottilles.htm

variables during the period 2011-2013. It would be especially relevant for the variable “number of fishing operations” (which could be derived from the variable “number of trips”, first step is then to estimate correctly this information) and also evaluate the possibility to estimate these variables from the on-site sampling data for vessels under 10m operating in the Mediterranean GSA 07 and in Other regions supra-region.

The non-requirement to fill the “soaking time” in the log-books would require complementary surveys, this will be evaluated during the time of the national programme. For the variable “number of rigs”, very few French vessels are affected and a special investigation on these vessels will be to plan to estimate the feasibility of its estimation.

The impossibility to provide estimates for the 2nd group of variables should be mainly overturned in 2013. On-going initiatives began in 2011 and will continue in 2012 to enable gear characteristics data to be better informed. As resultus of these initiatives, it is attended to be able to estimate these variables for the reference year 2012 from on-site sampling for vessels under 10m in the Mediterranean and Black Sea and for the reference year 2013 from the declarative forms for all other vessels. At a first stage, this information will be provided on a yearly reference period based on a sub-sample with reliable gear characteristics information, before attempting to report this information on a monthly basis.

The calculation of effort variables will be made on a yearly reference period for:

- the 1st group of variables – Number of vessels, Days at sea, Hours fished, Fishing days, KW*fishing days, GT*fishing days and number of trips- for vessels under 10m in supra-regions Mediterranean and Black Sea, other regions.
- the 2nd group of variables – Total length of nets, Number of hooks (lines and longlines), Number of pots and traps - for vessels under 10m in supra-regions Mediterranean and Black Sea, other regions-in 2013 and all other vessels in 2014.

In the Mediterranean and in the Other regions (overseas), the 1st and possibly the 2nd group of effort variables will be estimated through the “on-site data sampling” collected data available or an available sample of declarative data (Corsica fleets). For the moment, the sampling rate will not enable to do estimation at another reference period than the year.

In the end, monthly reference period estimates will be available only for variables calculated on the basis of a data collection of census type (through monthly declarative forms or logbooks) and for which the quality of the census is reputed to be sufficient. When an estimation has to be done on a sample or a sub-sample, only yearly reference period estimates are proposed at this time.

III.F.3 Landings

III.F.3.1 Data acquisition

(a) Data sources

Landings variables are calculated for all registered active vessels by crossing information from the following sources :

- fleet register (see III.F.1),
- activity survey (see III.F.1),
- logbooks (see III.F.2),
- monthly declarative forms (see III.F.2),
- sales notes (see III.F.2),
- VMS data (see III.F.2),
- on-site samplings of trips (landings and fishing effort) (see III.F.2).

(b) Methodology of calculation of landings variables

The allocation of a single métier to a fishing trip is based on the gear used and the dominant landed species in value. The methodology to determine the dominant landed species is based on a cross validation of the different sources and the raw ordination of the landed species. (Following 4th Liaison Meeting recommendation). The precision of this allocation will be estimated in an ongoing European project DGMARE/2008/10 Lot2. The conclusions of this project will help refining the review of fishing activities during the course of the three year programme.

The calculation methodology depends on the type of variables (three groups are considered), the type of vessels (over and under 10m) and the supra-region considered.

a) Groups of variables :

1. Live weight of landings total and per species.
2. Value of landings total and per commercial species, Prices by commercial species.
3. Conversion factor per species.

The methodology of calculation for the 2nd group of variables is depending on the availability of the sales notes data. An equivalent value in Euros of landings total and per species will be made by an estimation based on the sub-sample of sales notes available and the calculation of an average price by commercial species, type of vessels (over and under 10m.), supra-region, quarter and fleet of belonging. The prices by commercial species will be then derived.

The 3rd group of variables is a reference table which has to be yearly updated based on knowledge and specific biological studies.

b) Vessels over 10m, all supra-regions :

Data collection is of census type. The completeness of the data available will be evaluated against the exhaustive Ifremer activity survey but the quality of the census is reputed to be sufficient for an estimation.

The calculation of the 1st group of variables is made on a monthly reference period by an estimation based on a cross-validation and completion of the logbooks data with other available sources: VMS data and sales notes (see III.F.2 and footnote 19).

The calculation of the 2nd group of variables is made on a monthly reference period by an estimation based on the sales notes data available and the 1st group of landings variables estimates.

c) Vessels under 10m, North Sea and Eastern Arctic, North Atlantic :

Data collection is of census type. The completeness of the data available will be evaluated against the exhaustive Ifremer activity survey but the quality of the census is reputed to be sufficient for an estimation.

The calculation of the 1st group of variables is made on a monthly reference period by an estimation based on a cross-validation and completion of the monthly declarative forms data with sales notes data (see III.F.2 and footnote 19).

The calculation of the 2nd group of variables is made on a monthly reference period by an estimation based on the sales notes data available and the 1st group of landings variables estimates.

d) Vessels under 10m, Mediterranean and Black Sea, Other regions :

Data collection should be on census type, but the completeness of the data available compared to the exhaustive Ifremer activity survey is reputed to be insufficient for an estimation for the fleets operating in GSA 07 and overseas. In consequence, a data collection of sampling type has been programmed; based on site samplings, in order to provide complementary data for a complete estimation (see III.F.2 and footnote 15).

Concerning the 200 vessels belonging to the Corsica fleet (GSA 08), the coverage rate of the declarative data has been first evaluated at approximately 50% for all the fleets which can be sufficient to do an estimation. In 2011, an evaluation of the quality of these data and of the possibility to raise them will be tested in collaboration with a local scientific team (Stareso) by cross-validation with their observers-at-sea data completed by data on activity-rate collected by regular surveys on harbours. In case of deficient coverage rate of the declarative data, the Bootstrap methodology will be used to evaluate the variables and the 95% probability confidence interval of the estimates.

The calculation of the 1st group of variables is made on a yearly reference period by an estimation based on data available from the cross-validation and completion of the monthly declarative forms with sales notes data (see III.F.2 and footnote 19) and from data provided by the on-site samplings.

The calculation of the 2nd group of variables is made on a yearly reference period by an estimation based on the sales notes data available and the 1st group of landings variables estimates.

III.F.3.2 Data quality evaluation

(a) Vessels over 10m, all supra-regions

Good quality is expected for the 1st group of landings variables thanks to numerous available sources and cross-validation methods. The quality has to be however evaluated against the exhaustive Ifremer activity survey.

For the 2nd group of variables, quality of data will depend on the coverage rate of the sales notes data (expected to be good for these vessels). The calculation of an average price will be used for the estimation.

(b) Vessels under 10m, North Sea and Eastern Artic, North Atlantic

The quality of the 1st group of variables is expected to be sufficient because the coverage rate of monthly declarative forms is good in these areas, compared with the Ifremer exhaustive activity survey (see III.F.2 and footnote 22). The bootstrap methodology will be used to estimate the variables and the 95% probability confidence interval of the estimates in case of a deficient coverage rate for some fisheries.

For the 2nd group of variables, the quality of data will depend on the coverage rate of the sales notes data. The importance of non-auction sales for these vessels is problematic. A specific study has to be done to estimate the quality of the average price which could be calculated and used to assess the estimates.

(c) Vessels under 10m, Mediterranean and Black Sea, other regions

The quality of the two first groups of landings variables would be insufficient if based only on monthly declarative forms because of their low coverage rates in these areas (except for Corsica fleets where methodology above mentioned will be used), compared with the Ifremer exhaustive activity survey. On-site samplings provide additional data to improve the accuracy and the precision of the estimates. The Bootstrap methodology will be used to estimate the variables and the 95% probability confidence interval of the estimates for the two first groups of variables.

For the 1st group of variables, sufficient quality of data is expected to assess reliable estimates.

For the 2nd group of variables, sales notes are expected to be insufficient to calculate estimates. In addition, the quality of the data available into the on-site samplings data has to be evaluated through a specific study before assessing the quality which could be achieved for these specific landings variables.

(d) Conversion factors per species

The quality of the 3rd group of variables is depending on the knowledge and the possibility to carry out specific studies on this specific point.

III.F.3.3 Data presentation

Landings data on year N will be available for all segment and regions at two different stages:

A special data processing for stock assessment purpose, will be carried out in due time before stock assessment working groups, to allow experts to work with the “best” estimates available by the time of the working groups.

So, a 1st procedure will provide estimates based on raw data from the different declarative forms, scaled to the known fishing activity of year N-1. They will be available to the scientific community on a quasi real time basis (N+3 months) bearing the inherent risk of errors and incompleteness of working with unqualified and invalidated data.

The official, qualified and validated landings data estimates on year N, with precision associated based on all the data available (including the different declarative forms) scaled to the known fishing activity of year N will be available in February N+2.

III.F.3.4 Regional coordination

France supports the RCM Baltic 2010 recommendation to set up a workshop on transversal variables in order to improve the understanding of data collection.

III.F.3.5 Derogations and non conformities

The calculation of the two first group of landings variables - Live Weight of landings total and per species, Value of landings total and per commercial species, Prices by commercial species - will be made on a yearly reference period for vessels under 10m in supra-regions Mediterranean and Black Sea, other regions.

Yearly reference period has been proposed because of the variables will be estimated through the on-site sampling scheme collected data available or an available sample of declarative data (Corsica fleets). For the moment, the sampling rate will not enable to do estimation at another time scale than the year.

In the end, monthly reference period estimates will be available only for variables calculated on the basis of a data collection of census type (through monthly declarative forms or logbooks) and for which the quality of the census is reputed to be sufficient. When an estimation has to be done on a sample or a sub-sample, only yearly reference period estimates are proposed at this time., The calculation of the 2nd group of variables is depending on the quality/availability of the sales note data available, which is expected to be low for vessels under 10m, whatever the supra-region is.

In fact, for some of these fisheries, no auction sales will be available which makes it difficult to estimate a price for the catches. The prices sampled during the on-site sampling have to be evaluated during the time of the national program, to see the feasibility to estimate the 2nd group of variables of landings through only on-site data sampling without any auction sales data available.

III.G. Research surveys at sea

Regulation 665/2208 defines in Article 7 and Appendix IX of the technical Decision 93/2010/EU the scientific fishery surveys eligible under the DCR.

III.G.1 Planned surveys

In the case of France, six participations in international scientific surveys are submitted in the national programme 2011-2013. They are presented by region in reference to Appendix II of the aforementioned decision (see sections III.G.1.1 to III.G.1.6 below). The technical characteristics of these proposals are summarised in Excel table III.G.1. Since the surveys are maintaining long-term series, the protocols have largely been validated, are permanent and are repeated from one year to the next. The technical details are therefore valid for the three years 2011, 2012 and 2013, except when SGRN-10-03 in charge in September-October 2010 to review the Appendix IX of the technical decision modifies the list of eligible surveys for an application before 2014.

North Sea (ICES areas IIIa, IV and VIId) & East Arctic (ICES areas I and II)

III.G.1.1 International Bottom Trawl Survey first quarter – IBTS (French naming)

The surveys conducted under the International Bottom Trawl Survey programme are aimed mainly at estimating annual abundance indices for commercial species exploited in the North Sea. These indices are used by ICES assessment working groups for VPA calibrations and fisheries management recommendations. The first surveys were set up in the 1960s; France is a participant in this international programme, which has been coordinated by ICES (WG IBTS) since 1976 in conjunction with six other countries with North Sea coasts.

When assessing most fish stocks, herring in particular, the Eastern Channel is included with the North Sea, in light of the substantial interactions and exchanges between these two sea areas. For example, the sub-population known as “Downs herring” spawns in the east English Channel at the end of the year. In order to collect more information on this zone, and to reinforce larva sampling, the IBTS working group requested, in consultation with the Herring Assessment Working Group (HAWG), an extension to this sampling zone for IBTS surveys to include the Eastern Channel to longitude 0°. This zone is sampled by France and Netherlands since 2007.

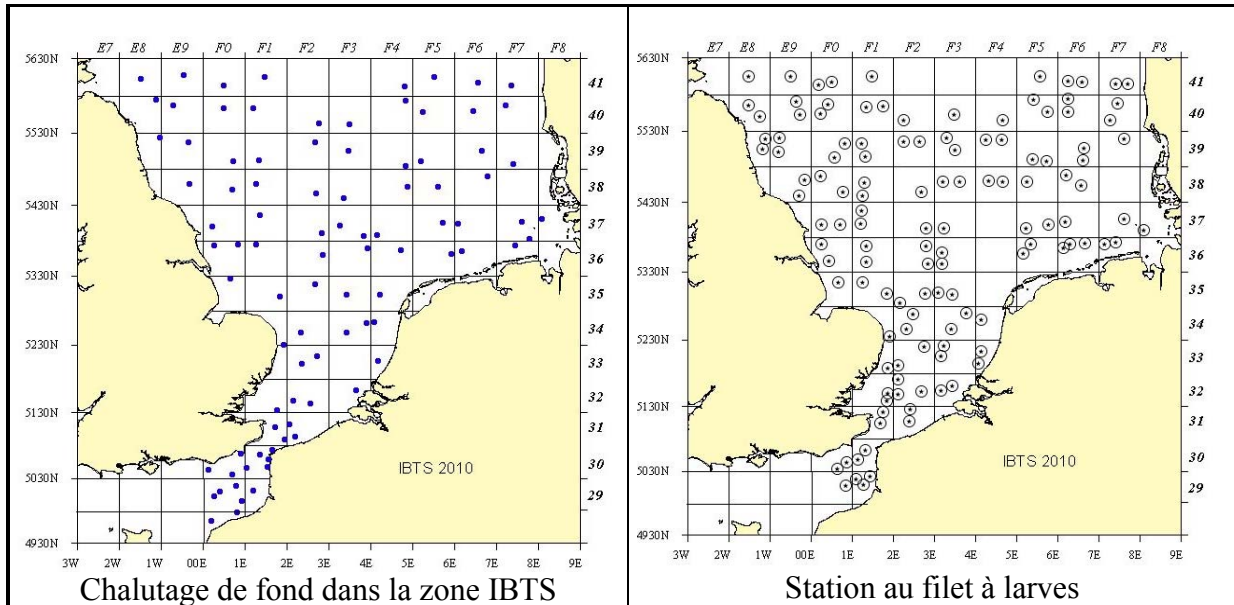
Each year, 85 bottom trawling hauls are planned over a period of one month (mainly February) in the southern part of the North Sea and in the Eastern Channel (map III.G.1.1). The hauls are being carried out by the research vessel “Thalassa”. The IBTS surveys are controlled under rigorous internationally defined protocols (DATRAS project, <http://datras.ices.dk/Documents/Manuals/Manuals.aspx>, annual WGIBTS reports): location of sampling stations within precise rectangles (30 minutes latitude by one degree longitude) covered by two different research vessels, standardisation of the fishing gear, catch analysis, biological sampling, etc...

The main species considered are whiting, cod, haddock, Norway pout, herring, sprat, mackerel and plaice, for which analyses include age-reading and maturity staging. In order to establish larval abundance indices (for herring and sprat), night MIK (Method Isaac Kidd) net sampling are also carried out, following a standard protocol. Hydrological stations are systematically associated with each of these fishery operations.

The data are validated by being reread and checked on board, where they are recorded in a temporary database. On land, consistency checks are applied to the data both internally and at ICES (DATRAS system (DATA base of TRAWL Survey) data screening module, see website <http://datras.ices.dk/>). Following their final validation on land, the IBTS data are uploaded in the “Scientific surveys” module of Ifremer’s Harmonie database. The actual data sets are also transmitted in the ICES-stipulated formats.

The protocols and scheduled operations will lead to production of ecosystem indicators linked to the surveys (codes 1 to 4 in Appendix XIII of the technical Decision 93/2010/EU).

In addition to restitution at national scale (for use by the industry, official agencies and the Regions), the main groups of users of IBTS data are: the Herring Assessment Working Group for the area “South of 62°N” (trawl data and larva net station data) (HAWG), the Working Group on the assessment of demersal stocks in the North Sea and Skagerrak (WGSSK), the Working Group on Assessment of New species (WGNEW), and the International Bottom Trawl Survey Working Group (WGIBTS).



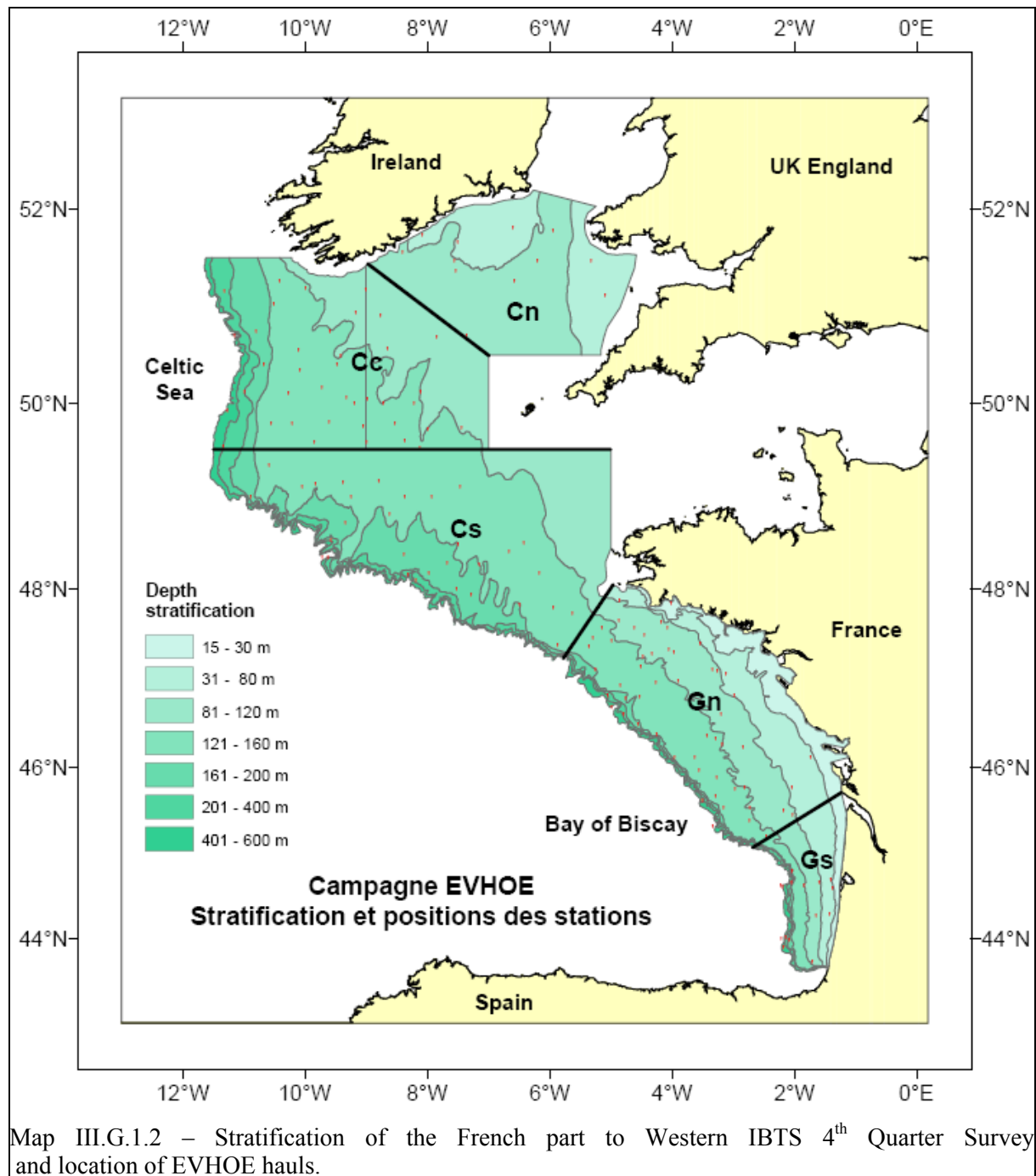
Map III.G.1.1 – Location of IBTS bottom trawling hauls (left) and MIK hauls (right). (Southern North Sea and Eastern Channel).

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

III.G.1.2 Western IBTS fourth quarter - EVHOE (French naming)

The surveys conducted under the Western International Bottom Trawl Survey programme is the extension of the North Sea IBTS one in the Western approaches (Irish Sea, Celtic Sea, Bay of Biscay). The objectives of the surveys are similar to those of North Sea IBTS : estimates of annual abundance indices for commercial species exploited in the concerned regions. The purpose of the EVHOE surveys (*Évaluation des ressources Halieutiques de l'Ouest Européen* / Evaluation of the fisheries resources of Western Europe, French contribution to the *Western IBTS 4th quarter* series) is to observe ongoing changes in populations of fish and invertebrates in the Celtic Sea and the Bay of Biscay (cf. map III.G.1.2). This series is also coordinated internationally by the ICES IBTS Working group, with protocols defined by the DATRAS project (see EVHOE manual at the following address <http://datras.ices.dk/Documents/Manuals/Manuals.aspx>).

Each year, sampling by bottom trawling is carried out from mid-October to early December (45 days, 155 stations, research vessel “Thalassa”) under standardised conditions (sampling plan, fishing gear, catch analysis protocol). All fish are measured and several commercial species are sampled for age reading and the species composition of benthic populations regularly observed. Biological parameters for commercially exploited species are collected in accordance with a sampling plan designed and coordinated by the ICES IBTS Working group. All these data make it possible to measure the level of annual recruitment of the various species of commercial interest. Temperature and salinity profiles are also determined for each haul.



Map III.G.1.2 – Stratification of the French part to Western IBTS 4th Quarter Survey and location of EVHOE hauls.

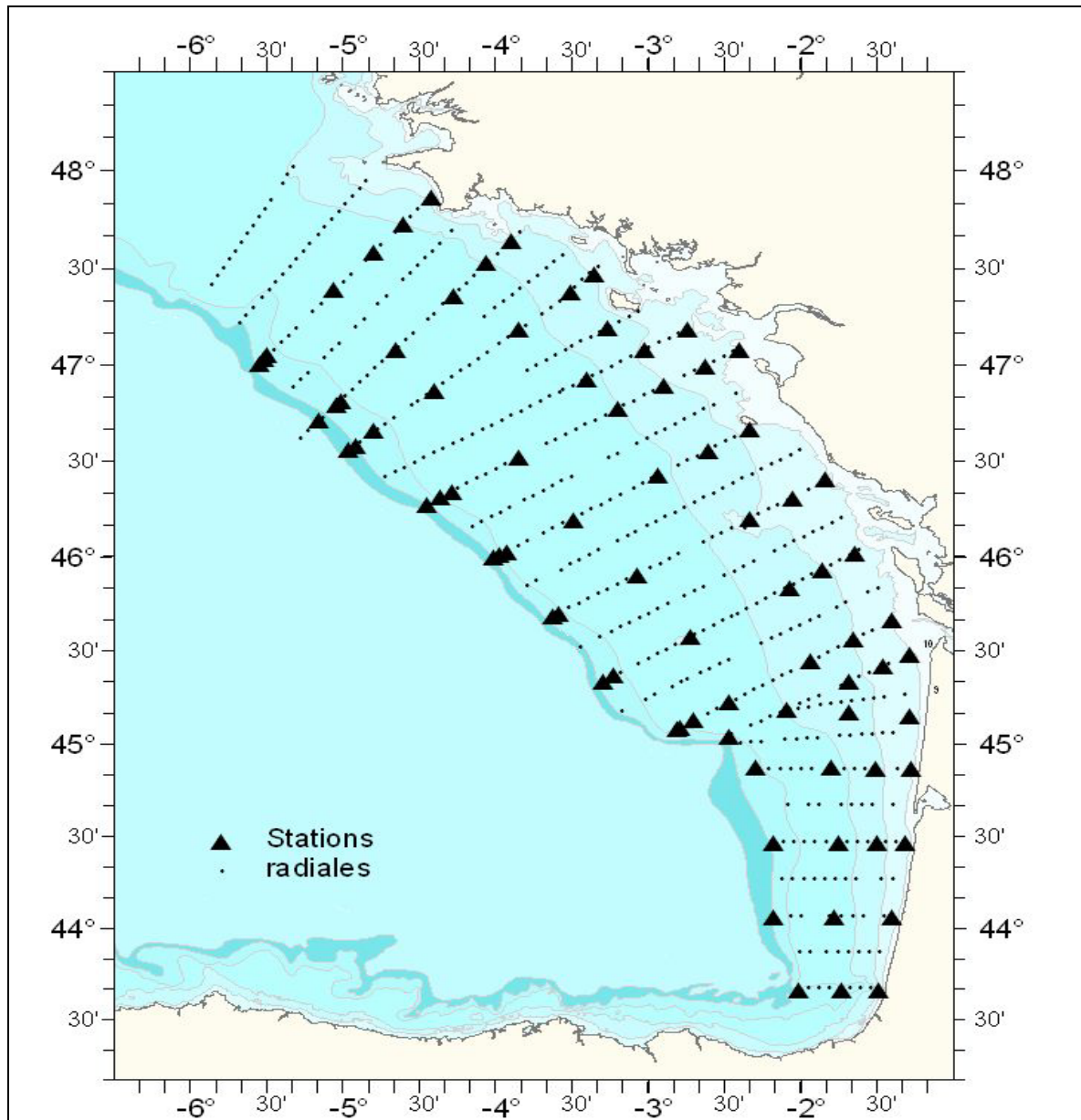
Data quality checking and data storing follow the same procedures as IBTS ones (see previous section). The validated data are finally uploaded in the “Scientific surveys” module of Ifremer’s Harmonie database. A data set is also transmitted to ICES in the stipulated formats.

The information collected will contribute to the production of ecosystem indicators linked to the surveys (codes 1 to 4 of Appendix XIII of the technical Decision).

In addition to restitution at national scale (for use by the industry, official agencies and the Regions), the main groups of users of EVHOE data are the ICES working groups assessing stocks in the Celtic Sea and the Bay of Biscay (WGNSDS, WGSSDS, WGHMM, WGNEW), in addition of course to the IBTS group.

III.G.1.3 Sardine, anchovy, horse mackerel acoustic survey – PELGAS (French naming)

The PELGAS survey (PELAGiques GAScogne) is the French contribution to the Sardine, Anchovy, Horse Mackerel Survey whose objective is to evaluate the abundance of small pelagics by acoustic coverage of the distribution of these resources from Gibraltar to the Celtic Sea. This series involves Portugal, Spain, France and Ireland through coordinated surveys, in terms of protocols and abundance indices estimates. This coordination and validation at international level is implemented by the ICES group WGACEGG.



Map III.G.1.3 – PELGAS acoustic transects design in the Bay of Biscay and planned hydrology and plankton stations. Identification trawling hauls may occur depending of fish schools detections.

The objective of the international Sardine, anchovy, horse mackerel acoustic survey is to enhance the understanding of the functioning of the pelagic ecosystem in the Bay of Biscay. This will permit i) characterisation of the spatial distribution (geographical and vertical) of the main species of small pelagics present in these zones in Spring (anchovy, sardine, horse mackerel, sprat and mackerel) along with their biological characteristics (structures in terms of length and sexual stage), ii) establishment of abundance indices for the four main species, including anchovy which is essential to the management of this stock, and iii) the mapping and quantification of anchovy and sardine spawning.

PELGAS, which is carried out each year by the research vessel “Thalassa”, usually takes place in Spring (April-May) and takes one month. It involves the use of continuous data acquisition tools (acoustic, fish egg sampling using the CUFES system, hydrology, meteorology) along a series of 22 parallel transects perpendicular to the French coast (2000 nautical miles in acoustic acquisition; see map III.G.1.3) and operations on station (approximately 50 trawls and 100 plankton samples, plus hydrological profiles established by bathysounder). PELGAS is an integrated survey using the Thalassa as a platform for diversified research to characterise the pelagic ecosystem: the physics and dynamics of water masses, biology, characterisation of populations, observation of the higher predators (birds and marine mammals). Only those actions linked to estimation of the abundance of small pelagics are proposed for co-financing under the DCR as part of the French national programme.

The echo-integration data are acquired and processed in real time using the Thalassa’s echo sounders (5 frequencies available) and the MOVIES+ software. The raw data are stored in HAC format for all frequencies and part-processed on board. Echo interpretation and final processing of the data for determination of abundance estimates are stored in an active database (Baracouda) which allows scenarios and procedures to be memorised, which in turn ensures satisfactory follow-on for processing from one year to the next, as well as high quality for the abundance indices produced by these surveys. The biological samples from the catch species are studied at sea and on return to the laboratory (age-length keys on adults and juveniles, length-weight relationships).

The characteristics of the stations and all the biological data and abundance estimates are stored in the “Scientific surveys” module of Ifremer’s Harmonie database. The raw acoustic data are stored separately (in the Baracouda database) while awaiting the development of a module specifically intended for them. Links are provided between the two databases. There is no an international database covering all the national surveys participating in the Sardine, anchovy, horse mackerel acoustic survey. Works to achieve this goal is currently in progress as a term of reference of the group WGACEGG.

The information collected through identification hauls would contribute to the production of ecosystem indicators linked to the surveys (codes 1 to 4 of Appendix XIII of the technical Decision) if data on the pelagic ecosystem are considered as useful to calculate them.

In addition to data restitution at national level (for the profession, official agencies and the Regions), which is important in the current context of anchovy fisheries, the data are made available each year to the ICES working groups WGANSA and WGWIDE (in charge of assessing stocks of small pelagics exploited in the North East Atlantic), the WGACEGG group and other experts groups (STECF, RACs).

III.G.1.4 Blue whiting survey

Fishing for blue whiting generates catches of nearly 2 million tonnes and constitutes one of the biggest resources in EU waters in terms of tonnage. However, there is uncertainty as to the assessment of the state of this stock. ICES has therefore recommended that an international survey be carried out to estimate this resource across the whole area of its distribution and during its period of reproduction (March – April).

With this in mind, fishing Member States agreed since 2005 to carry out under Dutch coordination the acoustic Blue Whiting Survey listed in the Appendix IX of the technical Decision 93/2010/EU. A compromise was reached to share the costs of the survey on a basis prorated to average catches for the years 2002-2004 and an involvement of Member States whose contribution to EU catches exceeds 5%.

Considering that the French part is around 7% of the EU landings for the reference fishing period 2007-2008 (source: Eurostat, see Table III.E.1), France remains open for renewing the agreement between concerned Member States defining financial rules for organising the Blue whiting survey for next three years 2011-2013. France applies for the RCM-NA to update the reference data and propose a new multilateral agreement during its 2010 meeting.

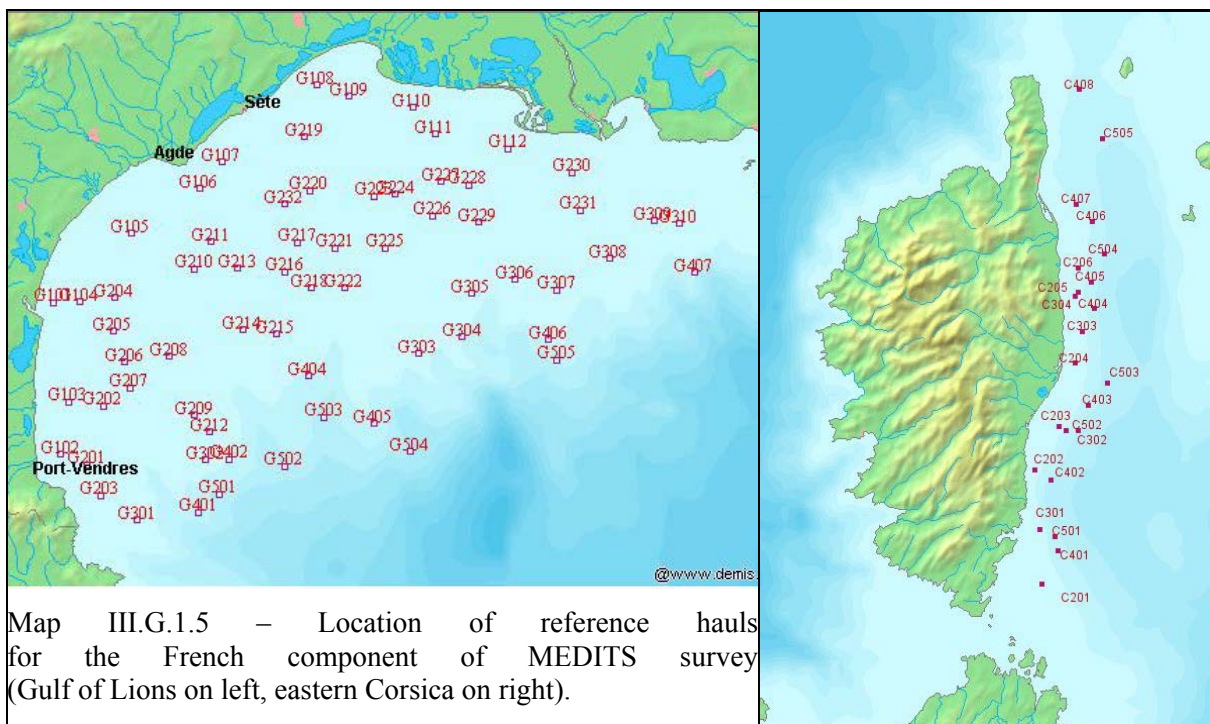
As The Netherlands are coordinating the survey at the international level, to see the Dutch NP for technical aspects and use of the collected data.

Mediterranean Sea and Black Sea

III.G.1.4 Mediterranean international bottom trawl survey – MEDITS-FR (French naming)

The MEDITS series covers a large part of the Mediterranean and Black seas (see <http://www.sibm.it/SITO%20MEDITS/principaleprogramma.htm>). Its main objective is to assess, with common protocols, demersal resources in areas suitable for trawling at depths of between 10 m and 800 m and to give biological information useful on the main commercial species and for characterizing trends in the exploited ecosystems and populations. The MEDiterranean International bottom Trawl Survey (MEDITS) programme was launched in 1993 at the urging of the European Commission (DG XIV); it brings together participants from all Mediterranean Member States, along with some non EU-countries. Coordination of the national contributions is provided by the appropriately named “MEDITS group”, set up under the aegis of the GFCM and declared eligible by the European Commission under the DCR. This has a website for its coordination (<https://www.ifremer.fr/medits>, access restricted to partners).

The MEDITS-FR survey (the French component of the series) covers the Gulf of Lions and off the eastern Corsican coast (map III.G.1.5). Each year, around 90 hauls (respectively 64 in GSA 7 and 26 in GSA 8) are carried out by the research vessel “L’Europe” in late Spring (35 days at sea between May and early July), following a standardised protocol common to all the participant countries (see aforementioned website), at positions repeated from one year to the next (systematic sampling design). All catches of fish, crustaceans and cephalopods are sorted, numbered and weighed. Certain commercially important species are sampled in length and detailed biological observation is collected for age reading, sex ratios, etc. Hydrological data supplement operations are performed at each trawling station.



The data are validated by being reread and checked on board, where they are recorded in a temporary database. On land, consistency checks are applied to the data using automatic protocols to verify their reliability. In addition, effort is maintained to improve continuously the quality of the data collected at sea: production in 2007 of an identification manual for the species caught during MEDITS surveys, photographic atlas of the stages of maturity of the main species (renewed in 2009 and 2010). Finally the yearly validated data set is uploaded in the “Scientific surveys” module on Ifremer’s central database “Harmonie”.

The data are put to systematic use at international level by the MEDITS group. A common exchange format in three tables was agreed between the data providers but there is no real regional database where desaggregated national data are stored. This point is being discussed by the group and such an issue was still recommended by DG MARE and RCM Med&BS in 2009. However the MEDITS group makes available (accessible to the general public) at http://www.ifremer.fr/Medits_indices/ or <http://www.sibm.it/SITO%20MEDITS/principaleprogramme.htm> standardised population indices validated by experts and which reflect the trends observed in the ongoing changes in species populations and catch compositions in the Mediterranean. In addition to data restitution at French national level (for the profession, official agencies and the Regions), MEDITS data are also used by GFCM working groups and sub-groups of STECF as SGMED.

III.G.1.6 Pan-Mediterranean pelagic survey MEDIAS – PELMED (French naming)

The PELMED surveys began in 1993 and was eligible under the DCR extended programme since 2002. The aim of this French series was to assess abundance of small pelagics resources in the Gulf of Lions using acoustic transects accompanied by pelagic trawl hauls to identify echo-traces detected. Until 2007 each annual survey involved a systematic sampling design from Port-Vendres (Spanish boarder) to Marseille following in daylight (6:00 to 22:00 hours) nine parallel transects perpendicular to the coast, 12 nautical miles apart and crossing the whole width of the continental shelf. The acoustic acquisition was in continue and the catches of the identification hauls were completely enterily analysed in their entirety: numbers and weight per species, length sampling, age-length key sampling for sardine, anchovy and hake and the updating of the biological parameters.

The context of the scientific acoustic surveys directed on small pelagics has changed in 2007. The European Commission asked the Member States to coordinate their efforts to explore these resources, efforts which have until now been deployed in accordance with national objectives and not always as part of DCR actions (RCM-Med, Malta, 2006). The RCM-Med gave strong support to the project for a coordinated international survey (Pan-Mediterranean Acoustic Survey) presented by Greece at its meeting in April 2007 (RCM-Med, Cyprus, Nicosia). The first meeting of the MEDIAS (MEDiterranean Acoustic Survey) group was held In February 2008 in Athens, at which a protocol was defined for the implementation of the five acoustic surveys concerned in the Mediterranean and eligible under the DCF regulation: agreement on the period (June – July), survey design with parallel transects perpendicular to the coastline, acoustic acquisition during daytime, contribution of each Member States, software, catch analysis, abundance indices estimates. The MEDIAS protocol (international manual webpage not yet available) is relatively similar to the one implemented for the Atlantic Sardine, anchovy, horse mackerel acoustic survey. Bulgaria and Romania joint the MEDIAS project at the beginning of DCF, with their common acoustic survey in the Black sea (RCM-Med&BS, France, Sète-Sofia, 2008-2009).

According to the MEDIAS survey design, the French component have to cover the area between Barcelona and Marseille. As a consequence, the PELMED survey was extended in 2008 to include the relevant Spanish area. For the NP 2011-2013 period, the French acoustic survey will be carried out on the continental shelf from transect 14 (off Barcelona) to 29 (off Marseille) (map III.G.1.6). With the Spanish coordinated component of the survey, the distribution area of the northern anchovy stock in Catalonia and the Gulf of Lions will in this way be covered.



The MEDIAS protocol will be applied. This will guarantee availability of data under the required format, allowing potential use to estimate ecosystem indicators linked to the scientific surveys (codes 1 to 4 of appendix XIII of the technical Decision 93/2010/EU).

Sixteen transects totalling around 2100 nautical miles of acoustic acquisition are planned, along with two or three daily trawl hauls coupled with hydrology parameters collection will be performed on echo-detections not exceeding the 200-metre isobath. Anchovy, whose biomass has decreased over the recent period, and sardine, are the focal species of the survey, with the notable aim of gaining further knowledge on their juvenile phases. Biological analysis of the haul catch will be carried out according to the MEDIAS protocol and DCF requirements.

MEDIAS-PELMED 2010-2013 will last 35 days. It will be conducted in July (the most favourable period for assessment of anchovy abundance) and both French and Spanish scientists will be on board of the French research vessel “L'Europe”. The costs included in the ad'hoc finforms of the French national programme relate solely to national expenditure (vessel costs, staff and consumables costs).

All acoustic data are acquired on four echo-sounder frequencies and pre-processed using the software Movies+. Given the modest size of the research vessel and of the scientific team on board, a large part of these data are analysed after the survey: sea floor corrections, building of energy levels per layer, echo analysis and classification, allocation of reference trawls for estimation by ESDU. All these steps are subject to verification and validation procedures. The storage of the acoustic data, abundance estimates and biological data are similar to those used for PELGAS (Ifremer Barracuda and Harmonie databases).

In addition to data restitution at national level (for the profession, official agencies and the Regions), PELMED data are also used by GFCM working groups and sub-groups of STECF as SGMED. Moreover a negotiated action funding by DG MARE has been also set up in 2010 to review the surveys designs and harmonise (and store) in a common format all the historic acoustic data collected by the Member States during the period 2002-2006. This study would lay out regional trends analysis possibilities at relatively short term. Ifremer (France) is involved in this project lead by HCRM (Greece).

III.G.2 Modifications in the surveys

No modifications of the surveys designs or sampling protocols are planned or expected during the NP reference period 2011-2013. All the sampling schemes are consistent with the technical Decision 93/2010/EU requirements and with the recommendations of the working groups coordinating the various series (WGIBTS, WGACEGG, MEDITS and MEDIAS groups).

The technical details are therefore valid for the three years 2011, 2012 and 2013, except when SGRN-10-03 in charge in September-October 2010 to review the Appendix IX of the technical Decision modifies the list or the specifications of eligible surveys for an application before 2014.

III.G.3 Data presentation

The final data set relative to an annual survey can be considered as available to end-users one year after the survey. Validation and checking quality of data are currently tasks carried out in the laboratories for the months following the survey. Samples analysis, otoliths or scale age readings, acoustic data processing are indeed performed on land and are relatively time consuming works, especially for acoustic surveys and surveys on board of research vessels less than 30-35 m.

In case of calls for data expressed by international scientific bodies, the delay for access to data can be shorter but the information transmitted will be therefore to use as not validated and qualified data.

Depending of the request for data and in order to protect the professional interests of the data collectors for scientific valorisation, France can also refer to Article 20(3) of the Council DCF regulation EC/199/2008 (allowing withholding data transmission to the end-users for a period of three years following the date of collection of the data).

III.G.4 Regional coordination

All the French surveys submitted to the DCF co-funding are coordinated at international level. As already presented The relevant Working groups are WGIBTS, WGACEGG, MEDITS and MEDIAS groups. French experts are regularly participating in the annual meetings of these Working groups.

Coordination of surveys can be also achieved via the RCMs or other specific projects: coordination of the Blue Whiting Survey (RCM-NA), terms of reference of MEDITS and MEDIAS groups (RCM-Med&BS), MEDIAS historic database, calibration workshops on maturity staging for example. French scientist are well involved in these dynamics.

III.G.5 Derogations and non conformities

France does not request any derogation. Moreover and as mentioned in section III.G.2, no modification of the protocols for the five surveys carried out by France is currently envisaged for the period 2011-13, if not requested by international bodies (RCMs and liaison Meeting, STECF, SGRN).

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

IV.A. Collection of economic data for the aquaculture

IV.A.1 General description of the aquaculture sector

The aquaculture industry in France covers the following principal activities:

- Marine shellfish farming: sales of production of adult shellfish stood at 193,646 tonnes in 2007 for a value of €400 million, which breaks down into 58% oysters (essentially cupped varieties), 40% mussels (mainly *Mytilus edulis*). This activity is carried on by approximately 3,120 enterprises of widely varying sizes and employing 18,400 workers equating to 9,300 full time equivalents (FTE), this employment being highly seasonal. The producers are largely one-person businesses (73%) whose activity is often very limited.
- Saltwater fish farming: sales of fish produced for consumption stood at 7,990 tonnes in 2007 for a value of €54m, essentially comprising sea bass, sea bream and turbot (only one farm specialises in the production of Atlantic salmon). Marine fish farming is conducted by forty or so specialist enterprises employing 600 workers, equating to 570 FTEs.
- Freshwater salmon farming: sales of production of adult fish stood at 33,800 tonnes in 2007 for a value of €95m, 96% of the fish being rainbow trout. Seventy one percent of all sales were for consumption with other uses including most notably the supply of fish for restocking and procurement for leisure angling. This activity is carried on by 350 commercial enterprises of very widely varying size, 49% of which are one-person businesses registered as such. Beside these enterprises, 100 non commercial units (association or federal) are specialised on young fish production for restocking, these units can't be included in the DCF programme. Salmon farms employ 1,680 people, equating to 1,390 FTEs.
- Pond fish farming: enterprises with this as their main activity number less than a hundred. Sold production stood at 8,000 tonnes and a value of €15m, essentially carp (53%) and roach (24%). In addition to this production by professionals, some farmers have small ponds for aquaculture production as a secondary activity.

Aquaculture in France also includes production on a smaller scale by a few specialist firms: shrimp farming (panaeids) with production of 40 tonnes and less than 8 enterprises, seaweed cultivating (seaweed for foodstuffs and cosmetics) with production of 30 tonnes and less than 8 enterprises.

France's overseas *départements* have aquaculture activities representing less than 3% of total national production. Aquaculture is carried on there in environments different from those in Europe, involving specific techniques and species.

IV.A.2 Data acquisition

(a) Definition of variables

All the data will be collected in accordance with the appendix X of the Commission Decision and the segmentation defined in appendix XI.

The table below specifies definitions of variables and complements the table IV.A.3 which indicates sources of data for each variable.

Variable group	Variable	Specification	Unit	Definition Structural business statistics (SBS) Regulation (EC) no 2700/98
Income	Turnover	Per species	Euro	Turnover related to the sale of sea products
	Subsidies		Euro	Only direct operating subsidies, excluding exemptions of welfare costs and indirect subsidies such as subsidized loans
	Other income		Euro	Turnover relating to sales excl. sea products, to services and other activities
Personnel	Wages and salaries		Euro	The calculation method will be based on the analysis of business accounting. Wages and salaries including those from groups of employers or temporary employment agencies
	Imputed value of unpaid labour		Euro	The calculation method will be based on the analysis of business accounting. It will be defined within a national working group. The estimation procedures will be described in a specific document.
Energy costs	Energy costs		Euro	Fuel and electricity costs : standing charge and consumptions at sea and at land
Raw material costs	Livestock costs		Euro	Purchase of animals.
	Feed costs		Euro	Purchase of food raw materials.
Repair and maintenance costs	Repair and maintenance		Euro	Usual repair and maintenance costs of equipment of the enterprise
Other operational costs	Other operational costs		Euro	Packaging, not depreciated small equipment and other running costs
Capital costs	Depreciation of capital		Euro	Method of depreciation based on the evaluation of the assets by component.
	Financial costs, net		Euro	Financial income minus loan interest costs and fixed assets.
Extraordinary costs, net	Extraordinary costs, net		Euro	Costs linked to events such as natural catastrophes or agricol calamities + exceptional negative results
Capital value	Total value of assets		Euro	The calculation method will be based on the analysis of the assets of the company.
Investments	Net Investments		Euro	Purchase - sales of assets (property, equipment) during the financial year.

Debt	Debt		Euro	All debts (banking, social, fiscal, providers) .
Raw material volume	Livestock		Ton	Volume of purchase of animals, excluding stock variations but including self-consumption.
	Fish feed		Ton	Volume of purchase of food raw material (kg).
Volume of sales	Volume of sales	Per species	Ton	Volume relating to sale of sea products, excl. stock variations, incl. self-consumption.
Employment	Number of persons employed	By Gender	Number	Average number of persons employed in the enterprise..
	FTE national	By Gender	Number	Average number of FTE during the financial year.
Number of enterprises	Number of enterprises	By size category where the number of persons employed is: (SBS 16.11.0): 1) ≤ 5 - 2) 6-10 3) > 10	Number	The size of the enterprise is measured by the number of wage earners of the on 31/12/N-1.

(b) Type of data collection

Data collection will combine two information sources, one of census type and the other by non-probabilistic sampling:

- an exhaustive national annual survey (A-type) will allow to collect data on production (volume and value), employment.
- accounting and extra-accounting data will be collected from a non-probabilistic sampling of enterprises (C-type). Data will be collected from chartered accountant centres, specialised in the aquaculture sector, on the basis of the enterprise financial accounts and of a supplementary survey.

The table IV.A.3 mentions the information sources used for each variable.

(c) Target and frame population

The population of reference comprises:

- enterprises whose main activity is classified as aquaculture under NACE code 03.21 (marine aquaculture) or 03.22 (freshwater aquaculture);
- enterprises holding concessions for areas in the public maritime domain (*Domaine public maritime* – DPM) used for the farming of fish and shellfish;
- enterprises with premises holding public health certification for the cleansing or shipment of live shellfish;
- enterprises carrying on fish farming certified with regard to diseases legally designated as infectious or contagious (VHS, IHN, ISA) where such farming is the main activity.

A detailed breakdown of aquaculture enterprises according to the segmentation proposed by the economic data collection framework (DCF) is provided in Table IV.A.1.

(d) Data sources

The information sources described below are used to provide the segmentation of the target population of enterprises and to calculate the economic indicators for each selected segment.

Production exhaustive survey

Data on production volumes have been collected since 1997 by means of an exhaustive postal survey of firms. Council Regulation (EC) no. 788/96 on the submission of statistics on aquaculture was replaced in July 2008 by Regulation (EC) no. 762/2008 of the European Parliament and of the Council, applicable from 2009. This regulation increases the number of items of information and segments the activity by species and farming technique in a more detailed manner than before.

In 2009, the production survey have been revised in order to meet the requirements of the new EC regulation no. 762/2008 and to include the information needed to start the new section on aquaculture activity in the DCF, for which the population segmentation is different.

The aquaculture industry comprises a large number of one-person businesses which are often difficult to identify in the official records. In order to build a list of such enterprises a range of databases must be examined:

- the SIRENE register of enterprises in sectors 03.21 or 03.22;
- the list of public health certificates issued for the shipment of live shellfish, the list of individual qualifications relating to infectious and contagious diseases maintained by the General Food Directorate at the Ministry of Agriculture and Fisheries;
- data relating to public domain (DPM) concessions and concession-holders maintained by the Directorate of Maritime Affairs (*Direction des Affaires Maritimes – DAM*).

The list of enterprises is drawn up each year using the previous survey, with input provided by examination of the databases listed above. Given the differences in identifiers in all these various sources, a single identifier is used specifically for this production survey.

The survey is carried out on an exhaustive basis by postal mail and provides for two reminder letters and a partial reminder programme by telephone. Different questionnaires are used according to the type of aquaculture: saltwater shellfish farming, saltwater fish farming, freshwater fish farming.

Since 2009, the production survey is enabling the following:

- list of enterprises covered by the DCF, with information on their main farming techniques for each species, this being necessary for the subsequent segmentation of the population of reference in accordance with the category breakdown in tables IV.A.1 and IV.A.2;
- establishment of data for sold production per species (in volume and value) and employment for each representative segment in the population of reference which are part of the variables in Annex X and table IV.A.3.

Accounting and extra-accounting data

Accounting and non-accounting data will be collected from a sample of enterprises belonging to the target population. They will be collected by the Nantes University, which will lead a network of partners including chartered accountant or financial management centres. Non-accounting data will be got from a supplementary survey, which will be validated annually in order to provide the required indicators.

(e) Sampling stratification and allocation scheme

On the basis of the results of the annual national exhaustive survey of aquaculture enterprises, the target population will be stratified according to the table IV.A.1. The stratification from year N-1 will be used to define the programme of collection of economic data.

For shellfish farming and if possible freshwater fish farming, data collection will be made from a sample of enterprises selected from the files of accounting and financial data kept by chartered accountant or financial management centres specialised in these economic sectors. The planned sample rate is from 15 to 20%.

The small number of saltwater fish farming, their specialised characteristics, and their large size will presumably allow a higher sample rate, around 50%.

The objective for 2011 is to collect data according to the segmentation as defined in table IV.A.1. A working group is going to be set up in order to improve the segmentation, so as to better reflect the actual structure of this economic sector.

It is therefore planned to collect economic data from a sample of about 450 enterprises (table IV.A.2)

IV.A.3 Estimation

As regards the annual production exhaustive survey, the response rate is generally between 60 and 70%, with a higher rate by companies than by one-person businesses. The activity of non-responding firms is estimated by two means:

- a missing reply is replaced by a random drawing among answers received from the same geographic region belonging to enterprises with the same legal status ;
- from the answers in year N-1 and N for the same enterprises, the evolution of production per species is calculated by region and legal status. The evolution is then applied to the result by region / legal status in year N-1 to estimate the production in year N.

The comparison of these two estimations indicates a good reliability when the difference is low.

Economic data collected from a sample of enterprises can also include data on production, at least the value of sales, possibly employment data. It will therefore be possible to compare data obtained from both sources. The representativeness of samples will be measured by segment by comparing the mean and distribution in the sample with data obtained from the exhaustive survey.

Economic indicators derived from sampling will be calculated for each segment by using « Horvitz-Thompson » estimators.

IV.A.4 Data quality evaluation

Production exhaustive survey: returns are sorted by checking the validity of the responses in relation to the primary information (location, activity or known farming capacity) in addition to internal consistency (quantities produced in relation to areas worked and numbers of employees).

Collection of accounting and non-accounting data: quality control will be made during the data collection process and on the results of estimation. Procedures of quality control and data validation include:

- Test of consistency : Cross-validation of information from tax files and sales data..
- Test of homogeneity : There may be atypical values for various reasons in some enterprises. The homogeneity test allows to identify indicators significantly different from the average value in the segment.
- Test of continuity : Each year, gaps between observed values and “theoretical” values based on previous tendencies will also allow to detect anomalies, with reference to a pre-determined threshold.

IV.A.5 Data presentation

Schedule for the collection and availability of the 2011 economic variables

Data collection in 2011 will relate to 2010.

	Period
Determination and stratification of the population of reference in 2009	March 2011
Collection of accounting and non-accounting data	March to October 2011
Availability of final data for 2010	January 2012

Schedule for the collection and availability of the 2012 economic variables

Data collection in 2012 will relate to 2011.

	Period
Determination and stratification of the population of reference in 2010	March 2012
Collection of accounting and non-accounting data	March to October 2012
Availability of final data for 2011	January 2013

Schedule for the collection and availability of the 2013 economic variables

Data collection in 2013 will relate to 2012.

	Period
Determination and stratification of the population of reference in 2011	March 2013
Collection of accounting and non-accounting data	March to October 2013
Availability of final data for 2012	January 2014

IV.A.6 Regional coordination

No action is foreseen.

IV.A.7 Derogations and non conformities

It is not planned to collect data in overseas regions, where there is a small number of enterprises, very dispersed, and representing a very small part of the national production.

IV.B. Collection of data concerning the processing industries

The national programme for 2011-2013 has been defined with a view to continuity with previous programmes for the collection of economic data in the industries processing marine products and it takes account of regulatory changes. France will also collect economic data in its French overseas départements (DOM).

IV.B.1 Data acquisition

(a) Definition of variables

The variables are listed and defined in Appendix XII of Commission Decision of 18 December 2009.

The data of year N are collected during the year N+1 and finally validated in March N+2. For example, the data of year 2010 will be collected in 2011 and validated in March 2012.

The variable FTE is declared by enterprises according to their national branch collective agreement.

The definitions of variables are specified in the table below.

Group of variables of 1520 enterprises (champ 1)	Variables	Definitions	Reference year of the data	Available year
Income	Turnover	Turnover Annual net sales (champ 1) Turnover attributed to fish processing sales (champ 0)	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
	Subsidies	Direct subsidies only, excluding exemptions from social charges and indirect subsidies such as loans at especially favourable interest rates.	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
	Other revenues	Annual net sales relating to sales not including marine products, provision of services and other activities.	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Personnel Costs	Wages and salaries of staff	Wages, salaries and social charges	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
	Imputed value of unpaid labour	Seasonal staff cost	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Energy costs	Energy costs	Expenditure on fuel and electricity: contract subscriptions and payment for consumption.	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Raw materials costs	Purchases of fish and other raw materials for production	Purchases of raw food materials	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Other operating costs	Other operating costs	Purchases of packaging, small equipment items not subject to depreciation and other operating expenses.	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)

Capital costs	depreciation of capital	Amortization, depreciation expenses	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
	financial costs nets	Financial income less interest expenses relating to the locking up of capital	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Extraordinary costs, net	Extraordinary costs, net	Extraordinary income less extraordinary expenses. More precise definition is needed	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Capital value	Total value of assets	Total assets	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Net investment	Net investments	Acquisition and disposal of assets (real property, plant and equipment) during the financial year	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Debts	Debts	Total liabilities of the company	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Jobs	Number of individuals employed by category	Salaried workforce of the company in the financial year	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
	Number of jobs in Full Time Equivalents by category (national reference)	Number of Full time Equivalents (FTEs) during the financial year	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)
Number of enterprises	Number of enterprises by category (0-10; 11-49; 50 -249; over 250)	Breakdown of firms by size category. The size of a firm is determined by its salaried workforce in the year.	N (2010, 2011, 2012)	N+2 (2012, 2013, 2014)

Group of variables of other enterprises (champ 0)	Variables	Reference year of the data	Available year
Number of enterprises	Number of enterprises by category (0-10; 11-49; 50 -249; over 250)	2010	2012
Income	Turnover attributed to fish processing activity	2010	2012

(b) Type of data collection

The type of data collection is census for all enterprises whose main activity code is NACE 15.20 (NAF 1020Z), snails out, and for all enterprises that carry out fish processing but not as a main activity .

(c) Target and frame population

Enterprises whose main activity belongs to “fish industries” and NACE code 15.20 (snails out) in accordance to Eurostat nomenclature. In France the nomenclature code NAF is 1020Z (snails out) (FranceAgriMer code: champ 1).

Enterprises that carry out fish processing but not as a main activity, holding public health certification for the safe handling of marine products for the purposes of processing (filleting, deep-freezing,

canning, smoking, cooking, etc.) and for which the level of annual sales revenue relating to marine products is significant (FranceAgriMer code : champ 0).

A detailed breakdown of processing industries according to the segmentation proposed by the economic data collection regulation (DCF) is provided in Tables IV.B.1 and IV.B.2.

- all enterprises identified in “Champ 1” are surveyed each year.
- for enterprises identified in “Champ 0” data turnover and number of enterprises are collected the first year of the National Programme.

Each year, the list of enterprises is updated (active business).

The description of the population is supplemented by the information in Table IV.B.1

(d) Data sources

The SIRENE register. This allocates a unique identifier to all enterprises on the French national territory. The register also provides information on each firm regarding its geographical location, main activity and salaried workforce.

The list of public health certificates maintained by the General Food Directorate at the Ministry of Agriculture and Fisheries. It provides a list of firms holding public health certificates for the safe handling of marine products with a code assigned to each of the processing activities carried on each firm.

A postal survey (cf **Annex 10**) backed by telephone reminders covering all firms in the population of reference. The enterprises are followed up with reminders sent by email and phone in order to maximise percentage response.

The containing accounting and financial. Enterprises submit their annual financial statements to Commercial Court registries (a statutory obligation on pain of a fine in case of non-compliance). However, there are some enterprises not included in the database (enterprises in personal name for example are not required to file their annual accounts).

The table IV.B.2 mentions the sources used for each variable.

(e) Sampling stratification and allocation scheme

There is no sampling prior to the survey.

IV.B.2 Estimation

The three sources are crossed (SIRENE register, survey and financial accounts) by the unique French code: SIREN number.

There is no estimate of the variable if the response rate is below 70% after crossing the 3 sources.

Estimation of non-responses:

- assignment undertaken by number of persons employed within 5 to 6 slices in statistical process.
- assignment of the average slice of the company lacked the same edge.
- individual audit for coherence by comparison between different years.

IV.B.3 Data quality evaluation

On each variable, the response rate is calculated, after the crossing treatment. Under 70%, the variable is non available. Above 70%, the estimation of non-responses gives all information necessary to validate the data.

IV.B.4 Data presentation

There is no confidentiality problem. No individual data are diffused.

The schedule for the collection and availability of the data processing industries is the following:

- 2011 - The collection conducted in 2011 will relate to data 2010.

Activity	Period
Establishment of the list of enterprises forming the 2010 population of reference	May to August 2011
Survey of the enterprises carried out	September to October 2011
Initial data validation	November to December 2011
Availability of provisional 2010 data	January 2012
Second validation	February 2012
Availability of final 2010 data	31 March 2012

- 2012 - The collection conducted in 2012 will relate to data 2011.

Activity	Period
Establishment of the list of enterprises forming the 2011 population of reference	May to August 2012
Survey of the enterprises carried out	September to October 2012
Initial data validation	November to December 2012
Availability of provisional 2011 data	January 2013
Second validation	February 2013
Availability of final 2011 data	31 March 2013

- 2013 - The collection conducted in 2013 will relate to data 2012.

Activity	Period
Establishment of the list of enterprises forming the 2009 population of reference	May to August 2013
Survey of the enterprises carried out	September to October 2013
Initial data validation	November to December 2013
Availability of provisional 2012 data	January 2014
Second validation	February 2014
Availability of final 2012 data	31 March 2014

IV.B.5 Regional Coordination

No coordination meeting is envisaged under the national programme for 2011-2013.

IV.B.6 Derogations and non conformities

There is no derogation requested.

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

V.1. Indicator 1 – Conservation status of fish species
Indicator 2 – Proportion of large fish
Indicator 3 – Mean maximum of large fish

(a) spatial and temporal coverage

These three indicators are calculated from scientific surveys data. Data collected for the French components of the 5 surveys series eligible to the DCF regulation (see section III.G.1) will be available to estimate them, as summarized in technical table III.G.1. And especially those collected during demersal surveys. *A priori* and according to reference lists of species systematically numbered and sampled in length, indicators 1 to 3 will be calculable annually for the years included in the whole historical period of each survey.

Other scientific surveys series could be also used for the issue : Channel Groud Fish Survey (VIId, same protocol as IBTS, eligible to DCR from 2002 to 2008), ORHAGO and LANGOLF series (benthic resources in the Bay of Biscay), and may be some very coastal demersal surveys.

In conclusion , the spatial coverage will extend from shallow waters of the continental shelf to the upper part of the slope (up to 400-500 m depth), could be : southern North sea, eastern English Channel (VIId), Celtic Sea and Bay of Biscay in the Atlantic supra-region, Gulf of Lion and eastern Corsica in the Mediterranean.

(b) data processing

Protocols of all the surveys carried out by Ifremer, and so of those conducted under the French national programme, require exhaustive analysis of the catch of each fishing operation. However, effort will be required from the scientists on board the research vessels to assure the quality of that analysis, especially for the smallest species (a 5cm threshold at adult stage having been set) and invertebrates.

This issue requires in particular to improve the taxonomic referentials to validate all the scientific names of the species collected.

The data collected are stored in Ifremer's *Harmonie* database and can be extracted at the level of each fishing operation for the purposes of calculation of the first three indicators in Appendix XIII of Commission Decision 2010/93/EU. A tool integrating extraction procedures and automatic calculations of indicators is currently developed under a generic form allowing to choice parameters as size limits, thresholds, etc... These developments are carried out outside the DCF with other funding sources. The availability of the tool is scheduled for the end of 2011.

V.2. Indicator 4 – Size at maturation of exploited fish species

(a) spatial and temporal coverage

The surveys referred in section V.1 will also provide necessary data for calculation of this indicator. But several reports of DCR/DCF workshops on maturity staging highlight that sampling for maturity has do be done during the spawning season. Then there is evidence that surveys will not be sufficient to collect the primary data useful to estimate the indicator 4 for all the commercial species. Sampling them at the market (if fish are not sold gutted) or at sea (by observers for example) will be necessary at the relevant seasons. These actions will come along with samplings carried out under section E.

The geographical coverage of indicator 4 has to be analysed, by historical analysis of the surveys to define which species are sampled at the good period and also by studying whether the geographical origin of fish sampled for maturity on shore can be well determined.

Completeness of the indicator 4 shall be also analysed because maturity staging (which include sex determination and juvenile/mature staging) is routinely carried out only for few species. For most of the commercial species, regular updating required by the DCF regulation is indeed every three years.

Regional coordination between Member states would be surely a way to improve i) the number of stocks updated annually at a given geographical level, by defining for example common year of reference for updating biological parameters and ii) the coverage of commercial stocks at the right scale of their geographical distribution.

(b) data processing

The size at maturity of the main species exploited can be calculated using readings of the maturity stages at length described in the section “Biological variables relating to stocks”. The stocks for which this indicator can be calculated are indicated in Tables III_E_2 and III.E.3. It should be noted that the information used to determine whether 100 samples per age class (Appendix XIII) will be available for each stock is indicative only and could be adjusted after the first estimates of the indicator taking in account the precision achieved. All in all, it is therefore likely that more stocks meeting the criteria of this indicator will be available one time at least during the NP reference period 2011-2013.

French biologists are reviewing the availability of data and their periodicity to produce Indicator 4 on commercial species size at maturity. They are also currently working with IT technicians for including this indicator in the aforementioned tool for calculating ecosystem indicators (see V.1.b). France ability to produce the 4th indicator is expected for the beginning of 2011.

(c) tropical tuna specific case

This parameter being unavailable through scientific surveys for tuna, data collected through methods described in chapter III.E.1 will then allow to compute sex ratio, maturity and fecundity for main tuna species. It may be noticed that, for both yellowfin and bigeye, maturity occurs largely after the size of full recruitment in the fishery (*i.e.* 100-110 cm of fork length, *vs.* 40-55 cm). Precise way to compute these indicators will be explored and proposed through ICCAT and IOTC working groups.

V.3. Indicator 5 – Distribution of fishing activities
Indicator 6 – Aggregation of fishing activities
Indicator 7 – Areas non impacted by mobile bottom gears

(a) spatial and temporal coverage

VMS regulation concerns currently all the vessels above 15 m LOA. The distribution of fishing effort is then assessed only for these vessels. The zone where indicators 5 to 7 will be calculated is fishing areas where these vessels are operating : for European waters from North sea and Eastern Arctic to Mediterranean sea. Information is also available for some overseas operating fleet like French Guiana shrimp trawlers and tropical tuna purse seiners.

During the NP 2011-2013 period, VMS regulation will apply also to vessels between 12 and 15 m LOA. For France, the actual spatial coverage will not change in terms of fishing areas but information in coastal waters will become more important and consequently the three indicators on distribution of fishing effort should be more accurate.

VMS are operating as soon as the vessel is leaving its harbour. All the trips performed by the vessel are then theoretically available as well as detailed data on its geographical positions all around the year.

(b) data processing

VMS positions of the French vessels are reported every hour. On the basis of this data, France (Ifremer) has developed a generic algorithm not restrictive to a particular fishing area. This algorithm aims to identify the fishing trips of all the vessels in the same format as the logbooks and allows describing the spatial distribution of the vessel during a fishing trip. It aims to estimate the fishing effort and its distribution on a spatial grid.

For a given vessel, this algorithm uses the following parameters for each position i) the distance to the nearest harbour (this implies to have a reference table with the all the harbours positions), ii) the average speed between the position and the previous, and iii) the spatial unit where the vessel is.

The two first parameters are used to determine, for each position, if a fishing trip begins or ends and thus, to identify and list the fishing trips (date and harbour of departure and end of the trips, number of days at sea). The second parameter is also used to define if the vessels is fishing or steaming, by gear. The third one allows characterizing the distribution of fishing effort for different types of spatial unit. Two spatial grids are considered : 10' of latitude by 10' of longitude and the ICES rectangle (1° of longitude by 30' of latitude). Different decision rules have been implemented to identify questionable or false data and tag them with quality indicator.

This algorithm allows characterizing precisely the activity of the vessels and defining several levels of aggregations for the spatialization of its activity. Meanwhile, this routine can provide the data needed to develop maps of spatial distribution of effort.

To link all the positions with the metier classification, a specific source of information is used : annual activity calendars, collected through an annual survey on the activity of the fleets carried out by Ifremer. This survey identifies the list of the metiers performed each month of the year by each vessel. The data is available within a few months, but provides more reliable and accurate data on gear than the European fishing vessels register.

Results are stored in two tables of *Harmonie* (the database for fisheries data at Ifremer). The first one contains all the characteristics of VMS trips and the second information the spatial distribution of activity of one vessel for each day of a trip. This processing is applied at the beginning of every month to activity in the preceding month. Once the processing has been completed, the tables will be loaded automatically in *Harmonie*. Alongside this, the routine will provide the necessary data for the creation of maps showing the spatial distribution of fishing effort.

From 2011, France will be able to provide indicators 5 and 6 on the basis of a spatial unit of 10' of latitude by 10' of longitude and 2' by 2', with the following limits :

- the definition of metier can not be done by level 6, but level 5.
- depending the date of data report and the annual updating of the database on activities, the metiers could be defined based on fishing activity calendar data of the previous year.

In a second step, during the period 2011-2013, different processes will be developed to provide data on metier level 6, especially by linking VMS with logbooks data. The standardized outputs of VMS tools are compatible with logbooks (as they are in the same format) and allow linking VMS data to the logbook data which provides information on gears and metiers at the required level.

Finally, Indicator 7 will be provided from 2012. Based on the trajectories of the vessels recorded by VMS, an estimation of the distance and the impacted areas will be calculated for vessels using mobile bottom gears. An estimation of non impacted area will then be carried out.

This can be done actually for vessels over 15 meters but data processing will be adapted to cover all the component of the French fleet complying with the VMS regulation changes (at short term in force also for all vessels more than 12 m long).

(c) tropical tuna fisheries

For tropical tuna fisheries, the study conducted in 2011 has defined the methods to be used to construct indicators 5 to 7.

(d) availability of VMS data

VMS data are the property of the Ministry in charge of fisheries, as logbooks. DPMA is the depositary of both types of data, considered confidential as individual data.

Scientists can have access to VMS data on justified requests giving reasons for using them. Rules on using (minimum level of aggregation) are in force. Currently, scientists have access to hourly VMS positions of the French vessels.

V.4. Indicator 8 – Discarding rates of commercially species

(a) spatial and temporal coverage

The significant increase since 2009 in sampling effort at sea and the protocol for collection of data on board fishing vessels will provide estimates of the levels of discards of the main species exploited. Information on the métiers sampled at sea, along with the intensity of that sampling, is provided in Table III_C_4. The geographical and temporal coverage of Indicator 8 will be directly linked to the métiers followed in section III.C.

(b) data processing

Results of processing of data collected at sea under section C will be used to calculate indicator 8. As French protocols at sea recommend concomitant analysis of the retained and discarded of the catch of the fishing operation sampled by observers, discarding rates will be available at the most disaggregated level and for well defined métier at level 6.

(c) tropical tuna fisheries

For tropical tuna fisheries, the study conducted in 2010 will have defined the methods to be used to construct indicator 8.

V.5. Indicator 9 – Fuel efficiency of fish capture

(a) spatial and temporal coverage

Spatial coverage will be the one of the French fleets fishing areas. As temporal periodicity is currently the year, data will be available at a high spatial scale depending of the fleet segments fishing patterns.

(b) data processing

Indicator 9 is the ratio between the cost of fuel and the value of the catches landed.

Landing values are quantified quarterly by species, by métier and by fleet segment for the sub-regions.

Fuel costs and consumption are evaluated on the basis of a stratified economic sample that is representative of each fleet segment by supra region. In addition, the economic indicators are determined annually.

It is therefore not possible to calculate the ratio of energy cost to landing value with the data available. This is so because the seasonality of the information is not the same for the different elements involved in the calculation and the representativeness of the basic data is not identical.

In the context of this programme it will be possible to calculate an annual ratio for each fleet segment for the supra region.

In order to meet the requirements of the Regulation, a feasibility study will therefore be conducted and collection of additional information envisaged in order to provide a breakdown of fuel costs at the level of precision and seasonality requested. In particular, this will involve, firstly, testing the collection of information on fuel costs per trip during observation of trips at the point of landing and, secondly, examination of how the data on fuel purchases per vessel and per refuelling can be collected

and processed in a manner such as to produce the required indicators. Several tests will need to be conducted to determine the quality of the indicator obtained.

The implementation of the collection of additional information and the feasibility study can be initiated in 2010 but will relate essentially to the programmes that follow.

For tropical tuna fisheries where big companies are involved and where the vessels are very specialized, this indicator results from the reconciliation of landing values and fuel costs, should be feasible in conjunction with economists.

Application for derogation:

For the calculation of this ratio quarterly by metier and sub-region in future programmes.

VI. Module on data management and utilisation

VI.A. National management of DCF data

VI.A.1 The data collection system

(a) Data collected

The collected data, primary, detailed and aggregated, are the data provided by all the partners applying sampling schemes and data collection procedures described in the former modules III to V. Partners also produce metadata relating to the data aggregation carried out by them.

On completion of processing by partners the data are centralised, stored and historised by DPMA (*Direction des Pêches Maritimes et de l'Aquaculture/Fisheries and Aquaculture Directorate*).

(b) DPMA data and metadata management and restitution

The data communicated by partners are stored at a national host site and then reprocessed by DPMA to meet calls for the provision of data.

Two types of operations are possible:

- operations of statistical type to obtain data at the required level of granularity,
- operations for the presentation of data in preparation for their availability or transmission.

The necessary metadata are produced when these operations are carried out.

Economic data and certain types of ecosystem data are processed by a ministerial statistics department working on behalf of DPMA.

When this reprocessing has been completed, the finalised data are placed on the national website.

(c) Quality, validation and completeness of data

Processes of evaluation of the quality, validation and completeness of data are described in the corresponding chapters. All data are already storage in the different information systems, and process will be enhanced with the implementation of the datawarehouse.

(d) Availability of data

When the processing of the data has been completed, they are made available to the end users through national networks via accessible and secure means.

VI.A.2 Data management within an urbanised information system: FAIS (SIPA)

All the data collected to meet calls for data under the DCF are managed at national level within FAIS (*Fisheries and Aquaculture Information System, FAIS / Système d'Information des Pêches et de l'Aquaculture, SIPA*).

(a) Description of FAIS (SIPA)

After a first version of FAIS, available for the period 2006-2008, the implementation of the second version of FAIS is scheduled to unfold over the period 2009-2011.

FAIS is governed by logic of urbanisation based on the organisational structure of the Ministry of Food, Agriculture and Fisheries (*Ministère de l'Alimentation, de l'Agriculture et de la Pêche, MAAP*).

For that purpose, it is essentially structured around sets of reference criteria common to the whole of the Ministry (users, civil servants, regions), international sets of reference criteria (e.g. FAO), or fisheries sets of criteria (fisheries, fleet, gears...), that are provided to all partners (Maritime Affairs, FranceAgrimer, Ifremer, etc.) with a consistent set of codifications, lists and unified reference criteria

based on the regulatory controls and on interoperability. This concordance makes it possible to ensure perfect communication between internal DPMA applications and the information systems of partner organisations.

This organisational structure means that data are entered only once, information flows are controlled (input and output data), and the harmonised information (metadata, dictionaries, data) can be made available to all in various forms to match the needs of each user (raw data, reconciled data, aggregated data, etc.).

The storage of the values derived from the production (and management) applications in a datawarehouse enables implementation of a system for helping decisions, or guided management, as well as the historisation of the whole structure (data and common reference criteria at a moment in time t) which in turn allows the various actors to obtain data for input into their own systems.

The FAIS respects general rules and the ministry policy of information systems and technologies. For example, they are backed up and dated (linked in with current codifications and common criteria). Data produced earlier will be transferred and integrated into the storage facilities. A security policy is realised for each application and database, by determining the needs for availability, integrity, confidentiality and evidence.

All projects are managed according to the CMMI model (Capability Maturity Model Integration) and the ITIL method, guarantying security in development processes and quality for information systems.

The new directions defined for the FAISv2 are:

- adaptation to meet regulatory requirements, including data collection (DCF).
- improvement of Inter-Application Communication (IAC) by the use of the ministry exchange platform, named SECOIA, to follow up data flow dematerialization.
- further working on data valorisation and cross-checking, including the datawarehouse building-up, projects of data restitution or the provision of ETL (Extract, Transform, Load process).
- implementation of the fisheries portal for users or partners, and especially the French DCF website.
- supplying the data diffusion and data communication policy, to promote information with project partners, institutional contacts, professionals and the general public.
- enhancement of data quality and security processes.

(b) The first DCF-dedicated architecture (V0)

The regulatory requirements (Reg. (CE) 665/2008) to collect data have been addressed in four phases within the general context of FAIS: a first FTP solution, then a Website to manage data calls, the implementation of the datawarehouse, and finally the connection to a possible Regional DataBase.

In order to centralise the data produced by data collection partners in conditions of total security, FAIS includes, as part of the DCF project, a secure FTP file transfer website, hosted by the Ministry of Food, Agriculture and Fisheries centre (General Secretariat, Department of Modernisation, Information System Subdirectorate) - CERI (*Centre d'Études et de Réalisations Informatiques / Centre for IT studies and realisations*).

The following steps have been taken to ensure that data transfers are fully secured:

- access to the FTP site is controlled for each partner by identification and authentication procedure requiring entry of a user ID and password.
- data confidentiality is managed at the level of the partners' root directories. The initial directory is therefore visible only for its owner and by the owner's correspondent at DPMA.

- data transfers between partners and CERI, and data storage are secure and the integrity of the data is checked on reception.
- DPMA offices with regulatory rights of access to the data collected can, once authenticated, access their reserved areas and carry out the processing needed to satisfy calls for data.
- sensitive processing is subject to a declaration to CNIL (*Commission Nationale de l'Informatique et des Libertés* / National Commission for Information technology and civil Liberties).

(c) The second phase : the DCF Website V1 to Vx (2010/2013)

Two targets (V1.1 and V1.2) are already scheduled in 2010 for the development of the DCF website according to the regulation (CE) n°665/2008. The first target will provide:

- data calls and responses management, with secured authentication from data callers, French partners and European Commission.
- download/upload modules for the exchange of documents and data between partners and with data callers.
- a workflow will manage the traceability of the different activities on the website.

In this first target, only aggregated data will be concerned. The FTP site will continue working for primary or confidential data.

The second target will allow the publication of data dictionaries, descriptions and metadata concerned by the DCF regulation, and general information for general public.

Other targets will probably be scheduled from 2011 to 2013, with the implementation of the datawarehouse, and the upgrade of the needs.

(d) The third phase : the DCF datawarehouse (2010/2013)

In order to assure DCF collection data consistency, availability and security (Reg. (CE) 199/2008), the data are managed to the 2010/2011 horizon, as are all data for fisheries and aquaculture in an information centre built around the SIDéPA (*Système d'Information Décisionnel de la Pêche et de l'Aquaculture* / Decision help system) implemented by the Ministry at CERI (*Centre d'Études et de Réalisations Informatiques* / Centre for IT studies and realisations) located in Toulouse and placed under DPMA management.

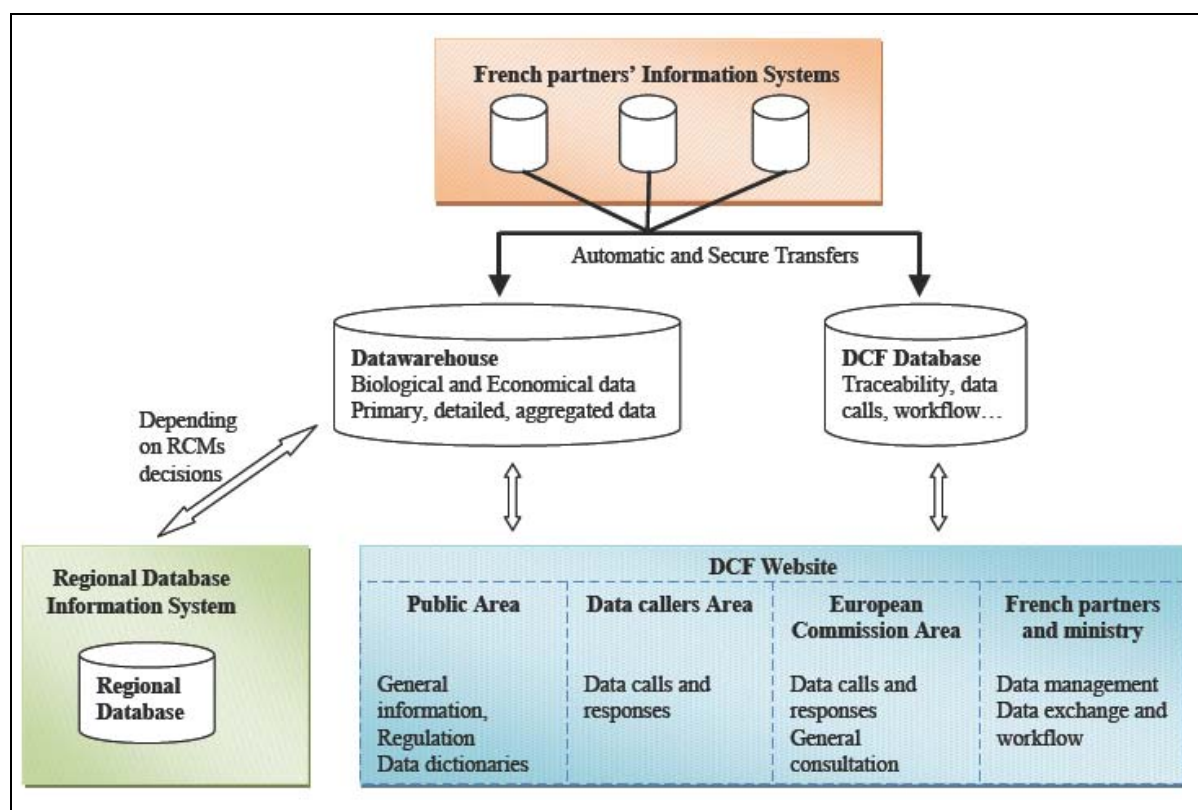
DCF data will be held within its own universe in the information centre, or datawarehouse. This will offer partners a large amount of secure storage space and possibilities for improvement of procedures for the statistical reprocessing and provision of data to permit faster responses to calls for information from end users. The consistency checks and data quality will also be reinforced through application of the FAIS common reference criteria.

In order to host the information centre, among other things, a new IT platform 'Brava', has been installed at CERI, with a Business Continuity and Resumption Plan (BCP/BRP). This comprises a set of servers, storage bays and redundant backup tools located on two sites.

Data transfers for input to the information centre will be progressively integrated into SECOIA (*Système d'Échange Commun pour l'Intégration des Applications* – Common data exchange system for the integration of application), which is implemented by the Ministry. This will enhance the reliability and security of transfers within the ministerial network by pooling resources and data flows and providing supervision. Where the DCF partners are concerned, SECOIA will give them access to secure gateways dedicated to data exchange, providing for the identification and authentication of correspondents, ensuring that transfers are secure and safeguarding data integrity.

The creation of the information centre involves a number of work packages. Those relating to the DCF universe will be carried out between 2010 and 2013. Further developments of the DCF website will provide tools for reprocessing data from the datawarehouse.

(e) The 2013 target architecture of the French DCF information system



VI.B. Partner's databases developments

Development of databases for harmonising, quality checking and bringing strong security to primary and aggregated data storage is an issue encouraged and eligible under the DCF scope. Some partners of the DCF French NP 2011-2013 plan works under this chapter.

VI.B.1 Ifremer

The Ifremer's *Harmony* system is designed to meet the following requirements:

- implementation of a common set of reference criteria for the various sources of SIH information,
- integration of data from the different SIH sources within a central system to assure their safe storage, integrity and long-term preservation, in addition to quality control, exploitation and distribution,
- transverse integration of SIH data with supplementary data from other Ifremer systems,
- rationalisation of the exploitation of the data through a dedicated team.

The *Allegro* software program upstream of the central system provides the data input functionalities needed for the data collection by the FIS observation network. Like *Harmonie*, which can integrate data from different sources, this program has the same purpose upstream and provides the observation network with an integrated overview in the field.

Development of this program will enable ultimately the replacement or supplementing of all the various existing data input tools, all completely separate, which are currently in operational use (different technologies, in some cases obsolete, e.g. Access 97).

The development of *Harmonie* and entry into service of *Allegro* is based, like the central system, on a series of incremental versions, begun under the old DCR regulation and the 2009-2010 DCF NP for some domains (*Harmonie* modules for demersal surveys and trips sampling at sea, *Allegro* modules for trips sampling at sea and vessels annual fishing calendars).

Projects for further development of DCF related information systems during the 2011-2013 NP are scheduled as follows :

- last step of the development of *Allegro* software to punch in biological data collected under the auction, check their quality and transfer on a regular basis validated datasets into *Harmonie* (2011).
- Last step of the development of economic *Allegro* module to punch in on-site enquiries data, check their quality and transfer on real-time basis validated datasets into *Harmonie* (2011).
- development of *Allegro* module concerning the management of regional referentials to facilitate punching in data in reference with reliable taxonomic references and relevant local parts of the national Fleet register, especially in the Mediterranean and DOM regions (2011).
- development of *Allegro* software and dedicated *Harmonie* module to centralise biological data for estimating DCF biological parameters including age reading and age-length keys (2011-2012).
- development of *Allegro* software for punching in data collected during surveys, mainly on board on small research vessels (2011-2012).
- development of *Harmonie* module for storing scientific surveys acoustic data (2011-2012).
- development of generic requests to prepare responses to calls for data including data extraction at the COST format and restitution of metadata, at fleet segments and métiers levels (2011-2012) and for the various indicators estimated from transversal data (2012-2013).
- development of module for qualification and by experts validation of the various types of data collected (2011-2013).

These tasks will benefit all DCF regions. The mandatory specifications to be met for this will be drafted by Ifremer and the IT development contracted out.

VI.B.2 MNHN

Data collection

All the data from the French Southern Ocean and south Indian oceans fisheries are included in a database « Pecheker ». The data collected are:

- fishing logbooks statistics, mapping, landing forms,
- biological sampling data on board (length, weight, sex, maturity and stomach contents),
- other on-board programs (tagging, by-catch, incidental mortality).

The MNHN database uses a taxonomic reference list (Tax-Ref) based on international database (Worms, FishBase-SeaLifeBase, FAO).

Data processing and storage

All the data collected by observers or scientists are checked, validated with specific software develop by the MNHN team. The data collection are included on an Oracle database in the MNHN computer center. This server is automatically backed up incrementally every day. A copy of this server is created in real time in different buildings in the MNHN.

Access to those servers are controlled and restricted to a limited number of individuals due to the confidential nature of the data.

Projects for further development of DCF-related information systems

MNHN plans to develop a web service for the French partners of the DCF to provide a taxonomic reference list based on Tax-Ref. database. To create this web service it's necessary to establish an up and down flow: Tax-Ref is a national reference list based on international data base collaboration: World Register of Marine Species (Worms), European Register of Marine Species, Erms and FishBase and SeaLifeBase (MNHN is a FishBase consortium member).

- the flow up will check all the new taxa and new occurrences provided by the regional data base. A taxonomic validation will be proposed. The new taxa or the new occurrences will be added to the Tax-Ref list available for all the partners and will be proposed to the international reference list.
- the flow down will include a checking of the TaxRef database with the international taxonomic references taxonomic list as Worms FeaBase-SeaLife Base and FAO.

The first year (2011) it will be necessary to develop the interface and to establish the protocol of data exchange from Worms-Erms, FishBase-SeaLifeBase and Tax-Ref to SIPA, SIH, Sardara,... The two next years it just will be necessary to maintain the validity of the data and to update the database.

VI.B.3 IRD

In preparation of a regional database for tropical fisheries (Indian Ocean + Central East Atlantic) and in view of ensuring communication and interoperability with other partners' databases, IRD has scheduled the following developments of its DCF related information systems during the 2011-2013 National Programme:

- description of IRD databases in relation with DCF data needs – done in 2011
- export of data to the common exchange format (based on Fishframe/COST) – done in 2011
- centralisation and storage of data exported for the DCF – 2012/2013
- integration of the statistical treatments in R to this database – 2012/2013
- memorisation of existing requests and development of generic requests to prepare responses to calls for data including data extraction at the common exchange format – 2012/2013
- carrying out the import, validation and export of new data sets – 2012/2013

VII. Follow-up of STECF recommendations

SGRN-09-01 recommendations	Responsive actions
The fisheries sector is poorly described. SGRN recommends MS to propose a comprehensive description of its fisheries in the adjustment of NP proposal 2010.	See section III.A
SGRN recommends the MS to present the results of the pilot study on evaluation of the landing, value and effort data	The results of this pilot study will be provided together with the TR 2009 report. First part of the study (on Mediterranean) has been provided together with 2008 TR).
SGRN suggests that bilateral agreements should be sought between France and other Member States	France has progressed on this issue and has completed a certain number of bilateral agreements (see section III.C and annexes).
SGRN supports the conduction of a pilot study by the MS and expects the outcomes of the pilot study for eel recreational fishery in inland waters in early 2010 for the setting of the 2011-2013 NP proposal.	See section III.D inland waters
MS should follow the SGRN 08-01 Guidelines for the completion of Table III.E.1. The table must provide landings data and share in EU landings for all the stocks that are included in Appendix VII of the Commission Decision 2008/949/EC.	See table III_E_1 in the NP 2011-2013.
The derogation is requested for many large pelagic species in the Mediterranean, in the ICCAT and in the IOTC convention areas, but the justification that there area incidental catches or transshipments (point 1.4.6, 1.5.23 and 1.5.28 of the NP) cannot be accepted. Even the low quantities for some species cannot prevent the data collection for species listed as mandatory ones by the RFOMs concerned. The specific derogation for bluefin tuna data collection in the Mediterranean (section VIII of the NP) is without any justification. SGRN recommends that all these species shall be included, even if the sampling should be opportunistic for some of them.	A regional agreement has been found in PGMED 2010 for sampling all large pelagics in the Mediterranean. France will commit to this agreement (see also section Med-III.E).
MS should use the name of the survey as stated in Appendix IX of the Decision. Furthermore, the Number of transects planned should be included in Table III.G.1.	Done (see section III.G and table III.G.1)
SGRN-09-04 recommendations	Responsive actions
Bilateral agreement between France and Netherlands for sampling of freezer trawlers of OTM_SPF_32-54 (>18m) in North Sea and North Atlantic.	Done. See section III.C and relevant annex.
SGRN 10-01 recommendations	Responsive actions
[Economic] All comments on missing information and unavailability of annexes	Done during the finalisation of the NP after the bilaterals. The reader should find all responsive actions in the relevant sections.
[Economic] MS is asked to provide information also for the years 2011 and 2012, check consistency between different tables and provide information on the methods	

used to cluster segments. MS is required to provide the Annexes to which it refers in the text without including in the NP.	
[Economic] MS is asked to provide more detailed information on the method used to calculate capital value and fuel efficiency of fish capture.	Calculation of capital variables is going to be made on the basis of the results of the workshop that took place in 2011.
[Economic] MS is asking for a derogation in that it claims that this variable [fuel efficiency of fish capture] cannot be calculated at the required level. MS is required to justify in technical terms why they cannot satisfy this DCF requirement.	This is specified in the text.
[All areas] No specific mention on how vessels under 10 meters are included in the sampling programme. To be clarified by MS.	Addressed. See section NA, NS and MED-III-C-1 (d).
[NA, NS&EA] No justification on the rationale used for the merging of metiers.	A working Document has been presented and is available in the report of ICES WKMERGE (WD#7). In 2011, the VMS and logbook project proposed a common methodology to develop in the labs during 2012. That is plan which will be followed by France.
[Biological NA, NS&EA] SGRN recommends France to sample the following metiers : LLS_DEF_0_0_0 in west of Ireland and West of Scotland, FPO_MOL_0_0_0 in Western Channel, DRB_MOL_0_0_0 in Bay of Biscay and FPO_CRU_0_0_0 in Eastern Channel..	For the offshore longline fishery, there is still no bilateral agreement . For the others, France included these metiers in its NP 2011-2013 (see table III.C.3 and III.C.4) except for scallop dredging in the Bay of Biscay where this small fishery is monitored through surveys which perfectly serve the management objectives.
[Biological NA, NS&EA] No mention on precision objectives is given in the text. SGRN recommends MS to provide the precision achieved in the TR 2010 for consideration in the revision of the NP proposal 2012	Precision estimates and use of COST tool is growing in France, and will be leading the estimation process in 2012. The text of the NP proposal has been adjusted.
[Biological NA] SGRN recommends that MS investigates the metier OTB_CAT_16-31_0_0, and update the tables III.C	Addressed during the bilaterals with the Commission. The metier is marginal and France cannot allocate resource to the monitoring of such small fisheries.
[Biological NS&EA, MED&BS] No potential bias is discussed in the text. To be clarified by MS.	Addressed. Text has been added in the relevant sections.
[Biological MED& BS] Data on landings and value are missing. Ranking system is thereby incomplete which may affect the entire sampling programme. MS need to update table.	Data on landings have been added to the table III.C.1
[Biological MED& BS] It appears that some of the picked metiers will not be sampled by France. This is particularly true for all metiers in GSA 08 (Corsica). SGRN does not consider this acceptable. Reasons for not sampling metiers selected should be given.	Monitoring of GSA08 has been added to the NP 2011-2013.
[Biological MED&BS] Discrepancies in text and tables	Addressed
[Biological MED&BS] MS should clarify the text	

regarding sampling recreational fisheries on eel in inland waters. SGRN do not consider a derogation acceptable because it seems from the text that there is a fishery for eel. To be clarified by MS.	
[Biological WECAF] SGRN recommends MS to include an estimate of discards of the shrimp fisheries, at least once during the 3 year period of the programme.	Addressed. The monitoring will take place from June 2012 to June 2013. See section WCA-III.C.1 (b) and tables III.C.3 and III.C.4
[Biological ICCAT] Ms should use table IIIC2 to disaggregate the metier LLD_LPF_0_0_0 to split it in the 3 fishing ground indicated in the table IIIC3 so that all the IIIC tables are consistent. MS to clarify why in the fishing ground section the BIL codes are used while in previous tables the fishing ground is described as ICCAT North Atlantic etc. Ms to update tables so that there are no inconsistencies in the fishing ground and tables are comparable. MS is required to improve the metier description for large pelagic fish targetting Xiphias gladius including by catch species.	Addressed. See text and tables.
[Biological ICCAT] MS to fill in minimum number of fish to sample. MS to clarify why for some stock related variables data sources are listed as N/A or empty. MS is requested to update the table following the guidelines.	Addressed. See tables III_C_5 and III_E_3
[Biological ICCAT] MS has to elaborate on the protocol and precision objectives for all the species.	A first test will be done on 2011 data.
[Effort and landings – All regions] MS is required to clarify on the strategy implemented in her sampling plan especially for vessels under 10m of length operating in the Mediterranean and the North Sea areas.	Addressed, and text of the NP 2011-2013 clarified.
[Processing industry] MS are asked for detailed method for imputed unpaid labour and extraordinaire costs. MS are asked for explanation of "snails off" and for reason of threshold of 5.0 mill. Euro for champ 0 enterprises.	Addressed and text of the NP 2011-2012 clarified.

VIII. Derogations

Short title of derogation	NP Proposal section	Derogation approved or rejected	Year of approval or rejection of past requests for derogation
Fuel efficiency of fish capture	III.B.6		
FPO_CRU_0_0_0 in VIId	NS-III.C.1.(b)		
Metiers in area I and II	NS-III.C.6	Approved	2009
FPO_MOL_0_0_0 in VIIe	NA-III.C.1.(b)	Rejected	2009
DRB_MOL_0_0_0 in VIIIab	NA-III.C.1.(b)	Approved	2011
Recreational fisheries for eel in marine waters	III.D.6	Approved by LM	2009
Recreational fisheries for salmon in marine waters in the North Atlantic (VIIe and VIII areas)	III.D.6	Approved	2011
Recreational fisheries for cod in the North sea for 2011 & 2013	III.D.6	Approved	2011
Recreational fisheries for sharks and rays for 2012 & 2013, pending the results of the 2011 study.	III.D.6		
Stocks of <i>Melanogrammus aeglefinus</i> and <i>Gadus morhua</i> in zones I and II	NS-III.E.5	Approved	2009
Stock of saithe (<i>Pollachius virens</i>) in VII, VIII as a Southern extension of the ICES division VI stock.	NA-III.E.5		
Stock of albacore tuna in the Indian Ocean and East Central Arctic	IO-III.E.6 ECA-III.E-6		
Specific effort variables	III.F.2.5	Pending pilot study	2009
Time level for effort variables	III.F.2.5	Rejected	2009
Time level for landings variables	III.F.3.5	Rejected	2009
Aquaculture and processing industries in the overseas regions	IV.A.6		
Time level for fuel efficiency indicator	V.5		

IX. LIST OF ACRONYMS AND ABBREVIATIONS

AZTI	AZTI-Technalia Foundation
CGFS:	Channel Ground Fish Survey
CPUE:	Catch Per Unit of Effort
DCR:	Data Collection Regulation (Council Regulation 1543/2000)
DCF	Data Collection Framework (Council Regulation 199/2008)
DPMA	Directorate for Marine fisheries and Aquaculture
EVHOE:	<i>Évaluation des ressources Halieutiques de l'Ouest-Européen</i> / Evaluation of Western European Fisheries Resources
FBA:	Fleet Based Approach
GFCM:	General Fisheries Commission for the Mediterranean
IBTS:	International Bottom Trawl Survey
ICCAT:	International Commission for the Conservation of Atlantic Tunas
ICES:	International Council for the Exploration of the Sea
IEO	<i>Instituto Español de Oceanografía</i> / Spanish Institute of Oceanography
IFREMER:	<i>Institut Français pour l'Exploitation de la Mer</i> / French Institute for the Exploitation of the Sea
IOTC:	Indian Ocean Tuna Commission
IRD:	<i>Institut de recherche pour le développement</i> / Institute for development research
ISRA	<i>Institut Sénégalais de Recherches Agricoles</i> / Agricultural Research Institute, Senegal
JRC:	Joined Research Centre
MEDITS:	MEDiterranean International bottom Trawl Survey
ORC	Oceanographic Research Centre
PELGAS:	<i>Campagne acoustique PELagiques-GAScogne</i> / Acoustic campaign for pelagics in the Bay of Biscay
PELMED:	<i>Campagne acoustique PELagiques-MEDditerranée</i> / Acoustic campaign for pelagics in the Mediterranean
PGCCDBS:	ICES Planning Group on Commercial Catch, Discards and Biological Sampling
RCM:	DCR Regional Coordination Meeting
RFMO	Regional Fisheries Management Organisation
SFA	Seychelles Fishing Authority
SGRN:	Sub-Group for Research Needs (STECF sub-group)
STECF:	Scientific, Technical and Economic Committee for Fisheries
WCPFC	Western and Central Pacific Fisheries Commission
WECAFC:	Western Central Atlantic Fishery Commission
WGHMM:	ICES Working Group on the assessment of Southern shelf stocks of Hake, Monk and Megrim
WGNEPH:	ICES Working Group on NEPHrops stocks
WGNSDS:	ICES Working Group on the assessment of Northern Shelf Demersal Stocks
WGNSSK:	ICES Working Group on the assessment of demersal stocks in the North Sea and Skagerrak
WGSSDS:	ICES Working Group on the assessment of Southern Shelf Demersal Stocks
WKSCMFD:	ICES Workshop on Sampling and Calculation Methodology for Fisheries Data
WKSDFD:	ICES Workshop on Sampling Design for Fisheries Data

X. Comments, suggestions and other considerations

France wishes to see consideration given to the short timeframes in which it has been obliged to work in order to put in place this programme under new Regulation (EC) no. 199/2008.

Furthermore, France wishes to make use of the possibility, referred to in the guidelines, of providing the Commission with a new version of the national programme prior to review by SGRN, if there were

to be a need to make corrections to the programme. Naturally, any such changes would go hand in hand with the relevant financial changes.

This is so because the change in the scope of application of the Regulation and collection of the data leads to a need to change the partners from those under the previous regulation, and to do so very rapidly. It is possible that modifications may still be made between now and the end of 2010 with regard to the partners assisting us in collecting the data, which will lead France to submit a new version of its national programme very shortly thereafter.

Given the extension of the scope of application of the Regulation, France has decided to reinforce its centralised expert and technical capability (there being numerous partners in France). To accomplish this, the scientific affairs mission, comprising experts and database developers, has recently been set up in the Ministry of Agriculture and Fisheries, the purpose of which is to contribute part of the technical work under this Regulation (website, some of the scientific analysis, etc.).

Certain general principles that have been adopted in presenting the Finforms could be described in a separate document, as an addendum to these financial forms.

XI. References

Liaison Meeting (2008). Report of the 4th Liaison Meeting between the Chairs of the RCMs, the chair of ICES PGCCDBS, the chair of PGMED, the ICES representative, the Chair of SGRN and the European Commission. Brussels, 20-22 February 2008. 43 p.

Liaison Meeting (2009). Report of the 5th Liaison Meeting between the Chairs of the RCMs, the chair of ICES PGCCDBS, the chair of PGMED, the ICES representative, the Chair of SGRN and the European Commission. Brussels, 26-27 February 2009. 44 p.

XII. Annexes

Annex 1 - Some methodological comments on Section III.B Economic variables.

Annex 2 - Looking for a methodology for drawing a discards sampling plan.

Annex 3 - A summary of the French programme of onboard observers in 2009.

Annex 4 MOU IRD/IEO for tropical tunas (2011-2014)

Annex 5 - Sampling of tropical tuna.

Annex 6 - Bilateral agreement between France and Ireland.

Annex 7 - Bilateral agreement between France and the Netherlands.

Annex 8 - Sampling requirements for length sampling of large pelagics in the Mediterranean (PGMED).

Annex 9 - Tables of landings and shares per species in the Mediterranean and black Sea from PGMED 2010.

Annex 10 - Questionnaire sent to processing industries.

Annex 11 - Proposition d'une méthodologie pour simplifier la stratification technique du plan d'échantillonnage OBSMER

ANNEX 1

Some methodological comments on Section III.B Economic variables

I.1 Accounting and non-accounting data: LEMNA

Sampling

Fishery enterprises are selected on a random basis from within the scope of observation. Various considerations arising directly from the specific nature of the sector lead certain vessels to be excluded from this initial selection. There are a range of explanatory factors: the seasonality of sector activities (closure of a 12-month accounts year between 01/09/N and 31/03/N+1), enterprises that conduct their activity on a joint ownership basis (this is not covered at the present time but is the subject of specific work aimed at making the collection of data possible), enterprises that are subject to prolonged cessation of activity during the relevant accounts year, atypical values highlighted in the case of certain vessels.

The sample is built up on a random basis from within a homogeneous subset of enterprises within the scope of observation that fulfil the conditions referred to above. Thus, of the 1,300 enterprises registered with an accounts management centre and for which information is collected, the selected sub-sample contains approximately 900 vessels each year.

With regard to the vessels making up the French non-artisanal fleet, access to analytical accounting information is imperative and requires very detailed knowledge of the industry relating to information impossible to identify by examining owners' consolidated financial statements. The partnership set up with accountants PriceWaterHouseCoopers in 2002 allows this portion of the fleet, which comprises only a small number of firms, to be covered exhaustively.

Data acquisition

Data collection involves in this context the obtaining of accounting and non-accounting information for each vessel from accounts management bodies and commercial data from producer organisations and other bodies with operational relevance to landings.

Depending on the segment analysed, collection requires more or less extensive participation from professional bodies. In the context of the network in place, the involvement of such professional bodies is governed by formal agreements and subject to strict rules of confidentiality.

This work in close conjunction with the network of approved accounts management centres for artisanal fisheries and with accounting bodies and expert consultancies such PriceWaterHouseCoopers Enterprises can be done using the same documents, tax declarations, thus guaranteeing the homogeneity of the information.

Where accounting and non-accounting indicators are concerned, microeconomic data are collected for each enterprise through the accounts management centres to be found along the entire French coastline.

Commercial data providing details of production by species are collected from producer organisations.

In total, over one hundred professional bodies provide input for RICEP (*Réseau d'Information et de Conseil en Économie des Pêches* / Network for information and consultancy in fishery economics) for each vessel included in the sample, and subsequent cross-correlation of the information collected with each port body (accounts management centres and producer organisations) then enables details to be defined for the overall activity of each vessel and its production as landed by species, including all operating expenses and investment costs arising from its activity.

The data collected accounts management centres fall into two categories: firstly, accounts information that has been verified and validated and, secondly, a supplementary survey of non-accounting information and details of its activity can be used to define and reprocess a number of additional indicators that are either aggregated or not covered in the accounting documents.

The form for supplementary details is sent to all accounts management centres and is modified and improved on a regular basis notably to take account of new information to be collected under the present data collection programme.

Alongside this, commercial data held by producer organisations can be used to cover all production landed for each species in France and abroad. Two validation checks on the production data can be applied on the basis of the inclusion in the supplementary survey of details of the eight principal species landed by a given vessel.

Where “non-artisanal” fishing vessels are concerned, consultants PricewaterhouseCoopers Enterprises collect the information, or to be more precise the information of the members of the French fishing vessels owners union (*Union des Armateurs à la Pêche*):

- | | | |
|--------------------------------------|------------|------------------|
| • Euronor | Scapêche | France Pélagique |
| • Compagnie des Pêches de Saint Malo | | Saupiquet |
| • Cobrepêche | Unifipêche | |

These enterprises make available to PricewaterhouseCoopers Enterprises exhaustive analytical and economic accounting data held by them in accordance with their activity in the following fisheries:

- Bottom trawling and purse seine at depths greater than 40 metres,
- Pelagic trawling and purse seine at depths greater than 40 metres,
- Pelagic trawling and purse seine (Tropical purse seine).

This work, done in close conjunction with the financial departments of audited owners, enables PricewaterhouseCoopers to extract from the comprehensive analytical data made available to them the information requested in the desired format in under the national data collection programme.

The identified population for the three segments listed above comprises 40 vessels.

Checks to guarantee data quality

Early validation of the conformity of the primary data

The primary task entrusted to the accounts management centres is to draw up annual financial statements compliant with precise standards guaranteeing the quality of the data supplied. By harmonising professional practice and improving the working methods of accounts firms they put in place for that purpose a set of mandatory professional rules that ensure official acknowledgement of their competence.

The partners of RICEP (the centre for the management of artisanal fisheries for example) are inspected annually by the General Tax Directorate of the French National Budget Ministry, with the data provided undergoing a series of checks to guarantee their conformity. Similarly, PriceWaterHouseCoopers Enterprises (a RICEP partner) is bound, on the basis of the mandatory quality check put in place by the French Order of Chartered Accountants, to guarantee the conformity of the financial statements certified by it.

The decision to implement RICEP was most specifically based on optimisation of quality of the primary data it helps to produce.

Test of consistency

Close cooperation with accounting organisations and expert consultancies (notably the networks of approved accounts management centres for artisanal fisheries and PriceWaterHouseCoopers Enterprises) means that the same documents – tax declarations – can be used, which provides a guarantee of the consistency of the primary information, thus avoiding the aggregation of disparate information and imprecise interpretation of individual responses, which could lead to non-negligible bias in the later analysis of the data.

In addition, since data on production are collected from producer organisations, the exhaustive character of the landings, whether within the auction context or not, in France or abroad is taken into account in the breakdown of annual sales revenue by species.

Test of homogeneity

For various reasons, certain enterprises may present atypical values. Homogeneity testing can identify the indicators that may differ noticeably from the mean for the metier segment concerned.

Test of continuity

The differences calculated each year between observed values and “theoretical” values obtained on the basis of previous trends also allow any anomalies to be highlighted where a predetermined threshold is breached.

I.2 Economic survey data: Ifremer

The sampling plan

The sampling plan applied by Ifremer in collecting economic data provides an assurance of the representative character at national level of the sample thus collected. It also guarantees the capability of the calculation of the precision of the economic indicators.

The first stage in this methodology is to estimate the optimum size of the sample for each segment defined in the regulation. Applying certain statistical assumptions not detailed here, the minimum size of the sample can be estimated using the following formula (Eq.1):

$$n = \frac{4S^2}{(LY)^2 + \frac{4S^2}{N}} = N \frac{1}{1 + \frac{N(LY)^2}{4S^2}} N \frac{1}{1 + \frac{NL^2}{4CV^2}} \quad (\text{Eq. 1})$$

where n is the size of the sample, N is the population or size of the segment, CV is the coefficient of variation of the parameter of interest Y , S is its standard deviation, and L is the required level of precision.

A brief analysis suffices to show that greater precision entails a larger sample fraction, that more intra-segment variation entails a larger sample fraction, and finally that a smaller segment also entails, all other things being equal, a larger sample fraction. The coefficient of variation is calculated on the basis of the figure for individual annual net sales revenue, which in turn is estimated by means of the income model [Daurès *et al.* 2008]. Optimum sample size is thus estimated each year prior to commencing data collection and represents approximately 15% of the national fleet. This sampling fraction varies greatly between segments.

The second stage involves identifying the “individuals” in the sample. A systematic random sampling is used for this: within each segment, vessels are sorted by home port and then by length. A random number is then allocated to identify the first vessel in the sample. The following vessels are then selected at regular intervals in order to ensure that the size of the sample corresponds to the size of the sample estimated in the preceding stage. More details on the systematic random sampling algorithm can be found in Tillé, Y. (2001). *Théorie des sondages. Échantillonnages et estimation en populations finies*. Editions Dunod.

The theoretical sample will thus be representative of the French fleet in terms of spatial distribution and length distribution. There will nevertheless be differences between the theoretical sample and the sample actually collected. But despite this the sample collected will still be satisfactory for the estimation of the economic indicators required by the regulation.

Questionnaire

The questionnaire has nine sections:

1. Details of the respondents.
2. Monthly activity schedule for the vessel.

3. Fishing tackle (description and cost of fishing gear, rigs and deck machinery).
4. Operating income and expenses.
5. Vessel (description, acquisition price and market value).
6. On board systems and equipment (description, acquisition price and cost of replacement).
7. Crew (description and remuneration).
8. Activities other than fishing carried on by the vessel.
9. Conflicts of use.

Validation and estimation of indicators

The data collected in the surveys are validated vessel by vessel and variable by variable, on the basis in some cases of information originating outside the questionnaire and data collected by survey personnel in fishing ports (diesel prices in particular).

The overall protocol is described on the SIH (Fisheries Information System) website:

<http://www.ifremer.fr/sih>,

Headings: Home > Data collection > Economic surveys > Documentation

I.3 Calculation of a Horvitz-Thompson estimator for a variable y for a stratum of size N_h .

Let S_h be a stratum of size N_h . From stratum S_h a number of vessels n_h is drawn randomly without replacement, the objective being to quantify t_h , the total for a variable y in stratum S_h . This total is estimated using a “Horvitz-Thompson” estimator as defined below:

$$\hat{t}_h = \frac{N_h}{n_h} \sum_{k \in S_h} y_k = N_h \bar{y}_h$$

Precision of the “Horvitz-Thompson” estimator for variable y quantified for a stratum of size n_h

The precision of the estimator \hat{t}_h is p_h as defined below:

$$p_h = 2 \times \frac{\sqrt{\widehat{\text{var}}(\hat{t}_h)}}{\hat{t}_h}$$

$$\widehat{\text{var}}(\hat{t}_h) = N_h^2 \left(1 - \frac{n_h}{N_h}\right) \frac{s_h^2}{n_h}$$

$$s_h^2 = \frac{1}{n_h - 1} \sum_{k \in S_h} (y_k - \bar{y}_h)^2$$

Calculation of a “Horvitz-Thompson” estimator for a variable y for a stratified population

Let a population be divided into H strata each of size N_h . From each of these strata a number of vessels n_h is drawn randomly without replacement.

The total t in the population for a variable y is estimated using the stratified “Horvitz-Thompson” estimator as defined below:

$$\hat{t} = \sum_{h=1}^H \hat{t}_h$$

Precision of the “Horvitz-Thompson” estimator for a variable y calculated for a stratified population

The precision of the estimator \hat{t} is p as defined below:

$$p = 2 \times \frac{\sqrt{\widehat{\widehat{\text{var}}}(t)}}{\hat{t}}$$

$$\widehat{\widehat{\text{var}}}(t) = \sum_{h=1}^H \widehat{\widehat{\text{var}}}(t_h)$$

ANNEX 2**Looking for a methodology for drawing a discards sampling plan****Contribution to ICES WKMERGE**Lise Guerineau^(a), Joël Vigneau^(b)

(a) Ifremer Nantes, (b) Ifremer Port-en-Bessin

Introduction

Drawing a sampling plan in order to achieve multi-variables objectives is a complex issue. The objective of this document is to try to find a method for optimising the number of samples to allocate by strata, including the variability of the discards estimates and the coverage of as many species as possible. The other challenge is to try to respect as much as possible the DCF requirements in terms of precision objectives, sampling coverage,).

MaterialEffort data

Effort data, in terms of number of trips, are used for raising the discards sampled to the population. The stratification used is the DCF metier level 5, which is the level omitting the mesh size and the selective device. The source of information are the logbooks and other declarative forms (monthly forms for less than 10 m vessels). The allocation of trips to metiers is done following the RCM recommendations.

Selection of metiers

The metiers selected for sampling are those retained by the ranking system.

Method

The issue is to allocate sufficient samples to estimate discards in each of the selected strata. We will look for a number of trips to sample, by metier level 5, fishing grounds and quarter, leading to a precision of +/- 40% for all species, on the volume of discards variable.

Here are the steps followed :

1. Ranking system to determine the strata for the sampling programme
2. Preparation of the dataset: list of species where an estimate is required, and filter of the observed samples.
3. Restriction of the list of species by eliminating those representing less than 10% of discards and filtering those under a certain weight (threshold related to the fishing ground). A list of retained species is then retained by fishing ground.
4. For each of the fishing ground, the discards are estimated for each of the retained species, with a criterion of a minimal number of trips sampled in a stratum. A table like the one below is drawn;

Time	Space	Technical	Ammodytidae	Aspitrigla cuculus	Cancer pagurus
All	NSEC	GTR_DEF	0	0	11737.41	
All	NSEC	OTB_DEF	11737.41	172839.03	0	
All	NSEC	OTB_MOL	250.63	542056.63	0	
All	NSEC	OTB_SPF	263.13	428482.81	0	

5. The non-null cells of the table are the values used for calculating the minimal number of trips to sample, with the following formula:

$$n = \frac{N}{NL^2} \left(1 + \frac{1}{4CV^2} \right)$$

N = total number of trips in the population

L = relative precision required by the DCF (40%)

CV = empirical coefficient of variation

6. In order to satisfy the precision criteria, the maximum number of trips for each area and metier should be taken. This number are likely to be much too high. The quantile method will be used to choose the number of trips:

- 6.1. quantile=0 : the precision of 40% will be guaranteed for 1 species
- 6.2. quantile = 50%. the precision of 40% will be guaranteed for 50% of the species
- 6.3. quantile = 100% the precision of 40% will be guaranteed for all the species.

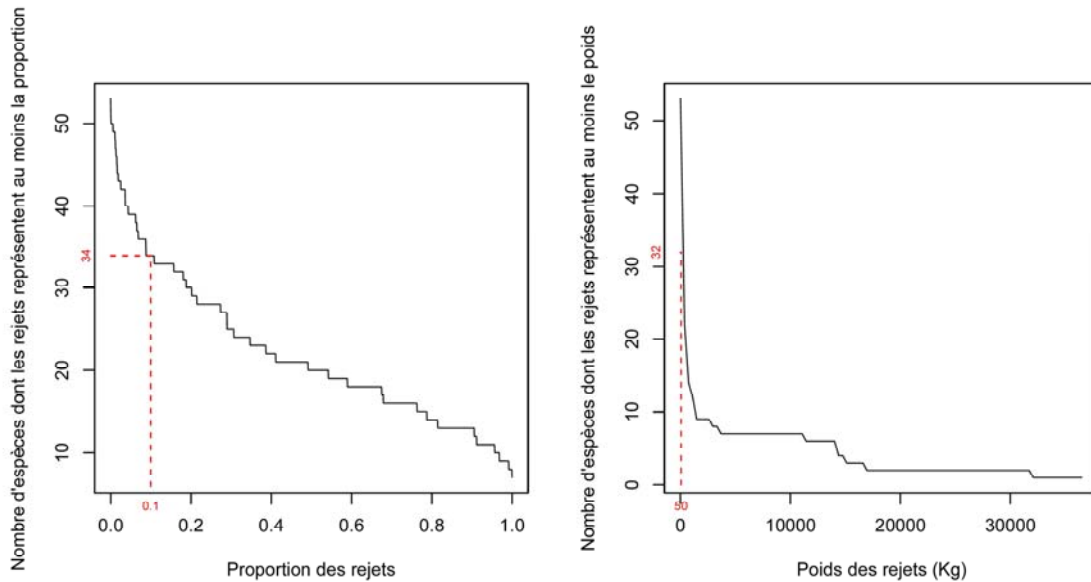


Figure 1 : Selection of the threshold for filtering the number of species

Figure 1 shows that, at first stance, 34 species were selected for having discards representing more than 10% of the total catch per weight. From these 34 species, 32 were kept for having a significant total discards weight estimation.

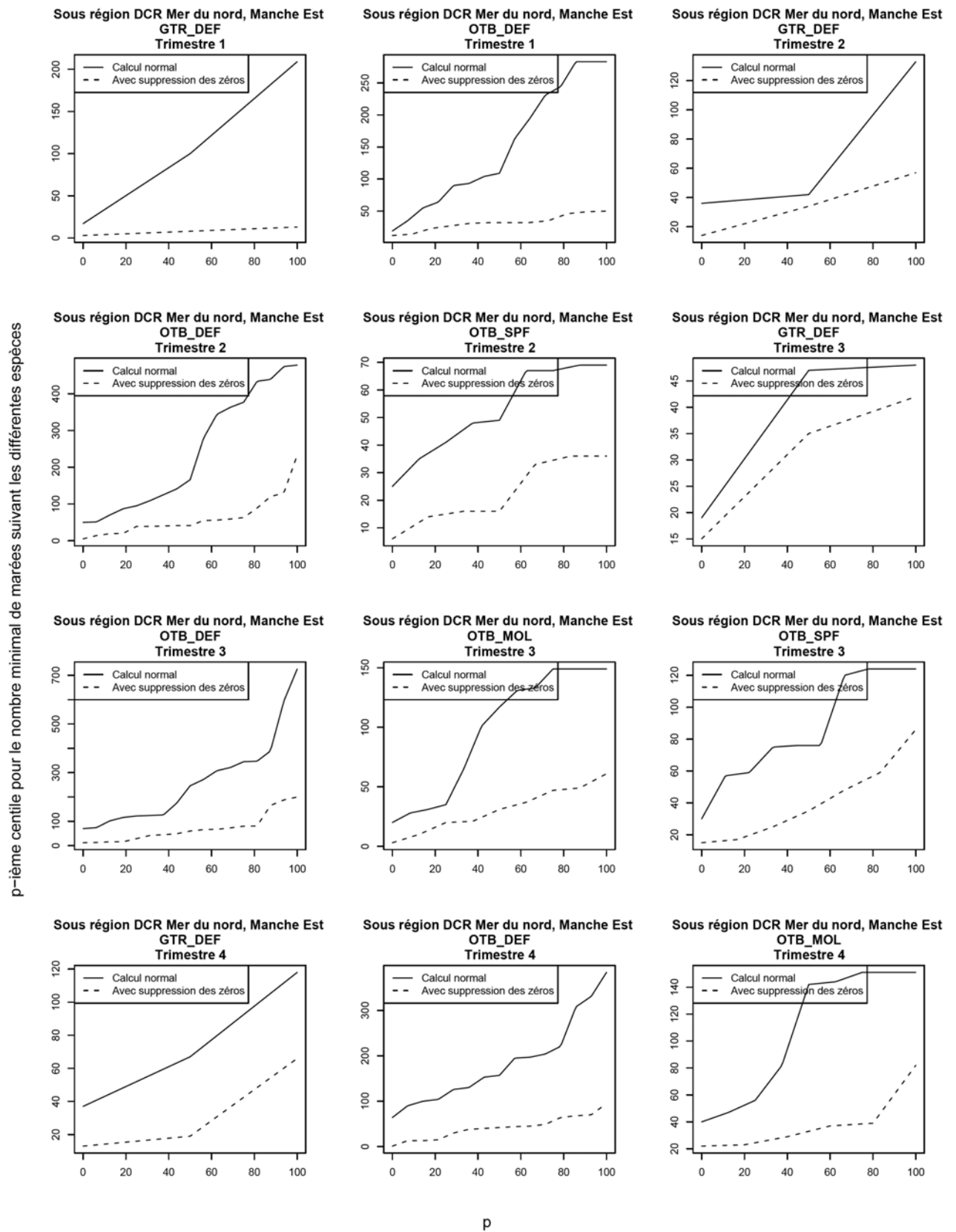


Figure 2 : Percentiles of the optimum number of trips to sample

The figure 2 shows different graphs representing different metiers and quarters. The y-axis of the graphs represent the number of trips to sample in order to reach a precision of +/-40% and the x-axis represent the percentiles of the number of species. For example, the top left graph (GTR_DEF, Q1) shows a linear trend, meaning that the more trips you sample the more species will reach the objectives of precision. To cover 100% of the species with a precision at least equal to +/-40%, 200 trips should be needed to sample.

The top right graph (GTR_DEF, Q2) tells a different story. A trade-off is displayed at 40 trips where around 50% of the species are covered with the required precision. This means that it would be very costly to increase the number of trips after that point (very few extra species are covered as and when increasing the sampling effort).

The benefits of these graphs is in the existence of these trade-offs, showing where is the optimum in term of cost-efficiency of discards sampling. The method does not prioritise one species from the others, but it would be possible to plot on the graphs where are situated some of the key species.

It must be added also that the DCF does not require a target precision by metier and quarter for discards (as shown in figure 2), but only by quarter all metiers combined. The further allocation of the optimal number of samples per quarter, into metiers or strata, should be done using a Neyman allocation scheme.

ANNEX 3

A summary of the French programme of onboard observers in 2009

Isabelle Péronnet et Marie-Joëlle Rochet, Ifremer

The French onboard observer programme has been significantly upgraded in 2009, in response to the new Data Collection Framework, and a specific political will from the French government which provided additional funding. Important resources were devoted to the programme (>3 million euros, 100 observers). Much work was carried out at Ifremer to improve data quality and storage, and make these data available to various users. Unfortunately the outcome of these efforts are disappointing, because:

1. Data quality is poor, because observers have little experience. This might improve if they are given the opportunity to acquire experience and develop their skills over several years. One problem is the difficulty for observers to measure all species caught. When they do not complete this, they record the fishing operation as sampled non exhaustively, which precludes to use the data for non-target species: if a species is not recorded, we do not know whether it was not present, or just not observed.
2. The amount of data collected is insufficient, because the sampling design was a compromise between several regulations and the available resources. The stratification by metier (level VI) and quarter creates a huge number of strata to be sampled; the number of samples per stratum should also be rather high because discard amounts are highly variable. As a result, beforehand it was known that the precision required by the DCF was not reachable.
3. In addition, owing to various constraints (weather, administrative authorization, fishers reluctance to take observers on board, inexperienced observers unknown by the local communities), only 61% of the planned trips could be sampled. Among these trips, some were not sampled exhaustively (see § 1.), which prevents any use other than for estimating discards of the target species.

All this makes the case for a revision of the sampling strategy. Strata (either metiers or quarters or both) should be aggregated, or another approach to stratification should be sought.

ANNEX 4



MÉ MORANDUM D'ACCORD ENTRE L'INSTITUT ESPAGNOL D'OcéANOGRAPHIE (IEO) ET L'INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT (IRD)

L'INSTITUT ESPAGNOL D'OcéANOGRAPHIE (*Instituto Español de Oceanografía*, ci-après, IEO), Organisme Public de Recherche rattaché au Ministère des Sciences et de l'Innovation, par le biais du Secrétariat d'État à la Recherche et dont le siège social se trouve à Corazón de María 8, 28002 Madrid, Espagne, représenté par M. Eduardo Balguerías Guerra en sa qualité de Directeur,

et

L'INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT (ci-après, IRD), établissement public de nature scientifique et technologique, n° SIRET 180006025 00159 Code APE 7219Z, ayant son siège 44 boulevard de Dunkerque, Le Sextant, CS 90009, 13572 Marseille Cedex 02 France représenté par son Président, Monsieur Michel Laurent, lui-même représenté par Monsieur Yves Duval, représentant de l'IRD France Sud.

Ci-après appelés globalement les « Signataires » :

- Possédant des Intérêts communs dans la recherche concernant les thonidés tels que :

- L'emploi de la même stratégie d'échantillonnage ainsi que des mêmes procédures de recueil et de traitement des statistiques thonnières, définies en commun.
- Leurs respectives responsabilités similaires concernant les armateurs thoniers, leurs administrations de pêche et l'U.E. pour la fourniture de statistiques sur la pêche.
- Leur implication conjointe dans le cadre plus général du Règlement (CE) 199/2008 du Conseil du 25 février 2008 qui institue un cadre communautaire pour le recueil et la gestion des données nécessaires au respect de la politique de pêche commune.

- Leur intérêt général dans les recherches scientifiques concernant les espèces de thonidés tropicaux et poisons à base (biologie, comportement, évaluation de stocks...), et notamment dans le cadre des Organisations régionales de pêche, en particulier la Commission Internationale pour la Conservation du Thon Atlantique et la Commission des Thonidés de l'Océan Indien.

- Estimant qu'il convient d'avancer en la matière et désireux de manifester par écrit leur accord mutuel à ce sujet.

- Manifestant que chaque Institution reconnaît la capacité juridique et l'indépendance de l'autre à l'heure de définir ses besoins et d'établir ses priorités en matière de recherche.

Et désirant accorder un cadre plus formel à ces intérêts partagés et intensifier les cadres de collaboration, conviennent de signer le présent Mémoire d'Accord (ci-après, le « *Mémoire d'Accord* ») :

Un : Objet du Mémoire d'Accord

L'objet du présent Mémoire d'Accord est la définition des modalités de coopération entre l'IEC et l'IRD dans le contexte du Règlement (CE) 199/2008 du Conseil du 25 février 2008 instituant un cadre communautaire pour le recueil et la gestion des données nécessaires au respect de la politique de pêche commune

Deux : Cadre et formes de coopération

A) Sans préjudice des projets et programmes que l'une ou l'autre des institutions serait susceptible de promouvoir dans ses domaines d'action, la collaboration entre celles-ci pourra envisager les aspects suivants :

- Répondre à l'ensemble des obligations énoncées dans le Règlement (CE) 199/2008 du Conseil du 25 février 2008. Ce PA couvrira l'ensemble des objectifs relatifs aux ressources thonnières tropicales, à l'exception des aspects sociaux-économiques.

- Suivi des données de base de la pêche (effort, captures, composition spécifique et structure démographique des captures).

- Projet pilote d'estimation des rejets et captures accessoires par le biais d'observateurs embarqués, qui représenteront entre 5 et 10 % de la flotte.

- Études biologiques (croissance et reproduction des thons albacore et thons obèses).

B) Ce Mémoire laisse la porte ouverte à une éventuelle définition de programmes spécifiques de collaboration pouvant être établis dans n'importe lequel des domaines couverts par le présent Mémoire.

Pour chaque initiative concrète, des actions spécifiques seront conçues et détailleront l'activité à réaliser, les personnes et institutions impliquées, les moyens disponibles, le budget et le financement.

Trois : Comité de Suivi

Un Comité de Suivi (ci-après, le Comité) sera créé et doté de deux représentants désignés par les deux Institutions, avec les fonctions suivantes :

- Orienter les travaux de recherche pour la réalisation du programme ;
- Évaluer les résultats des actions en cours et de celles déjà achevées ;
- Examiner les questions relatives à l'évaluation des résultats ;
- Proposer des solutions en cas de difficulté dans l'application de ce Mémoire ou des actions spécifiques et dans l'exécution des actions de coopération.

Le Comité se réunira aux dates que fixeront les institutions d'un commun accord, et les signataires s'engagent à remettre au Comité un rapport scientifique périodique tous les 12 mois, ainsi qu'une étude finale au terme des travaux.

Quatre : Financement

Chaque institution assumera, sur ses budgets ordinaires et à condition qu'il existe une consignation budgétaire respectant toute la législation en vigueur pour chacun des signataires, les frais relatifs à l'exécution des programmes et les actions issues du présent Mémoire.

Cela dit, chacun des signataires pourra rechercher le financement interne ou externe nécessaire pour une bonne coopération et contribuer à l'atteinte des objectifs de ce Mémoire.

Cinq : Durée

Ce Mémoire entrera en application à compter de la date de signature. Il aura une durée de 3 ans et pourra être prolongé dans le temps sur accord exprès entre les signataires, manifesté par écrit avant la fin de ce délai de validité, et avec indication des termes de la prolongation.

Six : Cessation de l'application

Le présent Mémoire pourra cesser de s'appliquer d'un commun accord ou sur décision de l'un ou l'autre des signataires, sur préavis envoyé de façon écrite à l'autre partie au moins six mois à l'avance par rapport à la date de terminaison proposée. Au cas où il existerait une action spécifique en vigueur s'inscrivant dans le cadre du présent Mémoire, la faculté de résilier le présent ne pourra être exercée tant que n'aura pas fait l'objet d'arbitrage la formule de finalisation desdites actions spécifiques.

Sept : Dispositions finales

Ce document n'est pas soumis au Droit International et il n'est pas juridiquement contraignant.

Toute difficulté pouvant survenir quant à l'application et à l'exécution du présent Mémoire ou des actions spécifiques devra être résolue d'un commun accord par le Comité de Suivi. Les éventuels problèmes n'ayant pas pu être résolus par ce Comité seront soumis à la consultation des Autorités compétentes des deux signataires. En tout état de cause, les éventuels litiges n'ayant pu être résolus à l'amiable seront portés devant les juridictions compétentes de la partie défenderesse.

AS
13

Et comme preuve de conformité, l'Institut Espagnol d'Océanographie et l'Institut de Recherche pour le Développement signent le présent Mémoire d'Accord en deux exemplaires sur toutes ses pages.

*Pour et en représentation de
l'Institut Espagnol
d'Océanographie.*

*Pour et en représentation de
l'Institut de Recherche pour le
Développement.*



Magali ROUBIEU
Administratrice du Centre
IRD-FRANCE SUD

M. Eduardo Balguerías Guerra
Directeur de l'IEO

M. Michel Laurent
Président de l'IRD

Date :

Date : 14.05.11

Lieu :

Lieu : I.R.D.

ANNEX 5

Sampling of tropical tuna

Landings:

In the case of tropical tuna fisheries, it is imperative to estimate the actual species composition of landings insofar as these are weighed according to commercial categories based more on size than on species, which is a major source of bias. The actual catch for each species can be estimated by cross-correlation of information from fishing logs and information from landings provided by the producer organisation, as well as from sampling of species composition at the landing site.

The procedure for sampling landings in ports has been described in detail in previous reports. It is recalled below.

The sampling methodology differs significantly – in terms of both method and the resulting intensity of sampling – from that recommended generally by the DCR. It was defined in 1997 in the European project ET²¹, on the basis of a detailed ten-year study of sampling in both oceans, and later submitted and ratified by ICCAT²² and subsequently by IOTC²³.

In summary, it involves concurrent multispecies sampling of the species composition of landings and the size composition of the main species in the catch on the basis of predefined spatial and temporal strata, according to the type of association and the weight category of the individuals. These procedures have been fully operational since 2000 in all landing ports. A detailed description was provided in the first national programme (2002) and it will not be described in detail again here insofar as no change has been made to it since.

The defined goal – to determine actual species composition and sizes simultaneously – entails a minimum number of samples for each stratum (types of fishery, zones and calendar quarters) and a predetermined population of individuals for each sample, which differs according to the fishing mode. Adherence to these procedures results in a number of sampled and measured individuals that is often much greater than the standard laid down in the programme (generally, C2 for tropical tuna, i.e. one sample per 100 tonnes landed and 100 individuals measured per sample, or one fish per tonne). This arises from the fact that in order to achieve a reasonable level of precision for the estimation of the species composition (10%), it is necessary to examine a large number of individuals for each sample (500 for log sets, 200 for free school sets) – a number that is usually greater than the standard laid down – even if the number of individuals to be measured is theoretically smaller. For reasons of greater reliability and due to their wide size range (40-180cm) in landings, the procedure provides that all albacore and bigeye tuna counted for the species composition should also be measured. Conversely, in the case of skipjack and other small tuna species (30-80 cm) of which there are often large numbers (60-80% of the sample) measurement is limited to 25 individuals of each species.

²¹ Pallares P. and J-P. Hallier, 1997. Analyse du schéma d'échantillonnage multi-spécifique des thonidés tropicaux. DG-Pêche no. 95/37, 1995-1997.

²² Pallares P. and Ch. Petit, 1997. Tropical tunas: New sampling and data processing strategy for estimating the composition of catches by species and sizes. ICCAT, SCRS/1997/028.

²³ Pianet R., P. Pallares and Ch. Petit, 2000. New sampling and data processing strategy for estimating the composition of catches by species and sizes in the European purse seine tropical tuna fisheries. IOTC-WPDCS/2000/10

Precision:

The level targeted for each sample (500 for log sets, 200 for free school sets) yields a level of precision of 10% for species composition and 5% for size composition.

The method used does not permit the definition of quantified targets for small tuna species and albacores, although they are in fact sampled when present in the catch. The other species are not kept on board.

Discards and bycatch:

Although the level of discards is not considered to be particularly high in tropical tuna surface fisheries (3-10% of the catch depending on fishing technique: Fonteneau *et al*, 2000²⁴; Kelleher, 2005²⁵, the relevant RFMOs strongly recommend that they be estimated using observer programmes:

- ✓ ICCAT: R2000/13 (billfish), R2001/20 (long liners), R2002/21 (chartered vessels) and R2002/31 (general, member and cooperating countries),
- ✓ IOTC: R2001/01 (general, member and cooperating countries).

An analysis carried out by the IATTC (Inter-American Tropical Tuna Commission) on the basis of virtually exhaustive sampling of the bycatch of five species groups (shark, marlin, rays, dolphin and other large fish) for purse seine log sets (over 90% of purse seine catches) over a period of four years in the Pacific shows that in this case if a sample of 10% of tuna fisheries was applied, it was possible to achieve a level of precision of between 10% and 40% depending on the species considered, with clear variations between years (Lennert-Cody, 2000²⁶).

²⁴ Fonteneau A., P. Pallares and R. Pianet, 2000. A worldwide review of purse seine fisheries on FADs. In: Pêche thonière et dispositifs concentrateurs de poissons. Le Gall J-Y., Cayré P., Taquet M. (eds). Ed. Ifremer, Actes Colloq., 28 : 15-35.

²⁵ Kelleher K., 2005. Discards in the world's marine fisheries, an update. FAO Fish. Tech. Paper N° 470.

²⁶ Lennert-Cody C., 2000. Effect of sample size on by-catch estimation. WP for the working group on biological and environmental research expert consultation on implications of precautionary approach: Tuna biological and technological research. Unpublished.

ANNEX 6

Bilateral agreement between France and Ireland



Bilateral Agreement between the Marine Institute Ireland and France (Ministere de l'Agriculture et de la peche) for the collection of length, maturity and age samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2008/949/EC.

Agreement:

1. Fifty four vessels fishing on the French register, which operate and / or land into Ireland and transported for first point of sale to France, will be sampled as part of the 2011-2013 National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the French National Sampling Programme from 2011.
2. In addition, four pelagic vessels fishing on the Irish register which operate and / or land for first sale into France, on an opportunistic basis, will be sampled as part of the 2011-2013 National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Irish National Sampling Programme from 2011.

Description of sampling:

1. The sampling will be for length maturity and age of Hake, Monkfish and Megrin landings, sampling will be carried out in accordance with the French National Sampling Programme.

Sampling Intensity: In accordance with the rules laid down by the regulation.

2. The sampling will be for length maturity and age of mackerel, horse mackerel and herring landings, sampling will be carried out in accordance with the Irish National Sampling Programme.

Ten samples of herring, mackerel, horse mackerel and/or albacore tuna will be sampled annually by a contractor based in Douarnenez, France. This contractor will collect and primary-process the samples and send the data to the Irish Marine Institute where they will be aged. The data will be submitted by the relevant Irish scientist to WGWIDE, HAWG and/or ICCAT.

Sampling Intensity: Ten samples will be processed and age, sex, length, maturity information recorded. These data will be sent to the French scientist with responsibility for submitting French data to the ICES WGWIDE.

Data responsibility:

1. France is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. France will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species to Ireland as and when requested.
2. Ireland is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. Ireland will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species to France as and when requested.

Contact persons:

National Correspondent: fran.o'brien@marine.ie

Marine Institute, Ireland

Signed: 

Date: 4/02/2010



Marine Institute
Foras na Mara

Rinneville
Oranmore Galway
Tel: 353 91 387 200
Fax: 353 91 387 201
fran.o'brien@marine.ie

Ministère de l'Agriculture

Signed: 

Date: 15/03/2010

patrice.chastet@agriculture.gouv.fr

DIRECTION DES PÊCHES MARITIMES
ET DE L'AQUACULTURE

3 place de Fontenay
75007 PARIS
FRANCE

ANNEX 7

Bilateral agreement between France and the Netherlands

Bilateral Agreement between the Netherlands (Centre for Fisheries Research) and France (DPMA) for the collection of length and age samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2010/93/EU.

Additional information:

RCM North Sea and Eastern Arctic (2008) recommended that The Netherlands and France should establish a bilateral agreement on the sampling of the landing French trawlers landing into the Netherlands. These trawlers are operated by a Dutch company, but sail under the French flag. As the vessel fly the French flag and are selected for sampling within the French National Programme, France holds the obligation to sample these vessels. But, as France doesn't have access to the majority of the landings, The Netherlands will take over this responsibility.

Agreement:

- (1) Landings and discards by French-Dutch vessels fishing on the French register, which land for first sale into the Netherlands, will be sampled as part of the Netherlands National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Netherlands National Sampling Programme from 2011 onwards.

Description of sampling:

- (1) The sampling will be for length and age of discards and landings, sampling will be carried out in accordance with the Netherlands National Sampling Programme.

Sampling Intensity:

- (1) Levels and coverage as agreed at the annual meeting of RCM NS&EA and NA and in compliance with the Dutch sampling scheme.

Data responsibility:

- (1) The Netherlands is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. The Netherlands will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species in France as and when requested.

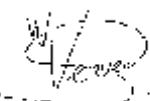
Contact persons:

In The Netherlands: Sieta Verver (sieta.verver@wur.nl)

In France: Patrice Chasset (Patrice.chasset@agriculture.gouv.fr)

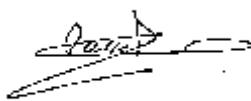
Signatures:

For CVO



Sieta Verver
Det. Head Centre for Fisheries Research
CVO

For DPMA



Patrice Chasset
National correspondent
MAAP/DPMA/MAS

Date: 31/03/2010

Date: 31/03/2010

ANNEX 8 : Sampling requirements for sampling of large pelagics in the Mediterranean (source PGMED)

Species	Gear	2011 (PGMED 2010) / Total agreed regionally	2012 (PGMED 2011) / Total agreed regionally	2013 (PGMED 2012) / Total agreed regionally
Bluefin tuna (<i>T. thynnus</i>)	Purse seine	0 / 5669	21 / 5240	
	Longline	110 / 1131	146 / 1654	
	Handline/Traps	0 / 204	0 / 110	
Swordfish (<i>X. gladius</i>)	All	3 / 1515	0 / 1515	
Albacore (<i>T. Alalunga</i>)	All	0 / 574	0 / 574	
Dolphinfish (<i>C. hippurus</i>)	All	0 / 1500	0 / 1500	
Bonito (<i>S. sarda</i>)	All	5 / 353	0 / 353	

Table 1 : Length sampling recommendation for large pelagic fish

Species	Gear	2011 (PGMED 2010) / Total agreed regionally	2012 (PGMED 2011) / Total agreed regionally	2013 (PGMED 2012) / Total agreed regionally
Bluefin tuna (<i>T. thynnus</i>)	Purse seine	0	0 / 798	
	Longline	0	22 / 252	
	Handline/Traps	0	0 / 17	
Swordfish (<i>X. gladius</i>)	All	0 / 998	0 / 998	
Albacore (<i>T. Alalunga</i>)	All	0 / 322	0 / 322	
Dolphinfish (<i>C. hippurus</i>)	All	0 / 1329	0 / 1329	
Bonito (<i>S. sarda</i>)	All	0 / 120	0 / 120	

Table 2 : Stock related variables

ANNEX 9

Tables of landings and shares per species in the Mediterranean and black Sea from PGMED 2010

Table 1 : total landings per species (tonnes).

Species (Appendix VII EC 949/08)	Cyprus	Greece	France	Malta	Italy	Spain	Slovenia	Total Landing (Tons)
<i>Anguilla anguilla</i>	0	6	2	0	0	1	0	9.0
<i>Aristeomorpha foliacea</i>	0	0	1	23	2361	1	0	2387.0
<i>Aristeus antennatus</i>	0	0	0	0	845	799	0	1644.6
<i>Boops boops</i>	233	7964	135	24	3199	128	2	11687.2
<i>Coryphaena hippurus</i>	0	4	0	383	2247	25	0	2658.7
<i>Coryphaena equiselis</i>	0	0	0	0	0	0	0	0.0
<i>Dicentrarchus labrax</i>	8	145	267	0	110	55	1	586.1
<i>Eledone cirrhosa*</i>	0	1005	1498	0	2963	157	0	5622.3
<i>Eledone moschata*</i>	0	0	0	0	4543	0	31	4573.2
<i>Engraulis encrasicolus</i>	0	20481	2939	0	66730	3494	409	94052.7
<i>Eutrigla gurnardus</i>	0	0	17	0	462	7	0	485.4
<i>Illex spp., Todarodes spp.</i>	0	1752	48	1	4077	103	0	5981.8
<i>Istiophoridae</i>	0	0	0	2	150	0	0	152.5
<i>Loligo vulgaris</i>	24	1072	294	8	1915	271	9	3594.1
<i>Lophius budegassa*</i>	0	2578	387	1	997	1165	0	5126.8
<i>Lophius piscatorius*</i>	0	0	0	0	1072	0	0	1071.7
<i>Merluccius merluccius</i>	25	12386	1116	7	15578	3563	4	32681.3
<i>Micromesistius poutassou</i>	0	400	23	0	1458	5793	3	7677.6
<i>Mugilidae</i>	3	141	338	0	2825	66	12	3384.9
<i>Mullus barbatus*</i>	50	4048	211	9	9014	1590	4	14926.0
<i>Mullus surmuletus*</i>	132	2458	0	4	3912	0	0	6505.1
<i>Nephrops norvegicus</i>	0	1007	1	1	4289	332	0	5630.1
<i>Octopus vulgaris*</i>	137	4853	0	35	3817	1827	0	10668.4
<i>Pagellus erythrinus</i>	25	1487	111	5	1585	193	5	3411.1
<i>Parapenaeus longirostris</i>	3	4206	1	8	11369	126	0	15713.3
<i>Penaeus kerathurus</i>	0	2832	2	0	575	170	0	3578.9
<i>Raja clavata*</i>	0	378	15	6	357	1	0	757.0
<i>Raja miraletus*</i>	0	0	0	0	40	111	0	151.1
<i>Sarda sarda</i>	4	1316	10	7	1524	391	1	3252.0
<i>Sardina pilchardus</i>	7	20388	10983	1	13126	26376	273	71154.8
<i>Scomber spp.</i>	1	4148	1382	13	3480	6339	11	15374.4
<i>Sepia officinalis</i>	41	3553	102	11	9490	320	32	13548.8
Shark-like Selachii	19	636	9	22	1704	184	2	2575.4
<i>Solea vulgaris</i>	0	1460	178	0	2231	50	7	3927.3
<i>Sparus aurata</i>	6	101	307	2	0	242	3	661.2
<i>Spicara smaris</i>	269	4816	7	5	2048	94	5	7245.1
<i>Squilla mantis</i>	0	116	34	0	6520	283	5	6957.3
<i>Thunnus alalunga</i>	538	236	0	10	3680	362	0	4826.6
<i>Thunnus thynnus</i>	80	159	24	305	4364	2764	0	7696.0
<i>Trachurus mediterraneus*</i>	12	0	0	7	762	0	0	780.6
<i>Trachurus trachurus*</i>	0	7047	534	0	4334	7708	7	19630.5
<i>Trigla lucerna</i>	0	81	26	4	341	4	0	457.3
<i>Veneridae</i>	0	0	0	0	24316	6	0	24321.8
<i>Xiphias gladius</i>	54	1192	9	229	7202	620	0	9305.2
<i>Sprattus sprattus</i>	0	0	0	0	0	4	0	4.3
<i>Psetta maxima</i>	0	0	12	0	0	5	0	17.3
<i>Squalus acanthias</i>	0	0	2	0	0	10	0	11.9

Table 2 : Contribution per countries (in percentage) for the landings of species.


Species (Appendix VII EC 949/08)	Cyprus	Greece	France	Malta	Italy	Spain	Slovenia	tot %
<i>Anguilla anguilla</i>	0.0	67.5	20.9	0.0	0.0	11.5	0.1	100
<i>Aristeomorpha foliacea</i>	0.0	0.0	0.1	1.0	98.9	0.1	0.0	100
<i>Aristeus antennatus</i>	0.0	0.0	0.0	0.0	51.4	48.6	0.0	100
<i>Boops boops</i>	2.0	68.1	1.2	0.2	27.4	1.1	0.0	100
<i>Coryphaena hippurus</i>	0.0	0.1	0.0	14.4	84.5	0.9	0.0	100
<i>Coryphaena equiselis</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
<i>Dicentrarchus labrax</i>	1.4	24.7	45.5	0.0	18.7	9.4	0.2	100
<i>Eledone cirrhosa*</i>	0.0	17.9	26.6	0.0	52.7	2.8	0.0	100
<i>Eledone moschata*</i>	0.0	0.0	0.0	0.0	99.3	0.0	0.7	100
<i>Engraulis encrasicolus</i>	0.0	21.8	3.1	0.0	70.9	3.7	0.4	100
<i>Eutrigla gurnardus</i>	0.0	0.0	3.5	0.0	95.1	1.3	0.0	100
<i>Illex spp., Todarodes spp.</i>	0.0	29.3	0.8	0.0	68.2	1.7	0.0	100
<i>Istiophoridae</i>	0.0	0.0	0.0	1.5	98.5	0.0	0.0	100
<i>Loligo vulgaris</i>	0.7	29.8	8.2	0.2	53.3	7.5	0.2	100
<i>Lophius budegassa*</i>	0.0	50.3	7.6	0.0	19.4	22.7	0.0	100
<i>Lophius piscatorius*</i>	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100
<i>Merluccius merluccius</i>	0.1	37.9	3.4	0.0	47.7	10.9	0.0	100
<i>Micromesistius poutassou</i>	0.0	5.2	0.3	0.0	19.0	75.5	0.0	100
Mugilidae	0.1	4.2	10.0	0.0	83.5	2.0	0.3	100
<i>Mullus barbatus*</i>	0.3	27.1	1.4	0.1	60.4	10.7	0.0	100
<i>Mullus surmuletus*</i>	2.0	37.8	0.0	0.1	60.1	0.0	0.0	100
<i>Nephrops norvegicus</i>	0.0	17.9	0.0	0.0	76.2	5.9	0.0	100
<i>Octopus vulgaris*</i>	1.3	45.5	0.0	0.3	35.8	17.1	0.0	100
<i>Pagellus erythrinus</i>	0.7	43.6	3.3	0.2	46.5	5.7	0.1	100
<i>Parapenaeus longirostris</i>	0.0	26.8	0.0	0.1	72.4	0.8	0.0	100
<i>Penaeus kerathurus</i>	0.0	79.1	0.0	0.0	16.1	4.8	0.0	100
<i>Raja clavata*</i>	0.0	50.0	2.0	0.8	47.1	0.1	0.0	100
<i>Raja miraletus*</i>	0.0	0.0	0.0	0.0	26.3	73.7	0.0	100
<i>Sarda sarda</i>	0.1	40.5	0.3	0.2	46.9	12.0	0.0	100
<i>Sardina pilchardus</i>	0.0	28.7	15.4	0.0	18.4	37.1	0.4	100
<i>Scomber spp.</i>	0.0	27.0	9.0	0.1	22.6	41.2	0.1	100
<i>Sepia officinalis</i>	0.3	26.2	0.8	0.1	70.0	2.4	0.2	100
Shark-like Selachii	0.7	24.7	0.4	0.8	66.2	7.1	0.1	100
<i>Solea vulgaris</i>	0.0	37.2	4.5	0.0	56.8	1.3	0.2	100
<i>Sparus aurata</i>	0.9	15.3	46.5	0.2	0.0	36.6	0.5	100
<i>Spicara smaris</i>	3.7	66.5	0.1	0.1	28.3	1.3	0.1	100
<i>Squilla mantis</i>	0.0	1.7	0.5	0.0	93.7	4.1	0.1	100
<i>Thunnus alalunga</i>	11.1	4.9	0.0	0.2	76.2	7.5	0.0	100
<i>Thunnus thynnus</i>	1.0	2.1	0.3	4.0	56.7	35.9	0.0	100
<i>Trachurus mediterraneus*</i>	1.5	0.0	0.0	0.9	97.6	0.0	0.0	100
<i>Trachurus trachurus*</i>	0.0	35.9	2.7	0.0	22.1	39.3	0.0	100
<i>Trigla lucerna</i>	0.0	17.8	5.7	1.0	74.6	0.8	0.1	100
Veneridae	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100
<i>Xiphias gladius</i>	0.6	12.8	0.1	2.5	77.4	6.7	0.0	100
<i>Sprattus sprattus</i>	0	0	0	0	0	100	0.0	100
<i>Psetta maxima</i>	0	0	69.7	0	0	30.3	0.0	100
<i>Squalus acanthias</i>	0	0	18.3	0	0	81.7	0.0	100

Notes on France landings:

- L. budegassa grouped with L. piscatorius
- Octopus vulgaris grouped with Eledone moschata and Octopus macropus (in lesser extent).
- M. barbatus grouped with M. surmuletus

ANNEX 10

Questionnaire sent to processing industries



FranceAgriMer
ÉTABLISSEMENT NATIONAL
DES PRODUITS DE L'AQUACULTURE ET DE LA MER

**QUESTIONNAIRE RELATIF A LA SITUATION ECONOMIQUE DE L'INDUSTRIE DE TRANSFORMATION
DES PRODUITS DE LA PECHE OU DE L'AQUACULTURE (REG (CE) 199/2008)**

- A renvoyer complété à l'aide de l'enveloppe T jointe avant le

IDENTIFICATION DE L'ENTREPRISE

1. Nom de l'entreprise : _____
2. SIREN : _____ 3. Personne contact : _____
4. Adresse : _____
5. Téléphone : _____ 6. Mail : _____ Code APE _____
6. Numéro d'agrément sanitaire de l'entreprise _____
7. Chiffre d'affaires (CA) de l'entreprise (en Euros, exercice clos en 2010) : _____
8. Part en % des produits de la mer* (frais ou transformés) dans le CA de l'entreprise : _____ %
(* Dénomination au sens large, incluant les produits de la pêche et de l'aquaculture marine ou d'eau douce)
9. Subventions perçues en 2010 _____ € 10. Autres revenus _____ €
11. Nombre d'emplois en 2010 :

	Total	Dont hommes	Dont femmes
Nombre de salariés au 31/12/2010			
Nombre équivalent temps-plein 2010			

12. Répartition du CA produits de la mer en 2010 en pourcentages :

12.1. Négoce, commerce de gros de produits de la mer (y compris négoce de surgelés)	%
12.2. Mareyage	%
12.3. Fabrication de surgelés (y compris plats cuisinés surgelés)	%
12.4. Fabrication de conserves et semi-conserves	%
12.6. Cuisson de crevettes	%
12.7. Fabrication de surimi	%
12.8. Salage et Fumage	%
12.9. Autres (préciser)	%
TOTAL CA imputable à l'activité de transformation des produits de la mer en %	100 %

LES APPROVISIONNEMENTS DE L'ENTREPRISE

13. Veuillez préciser les approvisionnements en matière première pour l'année 2010 :
Total quantité en tonnes : _____ Total valeur des achats en euros _____

LES COÛTS DE PRODUCTION ET LES INVESTISSEMENTS

14. Veuillez préciser en Euros les données comptables suivantes pour votre exercice clos en 2010

Dépenses de personnel dont (traitements et salaires du personnel)	€
Dont valeur imputée de la main d'œuvre non salariée	€
Coûts énergétiques	€
Coûts de la matière première : achat de poisson et d'autres matières premières pour la production	€
Autres coûts opérationnels	€
Coûts en capital : dont amortissement du capital	€
Dont coûts financiers nets	€
Coûts extraordinaires nets	€
Valeur du capital : valeur totale des actifs	€
Investissements nets	€
Passifs	€

NON-REPONSE : si vous estimez que votre entreprise se situe en dehors du champ de cette enquête et afin d'éviter d'éventuelles relances et enquêtes ultérieures, merci néanmoins de renvoyer ce questionnaire en précisant ci-dessous les raisons pour lesquelles vous ne pouvez répondre :

Pas du tout d'activité de transformation des produits de la pêche ou de l'aquaculture (préciser l'activité réelle) :

Autre raison (préciser) :

NOTA : en cas de difficultés pour remplir le questionnaire vous pouvez ou à l'adresse courriel
12, rue Henri Rol-Tanguy – TSA 20002 – 93555 Montreuil-sous-Bois cedex
Tél : +33 1 73 30 30 00 – Fax : +33 1 73 30 30 30 www.franceagrimer.fr

ANNEX 11

Proposition d'une méthodologie pour simplifier la stratification technique du plan d'échantillonnage OBSMER

Auteurs : Laurence Fauconnet, Marie-Joëlle Rochet, Verena Trenkel
(Département EMH – Ifremer Nantes)

Introduction / Contexte

Cette étude se place dans le contexte du programme ObsMer pour les observations à la mer. L'objectif de ce programme est d'estimer les captures et notamment les rejets produits par la pêche professionnelle. Le programme a débuté en 2003 sous l'obligation communautaire de la DCR (Data Collection Regulation). En 2008, la DCR est devenue la DCF (Data Collection Framework), modification réglementaire qui a conduit à une augmentation de l'effort d'échantillonnage.

La DCF impose un niveau de précision et une stratification du plan d'échantillonnage. La stratification temporelle utilisée est celle du trimestre. La stratification spatiale est celle de la zone de pêche (regroupement de plusieurs rectangles statistiques CIEM). Quant à la stratification technique, elle est définie par la DCF au niveau 6, c'est-à-dire en incluant le maillage. Cependant des contraintes sur les variables d'effort: maillages indisponibles ou non contrôlés, ne permettent pas d'atteindre un tel niveau de stratification. En 2009, la stratification technique utilisée était donc le métier au niveau 5, correspondant à un croisement engin \square espèce-cible, sans considération de maillage.

Plus de 50 métiers ont été échantillonnés en 2009. Face à ce nombre de strates très important, avec un effort total d'échantillonnage limité, il n'est pas possible d'avoir un nombre d'observations suffisamment grand par strate pour obtenir des estimations ayant un niveau de précision raisonnable. Cela rend l'exploitation des données d'observation à la mer difficile. Pour simplifier la stratification employée dans le plan d'échantillonnage, nous avons cherché à effectuer des regroupements de métiers, de façon à obtenir des strates de taille suffisante pour mener à bien des analyses statistiques dont les résultats puissent être significatifs.

Méthodes:

Sélection des données

Nous avons travaillé sur les données collectées par les observateurs à la mer lors de l'année 2009 uniquement, puisque pour cette année l'effort d'échantillonnage et donc le nombre de données disponibles est bien plus important que pour les années précédentes.

Nous sélectionnons les données de rejets exclusivement puisque l'estimation des rejets est l'objectif premier d'ObsMer. De même, nous nous limitons aux marées qui ont été échantillonnées de manière exhaustive de façon à ce que chaque valeur manquante puisse être associée à une valeur nulle.

Nous avons séparé engins traînants (chaluts pélagiques, à panneaux, de fond, dragues, etc.), engins dormants à maille (fileyeurs, trémails, etc.) et engins dormants à hameçons ou casiers (ligneurs, palangriers, caseyeurs). L'unité d'effort associée aux engins traînants est l'heure de pêche, celle associée aux engins dormants à mailles est le mètre de filière et pour les engins dormants à hameçons et casiers, nous utilisons le nombre d'hameçons (ou de casiers).

Nous avons travaillé par zone de pêche: Golfe de Gascogne, Manche Ouest, Manche Est – mer du Nord, mer Celtique, Ouest Ecosse et Méditerranée.

Nous présentons ici l'exemple des métiers traînants en Manche Est, mer du Nord où onze métiers différents sont pratiqués :

- DRB_MOL = dragues remorquées par bateau à mollusques

- OTB_DEF = chaluts de fond à panneaux à poissons démersaux
- OTB_MOL = chaluts de fond à panneaux à mollusques
- OTB_SPF = chaluts de fond à panneaux à petits pélagiques
- OTM_DEF = chaluts pélagiques à panneaux à poissons démersaux
- OTM_SPF = chaluts pélagiques à panneaux à petits pélagiques
- OTT_CRU = chaluts jumeaux à panneaux à crustacés
- OTT_DEF = chaluts jumeaux à panneaux à poissons démersaux
- PTM_DEF = chaluts boeufs pélagiques à poissons démersaux
- PTM_SPF = chaluts boeufs pélagiques à petits pélagiques
- TBB_DEF = chaluts à perche à poissons démersaux

Procédure de regroupement des métiers

Sélection des espèces d'intérêt :

Pour chaque métier, nous identifions les trois espèces les plus rejetées en poids. Par union de ces 11 listes de 3 espèces, nous obtenons une liste de 13 espèces, pour lesquelles nous testons des regroupements de métiers successifs. Nous déterminons également le rang de chacune de ces espèces dans les poids rejetés de chaque métier considéré.

Création des modèles :

Un modèle linéaire est utilisé pour déterminer l'effet de la variable explicative: métier, sur la somme des poids rejetés par unité d'effort par OP. Les données de poids sont log-transformées car l'analyse des résidus du modèle linéaire prouve que cette transformation confère aux résidus une distribution plus proche de la loi Normale.

log(poids rejeté par unité d'effort) ~ métier

Des modèles sont créés pour tous les regroupements « vraisemblables » de métiers, donc par grand groupe d'espèces-cibles: petits pélagiques (SPF), démersaux (DEF) et crustacés (CRU) / mollusques (MOL). Pour chaque groupe d'espèce-cibles, nous procédons à tous les regroupements possibles 2 à 2, puis 3 à 3, puis 4 à 4 jusqu'à un maximum de 5 métiers regroupés pour les démersaux. Pour le premier modèle, aucun regroupement n'est réalisé (modèle complet). Les 4 derniers modèles testent des combinaisons simultanées de regroupements d'espèces-cibles (ex. tous les métiers ciblant les démersaux et tous ceux ciblant les petits pélagiques simultanément).

Sélection des modèles :

Le critère d'Akaike (AIC) est un indice qui permet de comparer deux modèles en se basant sur la déviance de chacun de ces modèles, pénalisée par un terme traduisant leur complexité. Plus l'AIC est petit, meilleur est le modèle, pour un compromis entre qualité de l'ajustement et nombre de paramètres estimés par le modèle.

L'AIC est calculé et comparé pour chacun des modèles. En raison de la variabilité des données, deux valeurs voisines de l'AIC ne peuvent être considérées comme significativement différentes. Nous considérons une différence minimum de 5 pour déclarer que le modèle avec l'AIC le plus petit est une amélioration. Les modèles sont comparés du modèle complet au modèle nul en conservant à chaque étape le meilleur modèle selon ce critère tout en s'assurant que l'AIC du modèle sélectionné ne dépasse jamais l'AIC du modèle complet + 5.

Saisonnalité de l'échantillonnage :

Le nombre d'observations par métier et par trimestre est déterminé de façon à pouvoir identifier la saisonnalité de certains métiers. L'hypothèse est que la saisonnalité de l'échantillonnage reflète celle de l'activité des navires. C'est une hypothèse à vérifier.

Résultats

	DRB_MOL	OTB_DEF	OTB_MOL	OTB_SPF	OTM_DEF	OTM_SPF	OTT_CRU	OTT_DEF	PTM_DEF	PTM_SPF	TBB_DEF
<i>Pecten maximus</i>	3	2									
<i>Platichthys flesus</i>	3	2					3	2			2
<i>Trisopterus luscus</i>	3	6	3	1			3		2		2
<i>Merlangius merlangus</i>		2	3	1	2	1	3			1	
<i>Gadus morhua</i>		2	3						2	1	2
<i>Trachurus trachurus</i>		2	3	1	2	1			2	1	
<i>Limanda limanda</i>		2	3	1	2	1		2			2
<i>Sardina pilchardus</i>		2		1					2	1	
<i>Scomber scombrus</i>		6	3	1	2	10			2	1	
<i>Clupea harengus harengus</i>		2	3			1	3		2	1	
Gobiidae							3				
<i>Pleuronectes platessa</i>		2	3	1	2		3	2	2		2
<i>Chelidonichthys lucernus</i>		2	7		2	1	3	2			
TOUTES ESPECES	3	6	3	1	9	1	3	2	2	1	2

Table 1 : Regroupement de métiers par espèce

La table 1 présente les résultats des regroupements de métiers. Les métiers qui appartiennent à un même groupe présentent des valeurs identiques. Par exemple, pour le tacaud (*Trisopterus luscus*) les dragues à mollusques sont regroupées avec les chaluts de fond à mollusques et les chaluts jumeaux à crustacés. De même, les chaluts bœufs pélagiques et les chaluts à perche à poissons démersaux peuvent être regroupés pour cette espèce alors que les chaluts de fond font un groupe à part.

	DRB_MOL	OTB_DEF	OTB_MOL	OTB_SPF	OTM_DEF	OTM_SPF	OTT_CRU	OTT_DEF	PTM_DEF	PTM_SPF	TBB_DEF
<i>Pecten maximus</i>	1	25									
<i>Platichthys flesus</i>	2	9					13	2			2
<i>Trisopterus luscus</i>	3	6	4	3			2		9		10
<i>Merlangius merlangus</i>		1	1	4	1	4	1			9	
<i>Gadus morhua</i>		2	25						1	1	7
<i>Trachurus trachurus</i>		3	3	2	2	2			2	8	
<i>Limanda limanda</i>		4	2	6	6	7		6			3
<i>Sardina pilchardus</i>		46		1					10	4	
<i>Scomber scombrus</i>		10	14	13	3	1			3	3	
<i>Clupea harengus harengus</i>		7	13			3	8		4	2	
Gobiidae							3				
<i>Pleuronectes platessa</i>		5	6	9	7		6	1	7		1
<i>Chelidonichthys lucernus</i>		13	10		5	10	12	3			

Table 2 : Rang des espèces dans les rejets en poids par métier

Trimestre	DRB_MOL	OTB_DEF	OTB_MOL	OTB_SPF	OTM_DEF	OTM_SPF	OTT_CRU	OTT_DEF	PTM_DEF	PTM_SPF	TBB_DEF
1	10	314	42	0	5	0	0	0	5	0	0
2	0	698	0	0	12	2	0	0	5	21	36
3	0	681	4	29	0	33	12	17	0	7	6
4	4	342	41	0	0	2	34	0	62	0	13

Table 3 : Calendrier trimestriel de l'échantillonnage par métier

En résumé, tous les métiers ciblant les petits pélagiques peuvent être regroupés. Cependant le métier chaluts pélagiques à panneaux (OTM_SPF) se distingue des deux autres métiers de ce groupe, : chaluts de fond à panneaux (OTB_SPF) et chaluts boeufs pélagiques (PTM_SPF), pour sa principale espèce rejetée, le maquereau. Il pourrait donc constituer un groupe séparé, d'autant plus que la saisonnalité est différente entre ces métiers : les chaluts de fond et pélagiques sont en activité principalement en été, et les chaluts bœufs pélagiques au printemps. En toute rigueur, il faudrait donc séparer les chaluts

pélagiques à panneaux, cependant ne serait-il pas préférable d'opter pour un regroupement plus parcimonieux ?

Tous les métiers ciblant les poissons démersaux peuvent être regroupés à l'exception du chalutage de fond à panneaux (OTB_DEF). Ce métier n'est pas regroupé avec les autres : chaluts jumeaux à panneaux (OTT_DEF), chaluts pélagiques à panneaux (OTM_DEF), chaluts boeufs pélagiques (PTM_DEF) et chaluts à perche (TBB_DEF) pour 2 des 10 premières espèces rejetées par ce métier, le tacaud commun et le maquereau. De plus, le nombre d'observations pour les chaluts de fond à panneaux est nettement supérieur aux données sur les autres métiers. Il paraît donc cohérent de séparer ce métier des autres.

Nous avons également testé le regroupement des dragues remorquées par bateau à mollusques (DRB_MOL), chaluts de fond à panneaux à mollusques (OTB_MOL) et chaluts jumeaux à panneaux à crustacés (OTT_CRU). Même si au sens halieutique, ces métiers semblent bien différenciés, la méthodologie statistique que nous avons appliquée est en faveur d'un regroupement de ces métiers. Seule pour une espèce sur 13, le grondin perlon, 10^{ème} au rang des rejets de chaluts de fond à mollusques, le regroupement ne serait significatif qu'entre les dragues à mollusques et les chaluts jumeaux à crustacés. Le nombre d'OP échantillonnées pour chacun de ces métiers étant relativement faible et la saisonnalité un peu différente, un regroupement de ces métiers semble toutefois se justifier au sens statistique.

Cette étude sur la Manche Est – mer du Nord nous permet donc de regrouper les métiers traînants en 3 à 7 groupes.

Option 3 groupes :

- Métiers ciblant les petits pélagiques : OTB_SPF, OTM_SPF, PTM_SPF
- Métiers ciblant les poissons démersaux : OTB_DEF, OTT_DEF, OTM_DEF, PTM_DEF, TBB_DEF
- Métiers ciblant mollusques et crustacés : DRB_MOL, OTB_MOL, OTT_CRU

Option 7 groupes :

- Chaluts boeufs pélagiques et chaluts de fond à petits pélagiques
- Chaluts pélagiques à petits pélagiques (OTM_SPF)
- Métiers ciblant les poissons démersaux : OTT_DEF, OTM_DEF, PTM_DEF, TBB_DEF, sauf chaluts de fond à panneaux
- Chaluts de fond à panneaux à poissons démersaux (OTB_DEF)
- Dragues à mollusques
- Chaluts de fond à mollusques
- Chaluts jumeaux à crustacés

National programme for the collection, management and use of data in the fisheries sector for the period N - (N+2)

INDICATIVE COST OF MULTI-ANNUAL NATIONAL PROGRAMME N - (N+2) *

- EURO -

	Year	Planned eligible expenditure	Maximum Community contribution
2011	N	14 898 075,63	7 449 037,81
2012	N+1	14 988 300,15	7 494 150,08
2013	N+2	15 200 956,62	7 600 478,31
	TOTAL	45 087 332,40	22 543 666,20

* - to be inserted into the National Programme