

Ministry of the Flemish Community – Policy Domain Agriculture and Fisheries

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Flanders Research Institute for Agricultural, Fisheries and Food (ILVO),  
Oostende, Belgium

**Council Regulation (EC) No 199/2008 of 25 February 2008**

concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy

**Commission Regulation (EC) No 665/2008 of 14 July 2008**

laying down detailed rules for the application of Council Regulation (EC) No 199/2008

**Commission Implementing Decision (EU) 2016/1251 of 12 July 2016**

adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019

# **Belgium Work Plan for data collection in the fisheries and aquaculture sectors**

**2017-2019**

Version 1.0

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## SECTION 1: BIOLOGICAL DATA

### **Pilot Study 1: Relative share of catches of recreational fisheries compared to commercial fisheries**

*General comment: This Box fulfills paragraph 4 of Chapter V of the multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (a) of this Decision.*

#### **1. Aim of pilot study**

Check the relative contribution of the Belgian recreational catches of European sea bass (*Dicentrarchus labrax*), cod (*Gadus morhua*) and pollack (*Pollachius virens*) in the total national catches (recreational and commercial) of these species with regards to possible thresholds.

#### **2. Duration of pilot study**

1 year, the national recreational catch survey for Belgium will be yearly conducted from 2017 onwards.

#### **3. Methodology and expected outcomes of pilot study**

The survey will consider all reported species and will not make a selection a priori. Results will therefore also provide figures on sea bass, cod and pollack.

The survey consists of two parts: 1) the estimation of the total population of recreational sea fishermen or recreational fishing effort and 2) the estimation of catches for a sample of recreational fishermen. An online omnibus survey will be sent to a representative sample of 200.000 Belgian inhabitants, inquiring about their recreational fishing activity in the Belgian part of the North Sea in the past 12 months. Follow-up questions, when a positive response was received, allow to estimate the total population of Belgian fishermen in function of the used fishing technique and avidity classes. Logbook participants are recruited in the omnibus survey and are added to a pool of purposefully selected logbook participants. On-site surveys, among which an aerial survey, are planned in 2017 to estimate total fishing effort. Logbook surveys are used to estimate the recreational catches of a stratified sample of recreational fishermen. Interviews in the 4 major Belgian marinas and at the coast act as a control on the reported catches. Extrapolation to total catches take into account fishing technique and avidity. The exact protocol is being developed at the time of writing and will most likely be published in the beginning of 2017.

Although no prior studies regarding the total Belgian recreational catch (including all species) have been performed, it can be expected that only for sea bass a significant share of the total Belgian catch can be attributed to recreational fishermen. Although cod is a target species for recreational fisheries, it is expected that the volume of recreational catch is rather low compared to the commercial landings. The recreational catch of pollack is expected to be insignificant.

## SECTION 1: BIOLOGICAL DATA

### **Text Box 1E: Anadromous and catadromous species data collection in fresh water**

*General comment: This Box fulfills paragraph 2 points (b) and (c) of Chapter III of the multi-annual Union programme and Article 2 of this Decision.*

#### **Method selected for collecting data-**

Data on anadromous and catadromous species are collected by the Research Institute for Nature and Forest (INBO) under the Belgian Eel Management Plan (Commission Decision C (2009)10510).

Following the Commission Implementing Decision 2016/1251, no duplication of data collection may occur. Therefore, no data on anadromous and catadromous species is collected under this workplan 2017-2019.

The full description of the Belgian Eel Management Plan can be found on

[https://www.natuurenbos.be/sites/default/files/inserted-files/soortbeschermingsplan\\_voor\\_de\\_paling.pdf](https://www.natuurenbos.be/sites/default/files/inserted-files/soortbeschermingsplan_voor_de_paling.pdf)

## SECTION 1: BIOLOGICAL DATA

### **Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem**

*General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (b) of this Decision.*

The RCMNSEA 2016 noted that the Annex to the Commission Implementing Decision refers to defining data collection according to end-user needs, all of which relate to biological data collection, ecosystem impacts and thresholds for data collection (Chapter 3: articles 2 and 3, and Chapter 5: Article 2). These are areas of data collection where the RCGs have a particular mandate to ensure coordination of data collection at a regional level. During the period 2017-2019, regional studies such as ‘the level of fishing and impact of fisheries on biological resources and marine ecosystem’ and coordination will be determined.

#### **1. Aim of pilot study**

To be coordinated at marine regional level and based on end-user needs. Regional studies are yet to be determined.

#### **2. Duration of pilot study**

To be coordinated at marine regional level and based on end-user needs. Regional studies are yet to be determined.

#### **3. Methodology and expected outcomes of pilot study**

To be coordinated at marine regional level and based on end-user needs. Regional studies are yet to be determined.

## SECTION 1: BIOLOGICAL DATA

### Text Box 1G: List of research surveys at sea

*General Comment: This Box fulfills Chapter IV of the multi-annual Union programme and Article 2 and Article 7 paragraph (3) of this Decision. It is intended to specify which research surveys at sea set out in Table 10 of the multi-annual Union programme will be carried out. Member States shall specify whether the research survey is included in Table 10 of the multi-annual Union programme or whether it is an additional survey.*

#### 1. Objectives of the survey

*North Sea Beam Trawl Survey (BTS, listed in Table 1G.1)*

##### History:

The Belgian offshore beam trawl survey, collecting fisheries-independent data primarily for plaice and sole in the North Sea (area IVb,c), started in 1992. The continuous time-series using a 4 m-beam trawl as standard gear, started in 1993. 62 fixed stations are fished for 30 min at 4 knots. Although the target species are plaice and sole, all fish species are measured since 2010 (before 2010, only numbers were recorded for some fish species). All epibenthic species are recorded (numbers).

##### Objectives:

- ✓ Create a fisheries-independent stock estimate for plaice and sole for the sampled area
- ✓ Collection of data on all fish species for ecosystem purposes
- ✓ Collection of data on epibenthos species for ecosystem purposes

The indices are supplied to the relevant ICES stock assessment working groups.

*Demersal Young Fish Survey (DYFS, listed in Table 10)*

##### History:

As part of the international Demersal Young Fish and Brown Shrimp Survey, an annual autumn (quarter 3) DYFS survey is carried out in the Belgian coastal waters to collect data on the abundance of juvenile flatfish (primarily plaice and sole) and brown shrimp (*Crangon crangon*).

Since 1973, 33 fixed sampling stations are fished. The location of the sampling area matches the main flatfish nursery grounds along the Belgian coast.

Until 1982, the research vessel 'Hinders' was used. From 1983 onwards, the survey was carried out using the training and research vessel O.29 'Broodwinner'. From 2013 onwards, the new research vessel 'Simon Stevin' was used for the Belgian DYFS.

##### Objective:

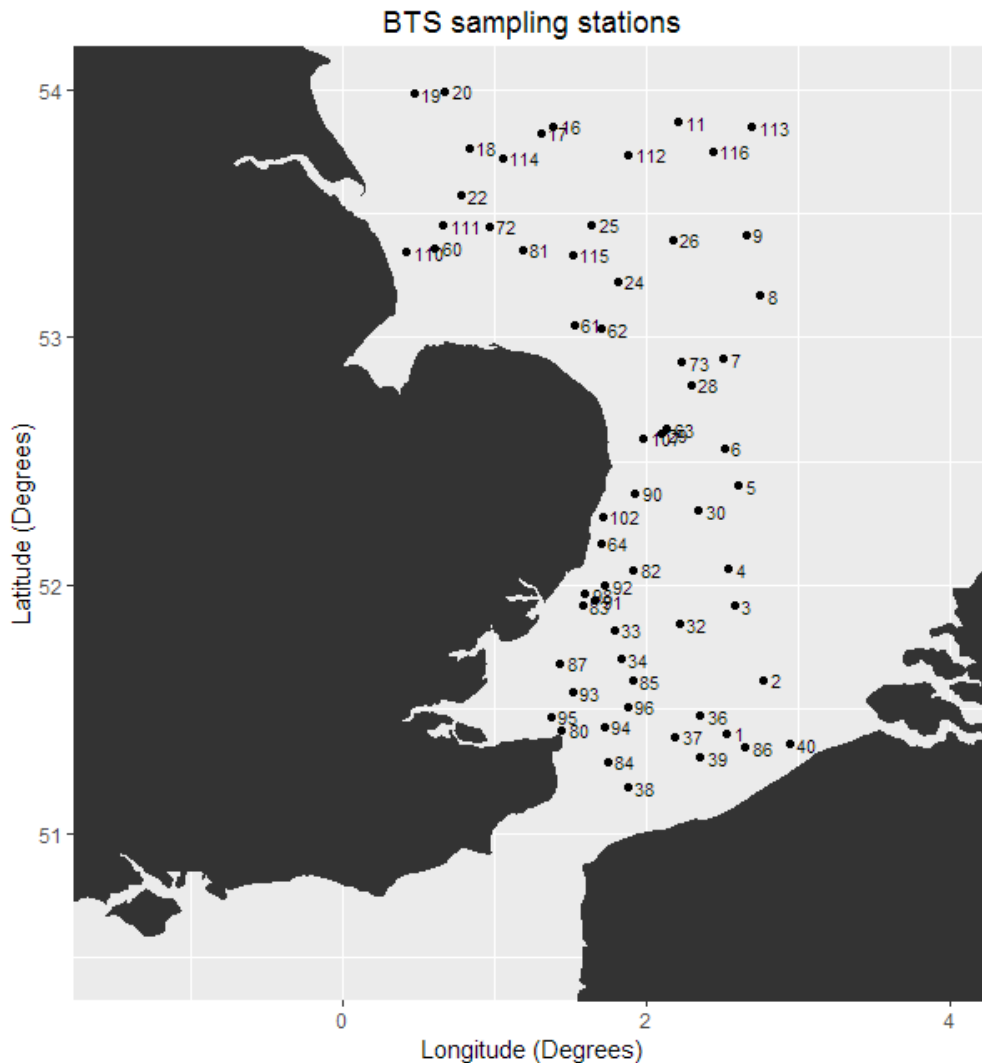
- ✓ Collect data on the abundance and distribution of juvenile flatfish (primarily plaice and sole) and brown shrimp.

#### 2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map).

*North Sea Beam Trawl Survey (BTS)*

The methods for the mandatory North Sea Beam Trawl survey (BTS) are described in the Manual for the Offshore Beam Trawl Surveys (WGBEAM, 2009; [http://www.ices.dk/marine-data/Documents/DATRAS%20Manuals/WGBEAM\\_Manual.pdf](http://www.ices.dk/marine-data/Documents/DATRAS%20Manuals/WGBEAM_Manual.pdf)). The ICES Working Group on Beam Trawl Surveys (WGBEAM) has prepared an update of the manual, which is under review by the SSGIEOM chair and will be published by ICES after approval. For the period 2017-2019, Belgium guarantees to continue with previous survey designs as coordinated by ICES WGBEAM.

Map 1G.1: BTS sampling stations in the south-western part of the North Sea



*Demersal Young Fish Survey (DYFS)*

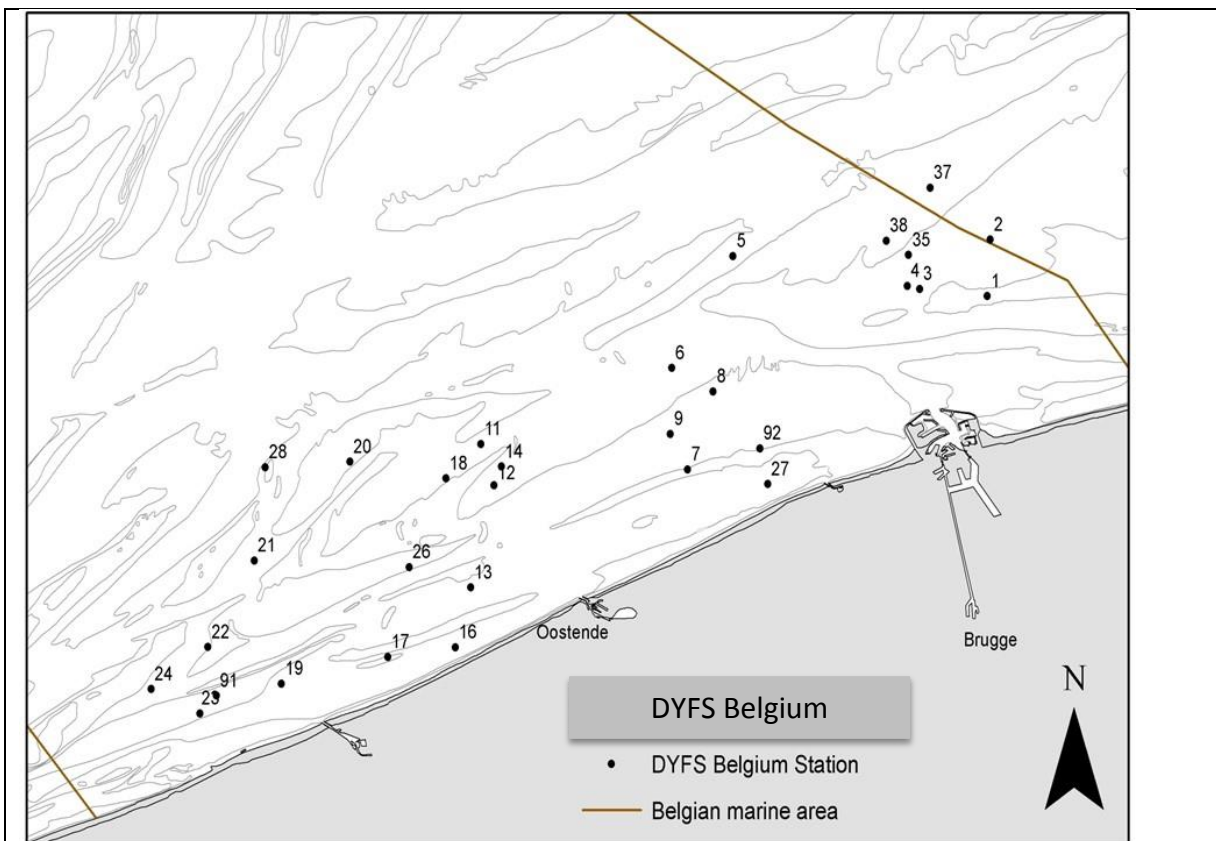
The methods for the mandatory Demersal Young Fish Survey (DYFS) are described below as a manual is not yet available. During the WGBEAM meeting in 2015, a draft manual of this inshore survey was initiated and discussed. The working group aims to finalise the manual during WGBEAM meetings in the period 2017-2019. All DYFS sampling stations are fished for approximately 30 min, with a standard shrimp beam trawl (beam length 6 m; cod-end mesh size 22 mm, no tickler chains), at 3 knots against tide.

Several fish species (cod, whiting, plaice, flounder, dab, sole, brill and turbot) are hand-picked from the catches, sorted by species, weighed and measured in mm (the in-house developed SmartFish measuring board allows measuring length in mm). From 2009 onwards, the species list was extended to cover a larger range of commercial fish species (e.g. including lesser spotted dogfish, gurnards, lemon sole, horse mackerel, etc.). In this way, a total of 18 species are documented (Table 1G.1).

The brown shrimp (*Crangon crangon*) from the catches are first sorted into a 'small' and 'large' fraction by means of a rotating shrimp riddle (same type used on commercial shrimp trawlers). From each of these two fractions, 1-2 liter samples are taken (depending on the amount of shrimp and other organisms in the fractions). Samples are further sub-sampled in the lab to approximately 250 shrimps, which are then measured in mm using an in-house developed system for automated length measurements.

**Table 1G.1:** Commercial fish species sampled during DYFS

<b>Species</b>
Sole ( <i>Solea solea</i> )
Plaice ( <i>Pleuronectes platessa</i> )
Turbot ( <i>Scophthalmus maximus</i> )
Brill ( <i>Scophthalmus rhombus</i> )
Cod ( <i>Gadus morhua</i> )
Whiting ( <i>Merlangius merlangus</i> )
Dab ( <i>Limanda limanda</i> )
Flounder ( <i>Platichthys flesus</i> )
Lemon Sole ( <i>Microstomus kitt</i> )
Tub Gurnard ( <i>Chelidonichthys lucerna</i> )
Grey Gurnard ( <i>Eutrigla gurnardus</i> )
Red Gurnard ( <i>Chelidonichthys cuculus</i> )
Horse Mackerel ( <i>Trachurus trachurus</i> )
Mackerel ( <i>Scomber scombrus</i> )
Striped Red Mullet ( <i>Mullus surmuletus</i> )
Thornback Ray ( <i>Raja clavata</i> )
Lesser Spotted Dogfish ( <i>Scyliorhinus canicula</i> )
European Seabass ( <i>Dicentrarchus labrax</i> )



**Map 1G.2:** DYFS sampling stations in the Belgian coastal waters

**3. For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey**

International agreements for both surveys (BTS and DYFS) are coordinated at the ICES WGBEAM working group, where Belgium is represented. Other MSs carrying out beam trawl surveys in the region are The Netherlands, Germany and the UK.

**4. Where applicable, describe the international task sharing (physical and/or financial) and the cost sharing agreement used**

Not applicable

**5. Explain where thresholds apply**

For all target species (*i.e.* Sole, Plaice and Brown shrimp) of the selected mandatory surveys (BTS and DYFS in area IV), the threshold is attained ( $\geq 3\%$  of the TAC or when no TAC is available  $\geq 3\%$  of the share in average EU landings).

Belgian average landings of Sole in area IV are 869 tonnes, representing 8% of the TAC.

Belgian average landings of Plaice in area IV are 6470 tonnes, representing 6% of the TAC.

Belgian average landings of Brown Shrimp in area IV are 1011 tonnes, representing 3% of the share in average EU landings.

## SECTION 2: FISHING ACTIVITY DATA

### **Text Box 2A: Fishing activity variables data collection strategy**

*General comment: This Box fulfills paragraph 4 of Chapter III of the multi-annual Union programme and Article 2, Article 4 paragraph (2) point (b) and Article 5 paragraph (2) of this Decision. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under Regulation (EU) No 1224/2009 or where data collected under Regulation (EU) No 1224/2009 are not at the right aggregation level for the intended scientific use.*

#### **1. Description of methodologies used to cross-validate the different sources of data.**

*Capacity:*

Data are 100% covered by the Fleet register and the logbooks.

*Effort:*

The logbooks provide information on the hours spent fishing per day and per ICES Statistical Rectangle. Those data are used to derive the hours at sea and based thereon, the days at sea. The hours at sea per trip and per ICES Statistical Rectangle (or Division) are summed, divided by 24 and rounded up to calculate the days at sea.

Effort variables available in the fishing logbooks are cross-validated with effort estimates derived from VMS data. The estimated quantities of each species in kilograms live-weight in the fishing logbooks are compared with the sales notes.

*Landings:*

The estimated weight for all species caught, grouped by ICES Statistical Rectangle and by day is obtained from the logbooks. While information on the quantities auctioned by market category for all species landed is obtained from the sales notes. These two data sources are merged to obtain the landings by area and market category. As the retained catches from the logbooks are estimated weights, the landed weights are derived from the quantities recorded in the sales notes. The two systems are equally important to the Belgian data collection system and complementary. The combination of the two data sources has clear advantages.

(1) The two approaches yield independent estimates of the retained and landed portions of the catches, and can thus be used for quality control and validation purposes. This helps improving the reliability of the landings figures.

(2) In the Logbook Regulation, it is stipulated that ‘only catches of an amount greater than 50 kg of live-weight equivalent of any species retained on board must be recorded in the logbook’ (Article 2.4.2. of Annex V of Commission Regulation (EEC) No. 2807/83). Consequently, small bycatches of fish and shellfish often remain unrecorded in the logbooks. However, these quantities are picked up in the sales notes, which help to improve the species coverage and hence the comprehensiveness of the landings statistics.

(3) Roughly one fifth of all fish and shellfish landed by Belgian vessels in the southern and central North Sea are auctioned abroad, mostly in the Netherlands. Furthermore, vessels making consecutive fishing trips in distant waters before returning to their homeport in Belgium, may sell part of their catches during their stop-overs in a foreign port. Sales data from abroad are collected by local authorities from sales notes and submitted to the Sea Fisheries Service (Dienst Zeevisserij) for incorporation in the Belgian national fishstats database. These data require additional quality checks and codification, to ensure that the imported data are compatible with the recipient database.

(4) Lastly, the landings data by market category are of critical importance to the biological data collection programme on the landings. This heavily relies on stratified sampling by market category.

#### **2. Description of methodologies used to estimate the value of landings.**

The actual value of each landing is available in the sales notes, therefore no estimation is needed.

The sales notes contain information on the quantities auctioned and the price by market category for all species landed. Information on the exact origin of the landings (from the logbooks) is added to allocate the price and the corresponding quantities auctioned to a ICES Statistical Rectangle. Multiplication of the latter two will result in the value on a specific level.

**3. Description of methodologies used to estimate the average price (it is recommended to use weighted averages, trip by trip)**

The actual value of each landing is available in the sales notes, therefore no estimation of average price is needed.

**4. Description of methodologies used to plan collection of the complementary data (sample plan methodology, type of data collected, frequency of collection etc)**

In 2015, Belgium had one demersal trawler in LOA 10-<12m, however this vessel was inactive. All active vessels are >12m, therefore all data needed are collected under Regulation (EU) No 1224/2009 and no additional data collection will be done.

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3A: Population segments for collection of economic and social data for fisheries**

*General comment: This Box fulfills paragraph 5 points (a) and (b) of Chapter III of the multi-annual Union programme and Article 2, Article 4 paragraphs (1), (2) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Tables 5(A) and 6 of the multi-annual Union programme.*

#### **1. Description of methodologies used to choose the different sources of data**

The Belgian fleet encompasses mainly beam and demersal trawlers and has no registered fishing vessels of < 10m LOA. Fleet overview in 2015:

Type of fishing technique		Length classes (LOA)	N° of vessels
Active gears	Beam trawlers	10-<12 m	0
		12-<18 m	3
		18-<24 m	25
		24-<40 m	29
Active gears	Demersal trawlers and/or demersal seiners	10-<12 m	0
		12-<18 m	1
		18-<24 m	7
		24-<40 m	5
Active gears	Dredges <sup>1</sup>	18-<40 m	1
Passive gears	Drift and/or fixed netter <sup>2</sup>	12-<24 m	2
<b>Total active vessels</b>			<b>73</b>
<b>Inactive vessels</b>			<b>6</b>
<b>Total</b>			<b>79</b>
<sup>1</sup> dredges (18-<24 m and 24-<40 m)			
<sup>2</sup> Passive gears - drift and/or fixed netter (12-<18 m and 18-< 24m)			

An annual survey is conducted by Dienst Zeevisserij, Department of Agriculture and Fisheries (Flemish government) to collect fleet socio-economic data. Information is collected by vessel. Wherever possible, data on the balance accounts of the company are also consulted.

Employment data are obtained through the employers social-accounting secretariat, who gather data regarding the social costs. The Belgian fishery sector has a unique system of social security. These data are delivered directly to Dienst Zeevisserij via the accredited accountancy office Morbee & Ballegeer.

Landings and effort data are obtained from official logbooks. The official Belgian vessel register (the Fleet register) is used to obtain data with regards to vessel characteristics. Value of landings (sales notes) is available from all Belgian fish auctions. Sales notes are also provided for vessels that do not sell their catches through the auction (*i.e.* coastal vessels). Logbook, Sales and Fleet data are provided by the controlling bodies under Regulation (EU) no. 1224/2009. "Fishstats Database DZV" is the official database of Dienst Zeevisserij containing this information.

## **2. Description of methodologies used to choose the different types of data collection**

A census is carried out for socio-economic data collection. All vessels are surveyed (questionnaire). Since the 1st of September 2010, a Decision was agreed upon by the Flemish Government, regarding the obligation to supply economic data. Thus, national legislation was introduced to impose the obligation to provide data requested under Appendix VI of the DCF. As a consequence, response rates increased.

Methodologies are in accordance with ad hoc contract Commitment No. SI2 725 694 - Methodologies for the socio-economic data described in EU MAP.

## **3. Description of methodologies used to choose sampling frame and allocation scheme**

The target and the frame population are identical. Following the national legislation, the coverage of the population is close to 100%. The sampling frame of the economic data covers the complete Belgian marine fishing fleet as registered in the EU vessel register. Inland and aquaculture fishing vessels are excluded from data collection.

Fleet segments are determined as described in European legislation. However, this raises the issue of clustering. Many segments consist of less than 10 fishing vessels (see table under point 1). Economic data are sensitive data and therefore confidentiality must be guaranteed. There are 2 possibilities to tackle this issue:

1. Data by fleet segment for segments where the number of vessels is too low shall not be reported separately.
2. Data for these fleet segments can be clustered. The clustering procedures are based on technical data and catch composition. Important fleet segments shall not be clustered or shall be clustered in accordance with the similarity principle. Therefore, beam trawlers 12-18m would be clustered with beam trawlers 18-24m. The latter is an important segment, however both segments use the same fishing gear and exhibit similar behaviour in terms of target species. Following the same logic, demersal trawlers or seiners of all length categories would be clustered in order to be consistent over time.

Option 2 is preferred. However, a problem remains for dredges and passive gear. In last data reporting years (Data call 2016; Annual Report 2015), these fleet segments were clustered together as they do not resemble any of the other fleet segments within the Belgian fleet. These segments were clustered following the 'Non-important segments with distinct characteristics' principle in order to provide a full dataset. As there is no real dominant segment in this cluster and in an attempt to avoid misleading the end-user, these vessels were clustered as 'Vessels using active and passive gears' (PMP). A category 'Other' is non-existent. This also allowed for constant clustering over the time series 2008-2014. However, with only 3 vessels remaining in the cluster, Belgium chooses option 1 for these fleet segments.

## **4. Description of methodologies used for estimation procedures**

Costs and earnings from the active vessels are surveyed through a questionnaire. As the response within the important fleet segments is high, missing data will be estimated by calculating the mean per fleet segment in the sample. This is then raised to the population level of each segment. The sum of the totals of the different categories estimate the total value for the entire fleet.

Information on technical characteristics, effort and landings from all vessels in the population are available from the logbooks and the vessel register (collected under Regulation (EU) no. 1224/2009).

## **5. Description of methodologies used on data quality**

Wherever possible, data from different sources will be cross-checked. During 2017-2019, Belgium would like to further develop and improve routine data quality check-ups (e.g. summary statistics, analyse outliers, correlations between variables, ...).

### **Pilot Study 3: Data on employment by education level and nationality**

*General comment: This Box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the multi-annual Union programme and Article 2 and Article 3 paragraph (3) point (c) of this Decision. It is intended to specify data to be collected under Table 6 of the multi-annual Union programme.*

#### **1. Aim of pilot study**

The Belgian fishery sector has a unique system of social security. Fishermen receive relatively high incomes. Since 2003, a law on employment ended the 'No catch, no pay' principle, assuring income security for each sea trip (Royal Decree, Belgian State Journal, 07/03/2005). The crew receive a fixed percentage of the value of landings. If the value of landings is lower than a certain minimum wage, the employer has to pay a minimum wage. This is a system that favours employees over employer, bearing in mind that being fisherman remains a dangerous profession. The fact that this has been set legally for all vessels is unique in Europe and might contribute to the fight against illegal fishing.

However, finding appropriate staff for fisheries remains a challenge. Young people graduating from the Maritime Institute prefer to work for dredging companies or in the tourism industry. Therefore, it is possible that crew members from elsewhere (from other sectors and/or abroad) are attracted. Wages are relatively high, but minimum educational requirements in the Belgian fishery sector are strict and costly.

To acquire more insights in this matter, this pilot study **aims** to collect information on the age, nationality and education level of crew members on Belgian fishing vessels. Initially, the focus lies on the beam trawler fleet. Beam trawlers with a vessel length of 24-40 m provide about half of employment opportunities (STECF, 2016). Ultimately, this will be expanded to the entire fleet.

#### **2. Duration of pilot study**

This pilot study will start in 2017 and data collection will be carried out throughout the year for engaged crew members. Data analyses will be performed in 2018.

#### **3. Methodology and expected outcomes of pilot study**

Close collaboration with the employers social-accounting secretariat will be necessary to collect social data on employment by education level and nationality. The employers social-accounting secretariat should have part of this information available on a trip and vessel level. Data gaps will be filled by surveying vessel owners and/or fishermen.

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3B: Population segments for collection of economic and social data for aquaculture**

*General comment: This Box fulfills paragraph 6 points (a) and (b) of Chapter III of the multi-annual Union programme and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Tables 6 and 7 of the multi-annual Union programme.*

According to Eurostat, the total Belgian annual production in marine aquaculture was 128 tonnes in 2007 (last data year). As this production did not increase since 2007, the Belgian Federal Department of Economics, which is still monitoring the volume and value of this sector, did not publish actualised data in Eurostat.

Until the end of 2016, Belgium has a derogation for collecting data on aquaculture. For this new WP 2017-2019, a pilot study will be executed to investigate whether Belgium complies with the thresholds as described in Chapter V of Commission Implementing Decision 2016/1251. To ensure efficient use of resources, the pilot study will include collecting economic, social as well as environmental data on the aquaculture sector.

#### **1. Description of methodologies used to choose the different sources of data**

To be determined through pilot study 2017-2019.

#### **2. Description of methodologies used to choose the different types of data collection**

To be determined through pilot study 2017-2019.

#### **3. Description of methodologies used to choose sampling frame and allocation scheme**

To be determined through pilot study 2017-2019.

#### **4. Description of methodologies used for estimation procedures**

To be determined through pilot study 2017-2019.

#### **5. Description of methodologies used on data quality**

To be determined through pilot study 2017-2019.

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Pilot Study 4: Environmental data on aquaculture**

*General comment: This Box fulfills paragraph 6 point (c) of Chapter III of Commission Implementing Decision 2016/1251 and Article 2 and Article 4 paragraph (3) point (d) of this Decision. It is intended to specify data to be collected under Table 8 of the multi-annual Union programme.*

To investigate whether Belgium complies with the thresholds as described in Chapter V of Commission Implementing Decision 2016/1251, a pilot study will be executed to collect economic, social as well as environmental data on the aquaculture sector.

#### **1. Aim of pilot study**

Investigate whether Belgium complies with the thresholds as described in Chapter V of Commission Implementing Decision 2016/1251.

#### **2. Duration of pilot study**

Period 2017-2018.

#### **3. Methodology and expected outcomes of pilot study**

Due to the very fragmented situation of the aquaculture sector in Belgium, it will take time to develop a proper strategy for setting up a proper methodology. Initially, Belgium will start with making an inventory of the aquaculture production sector with the respective data on production, systems used, value, etc.

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3C: Population segments for collection of economic and social data for the processing industry**

*General comment: This Box fulfills footnote 6 of paragraph 1.1(d) of Chapter III of the multi-annual Union programme, Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Table 11 of the multi-annual Union programme.*

In the previous Belgian National Programme, the absence of a reference list with ‘fish processing companies’ sensu stricto was mentioned. In order to address this issue, ILVO contacted the top-255 (ranking based on company turnover and number of employees) of Belgian companies that were identified as being involved in ‘fish processing’ in a national survey of private company performance indicators. However, the identification of true fish processing companies remained a major issue to set up a meaningful collection scheme. Over the past two years efforts have been made in this regard.

#### **1. Description of methodologies used to choose the different sources of data**

The list of fish processing companies has been rigorously updated by cross-checking different sources with information on companies involved in fish-based activities. The effort invested in the improvement of this list, resulted in a better population identification and thus data quality. ILVO collaborated with the Federal Agency for the Safety of the Food Chain (FASFC) who strictly monitor processing activities of these companies from a health safety angle. Their list was further cross-checked with other lists, such as the initial ‘top-255’ list, the database of FPS Economy, S.M.E.s, Self-employed and Energy (Federal Government) and a list of the Belgian representative of AIPCE-CEP (European Fish Processors Association - European Federation of National Organisations of Importers and Exporters of Fish).

This led to a population of approximately 250 companies. Not all companies process fish as their main activity. Based on answers obtained through a questionnaire, consulting public balance accounts, direct contact with some companies as well as web-research, it was estimated that in 2013 there were 68 companies that processed fish as a main activity, with an estimated turnover of 650 million euro and 1500 FTE’s.

On an annual basis this list is updated through consultation of the following sources:

- Federal Agency for the Safety of the Food Chain (FASFC)
- FPS Economy, S.M.E.s, Self-employed and Energy (Federal Government)
- Balance accounts, National Bank of Belgium
- Questionnaire

If resources are available, Belgium will invest in further refining the information by contacting the enterprises directly.

#### **2. Description of methodologies used to choose the different types of data collection**

Data can be acquired from different sources:

- Balance sheets: The balance sheets for some companies can publically be consulted. Especially from larger companies a lot of information is available in these sheets. A limitation is that not all variables requested under EU Decision 2016/1251, Table 11, are available in the company accounts. For example energy costs are not separately available, but aggregated within other operational costs.
- Questionnaires: Information which is not available through balance sheets, or in general not publically

available will be obtained via questionnaires. Online surveys are preferred, whenever possible (*i.e.* when an e-mail-address is available), in other cases paper surveys are sent out.

Efforts related to determine the main activity of the company will continue. Total weight and weight of seafood and fish for the most important processed species will be surveyed. However, collecting data by origin is not feasible.

The data requested under Decision 2016/1251 is considered to be sensitive data. In the past, some companies have responded that they did not have the time or they simply refused to provide the requested economic data. Especially small and medium enterprises do not see the purpose of requesting economic data and therefore their response rate is limited. Regular and direct contact with enterprises improves trust, and hence the needed understanding and willingness of companies to cooperate and provide the requested data will increase. On the other hand, direct contact with enterprises, given the size of the population, is labour intensive and Belgium cannot yet guarantee that the necessary resources will be available to effectively adopt this approach.

### **3. Description of methodologies used to choose sampling frame and allocation scheme**

Enterprises for which fish processing is an important activity are targeted first. As it is not possible to directly determine the importance of the activity from the population list, the questionnaire aims to identify the enterprises using questions to determine the proportional importance of the fish processing activity based on turnover and employment. In the online questionnaire, a shortened version is foreseen in case fish processing is not an important activity. Under the current circumstances, economic and social variables are not collected from these enterprises.

### **4. Description of methodologies used for estimation procedures**

The enterprises are classified in categories according to the number of employees ( $\leq 10$ ; 11-49; 50-249;  $\geq 250$  employees). When the number of companies per category are low, several categories are grouped. Variables for missing data are estimated by calculating the mean per category in the sample. This is then raised to the population level of each category. The sum of the totals of the different categories estimate the total value for the entire population. More information will be included on larger companies (less abundant) than on smaller ones (more abundant). This leads to a stratified sample in which larger companies are oversampled. However, the total estimation is likely to be more precise, given that larger companies contribute more.

Should the variance between observations in a given category be large, an alternative method could be applied. This concerns mostly the 11-49 employee group. Companies in this group could be further subdivided based on their balance account type. Above certain thresholds, companies must lay down a 'full' balance account. Estimations could then be done for the 'full' and the 'short' balance account separately.

### **5. Description of methodologies used on data quality**

In the period 2014-2016, data in the balance accounts were compared to answers in the questionnaire (whenever possible). This was done to determine whether both sources could be combined and to test the effectiveness of the questionnaire. As they were comparable, redundant questions were omitted. This enabled the use of balance accounts for companies that did not respond to the questionnaire.

**Text Box 4A: Sampling plan description for biological data**

*General Comment: This Box fulfills Article 3, Article 4 paragraph (4) and Article 8 of this Decision and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the multi-annual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the multi-annual Union programme.*

**Description of the sampling plan according to Article 5 paragraph (3) of this Decision**Belgian fisheries:

The beam trawl fishery is by far the most important fishery for Belgium (in 2015 TBB covered 84% of the total Belgian fishing hours) and comprises of a beam trawl fleet targeting crustaceans (TBB\_CRU covers 10% of the total Belgian fishing hours) and a beam trawl fleet targeting demersal species (TBB\_DEF covers 74% of the total Belgian fishing hours). The TBB\_DEF fleet comprises of 2 fleet segments: the TBB\_DEF\_>221 kW fleet segment and the TBB\_DEF\_<=221 kW fleet segment.

The TBB\_DEF\_>221 kW fleet segment comprises vessels with a capacity of more than 221 kW, operating in ICES divisions IV, VIIId, VIIe-h, VIIa, VIIIab (referred to as 'all regions' in Table 4A). The TBB\_DEF\_>221 kW trip duration is on average 8-10 days and one trip can cover several areas.

The TBB\_DEF\_<=221 kW fleet segment comprises vessels with a maximum power of 221 kW (coastal vessels and euro cutters), operating in ICES divisions IV and VIIId. In contrast to TBB\_DEF\_>221 kW, TBB\_DEF\_<=221 kW also has access to the 12 mile zone. A coastal vessel has a trip duration of less than 48 hours and a euro cutter of approximately 4 days.

Sampling design:

In accordance with the recommendations from STECF-EWGs and RCMs following the preparation of the new DCF, Belgium started from 2011 onwards to redesign the catch sampling schemes to move from a 'métier-based' to a 'statistically sound' sampling scheme in order to apply at random sampling of the trips. Considering the importance of the Belgian beam trawl fleet targeting demersal species, Belgium focusses on the collection of fishery-dependent data for this fleet (both fleet segments). The two fleet segments (TBB\_DEF\_>221 kW and TBB\_DEF\_<=221 kW) are treated as two separate strata in the Belgian at sea sampling programme. Catch information (all catch fractions are covered) is obtained through on-board observation or 'at sea sampling'. Four ILVO observers assure a sampling coverage of on average 1% of all fishing hours (*i.e.* approximately 40 trips). The sampling effort targets for one year are set at 8 trips for the TBB\_DEF\_<=221 kW fleet segment and 32 trips for the TBB\_DEF\_>221 kW fleet segment.

The primary sampling unit (PSU) in the Belgian at sea sampling programme is vessel x trip (as a proxy for trip) so the sampling design class is defined as 'type A'<sup>1</sup>. A haul (within a trip) is defined as the secondary sampling unit (SSU).

A vessel x trip (PSU) for the TBB\_DEF\_>221 kW fleet segment is selected by means of a random draw from a vessel list (with replacement; as described in the Belgian AR 2015<sup>2</sup>). Only the vessels that are willing to take observers onboard and those that are suited, from a logistic point of view, to have an observer onboard are included in the vessel list (sampling frame): 19 vessels out of 28 vessels in total. Non-responses and refusals

are documented.

A vessel x trip (PSU) for the TBB\_DEF\_<=221 kW fleet segment is selected ad hoc. The vessel list (sampling frame) has been steadily decreasing and proved too small to ensure random PSU selection. This was the result of vessels being taken out of service, but also logistic issues onboard facilitated this decrease. Therefore, ad hoc sampling of 2 euro cutters and 4 coastal vessels is carried out. There are 36 TBB vessels with a capacity <=221 kW. However, 21 of those are regularly fishing for shrimp (TBB\_CRU). Until the end of 2016, Belgium has a derogation for sampling the TBB\_CRU métier. In the process of optimizing the Belgian sampling strategy (see further), sampling these shrimp vessels will be investigated. During 2017, the sampling strategy as performed in 2016 will be continued awaiting an optimized sampling strategy (see further).

For the TBB\_DEF\_>221 kW fleet segment, every other haul (systematic sampling of SSU) is sampled by an observer. Sampling takes place around the clock to reflect typical working conditions on board. For the TBB\_DEF\_<=221 kW fleet segment, the goal is to sample all hauls during the short trips of the coastal vessels. During euro cutter trips, every other haul is sampled, similar to the TBB\_DEF\_>221 kW fleet segment. The crew is sorting the marketable fish from the conveyor belt and stores it per species for the observer to sample later on. In the meantime, the observer is sampling the discarded fraction of the catch by sorting all commercially important species, *i.e.* selected set of species as indicated in Table 1A & 1B. The total weight per species in each haul is determined and lengths are measured. When a species is extremely abundant, a smaller representative subsample (TSU) is measured. The marketable part of the catch (landings) is sampled in the same way as the discarded part of the catch.

During each trip, otoliths from minimum 3 fish per cm-size class per species per area, are collected (except for cod 1 fish per cm-size class) for age estimations. Otoliths are collected throughout the whole trip (several hauls) until the quota of otoliths is achieved. For the discarded part of the catch, otoliths are being removed on board. For the retained part (landings) of the catch, the fish are purchased for individual length, weight, sex, maturity and age determination. In the Belgian AR2015<sup>2</sup> and in previous years, this fish purchased directly from a 'sampled-at-sea-vessel', was referred to as 'on shore sampling'.

All the at sea sampling data (metadata and all biological data) are stored in a national database called 'SmartFish'. For quality assurance and analyses (e.g. raising) of the catch data, R packages (incl. COST) and excel applications are being used.

#### Sampling strategy optimization:

In the coming years, Belgium will invest in the further optimization of the at sea sampling design. The ultimate goal is to make the most efficient use of sampling resources and collect unbiased and precise catch data. This step-wise optimization process will be executed during the period 2017-2019 and involves running a series of statistical analyses (a.o. a random effects analysis using the at sea sampling data from the last decade), investigating self-sampling options in the Belgian fleet, etc.

<sup>1</sup>: ICES. 2013. Report of the second Workshop on Practical Implementation of Statistical Sound Catch Sampling Programmes, 6 - 9 November 2012, ICES Copenhagen. ICES CM 2012 / ACOM:52 71 pp.

<sup>2</sup>: Belgian Annual Report 2015 as accepted by DG MARE dd 21 september 2016. Ares(2016)5475305 - BE – Acceptance of Annual Report for 2015 - Data Collection Framework