Regional Coordination Group
Baltic Sea Region

Regional Coordination Group
North Sea & Eastern Artic

Regional Coordination Group
North Atlantic

Regional Coordination Groups: Intersessional Sub Group on Métier Issues

May 2019

1. Introduction

In 2018 a DCF Métier workshop was held as a subgroup of the RCG's. The workshop described the background of the métier work and highlighted that various methods have been implemented by MS to assign metiers to transversal data, and that different data sources are available across countries. A general workflow for assigning métiers to transversal data was developed, allowing for different data sources and situations. Common issues were discussed and where possible, a guideline for the best practices was given. As a general principle, it was agreed that one trip can have several métiers.

It was documented how some MS group species into the species groups used in the métier codings to make a species reference list, and the list documented that in some cases, the same species was assigned to different species groups depending on countries. A métier reference list was downloaded from the Regional database, Mediterranean and Long Distance fisheries were added, and the codes were split up, so that it could be used as a lookup table for assigning métiers. It was noted that some allowed métier codes had overlapping mesh size ranges within the same ICES area, and that some of the codes could be harmonized across regions.

It was recommended to set up a public repository for storing reference lists, scripts, métier descriptions and documentation of logic applied by MS to assign métiers, but left to the RCG's to make the decision.

The work from the DCF Métier workshop was presented at RCG meetings, highlighting outcomes and recommendations, asking for the opinion from the RCG's about continuing the work on repository, métier descriptions, overlapping métiers and managing metier list. This lead the RCG's to recommend continuing the work on harmonizing the métier assignment methods in an intersessional subgroup working by correspondence, and ToR's were agreed in the Liaison meeting.

2. ToR's

ToR's for the Intersessional sub-group on Métier Issues are found in the RCG Liaison meeting report 2018, Annex 2

1. To facilitate harmonization of métier assignment, set up and manage a public repository for storing reference lists, documentation of procedures, scripts related to assigning métiers to transversal data as well as métier descriptions. Make sure that it is possible to link this platform with a future website.
2. Initiate and collect documentation of logic applied by MS to assign métiers
3. Make métier descriptions based on template.
4. Agree on a reference list of species grouped into species groups.
5. Clean up the métier lists. Remove overlapping métiers and standardize the codes.
6. Make a script for a standard procedure for assigning métiers based on a common data format, taking into account the recommendations made at the Metier workshop.
7. Test effort calculation method agreed in the WKTRANSVERSAL in Nicosia for the RDB CE table.
8. Test impact of change of measure to determine target assemblage (to value of landings).

The Intersessional subgroup on Métier issues had four Skype meetings during the spring 2019 to discuss, present and follow up on the ToRs. The results are presented below. It has been the aim to

keep this report short, and more background information can be found in the 2018 DCF Metier Workshop report.

Data from the ICES RDB (Regional Data Base) were made available to the sub-group for analysis.

2.1 Highlights and questions for RCG's to consider

ToR 1 - Repository:

- A public GitHub repository has been set up
- Assign 1-2 technical persons responsible for maintaining the métier GitHub site

ToR 2 – Documentation by MS

- A template for a standardised way of documenting the methods used by MS to assign métiers to transversal data has been suggested. It should be filled in by MS and kept up to date on GitHub

ToR 3 – Métier descriptions:

- A script for making a 2-page overview métier descriptions has been developed
- The métier descriptions show that in some cases, the RDB data could benefit from a quality check. The métier descriptions are an output that could be used to assist in quality checks of the RDB CE and CL data.

ToR 4 – Species reference list:

- A species list has been uploaded to GitHub for assigning species to the groups used for the métier codes, which can be used by a script.

ToR 5 – Métier list:

- Use of metier codes are currently not very standardised and harmonised. It is important for future use of the data that the codes are harmonized and without overlapping mesh size ranges.
- The sub-group has suggested a new structure for the métier codes (Annex 3 in this report) for the RCG's to review.

ToR 6 – Script for assigning métiers to transversal data:

- An R script has been developed for assigning métiers to transversal data in the Baltic Sea

ToR 7 – Test effort calculations

- An R script for calculating fishing effort following the Nicosia principles has been updated and tested on UK data
- The RDB CE (effort) and CL (landings) formats are currently being reviewed

ToR 8 – Impact of change of measure from weight to value of landings:

- Change of measure from weight to value of landings could have consequences for crustacean fisheries, when assigning by haul.
- In case of the Swedish OTB fisheries in SD 20 and 21 it is more precise to use value than weight, but there still are mixed fisheries (MCD).

The work of the sub-group is detailed in the report below.

2.2 ToR 1: Repository

In the 2018 DCF métier workshop, a public repository for storing documentation of procedures used by MS to assign métiers to transversal data, some reference lists, scripts and métier descriptions was recommended. It was concluded that a GitHub site under ICES RCG site is an easy and flexible solution for setting up a public repository and administer for group members.

2.2.1 GitHub site

A GitHub site has been set up under the ICES RCG GitHub:

https://github.com/ices-eg/RCGs/tree/master/Metiers

It is possible to add e.g. word, excel and pdf files, but it is only possible to keep track of changes using the normal “Track changes”. For scripts, it can keep version control.

The following structure has been set up:

- **Documentation by MS**: For storing the description of procedures by member states developed in ToR 2 of this subgroup. Member states should provide input for this overview of methods.
- **Métier descriptions**: For storing the overview descriptions of métiers developed in ToR 3 of this subgroup.
- **Reference lists**: For storing reference lists used for assigning métiers to transversal data, e.g. the species list developed in ToR 4 of this subgroup and a métier list (that should also be updated in the RDB annually).
- **Scripts**: For storing scripts used to assign métiers to transversal data, métier description and other analysis.

2.2.2 Maintenance plan

The repository needs to be maintained in order to have future value. If a member state performs any changes in the method used to assign métiers to transversal data, the documentation should be updated.

Métier descriptions should also be updated regularly with new time series because if changes in the methods used occur, it may lead to different métier assignments.

The reference lists might also need to be regularly updated. Common reference lists needed for assigning the métiers to transversal data can be managed at the GitHub. The métier list needs to be approved first by RCG’s and only then it could be updated in the RDB annually, after the RCG meetings.

Scripts should be maintained in the GitHub, with the advantage that the system can keep version control.

The persons maintaining the GitHub site should be a few technical persons working together (e.g. one person assigned per RCG) and developers of scripts, so that they can be kept up to date with version control.

2.3 ToR 2: Documentation by MS

A harmonized/standardized structure for documenting the procedures used by MS to assign métiers to transversal data has been suggested and tested, based on a review of the different MS processes described in the 2018 DCF métier workshop. The suggested format is a structured excel-file with fields to fill in, which could be split up by vessel length classes if there are significant changes in the way to assign métier from one vessel length class to another. In particular, it is suggested to distinguish vessels

with logbooks (>=8/10 meters length) from vessels without logbooks (<8/10 meters length) as the data sources are often different for these two types of vessels.

The suggested format is structured based on the followed principal issues:

1) The Data sources available for the métier assignment considering the fishing activity data available and potential auxiliary data that is taken into account in the process,
2) The level of the métier assignment (e.g. fishing operations, fishing sequence, fishing trips, vessel*month …),
3) Data used to define gears and associated characteristics (mesh size and selective device),
4) Methodology applied to define/calculate/estimate the target species/group of species (declared, deducted or estimated?). Key of the métier assignment process,
5) Possibility to define or not several métiers by fishing trip,
6) Quality process in use to validate/consolidate the assigned métier,
7) Issue of fishing trip without landings: what is the methodology/criteria used to assign métier to such fishing trips,
8) Others issues/comments

The purpose of such standardized/harmonized form for assigning métiers is transparency[1] and making end-users aware about the data that they are using. The form has been tested and filled in by Denmark, Estonia, Lithuania, France and Sweden, completed forms can be found on the GitHub site (https://github.com/ices-eg/RCGs/tree/master/Metiers/Documentation_by_MS. Click on the document and then "Download"). The proposed template is presented in Annex I. Documentation by MS should be sent to a GitHub administrator and uploaded. The RCG's should encourage all MS to fill in the template. If a member state changes the method for assigning métiers to transversal data, the documentation should be updated on GitHub.

2.4 ToR 3: Métier descriptions

In the 2018 DCF Métier workshop report, a template for métier descriptions was suggested. Métier descriptions have been recommended by RCM NSEA 2009 for facilitating the evaluation of the comparability of fishing activities and its potential for task sharing and discards sampling. The métier descriptions are used as a reference when considering merging of métiers. At the 2018 DCF Métier workshop report, a simple template for metier description was suggested allowing an easier process of automation, comparison and merging of the métiers.

In this sub-group, an R markdown script has been developed to make métier overviews based on RDB effort and landings data (CE and CL tables) and was made available for the purpose. The script currently need input on time period (years), region and métier code and will produce a report output in a word format, so that it is possible to manually add comments or additional information about the métier. Three examples of these métier descriptions are presented in Annex 2: one for the Baltic Sea (OTB_DEF_>=105_1_120), one for the North Sea and Eastern Arctic (TBB_DEF_70-99_0_0) and one for the North Atlantic region (OTM_SPF_32-69_0_0). More overviews and métier descriptions have been made and uploaded to the métier GitHub https://github.com/ices-eg/RCGs/tree/master/Metiers/Metier_descriptions. However, the métier descriptions highlighted issues regarding the quality of the effort and landings data uploaded by MS in the RDB and,

[1] In particular highlighting potential issues meet by MS to assign métiers into data and differences in MS methodology. Question behind is: have same "metier code" used by different MS same meaning? Such documentation will then constitute a useful metadata for expert working group processing the data.

considering this, it was decided only to upload some examples of métier descriptions where no obvious errors in the data were perceived.

The ICES data policy for the Regional Database (RDB) (http://ices.dk/marine-data/Documents/Data_Policy_RDB.pdf) regarding publication of the effort and landings data from the RDB need to have the use and publication of the data specified in the documents (Annex 2). The rules about landings (CL) and effort (CE) are that the data must be aggregated over at least 4 out of the 7 variables below:

- Vessel flag country
- Year
- Month
- Species
- Métier level 4-6
- Vessel length category
- Statistical rectangle

The métier description process is kept simple: it's running across all countries' data uploaded in the RDB and; all figures are aggregating data over at least 4 of the 7 variables listed above. It contains the figures presented below, for which description is also given here. The métier OTB_DEF_>=105_1_120 in the Baltic Sea was selected for the example.

- A stacked bar chart with the number of trips by year and country within the métier (Figure 2.4.1). Data are aggregated over month, species, vessel length category and statistical rectangle.
- A bar chart of average yearly landings from top 10 species landed by the métier (Figure 2.4.2). Data are aggregated over vessel flag country, month, vessel length category and statistical rectangle.
- A stacked bar chart with number of trips by vessel length group and year (Figure 2.4.3). It is aggregating data over vessel flag country, month species and statistical rectangle.
- A stacked bar chart showing the seasonal pattern of the fishing activity as the number of trips by quarter and year (Figure 2.4.4). Data are aggregated over vessel flag country, species, vessel length category and statistical rectangle.
- A map with the days at sea by ICES rectangle as a yearly average for the time period 2015-2017 (Figure 2.4.5). The zoom level of the map is given by the data in the RDB. It is aggregating data over vessel flag country, year, month, species and vessel length category.

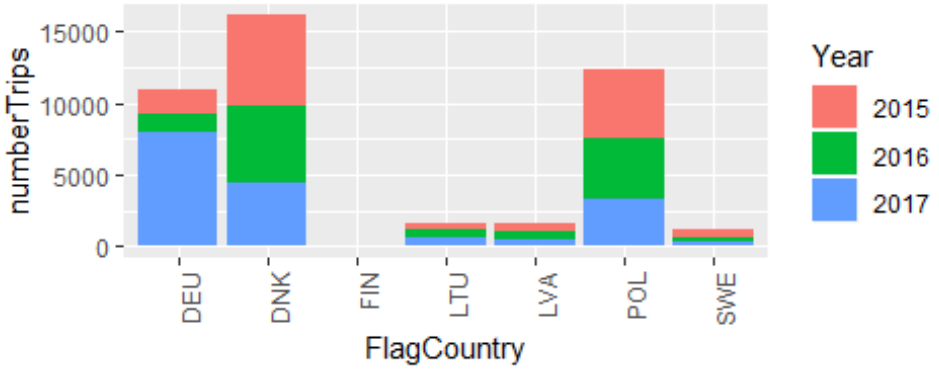


Figure 2.4.1: Number of trips from OTB_DEF_>=105_1_120 in the Baltic Sea, by flag countries: DEU, DNK, FIN, LTU, LVA, POL, SWE.

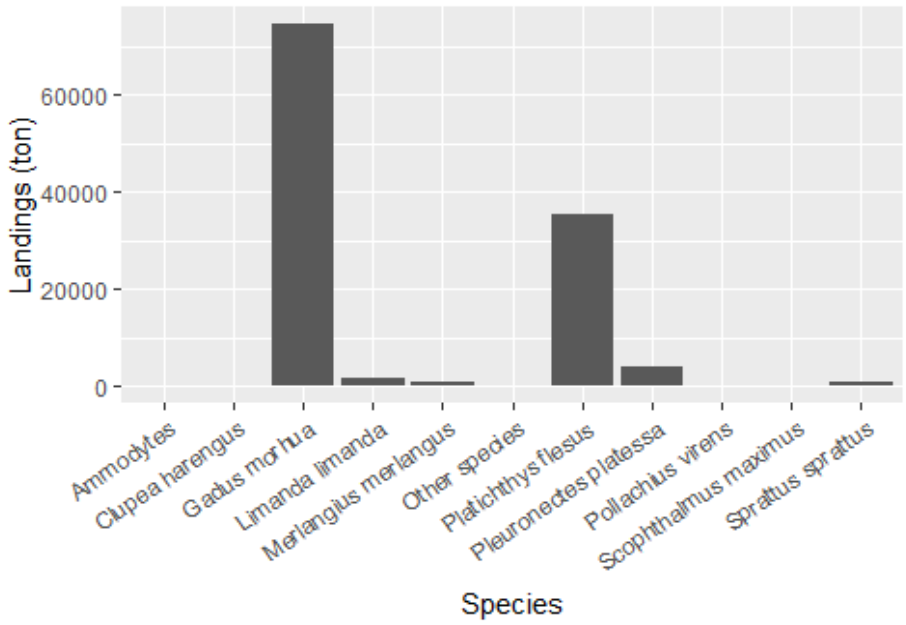


Figure 2.4.2: Average landings of the top 10 species landed by OTB_DEF_>=105_1_120 in the Baltic Sea, considering the 2015-2017 period. The remaining species are summarised in "Other species".

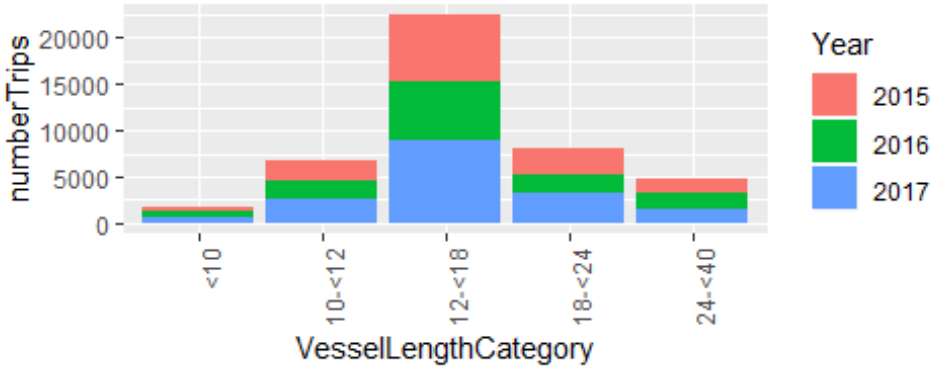


Figure 2.4.3: Number of trips from OTB_DEF_>=105_1_120 in the Baltic Sea, by vessel length group.

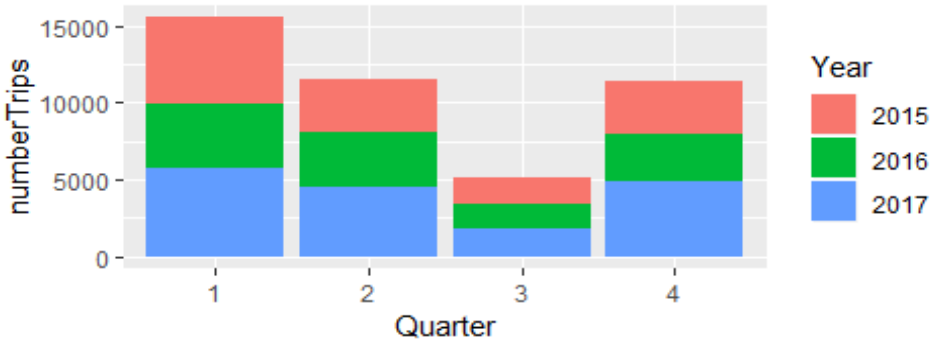


Figure 2.4.4: Seasonal pattern for fishing activity of the OTB_DEF_>=105_1_120 in the Baltic Sea: number of trips per year in each quarter.

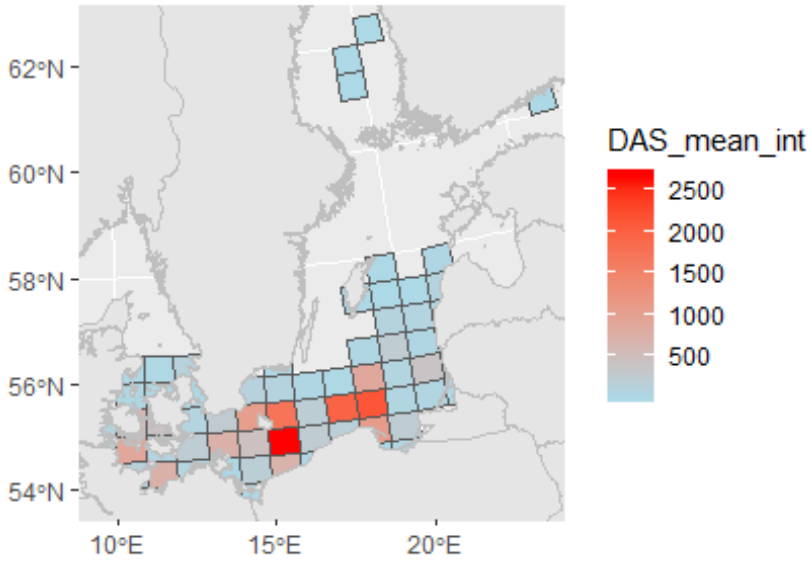


Figure 2.4.5: Average days at sea by ICES rectangle for the OTB_DEF_>=105_1_120 in the Baltic Sea, considering the 2015-2017 period.

To get some end-user feedback, examples of the métier descriptions were presented at ICES WGBFAS and were found useful and a good way for communicating the concept of métiers.

2.5 ToR 4: Species reference list for target assemblage

The January 2018 DCF metier workshop constructed a species reference list for defining target assemblages, which used the FAO ASFIS[2] codes. This is also the source of DG MARE Master Data Register species codes which is used for reporting data under the Control Regulation.

As the ASFIS list contains some 12,000 entries the majority of which are never used for commercial fisheries reporting, the workshop reference list uses only those codes that have been reported to Eurostat by Member States. The list assigns species to a species group as specified by the Nantes Workshop in 2006 (see below) on a 1 to 1 basis. The workshop concluded that a number of species would benefit from being classified by relevant experts and in particular those in the Large Pelagic and Long Distance RCGs. The list of reported species also includes some freshwater fish and miscellaneous aquatic invertebrates (not molluscs or crustaceans) which would merit assigning an appropriate target assemblage.

The list assigns a species code to a species group from the Nantes classification for each of three different levels which are appropriate for individual regions and fishing gears.

- Level 1 includes Crustaceans, Molluscs, Finfish, Seaweeds and Miscellaneous.
- Level 2 breaks down the finfish category into anadromous, catadromous, demersal, small pelagic and large pelagic and freshwater species. Cephalopods are also separated from other molluscs.
- Level 3 identifies deep-water species as under Regulation (EU) No. 2016/2336.

The report of the January 2018 DCF métier workshop recommended that the list needed to be reviewed by relevant experts in RCGs - Long Distance RCG, Large Pelagic RCG. Deep water species

[2] http://www.fao.org/fishery/collection/asfis/en

lists and anadromous, catadromous, freshwater and miscellaneous categories would also benefit from scrutiny.

The latest iteration of the list “Metier Subgroup Species 2019 04.xls” – fills in a number of gaps and addresses anomalies detected in the original file. It can be found at GitHub: https://github.com/ices-eg/RCGs/tree/master/Metiers/Reference_lists. It is an excel-file with two sheets: species reference list and gear vs spec group. The list has had some input from various experts and has been passed to the Large Pelagic Sub-Group for further review. It is accepted that the list may undergo for further refinement.

Nantes 2006 report - Species groups.

- **Anadromous species (ANA)**: living aquatic resources with lifecycle starting by hatching in freshwater, migrating to saltwater, returning and finally spawning in freshwater. [EU MAP definition].
- **Catadromous species (CAT)**: living aquatic resources with lifecycle starting by hatching in saltwater, migrating to freshwater, returning and finally spawning in saltwater. [EU MAP definition].
- **Cephalopods (CEP)**: animals (molluscs) with tentacles converging at the head, around the mouth (examples: squids, cuttlefish, and octopus) [FAO definition].
- **Crustaceans (CRU):** large group of arthropods (55,000 species). They include various familiar animals, such as lobsters, crabs, shrimp and barnacles [Wikipedia].
- **Deep water species (DWS):** the group decided to base the classification as deep water species on the list of species defined as such in EU Regulation (EU) 2016/2336 and allied species and genera with a Deep Sea lifestyle.
- **Demersal fish (DEF)**: living in close relation with the bottom and depending on it. The term “demersal fish” usually refers to the living mode of the adult. [FAO definition]. The distinction between benthic and demersal has been seen as confusing and subject to endless discussion, thus it was decided to combine the fish having benthic behaviour and fish having demersal behaviour in the only demersal fish group.
- **Finfish (FIF):** generic term, including all teleosteans and elasmobranchs.
- **Fresh water species (FWS):** species that spend all their life in fresh and brackish waters. This term is specific to the Baltic region.
- **Large pelagic fish (LPF):** sub-component of the pelagic fish composed of all species assessed by ICCAT and IOTC. These include tunas, swordfish, billfish and some shark species. The Nantes 2006 meeting group decided to include dolphinfish and amberjack as large Pelagic Fish.
- **Molluscs (MOL):** family of species including the classes of cephalopods, gastropods and bivalves.
- **Pelagic fish (PEL):** fish that spend most of their life swimming in the water column with little contact with or dependency on the bottom. Usually refers to the adult stage of a species [FAO definition].
- **Small pelagic fish (SPF):** sub-component of the pelagic fish other than the large pelagic fish.

2.6 ToR 5: Métier list

Purpose: Clean up/complete the métiers lists. Remove overlapping métiers and standardize the codes.

Métiers are grouped into gears and species groups. Mesh size ranges are suggested so that overlapping mesh size ranges are avoided and in order to standardize/harmonize the mesh size ranges by gear/species group. Mesh size ranges can be added as needed. Métiers observed in MS' fishing data but not available in the current list can also be added if needed.

Method

A system for categorising the métiers by region is suggested, taking into account gear groups, target species assemblage and allowed mesh size ranges within those groups. In the suggested system, overlap in mesh size ranges is avoided. The list of métiers outlined in the 2018 DCF Métier workshop was used, including métiers from long-distance fisheries and the Mediterranean. This list has been split up into regions (Baltic Sea, Distant Waters, North Atlantic, North Sea and Eastern Arctic, Mediterranean). For Distant Waters, the list of métiers was updated using the most recent RCG report.

The subgroup agreed that the more detailed mesh size ranges are preferred, as they can be aggregated (e.g. in the Baltic, for passive gears avoid mesh size ranges 32-104, but use e.g. 32-89 and 90-104).

For standardization use:

- _0_0_0 for no mesh size (e.g. longliners).
- _>0_0_0 for unknown mesh size.
- For traps (FYK, FPN, FPO, FIX), no mesh size ranges are proposed, "_>0_0_0" can always be applied.

7 steps were followed:

Step 1: Split up by regions

Split up the métier list produced at the 2018 DCF Métier workshop by region: North Sea and Eastern Arctic 'NSEA), Baltic Sea (BS), North Atlantic (NA), Long distance fisheries (LD) and Mediterranean (MED). This will assist the relevant RCG to review the suggestions provided by the subgroup.

Step 2: Define the "métier list" at level DCF5 by regions

The métier list produced at the 2018 DCF métier workshop, split up by region, was used to define a first "metier list" at level DCF5 by region. As an example, in the NA, 67 métiers from level DCF5 have been identified while in the NSEA, only 59 métiers were identified.

This potential list has to be compared/completed with supplementary métiers DCF5 that, eventually, are not described yet. Ideally this should be done for all the MS with fishing activity in the region. The RCG should take the responsibility to add in the list of the supplementary métiers observed in the MS' fishing activity' data or (if not) give indications under which code (between the ones available in the list) it should be defined.

As an example, the current lists for the three regions NA, NSEA and MED have been compared with the French overview métier DCF5 by region, observed in the French fishing activity' data. This highlights a lot of missing métiers. Details of the outputs from these comparisons, by region, are given in the Annex 5. Different missing cases were observed:

1) Gear missing as DIV/Diving, FOO/Foot fishing, OTH_EEL/Glass eel fishing, GNC/Encircling gillnets, LN/Lift nets, SV/Boat seines and SPR/Pair seines,

2) Group of species missing as FWS/Freshwater species (including anadromous and catadromous species) and CEP/Cephalopods,

3) Métier (combination of gear and group of species) missing.

Comparison with data extracted from RDB CE and CL data for the period 2009-2017 (details are available in Annex 4) highlights the fact that some métiers are missing in the current list while some other métiers available in the list have never been used over that period, and the need to keep them or not is questioned. Same issues have been highlighted for Long distance fisheries by comparing the list compiled in 2018 WK Métier with the most recent RCG reports it indicates also that some of the métiers have not been used over 5 years and therefore are suggested to be removed.

This step is fundamental in order to MS be able to provide complete fishing activity statistics non-restricted by the métier list used. In return, make use of an approved and agreed métier list is a key for harmonize/standardize the data compiled, avoiding each MS to answer with its own codes. These has to be continued in the RCG context and particularly taking into account the feedbacks from all the MS.

Step 3: Define mesh size ranges to be used

Overlapping mesh size ranges must be avoided, they should be consistent by gear types within regions (e.g. nets, trawls, ...) and cover the range of legal mesh sizes from minimum to maximum, depending on the target species group (for example SPF (small pelagic fish) will have a minimum possible mesh size smaller than LPF (large pelagic fish)).

The subgroup has noticed inconsistencies in mesh size ranges that MS apply to similar fisheries. The suggested mesh size ranges will assist in avoiding overlapping métiers and harmonise the métier codes. For example, in the Baltic Sea region due to concerns of using trawls with BACOMA or alternative T90 trawls, mesh sizes were separated into >=105 and >=115 respectively.

Step 4: Allow for unknown mesh size

For each métier with mesh size ranges proposed, a codification possibility is added if the mesh size is unknown: "_>0_0_0".

Step 5: Define selective devices

Once this list of "Métier/mesh size ranges" is adopted, define the selective devices which could be applied for each of them (it could be none).

Step 6: Unknown gear

For unknown gear use “MIS_MIS_0_0_0”.

Step 7: Add FAO area

Applied this finalized list to all the "FAO_area" of the region.

The proposed current métier list and mesh size ranges associated for Baltic Sea, North Sea and Eastern Arctic, North Atlantic, Mediterranean and Long distance fisheries can be found in Annex 3. The potential supplementary métiers DCF5 defined in the “step2”, which will have to be added to the list, should follow the same rules for mesh size ranges.

The work done on these current lists highlights also some other issues:

1) Distinction between LHM and LHP to be kept or simplify into LH in order to standardize/harmonize the métier list
2) For hooks métiers (LH/LL), use FIF (Finfish) group of species preferentially to DEF (Demersal fish)
3) Utility to keep joint/combined group of species as MCD/MCF/MDD or MPD to be confirmed, especially as they exists in the database

Based on data extracted from RDB CE and CL tables for the period 2009-2017, a table showing current métiers present in the RDB by region with the total number of trips by member state is shown in Annex 4 for the Baltic Sea, North Atlantic and North Sea and Eastern Arctic. The presented table has a column (last on the right) that indicates the proposed métier structure, the coherence with the actual métier, and if it would need to be changed (in particular, in terms of mesh size ranges). This confrontation highlights also that some métiers that are present in the RDB CE/CL data:

1) are missing in the current list (métier to be added?),

2) have to be re-coded in order to conform with the final métier list or

3) the minimum mesh size used is not taking into account the mesh size ranges proposed (mesh size ranges to be completed?).

This has to be taken into account in order to define the final métier list by region.

The selection devices can be added as agreed by relevant RCG's (based on MS data or legislation).
Maintenance of a métier list, where new métiers can only be agreed/added by the relevant RCG.
The subgroup suggestions are open for discussion at relevant RCG meetings to best practices can be applied in these métier definitions.
It is the opinion of the subgroup that historic data can be kept in the database, but that new codes should be followed in future data uploads (however giving MS the possibility to conform historic data with these new codes). In cases when the new codes are used, MS shall provide information on swapped métier in the RDB or relevant to RCG upload logs. As the RDBES landings and effort data formats (CE and CL) are being reviewed, the new proposed métier codes could be used for data uploads in the new format.

2.7 ToR 6: Script for assigning métiers

A script has been developed for assigning métiers that uses the Baltic Sea information as an example. It has been uploaded to GitHub https://github.com/ices-eg/RCGs/tree/master/Metiers/Scripts.

Country	year	vessel_id	vessel_length	trip_id	haul_id	area	Gear	mesh	selection	FAO_species	metier_level_6	KG	EUR
DNK	2016	DNK1	5	DNK1_160101		27.3.a.s	NK		0_0	FLE	No_logbook6	345	277.85
DNK	2016	DNK1	5	DNK1_160120		27.3.a.s	NK		0_0	FLE	No_logbook6	375	302.01
DNK	2016	DNK1	5	DNK1_160211		27.3.a.s	NK		0_0	FLE	No_logbook6	460	432.21
DNK	2016	DNK3	11.95	1234567891	1234567891_0	27.3.a.n	GN	120	0_0	CRE	GNS_DEF_120-219_0_0	0.56	1.68
DNK	2016	DNK3	11.95	1234567891	1234567891_0	27.3.a.n	GN	120	0_0	DAB	GNS_DEF_120-219_0_0	0.32	0.32
DNK	2016	DNK3	11.95	1234567891	1234567891_0	27.3.a.n	GN	120	0_0	GUU	GNS_DEF_120-219_0_0	0.24	1.41
DNK	2016	DNK3	11.95	1234567891	1234567891_0	27.3.a.n	GN	120	0_0	LEM	GNS_DEF_120-219_0_0	0.05	0.13
DNK	2016	DNK3	11.95	1234567891	1234567891_0	27.3.a.n	GN	120	0_0	MZZ	GNS_DEF_120-219_0_0	1.5	7.05
DNK	2016	DNK3	11.95	1234567891	1234567891_0	27.3.a.n	GN	120	0_0	PLE	GNS_DEF_120-219_0_0	0.58	0.98

Figure 2.7.1: Initial data format proposed for métier determining script

During the script development, initial data format has been subject to several modifications and a new version of the format is shown below.

Country	year	vessel_id	vessel_length	trip_id	haul_id	fishing_day	area	ices_rectangle	gear	mesh	selection	registered_target_assemblage	FAO_species	metier_level_6	measure	KG	EUR
POL	2018	AAA-1	15	POLAAA1201806100325		10-06-2018	27.3.d.25	37G5	OTM	10			ABZ		value	2000	2500
POL	2018	AAA-1	15	POLAAA1201806100325		10-06-2018	27.3.d.25	37G5	OTM	10			HER		weight	500	475
POL	2018	AAA-1	15	POLAAA1201806100325		10-06-2018	27.3.d.25	37G5	OTM	10			SPR		weight	1800	1710
POL	2018	ZZZ-2	12.01	POLZZZ2201801250940		25-01-2018	27.3.d.25	38G5	OTB	110	120		COD		value	146	138.7
POL	2018	ZZZ-2	12.01	POLZZZ2201801250940		25-01-2018	27.3.d.25	38G5	OTB	110	120		FLE		weight	1500	1425
POL	2018	ZZZ-2	12.01	POLZZZ2201801250940		25-01-2018	27.3.d.25	38G5	OTB	110	120		PLE		weight	50	47.5
POL	2018	BBB-3	11.99	POLBB3123456		21-06-2018	27.3.d.24	37G4	GNS	220			COD		value	146.25	138.9375
POL	2018	BBB-3	11.99	POLBB3123456		21-06-2018	27.3.d.24	37G4	GNS	220			FLE		weight	25	23.75
POL	2018	BBB-3	11.99	POLBB3123456		21-06-2018	27.3.d.24	37G4	GNS	220			PLE		weight	25	23.75
POL	2018	BBB-3	11.99	POLBB3123456		21-06-2018	27.3.d.24	37G4	GNS	220			TUR		weight	200	190

Figure 2.7.2: Adjusted data format proposed for métier determining script

Information from the logbooks on a fishing operation (e.g haul) level may not always be accessible and, for that reason, fishing day was added to the data format. This allows to identify the fishing sequence which is a combination of time, area and gear. Referring to the outcomes from the 2018 DCF Metier Workshop (22-26.01.2018, Lyngby, Denmark), there should be a possibility to assign multiple métier codes to one fishing trip, so the métier code is determined on a fishing sequence level. Target assemblage determined by the script is a group of species with the highest weight or value. An additional column was added to the data format allowing to specify the type of measure (weight or value) for each species. Some species may not be very abundant in the catch but may be very valuable. Therefore, if there is at least one valuable species in a sequence (measure type = value), then the target assemblage for that sequence is determined using value (regardless of the type of measure of other species in that sequence).
The métier code is assigned using the following parameters:

- Gear type,
- Target assemblage,
- Area,
- Mesh size,
- Mesh size in the selection device

The métier reference list used in the script was downloaded from the ICES website, under the RDB. It contains métier codes and allowed areas. The species reference list was created at the 2018 DCF Metier Workshop and was later improved. The reference list from ToR 4 on the GitHub is used in the script.
If the mesh size is missing in the input data, the métier code may not be assigned. However, the script has a feature which finds the dominant species in the sequence which can be useful to determine the mesh size. In order to make this process simpler, a national reference list of species and corresponding mesh sizes may be used.

The script has been tested by Denmark for area 27.3. Over 95% of the lines in the tested data set was assigned to the same métier as using the national procedure for assignment of métiers to transversal data based on logbook information (the national procedure includes additional algorithms for estimating métiers when they are not assigned directly from data). The lines that weren't assigned to the same métier as when using the national procedure is caused by overlapping métiers, and the script chooses a different métier.

Currently the script uses the list of métiers downloaded from the ICES website, but as ToR 5 has shown, the list has métiers with overlapping mesh size ranges, and the script currently takes the first métier that fits to the data. Therefore, the functionality of the script would be more predictable if using a métier list without overlapping mesh size ranges.

The script is a good starting point for a standardised method for assigning métiers to transversal data, and it works well. It might need national refinements, and could be improved by including procedures that analyse the general fishing patterns of fishing vessels and algorithms that can assign métiers when they are not currently assigned due to missing/erroneous mesh sizes or other missing data, e.g. due to trips with on-board landings or trips without catches.

2.8 ToR 7: Test effort calculations

Comparison between Effort Calculations – Regional Database (CE) and Transversal Data Workshop (FECR) Methods

A key output of the second Workshop on Transversal Variables (Nicosia, 2016) was a standard methodology to estimate fishing effort for a variety of situations experienced and in particular those relating to the use of multiple gears within a trip. This sought to address an issue with a plethora of different methodologies being applied by Member States for a range of different outputs and purposes which meant that meaningful comparisons could be difficult.
The underlying principles and criteria of the calculation methodologies were detailed and an analysis of possible impact on effort calculation based on the agreed methodology with real data was produced and are presented in Section 3.1 of the Workshop on Transversal Variables report (available at https://datacollection.jrc.ec.europa.eu/docs/other-meetings). This built on the work of the first Transversal Data Workshop (Zagreb, 2015) which considered a number of scenarios that were hoped to encompass the majority (if not all) of possible fishing trips in terms of areas visited and gears used that might lead to different interpretations as to how Days at Sea and Fishing Days should be calculated (detailed in section 3.2.2 of the Workshop report). A number basic principles were agreed as a minimum for standardising effort estimates across MS, across gear types and across vessel sizes and across Member States. The principles are described below and were also encapsulated in an R Script (FECR). A further objective of the RCG Metier Sub-group was to compare the results obtained from the Transversal Data Workshop methodology and input files for the RDB to enable RCGs to suggest whether MSs should move to this for future data calls.
The underlying principles from the workshop were as follows:

1 As stated in the FAO handbook of fisheries statistical standards “For biologists, a good measure of fishing effort should be proportional to fishing mortality. For economists it should be proportional to the cost of fishing.” Fishing Days is the measure related to fishing mortality, Days at Sea is the measure related to the cost of fishing. The measure of Fishing Days should be related to the amount of time a fishing gear or gears are in the sea (best fishing time proxy that is EU-wide available, currently). When gears are used in parallel this measure will not equal the number of days on which fishing occurs for the vessel. To make the distinction clear we introduce the term ‘vessel-fishing-days’ when describing the vessel activity only. However the working group did not believe such a measure is used in any existing effort calculation.

2 To base the calculation methods on data that are contained in mandatory fields of logbooks.

3 The calculation method can be different to that used for setting kWdays baselines within effort management regimes. Therefore, the data can be used for scientific purposes but not directly for management purposes, e.g. for management of effort regimes for which baselines have been defined with a different approach.

4 That separate trips are always counted separately, regardless of whether they are by the same vessel or different vessels, meaning that the fishing trip is the basic unit of

observation for effort calculation and that fishing trips are always seen independently regardless of the vessel(s) that has/have performed them.

5 That Fishing Days can be greater than Days at Sea for a trip, e.g., when passive gears are involved, or whenever a fishing trip accounted for 24h hour period at sea but it correspond to two calendar days. This reverses the agreement reached in the first transversal variables meeting and is therefore justified below.

6 When apportioning Days at Sea and Fishing Days between gears and areas each day is treated separately. The total of Days at Sea or Fishing Days for a given day will be the ratio of the total for the trip divided by the number of dates on which fishing occurred.

7 As a principle the Workshop agreed that the effort calculation must always allow to summing up effort data across dimensions without resulting in double effort counting.

Comparison between UK FECR and RDB CE Days at Sea

UK datasets from 2017 were selected for comparison. UK transversal data are usually supplied from live databases and therefore subject to retrospective change. Whilst data would be expected to be stable some six months for a given year six months after the end of that year, A switchover to new systems in Scotland and the rest of the UK mid 2017 had resulted in some data quality issues and whilst these had been largely resolved, there was still an ongoing risk to changes to historic data. 2017 represents a reasonable compromise between data stability and currency, the latter also being relevant to comparisons with other datasets including for the Annual Economic Report and Fisheries Dependent Information (the latter of which already employs the FECR methodology).
For the under 10 meter fleet in the UK, transversal data is obtained almost exclusively from sales notes. Trips are largely recorded at 24 hour periods from 00:00 to 23:59 which means that the two methodologies will record identical Days at Sea. Any differences therefore will accrue from how multiple passive gears are treated.

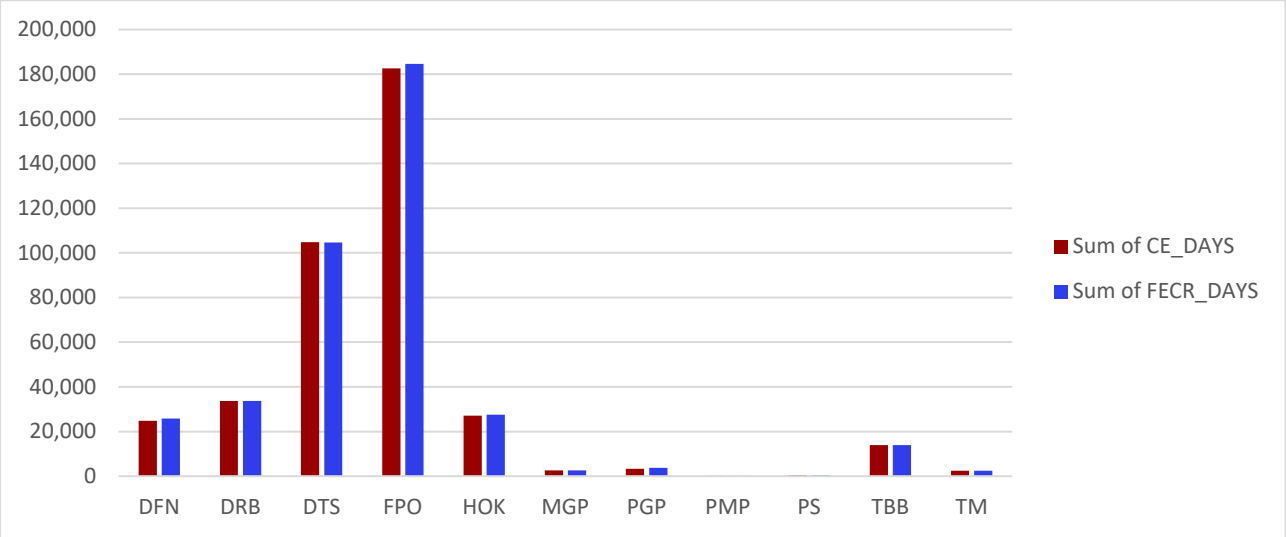
Results

There were 218,765 unique trips in the 2017 UK datasets of which there was no difference in the days calculated for the vast majority of these. There was a difference of one day in just over 5 percent of trips and two or more in less than 0.2 percent of cases.

Difference in days	No . Trips	%
Total	218765	100.0
0	206382	94.3
0-1	11883	5.4
2	115	0.1
3	36	0.02
>3	71	0.03

For the trips showing the largest differences, these were due to multiple passive gears being employed over a long period, sometimes a trip length of 30 days or more.
At the aggregate fleet level there appeared very little appreciable difference (less than 1 percent) however this masked some appreciable differences in individual fleets, most notably for vessels employing passive polyvalent gears (PGP) where the difference in Days at Sea exceeded 10 percent with the FECR method recording the higher number.

Gear Segment	Sum of CE_DAYS	Sum of FECR_DAYS	Difference	% difference
DFN	24,854	25,745	891	3.5
DRB	33,632	33,627	-5	0.0
DTS	104,713	104,657	-56	-0.1
FPO	182,580	184,625	2,045	1.1
HOK	27,156	27,581	425	1.5
MGP	2,655	2,664	9	0.3
PGP	3,362	3,752	390	10.4
PMP	10	10	0	0.0
PS	373	373	0	0.0
TBB	13,899	13,897	-2	0.0
TM	2,450	2,450	0	0.0
Grand Total	**395,684**	**399,381**	**3,697**	**0.9**

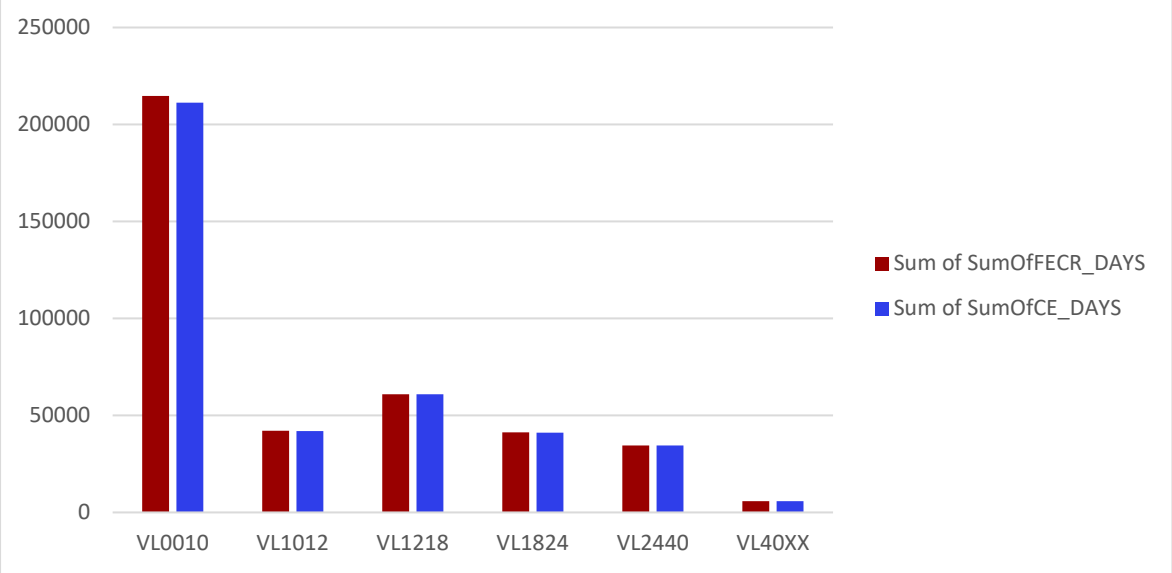


DFN	Drift and/or fixed netters
DRB	Dredgers
DTS	Demersal trawlers and/or demersal seiners
FPO	Vessels using pots and/or traps
HOK	Vessels using hooks
MGO	Vessel using other active gears
MGP	Vessels using polyvalent active gears only
PG	Vessels using passive gears only
PGO	Vessels using other passive gears
PGP	Vessels using polyvalent passive gears only
PMP	Vessels using active and passive gears
PS	Purse seines
TM	Pelagic trawlers
TBB	Beam trawlers

Looking at length categories, again the differences are small with the largest being seen for the under 10 meter fleet. Due to the way effort is recorded for the UK under 10

meter fleet as noted above, this difference relates entirely to the treatment of passive gears.

Vesel Length	Sum of FECR_DAYS	Sum of CE_DAYS	Difference	% difference
VL0010	211,227	214,764	3,537	1.7
VL1012	41,957	42,075	118	0.3
VL1218	60,951	60,946	-5	0.0
VL1824	41,177	41,223	46	0.1
VL2440	34,577	34,578	1	0.0
VL40XX	5,795	5,795	0	0.0
Grand Total	**395,684**	**399,381**	3,697	**0.9**



Conclusions

The move to the Transversal Data Workshop (FECR) methodology for calculation of fishing effort for eth RDB will have a very small impact at the aggregate level. However, in some fleet segments and for individual vessels there can be a significant difference. At the vessel level there are a relatively small number of vessels where this is truly appreciable. These are characterised by vessels employing two or more passive gears over longer trips but within the scale of the datasets these cases are insignificant.

As would be expected, the fleets seeing the most significant difference are those employing multiple passive gears and particularly under 10 meter vessels. Overall then it appears that the FECR methodology is producing results as intended and which will give a better estimate of the real fishing effort employed by these fleet segments.

During the spring 2019, in parallel with the subgroup on métier issues, another subgroup under the RDBES core group has been reviewing the exchange formats for effort and landings (CE and CL), following recommendations on principles in effort allocation from the Nicosia workshop. The differences caused by applying the Nicosia principles and FECR script will depend on the currently used method.

2.9 ToR 8: Impact of change of measure from weight to value of landings

2.9.1 Target assemblage - Impact of using weight or value of landings as classification metric

Background

Target assemblage is defined as species which are primarily sought by fishermen in a particular fishery, these species are the subject of directed fishing effort in a fishery, (EC, 2005, 2006a, 2006b, Garcia *et al*. 2009). At an international level this definition is operationalised by aggregating target assemblage into large groupings (crustaceans, molluscs, benthic, demersal and pelagic fish) (EC, 2005, 2006a, 2006b). These groupings are specified within the DCF as metier level 5, as fishers' intention, with the specific purpose of describing the heterogeneity of fishing activity in both biological and economic terms, bio-economic variable. Although this definition clearly defines target assemblage in economic terms, Member States do not always use value as a metric to define these groupings, instead they use weight landed catch to determine the target assemblage.

There has been much debate in the literature on appropriate metrics for target assemblage, either landed weight and/or first sale value. Weight often is chosen if accurate values of first sale are not readily available (Davie and Lordan, 2011). Also if management was primarily focused on maintaining biological and ecological imperatives, catch weight is a more relevant metric than value (Davie and Lordan, 2011). However, in the 2018 Métier workshop (RCG 2018) the group recommended that value be used as the metric for defining target assemblage as fisheries are conducted for economic gain. The use of value would mitigate issues such as when species with a low weight relative to the value is the real target, then value is a better metric. Additionally, the use of value as the metric for target assemblage would help to avoid the complication created by the implementation of the landings obligation, where potentially large weights of low economic value could affect any post classification system based solely on weight, resulting in incorrect definition of fishing intention (RCG 2018). However, the participants of the workshop recognise in some cases where a combination of value and weight should be used (RCG 2018). For example, purse seiners targeting small pelagic fish can catch a school of the target species but if some other valuable species are caught in less weight the output of the trip can be conditioned by the more valuable species although it was not the original target, therefore a combination of the two criteria should be used in these cases (RCG 2018).

There are however some important points to consider when using value as the metric for defining target assemblage. Unlike weight, value is a metric which is derived from a number of sources. The calculation of which must be considered to fluctuate in space and time, where country, region and month have impact on the value (Branch et al., 2006). For some countries sales notes are not always available throughout the year, for all countries or for all the vessels (direct sales /sales out the auction market) therefore it would be important to document the proportion of trips lacking value and the procedure used to estimate it (e.g. average price calculation methodology to fill in the missing data). MS must then make efforts to document the algorithms used and bias produced in determining these values. The aim of this analysis was to test the impact of assigning target assemblage based on value as opposed to catch weight, and to summarize the impact of this measure on the definition of fishing behaviour.

Methodology

This analysis was conducted using an extract from the ICES Regional DataBase FishFrame (RDB), which was downloaded from the RCG SharePoint on the 16th April 2019. This data set was sub-

setted to focus on the demersal Celtic Sea fishery, covering ICES Divisions 27.7g, 27.7j, 27.7h and 27.7k (Figure 2.9.1.1), from 2009 – 2018. The main demersal TAC species in the fishery were included: *Gadus morhua* (COD), *Lepidorhombus spp.* (MEG), *Lophius spp*. (MON), *Merlangius merlangus* (WHG), *Merluccius merluccius* (HKE), *Molva dypterygia* (BLI), *Molva molva* (LIN), *Melanogrammus aeglefinus* (HAD), *Nephrops norvegicus* (NEP), *Pleuronectes platessa* (PLE), *Pollachius pollachius* (POL), *Pollachius virens* (POK), *Solea solea* (SOL) (Figure 2.9.1.3). The extreme inter-annual variation noted in some species such as hake (figure 2.9.1.3) is associated with gaps in data submissions by some Member States (MS) (Figure 2.9.1.2).

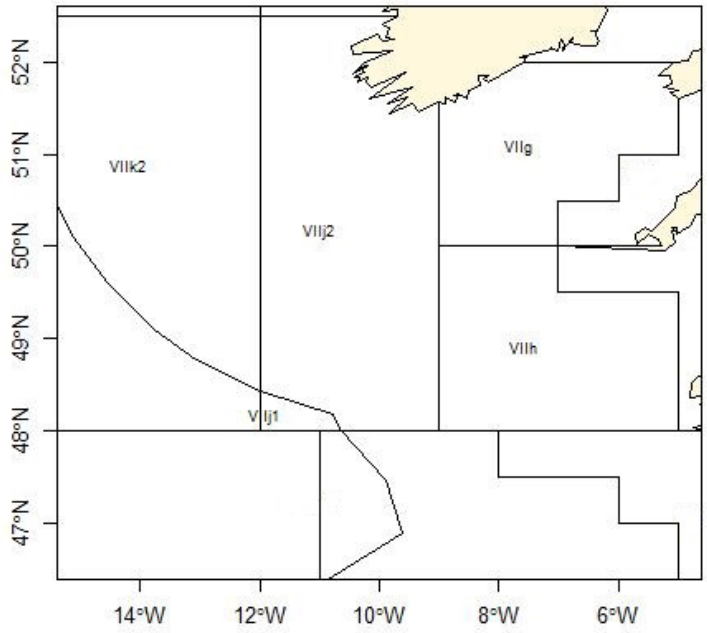


Figure 2.9.1.1 ***Study area, Celtic Sea, including*** **ICES Divisions VIIg, VIIj, VIIh & VIIk**

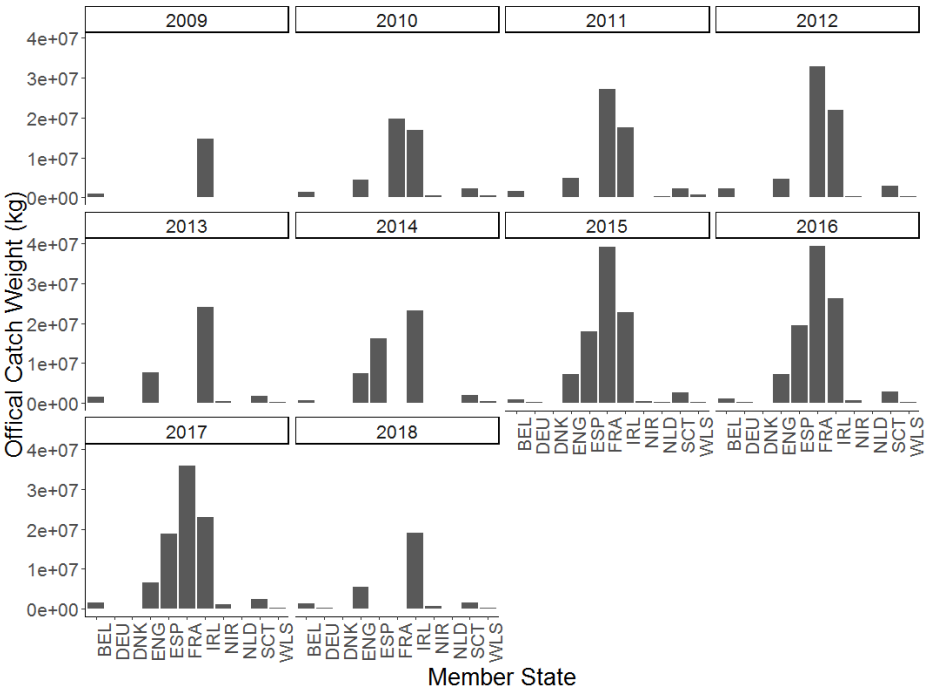


Figure 2.9.1.2 Total weight (kg) of landings *reported to the RDB* per member state in the Celtic Sea (VIIj, VIIg, VIIh, VIIk) from 2009 – 2018

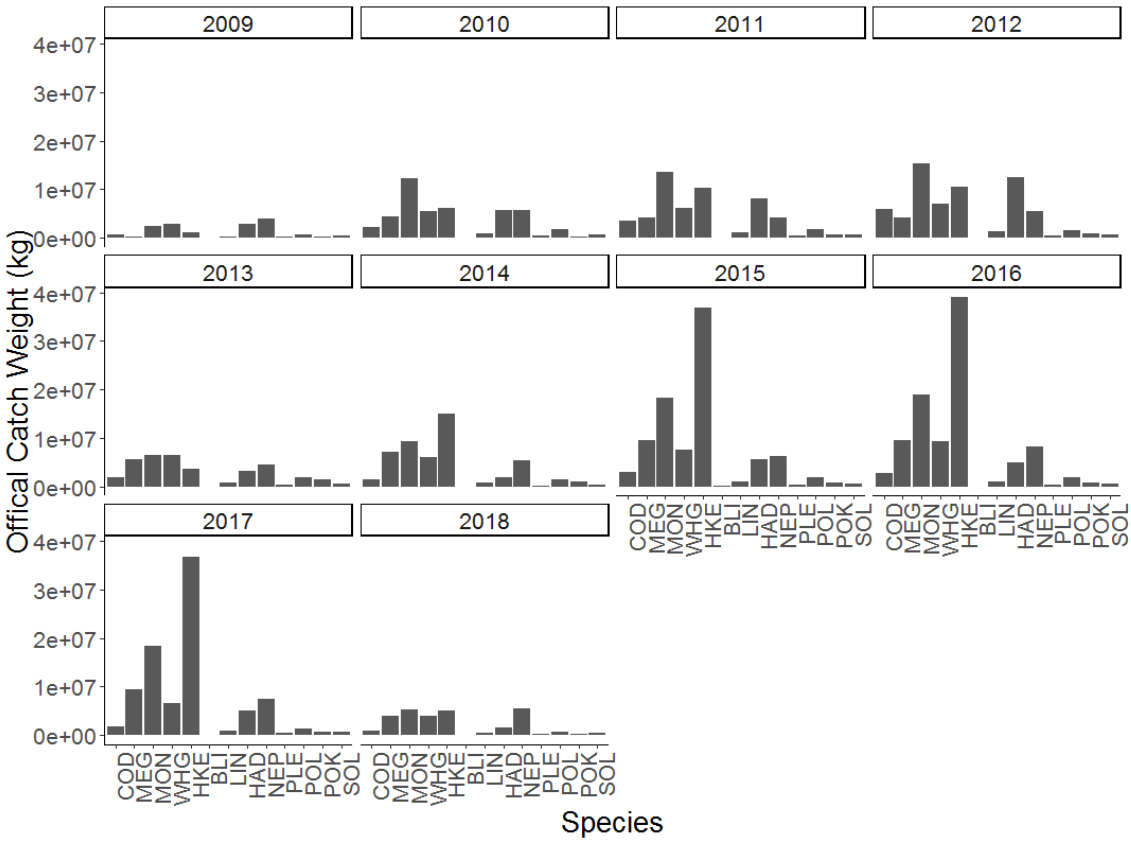


Figure 2.9.1.3 Total weight (kg) of landings *reported to the RDB* per species in the Celtic Sea (VIIj, VIIg, VIIh, VIIk) from 2009 – 2018

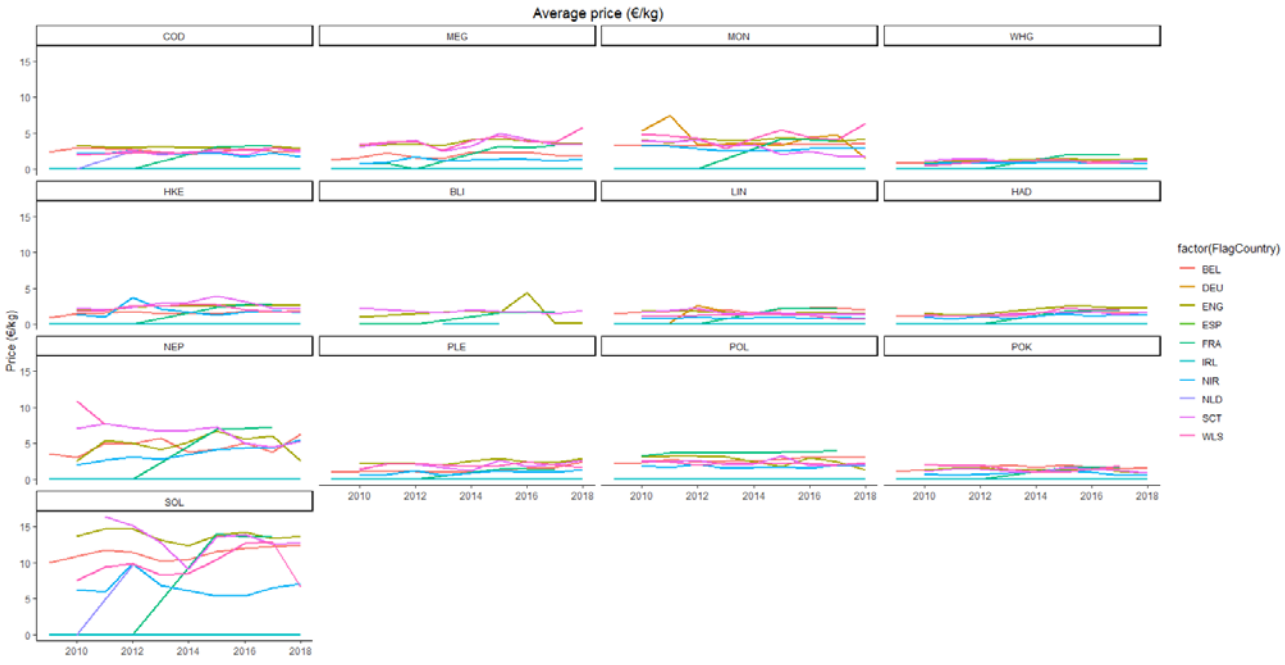


Figure 2.9.1.4 Average price (€/kg) of landings reported to the RDB per species in the Celtic Sea (VIIj, VIIg, VIIh, VIIk) from 2009 – 2018

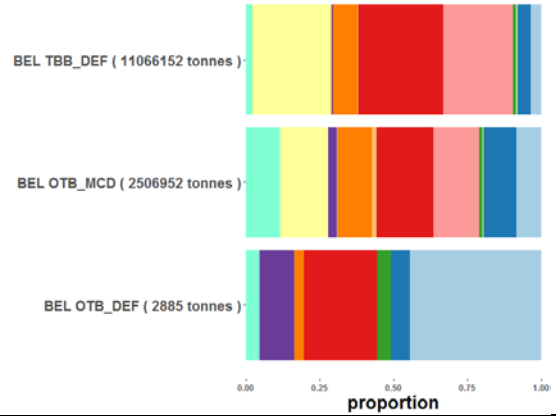
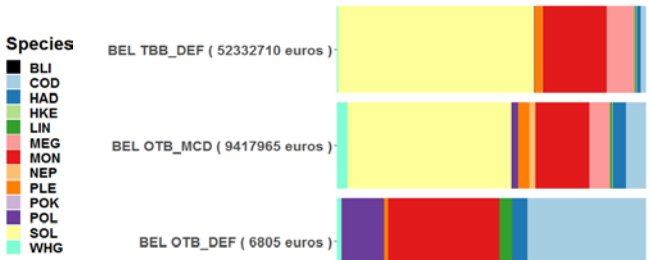
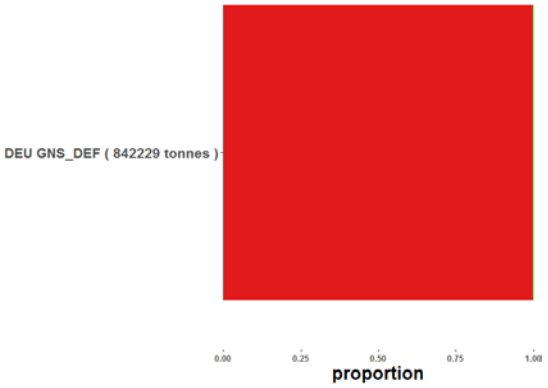
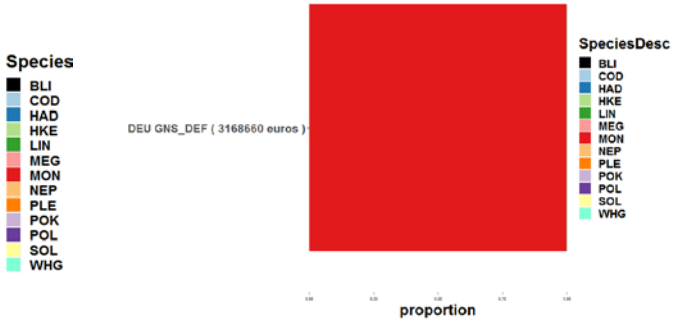
There is a wide variation in the decision rules and thresholds implanted by MS when assigning a target assemblage to a fishing operation. This variation in rules is due to the variation in national fisheries, sampling programmes and expert opinion, which are implemented with the intention of maximising the accuracy of the description of fisher behaviour. Therefore, it was not possible, within the timeframe of this working group to test the impact of using value based on the original decision rules, as we do not have access to these algorithms. However, it was possible to summarize the impact on catch profiles when defined using catch weight or value, and the relationship that these catch profiles have with the target assemblage that they were originally assigned by a MS.

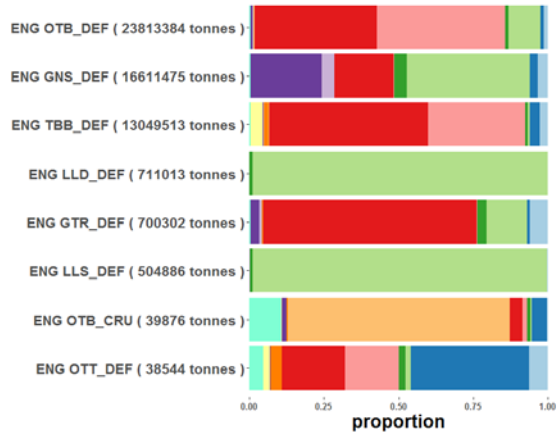
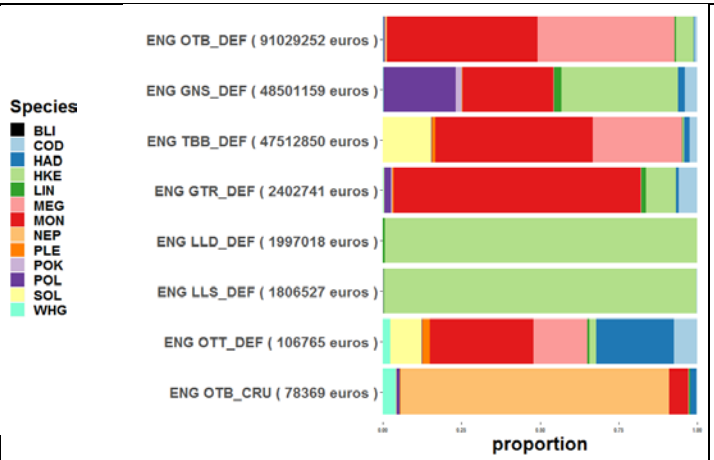
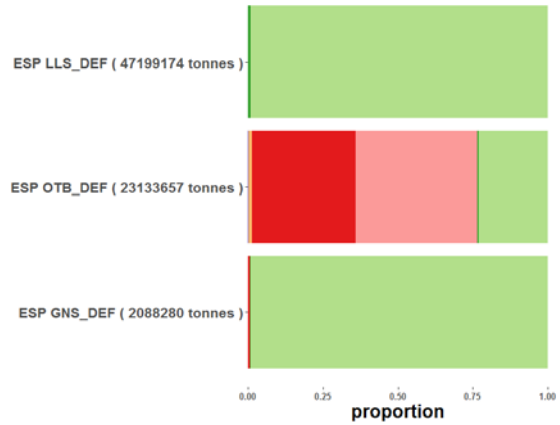
Results and Conclusion

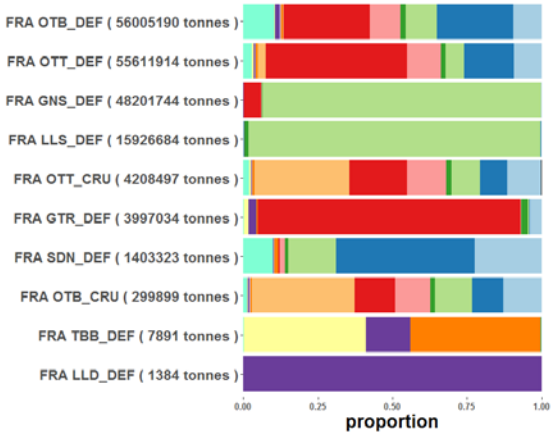
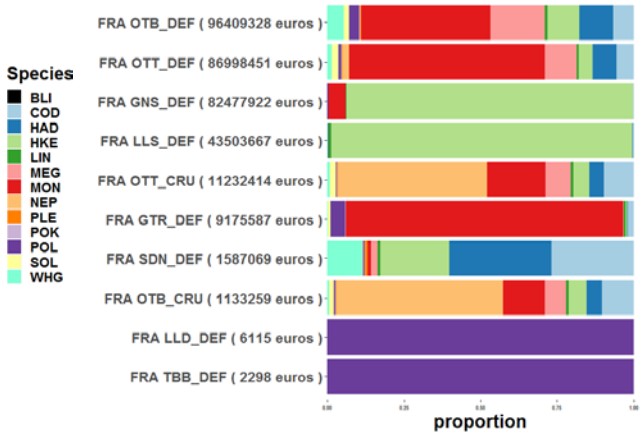
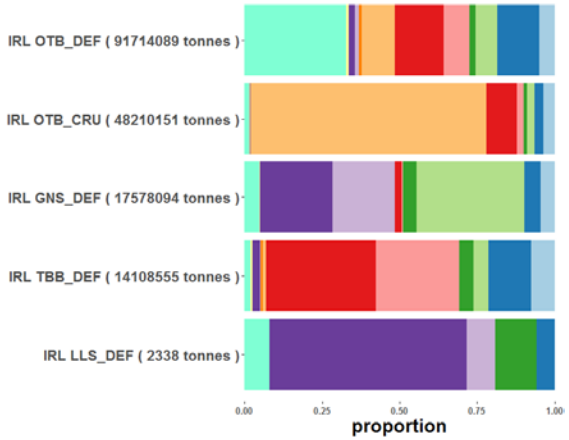
The results of this analysis demonstrate that the target assemblage originally assigned by a MS to a fishing operation remains consistent with the landings profiles of that operation whether this operation is produced using landings weight or value (Table 2.9.1.1). However, there is a clear impact on the dominance of a fishing operation when defined by value or by weight. Some fishing operations appear to exert more of an influence on the fishery when described by value, which could impact the utility of this dataset in terms of assessment and management.

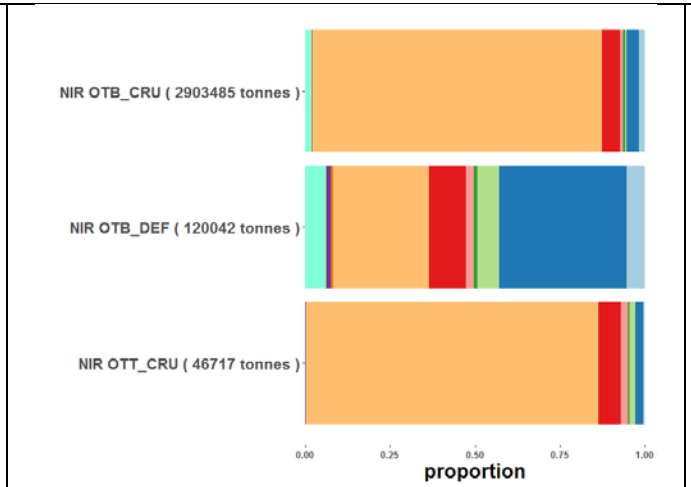
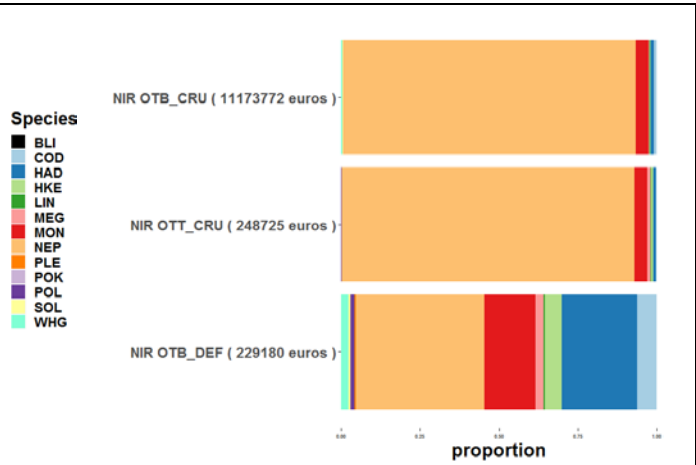
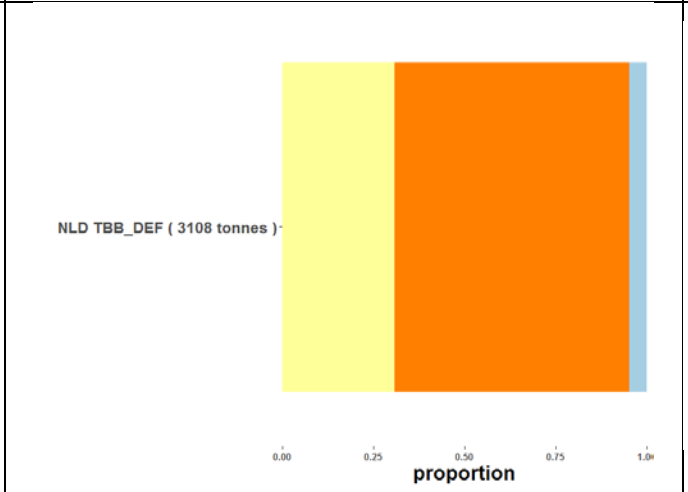
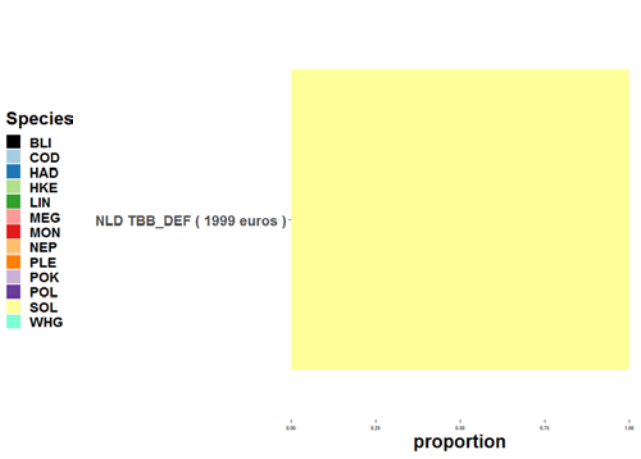
However, this analysis demonstrates the varying quality of data available in the RDB. Value information is not currently mandatory in the RDB, however this information is crucial in terms of stock assessment and fleet management and should be mandatory for the RDBES. There is a wide variation in the quality and quantity of value information submitted by MS (Figure 2.9.1.4). Therefore, if value is to be utilised as a tool for defining aspects of fishing operations, such as target assemblage, then a clean set of guidelines and best practices should be developed, i.e. is average price calculated on an annual or monthly basis. Improvement of the quality of value information is essential if databases such as the RDB and RDBES are to be utilised mixed fisheries assessment, economic modelling and long-term management strategies.

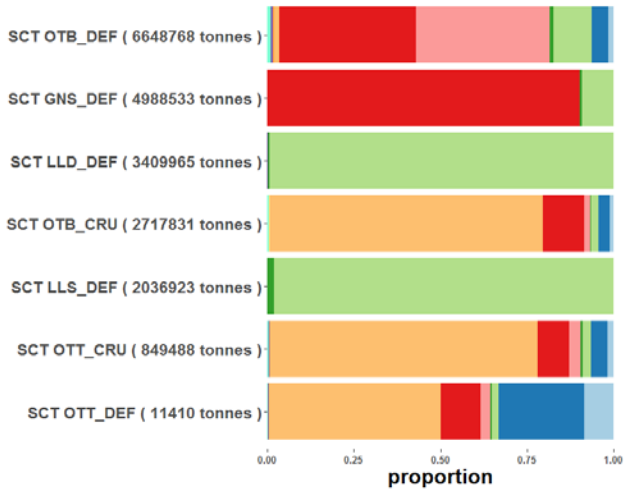
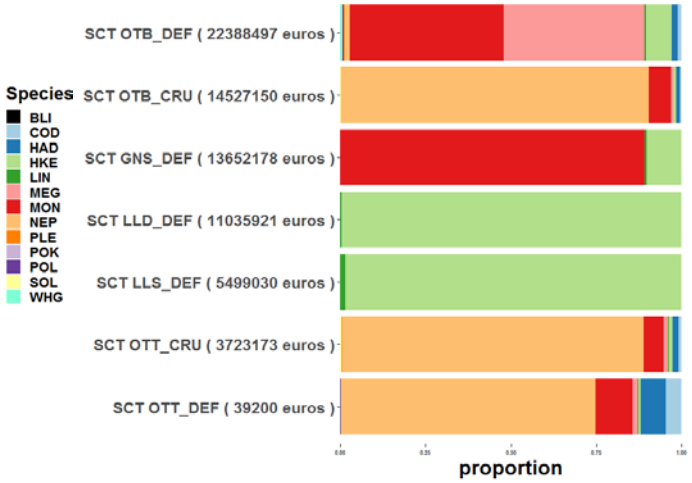
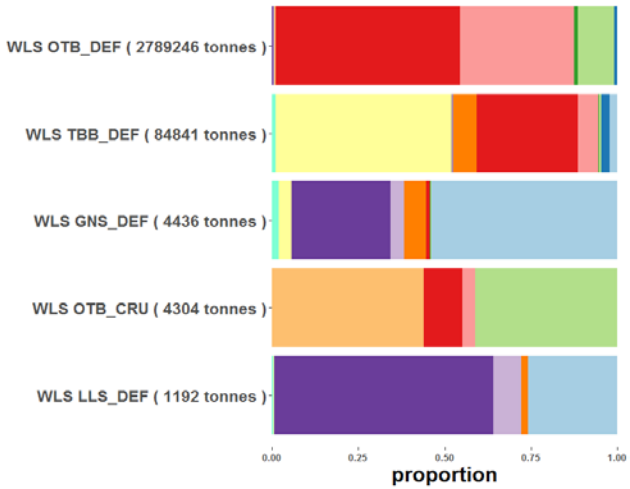
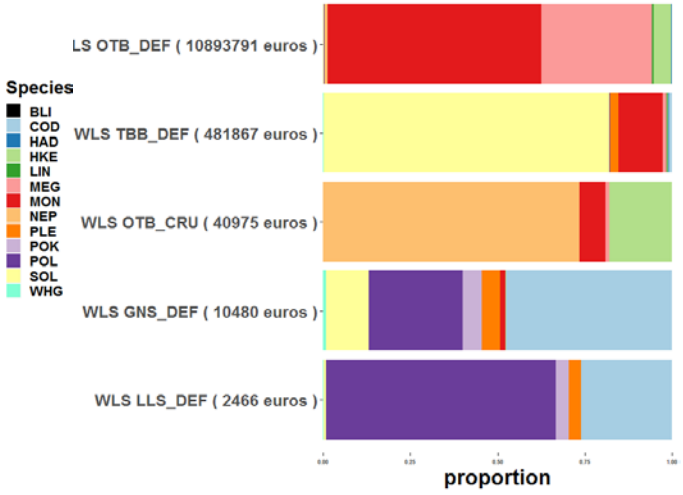
Table 2.9.1.1 – Summary of the dominant demersal fishing operations (metier level 5) executed in the Celtic Sea (VIIg, VIIj, VIIk, VIIh) during the period 2009 – 2018. The landings profiles for these operations were defined using landings weight (kg) and landings value (€). These profiles were then compared to determine if using the metrics landings value or weight would result in a profile which is consistent with the target assemblage originally assigned by a Member State.

Member state	Landings Weight	Landings Value	Comment
Belgium			The original target assemblage assigned by Belgium to classify the fishing operation matched the catch profiles produced using landings weight and landings value. The order of fleet dominance remained consistent, with TBB_DEF, accounting for the majority of landed weight and value in the region.
Germany			The target assemblage for the German monkfish directed fishery will remain DEF whether assigned using weight or value.

England			The original target assemblage assigned by England to classify the fishing operation matched the catch profiles produced using landings weight and landings value. The order of fleet dominance remained consistent across the majority of fleets, with OTB_DEF, accounting for the majority of landed weight and value in the region.
Spain		No value information provided	

France			The original target assemblage assigned by France to classify the fishing operation matched the catch profiles produced using landings weight and landings value. The order of fleet dominance remained consistent across the majority of fleets, with OTB_DEF, accounting for the majority of landed weight and value in the region. However, when value alone is used some information on species interaction is lost, such as TBB_DEF when classified using value, we lose information on sole and plaice, which could have implications for economic modelling and management.
Ireland		No value information provided	

Northern Ireland			The original target assemblage used by Northern Ireland to classify the fishing operation matched the catch profiles produced using landings weight or landings value. The dominate metier operating in the Northern Irish fleet remained OTB_CRU, accounting for the majority of landed weight and value in the region. OTT_CRU moved from the 3rd largest fishing operation when classified by weight to the 2nd highest when classified with value.
Netherlands			The target assemblage for the Netherlands only fishing operation in the region will remain DEF whether assigned using weight or value. However, if value is used to define the catch profile a lot of detail is lost as only a value was provided for sole in, therefore interactions with plaice and cod fisheries is lost. Which could have implications for economic modelling and management.

Scotland			In the majority of cases the original target assemblage used by Scotland to classify the fishing operation matched the catch profiles produced using landings weight or landings value. The only case where this did not match was in relation to OTT_DEF which was composed of ~50% NEP landings weight and ~75% NEP landings value. In this case the reason for the DEF label is unclear. The dominate metier operating in the Scottish fleet remained OTB_DEF, accounting for the majority of landed weight and value in the region. However, the order of influence of the rest of the fishing operations changes when described using weight or value. Which could have implications for economic modelling and management.
Wales			The original target assemblage used by Wales to classify the fishing operation matched the catch profiles produced using landings weight or landings value. The dominate metier operating in the Welsh fleet remained OTB_DEF, accounting for the majority of landed weight and value in the region. OTB_CRU moved from the 4th largest fishing operation when classified by weight to the 3rd highest when classified with value.

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2.9.2 Target group classification analysis of Swedish data from 2018 in area 27.3.a

Introduction

In the Swedish fishery many gear codes that are used by fishermen to register catch in the logbook also describe species target group (besides describing mesh sizes and use of selection devices). For example, gear code 303 is called "bottom trawl shrimp selective device" thus the gear with gear code 303 is targeting *Pandalus borealis* (Northern pink shrimp) and the bottom trawl has a selective device which can be understood from the métier description at foCatEu6 level which is: OTB/OTT_CRU_32-69_2_22. In the Swedish fishery all fisheries targeting *Pandalus borealis* have a specific gear code and the target group is CRU (Crustaceans). Gears fishing Norway lobster (*Nephrops norvegicus*) with a selection device (OTB_CRU_70-89_2_35) also have specific gear codes and the target group is CRU. For gear codes that do not describe target group, target group is today selected according to the target group with the largest weight in the haul. However, in many Bottom otter trawl (OTB) and Multi-rig otter trawl (OTT) fisheries in 27.3.a. (SD20 and SD21) Norway lobster which has a high value per weight is caught together with fish species belonging to target group DEF (demersal fishes). To take into account that Norway lobster has a high value per weight additional rules are applied for these gears and gear codes. Target group for a haul becomes crustacean (CRU) if the proportion of Norway lobster (NEP) by weight in the haul is >=0.9. If the proportion NEP is >=0.1 but <0.9 the classification becomes mixed crustacean and demersal fish (MCD). When the proportion NEP is <0.1 the original target group classification (which is based on largest weight) is kept.

It could be argued that the value of the catch of different target groups might mirror the intention of the fishermen better than the weight of the target groups. Thus instead of choosing target group according to the group with the largest weight in the catch, the group constituting the largest value

could be chosen. The goal in this task is therefore to get an overview of the degree at which the value for different target groups coincide with today's métier classification procedure which is based on weight. The focus will be on hauls where the gear is OTB and OTT and where the target group (DEF, CRU, MCD) classification is not set by the gear code but according to weight.

In this analysis the data that is used is a combination of logbook data (information per haul) and information on value that has undergone some additional calculations. The file used in this analysis is named: prel_preCL_2018_20190221.csv.

Overview of all target group classifications in SD 20 and SD21

In the figure below, mean haul value (%) by target group is shown. The figure is based on all hauls from 2018 in SD20 and SD21 area. Today's classification of target group, i.e. by maximum weight, is shown on the y-axis at foCatEu6-level. The x-axis displays the mean percentage of total haul value that is accounted for by the different target groups. Notice that target group CRU is divided into: NEP=*Nephrops norvegicus*, PRA=*Pandalus borealis*, LBE= *Homarus gammarus* (European lobster) and CRE= *Cancer pagurus* (The edible crab) to show the catch composition with a higher resolution.

In the figure it can be seen that the original classification (on the y-axis) of the target groups: DEF, CRU and SPF corresponds quite well when percentage of total haul value is used. For example, for the métier on the top of the y-axis, SDN DEF>=120_0_0, the mean value (%) of DEF is almost 100% for all hauls in this métier.

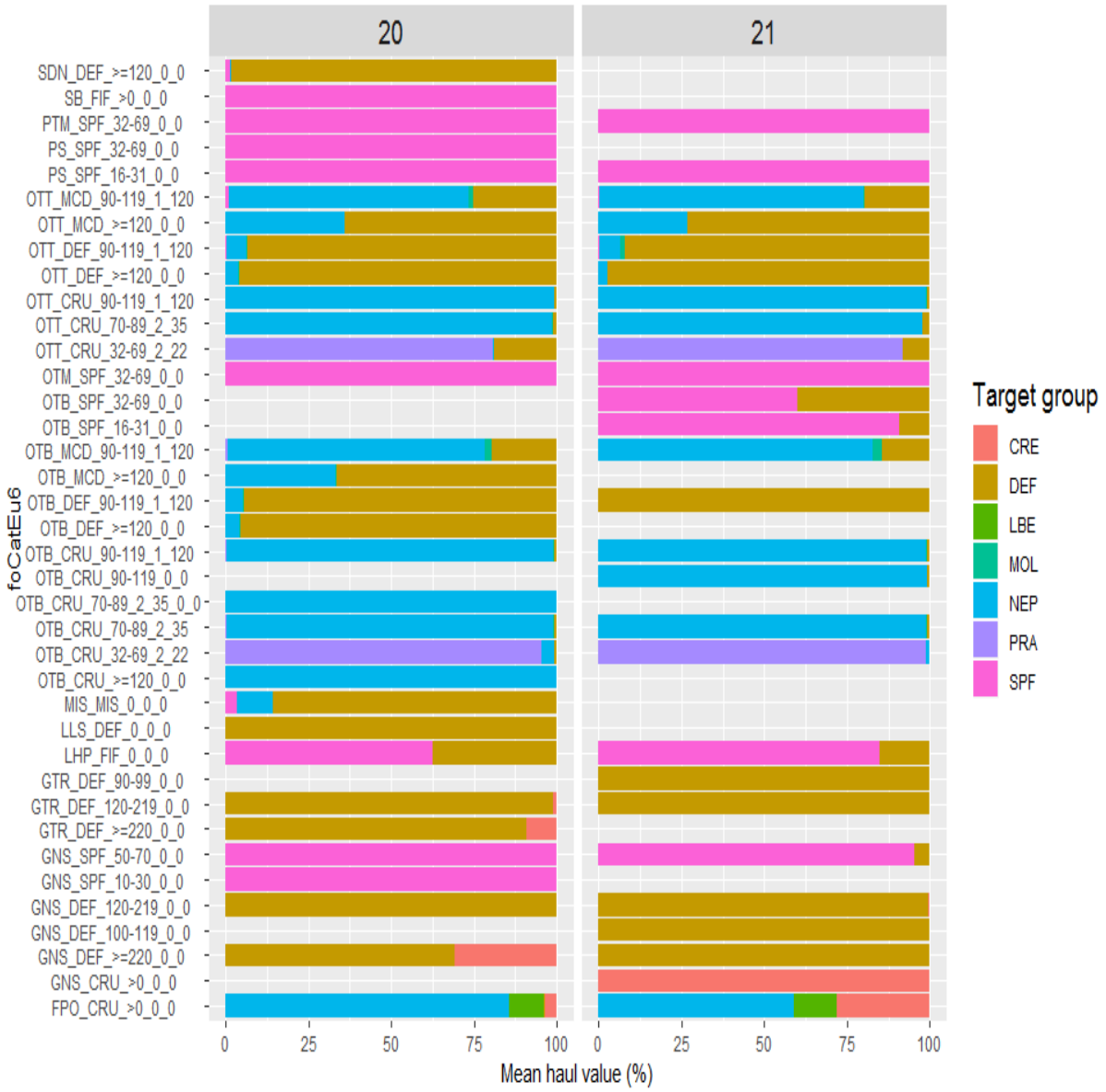

Figure 2.9.1.1: Mean haul value (%) by target group, for all hauls in 2018 in SD21 and SD20. CRE=*Cancer pagurus*, DEF=Demersal fish, MOL=Molluscs, NEP=*Nephrops norvegicus*, PRA=*Pandalus borealis*, SPF=Small pelagic fish and LBE=*Homarus gammarus*.

Target group classification of hauls with gear codes without a given target group

As stated in the introduction, target group is set in many gear codes. For gears codes without a given target group, classification is based on the target group with the largest weight in the haul. For OTB and OTT gear codes without target group additional classification is applied where target group is changed to MCD if the weight of NEP in the haul is >=10% and <90%.

In this task we are focusing on target group classification for OTT and OTB hauls that have a gear code without a given target group. For 2018 and SD20 and SD21 the number of hauls with gear code without a given target group for OTT and OTB is 6 946. For these hauls the mean value (%) by target group is shown in the figure below. The y-axis displays métier at foCatEu6 based on original target group classification using largest weight. The x-axis shows mean haul value (%) by target group. As

can be seen foCatEu6 métiers with target group CRU and DEF consists almost entirely of hauls where the mean value (%) of the hauls is 100 % CRU alternatively DEF.

For foCatEu6 métiers with target group MCD it can be seen that mean values of target groups NEP and DEF are not around 50% which could be expected if the target group MCD is intended to mirror a mixed fishery. In SD20 and SD21 the MCD fishery mainly consists of DEF and CRU, where CRU mainly consists of NEP.

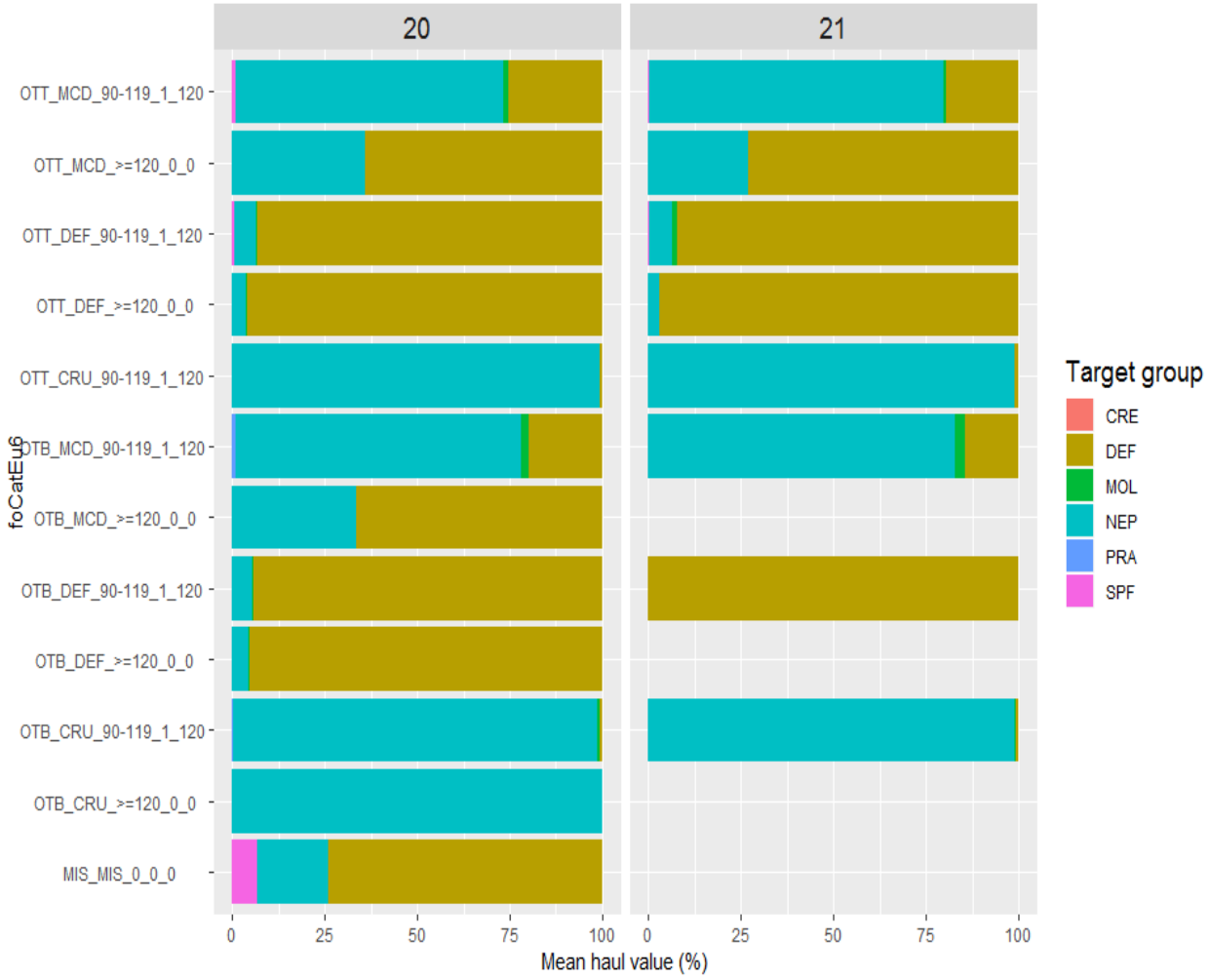

Figure 2.9.1.2: Mean haul value (%) by target group for hauls without target group included in the gear code, in SD20 and SD21. CRE=*Cancer pagurus*, DEF=Demersal fish, MOL=Molluscs, NEP=*Nephrops norvegicus*, PRA=*Pandalus borealis*, SPF=Small pelagic fish.

The mean values in the graph above indicate that the value of the target group NEP in MCD-classified hauls often is high. To visualize this, the percentage of NEP by weight in the haul is plotted versus the percentage of NEP by value in the haul. This is shown in the figure below and all hauls without target

group code is used. Hauls with a value of NEP >=80% are highlighted.

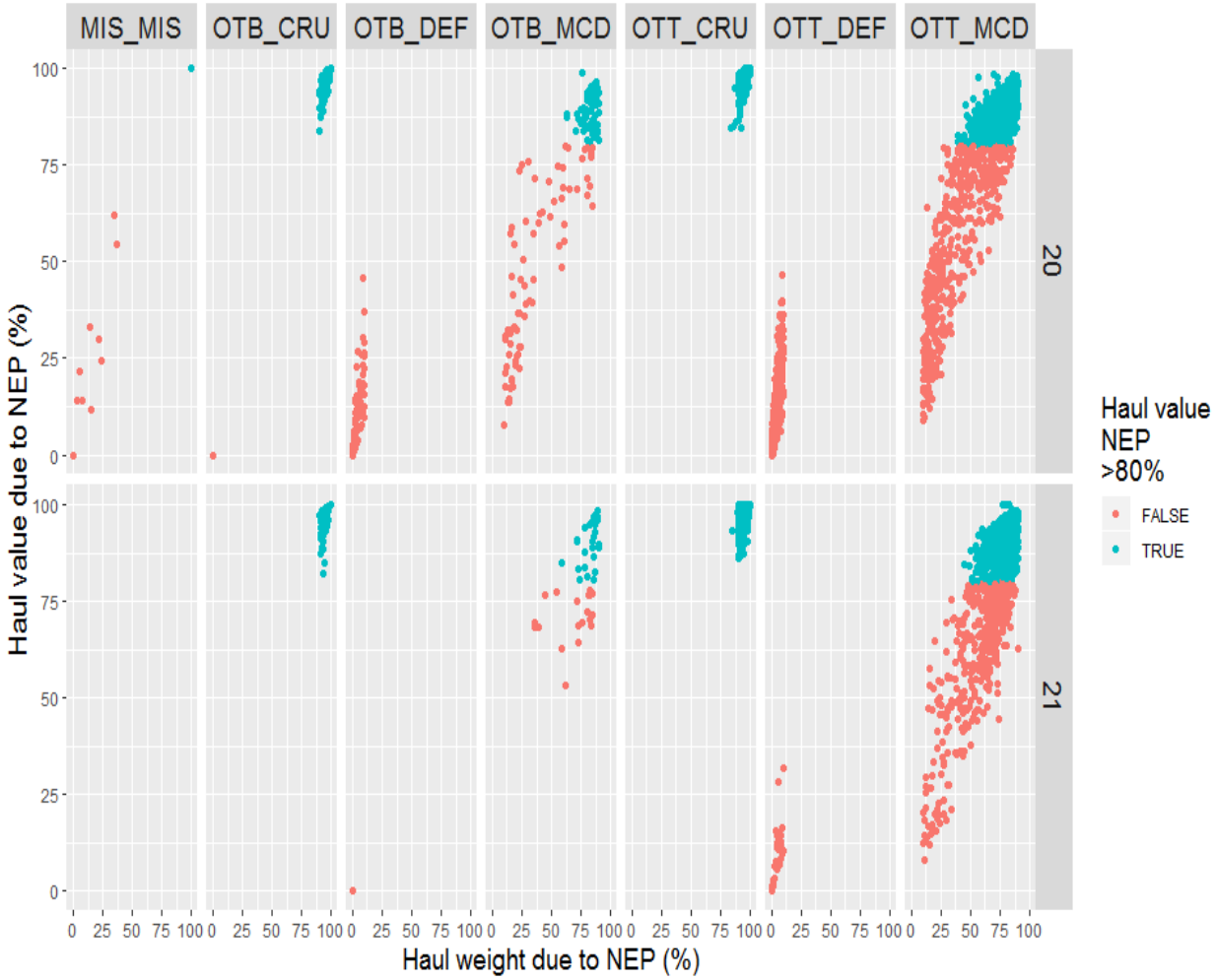

Figure 2.9.1.3: Percentage NEP by weight in the haul versus percentage NEP by value in the haul for hauls without target group included in the gear code, in SD20 and SD21.

Percentage of hauls with >50% and >80% of the haul value due to NEP or DEF

Today target group is classified according to maximum weight. But what would the effect be if value would be used for classification instead? To get an insight into this, the percentage of hauls where >50% and >80% of the haul value is due to NEP or DEF is presented in the table below. FoCatEu6 métiers are condensed to foCatEu5 level in column Méter and No_hauls is the number of hauls without target group per métier and area.

As shown, for all MCD métiers, for a high percentage of the hauls more than 50% of the haul value is due to NEP.

Table 2.9.1.1: Percentage of hauls per métier and area where >50% and >80% of haul value is due to NEP and DEF.

Métier	SD	No_hauls	NEP>50%	NEP>80%	DEF>80%
MIS_MIS	20	19	15.79	5.26	63.16
MIS_MIS	21	0	0.00	0.00	0.00

OTB_CRU	20	286	99.65	99.65	0.00
OTB_CRU	21	205	100.00	100.00	0.00
OTB_DEF	20	257	0.00	0.00	94.55
OTB_DEF	21	18	0.00	0.00	100.00
OTB_MCD	20	147	71.43	45.58	6.12
OTB_MCD	21	48	100.00	60.42	0.00
OTT_CRU	20	886	100.00	100.00	0.00
OTT_CRU	21	1333	100.00	100.00	0.00
OTT_DEF	20	1595	0.00	0.00	94.29
OTT_DEF	21	56	0.00	0.00	92.86
OTT_MCD	20	1016	79.53	51.18	1.77
OTT_MCD	21	1080	91.11	63.52	1.39

Scatterplot of haul weight of NEP versus haul weight of DEF for different métiers

To increase the understanding, haul weight due to NEP (%) is plotted against haul weight due to DEF (%) in the figure below. All hauls without a given target group and hauls where the haul value due to NEP is >=80% are presented. As shown there are hauls where the haul weight due to NEP is only roughly 60% but the haul value due to NEP is >80%.

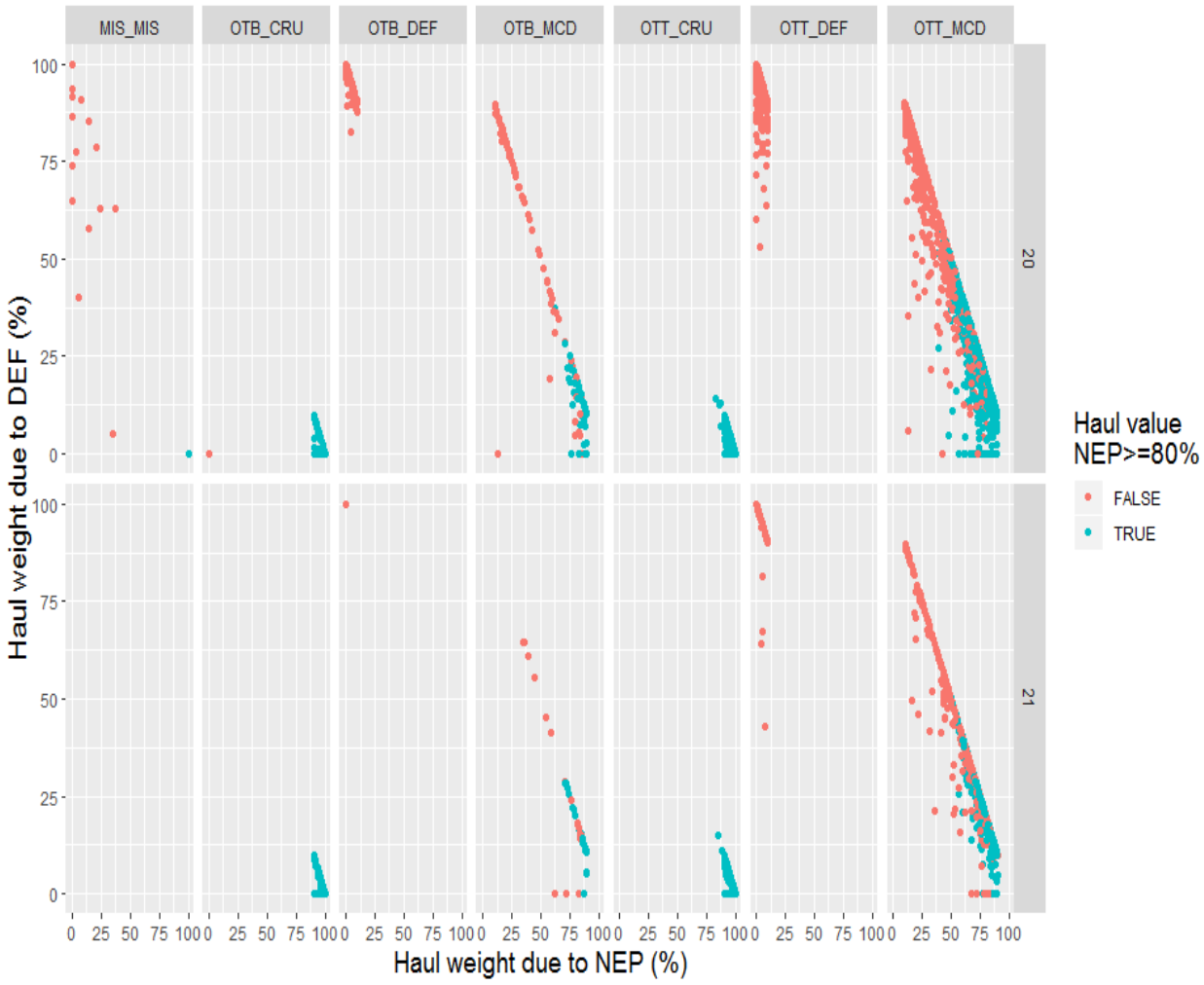

Figure 2.9.1.4: Percentage NEP by weight in the haul versus percentage DEF by weight in the haul for hauls without target group included in the gear code, in SD20 and SD21.

The above figure is visualised as a histogram below to increase the understanding on the number of hauls where the value of the haul is due to DEF, CRU or both.

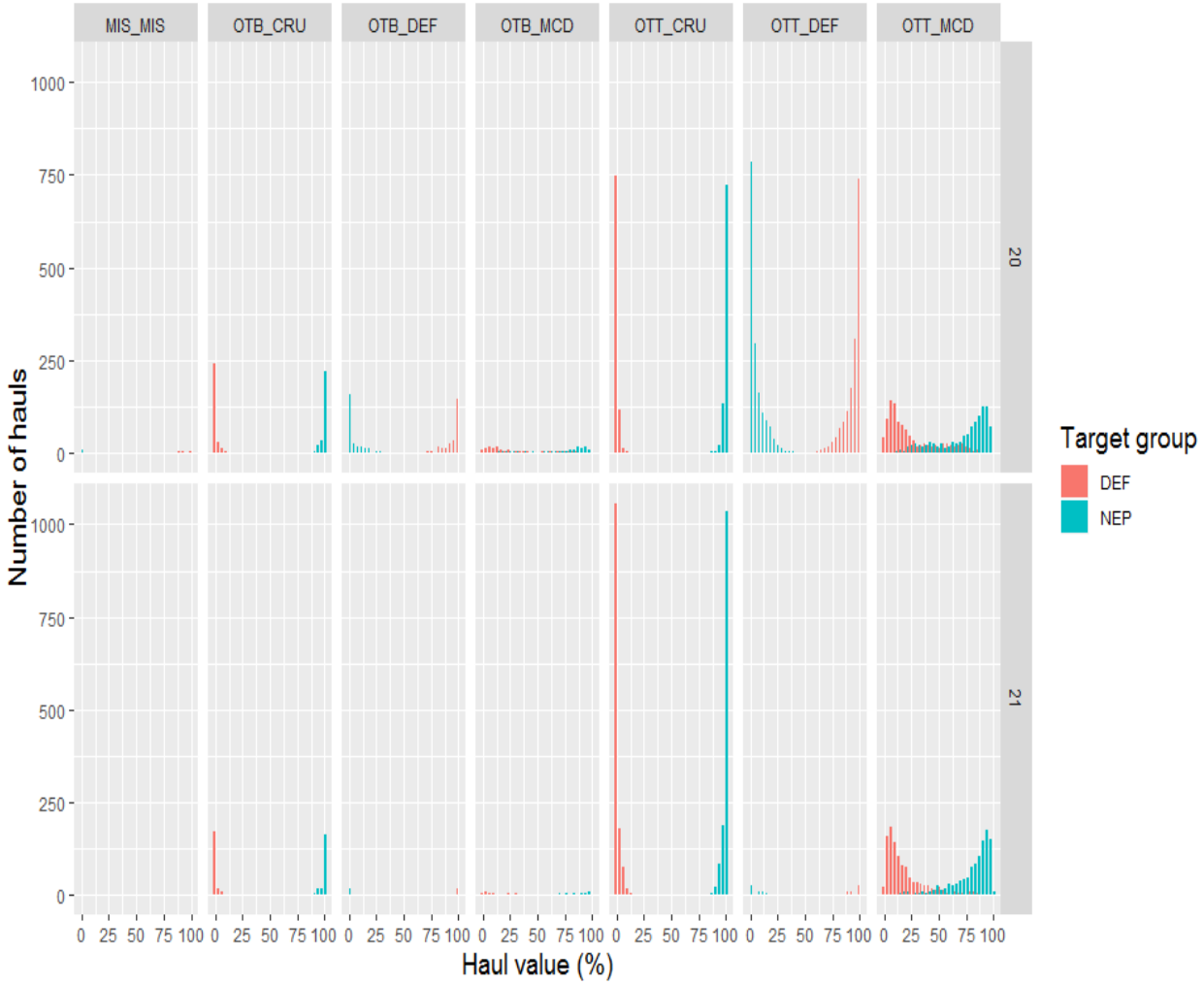

Figure 2.9.1.5: Histogram of haul value due to NEP and DEF for hauls without target group included in the gear code, in SD20 and SD21.

Effect of using maximum value for target group classification

The result from using the target group with the largest value (i.e. maximum value) to choose target group is presented in the graph below. The y-axis shows today's classification which is by weight. The x-axis shows percentage of hauls. As shown, métiers classified as DEF and CRU on the y-axis would perform well using maximum value, i.e. they would be classified as DEF and NEP i.e. CRU. Métiers classified as MCD would be classified, to a large degree as NEP, i.e. CRU.

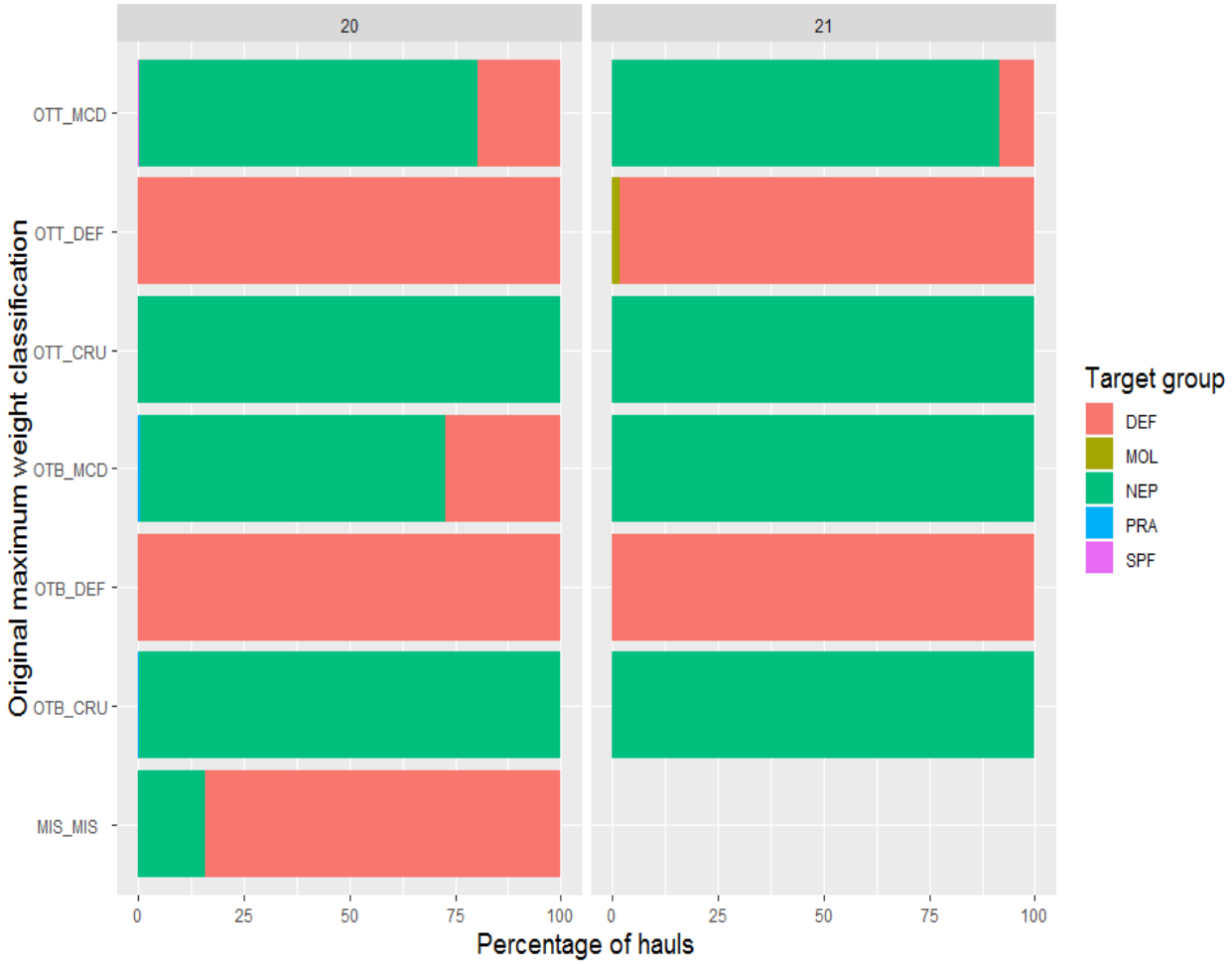

Figure 2.9.1.6: Percentage of hauls assigned to different target groups by using maximum value. For hauls without target group in the gear code, in SD20 and SD21. CRE=*Cancer pagurus*, DEF=Demersal fish, MOL=Molluscs, NEP=*Nephrops norvegicus*, PRA=*Pandalus borealis*, SPF=Small pelagic fish.

The result from using maximum value for target group classification is also shown in the table below. Today's target group classification (by weight) is presented in column Métier (foCatEu5) and the number of hauls is presented in Orig_n_hauls. Today´s target group classification (foCatEu5) with CRU and DEF corresponds well with a classification based on maximum value (column % and Target_group) where NEP is equivalent to CRU. Todays's target group classification of MCD would, by using maximum value as classification, lead to a majority of the hauls being classified as NEP.

Table 2.9.1.2: Column Métier shows foCatEu6 level. Orig_n_hauls is the number of hauls classified according to today's procedure (i.e. by weight). (%) shows percentage of hauls from today´s métier classification that would be classified to the different target groups if the target group with the largest value in the haul was to be used for classification instead of today's classification based on weight.

Subdiv	Métier	Orig_n_hauls	(%)	Target_group
21	OTB_DEF	18	100.00	DEF
20	MIS_MIS	19	84.21	DEF
20	MIS_MIS	19	15.79	NEP

21	OTB_MCD	48	100.00	NEP
21	OTT_DEF	56	1.79	MOL
21	OTT_DEF	56	98.21	DEF
20	OTB_MCD	147	27.21	DEF
20	OTB_MCD	147	72.11	NEP
20	OTB_MCD	147	0.68	PRA
21	OTB_CRU	205	100.00	NEP
20	OTB_DEF	257	100.00	DEF
20	OTB_CRU	286	99.65	NEP
20	OTB_CRU	286	0.35	PRA
20	OTT_CRU	886	100.00	NEP
20	OTT_MCD	1016	19.59	DEF
20	OTT_MCD	1016	0.10	SPF
20	OTT_MCD	1016	80.31	NEP
21	OTT_MCD	1080	8.52	DEF
21	OTT_MCD	1080	91.48	NEP
21	OTT_CRU	1333	100.00	NEP
20	OTT_DEF	1595	100.00	DEF

Effect of assigning hauls with a value of NEP >20% and <80% of the catch to MCD

As shown in the yellow rows in the table below assigning hauls with a value of NEP between 20 and 80% of the catch to MCD will decrease the number of MCD hauls assigned according to today's methodology where hauls with a weight of NEP between 10 and 90% of the haul are assigned to MCD. As shown, the percentage of hauls assigned to MCD will be from 34.8% to 47.6% for different metiers and areas. As shown, a large percentage of MCD assigned métiers have hauls where the haul value of NEP in the catch is >80%. Thus, using a rule where hauls with a value of NEP is 20-80% of the catch are assigned to MCD, a large percentage of hauls will be assigned to CRU.

Table 2.9.1.3: Percentage of hauls per métier and area where 20-80% and >80% of haul value is due to NEP.

Métier	SD	No_hauls	NEP20_80%	NEP>80%
MIS_MIS	20	19	31.58	5.26
MIS_MIS	21	0	0.00	0.00
OTB_CRU	20	286	0.00	99.65
OTB_CRU	21	205	0.00	100.00
OTB_DEF	20	257	5.06	0.00
OTB_DEF	21	18	0.00	0.00
OTB_MCD	20	147	47.62	45.58
OTB_MCD	21	48	39.58	60.42
OTT_CRU	20	886	0.00	100.00
OTT_CRU	21	1333	0.00	100.00
OTT_DEF	20	1595	4.14	0.00
OTT_DEF	21	56	3.57	0.00
OTT_MCD	20	1016	46.75	51.18

OTT_MCD	21	1080	34.81	63.52

Scatterplot of haul value due to NEP versus haul value due to DEF

As shown in the scatterplot below, hauls with a high value of NEP will be removed from MCD by using the value interval 20-80% for NEP. As can also be seen in the figure there are hauls with a high value of DEF classified as MCD which probably could be moved to DEF to get the MCD group more stringent.

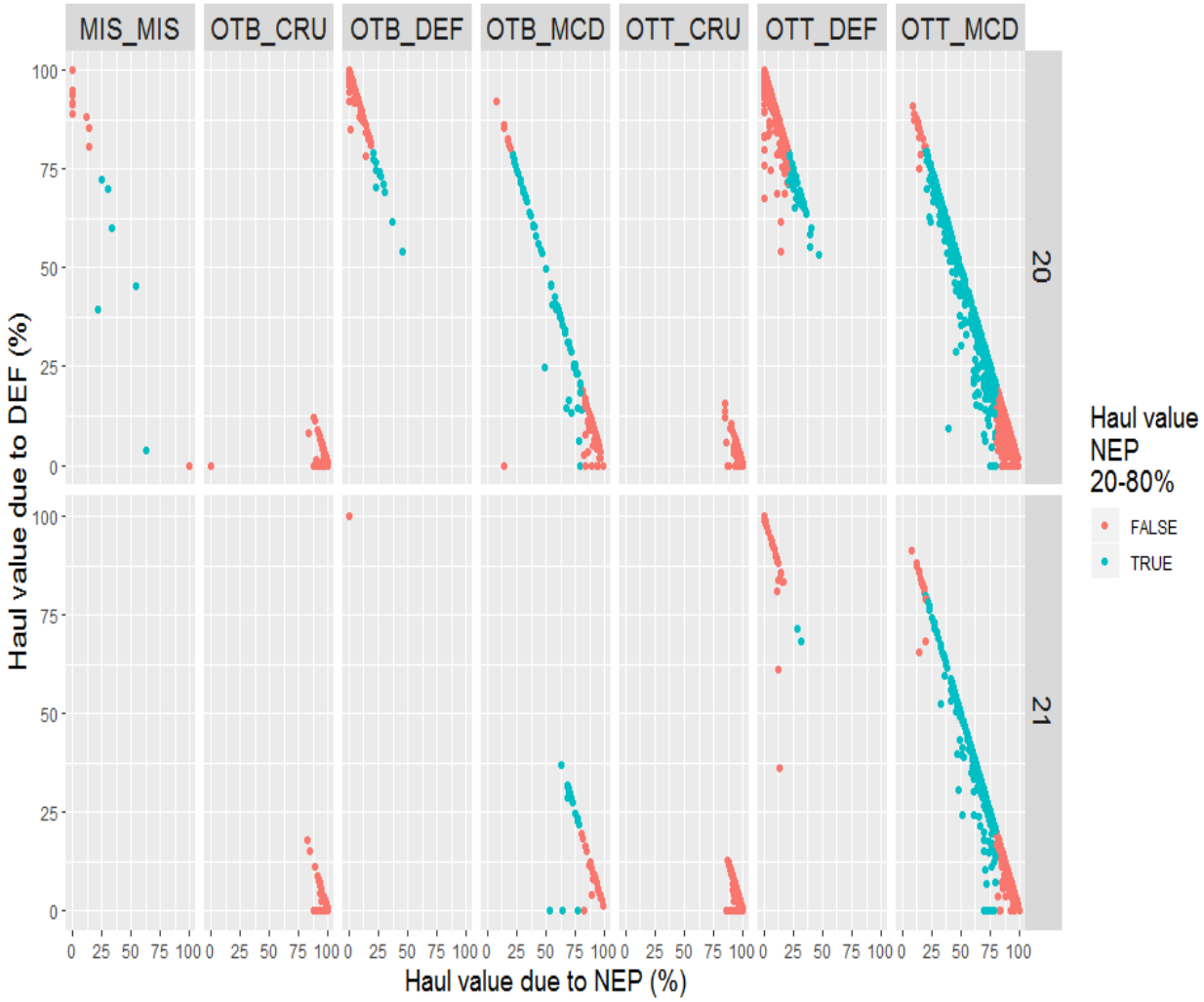

Figure 2.9.1.7: Percentage NEP by value in the haul versus percentage DEF by value in the haul. For hauls without target group included in the gear code, in SD20 and SD21.

To get further insight into the weight and value relationships, haul weight due to NEP is plotted versus haul weight due to DEF. Hauls where the value of NEP is 20-80% of the catch value are highlighted.

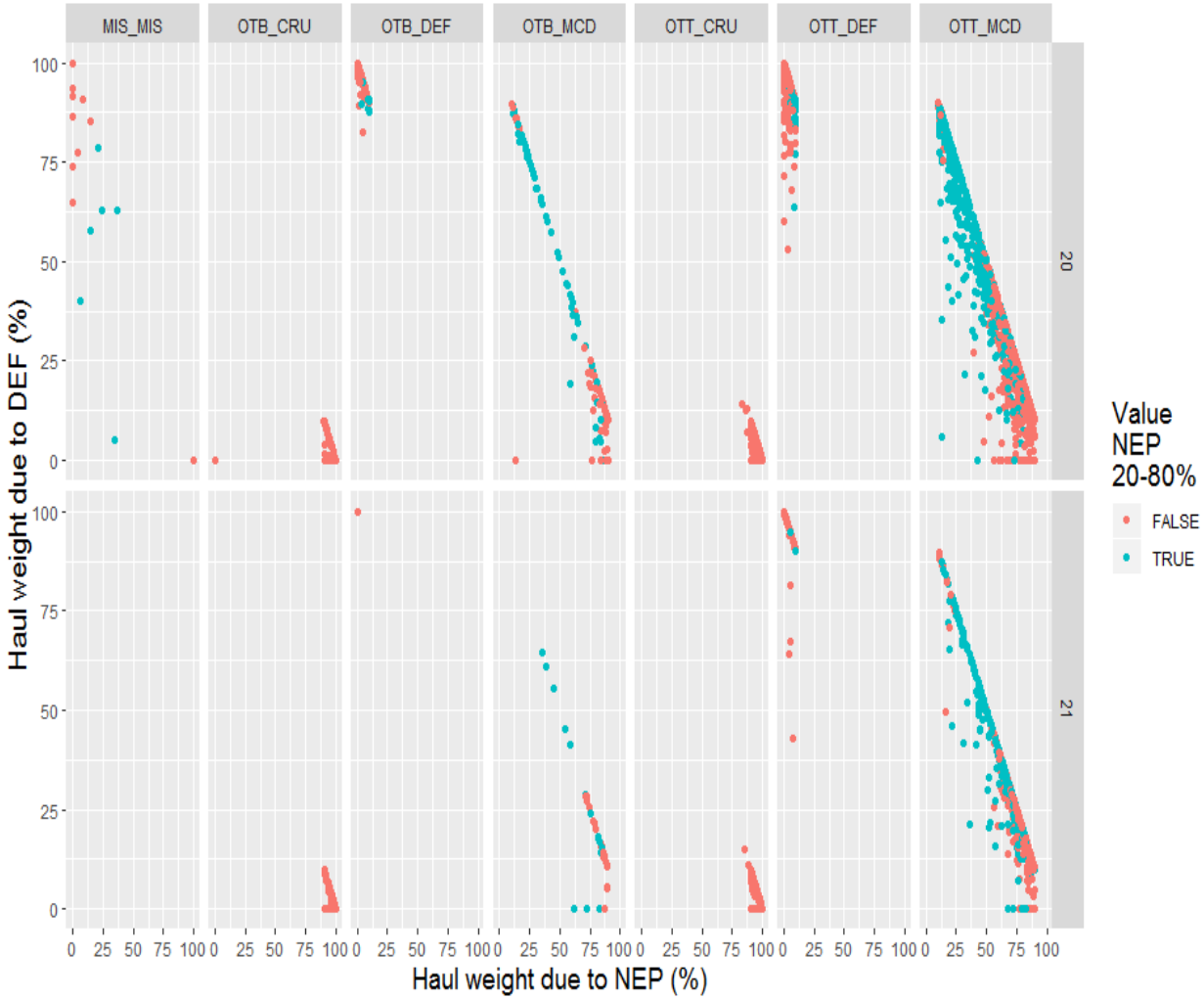

Figure 2.9.1.8: Haul weight due to NEP versus haul weight due to DEF for hauls without target group included in the gear code, in SD20 and SD21.

Conclusions

These analyses show that the current method for classifying target group MCD for the Swedish trawl fishery in SD20 and SD21 in 27.3.a have the potential to be refined. Today, for many hauls assigned as MCD the value of NEP is >80% of the catch. It could be argued that these hauls should be assigned as CRU instead if target group assignment should mirror the intention of the fishing operation. The range used to assign hauls to MCD, i.e. 20-80% of the catch value due to Norway lobster, in these analyses is merely a test and can be adjusted even further.

3. Participants

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Annex 1: Template for documentation by MS (ToR 2)

Country (MS	Supra region	Vessel length	Data sources		Level of the métier assignement	Basis for gear determination	Basis for gear' mesh size determination	Basis for gear' selective device determination
			Activity data (aka transversal data)	Auxiliary data				
FRA (France)	e.g. '– Baltic Sea, North Sea and Eastern Arctic and North atlantic – Mediterranean Sea and Black Sea – Other region – Long-distance fisheries	**e.g. in particular to distinguish vessels with logbooks (>+8/10 m length) and vessels without logbooks (<8/10m length). Separate lines by vessel length have to be informed only if they are structural/significant changes in the way to assign metier otherwise vessel length should be aggregated (e.g. <10m and >=10m)**	e.g. logbooks data, sales note data, on-site sampling program data (1), vessels sampling program data (2), vessels self sampling data, geolocalization data, ...	e.g. EU fishing fleet register, vessels fishing licenses data, vessels fishing permit/autorization data, stakeholder interviews, fishing activity calendar, fisheries/fleets regulations, expert knowledge *(e.g. seasonality, ...(. ...*	e.g. fishing operation, fishing sequence (3), fishing trip, group of fishing trips, vessel*month, vessel*year, ... *follow-up question* : fishing area determining or not ? If yes at which level *(e.g. ICES division)* ?	e.g. logbooks data, species composition/expert knowledge, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, EU fishing fleet register, ... *follow-up question:* Reference table to aggregate gears into gears types ?	e.g. logbooks data, species composition/expert knowledge, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, fisheries/fleets regulations, expert knowledge, ...	e.g. logbooks data (4), species composition/expert knowledge, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, fisheries/fleets regulations, expert knowledge, ...
			e.g. declarative forms data, sales note data, on-site sampling program data (1), vessels sampling program data (2), vessels self sampling data, geolocalization data, ...	e.g. EU fishing fleet register, vessels fishing licenses data, vessels fishing permit/autorization data, stakeholder interviews, fishing activity calendar, fisheries/fleets regulations, expert knowledge *(e.g. seasonality, ...(. ...*	e.g. fishing operation, fishing sequence (3), fishing trip, group of fishing trips, vessel*month, vessel*year, ... *follow-up question* : fishing area determining or not ? If yes at which level *(e.g. ICES division)* ?	e.g. declarative forms data, species composition/expert knowledge, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, EU fishing fleet register, ... *follow-up question:* Reference table to aggregate gears into gears types ?	e.g. declarative forms data, species composition/expert knowledge, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, fisheries/fleets regulations, expert knowledge, ...	e.g. declarative forms data (4), species composition/expert knowledge, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, fisheries/fleets regulations, expert knowledge, ...

(1) e.g. catch assessment survey, (2) e.g. reference fleet survey, (3) aggrégation of similar fishing operations within a fishing trip by e.g. day/gear/mesh size/dimension, (4) e.g. national gear codification including selective device information

Country (MS	Supra region	Vessel length	Target specie/group of species determination methodology				Possibility to define several métiers by fishing trip ?
			Declared, Deducted/derived or Estimated ?	If Estimated			
				Basis for target specie/group of species determination	Specie, List of species or Group of species ?	Calculation rule	Metric	
FRA (France)	e.g. '– Baltic Sea, North Sea and Eastern Arctic and North atlantic – Mediterranean Sea and Black Sea – Other region – Long-distance fisheries	**e.g. in particular to distinguish vessels with logbooks (>+8/10 m length) and vessels without logbooks (<8/10m length). Separate lines by vessel length have to be informed only if they are structural/significant changes in the way to assign metier otherwise vessel length should be aggregated (e.g. <10m and >=10m)**	e.g. **Included** in the logbooks forms *(fisherman 'intended target specie/group of species declared)* , **Deducted/derived** straightforward from the gear/mesh size used *(expert knowledge)* , **To be defined/estimated** at the end of the trips on the basis of the declarative data available *(target specie/group of species based on the fishing trip 'results)* , ...	e.g. logbooks data, sales note data, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, expert knowledge, ...	e.g. target specie, group of target species, species composition profile, list of determinant/indicator/discriminative species, ... *follow-up question* : Reference table to aggregate species into group of species ? Hierarchical table ? One specie <-> One group of species table ?	e.g. first principal target specie or group of species, combination of first tops target species/group of species, decision rule based on threshold percentage by determinant/indicator species/group of species, ... + expert knowledge ?	e.g. landings weight, landings value, landings weight and value depending of the species, ... *follow-up question:* are discards or BMS landings taking into account ?	e.g. **yes** *(métier defined by fishing sequence (3) /fishing operation)* or **no** only one métier is defined by fishing trip *(metier defined by fishing trip/vessel*month, ... or defined by fishing sequence/fishing operation but only the principal métier is assigned to the fishing trip) , ...*
			e.g. **Included** in the declarative forms *(fisherman 'intended target specie/group of species declared)* , **Deducted/derived** straightforward from the gear/mesh size used *(expert knowledge)* , **To be defined/estimated** at the end of the trips on the basis of the declarative data available *(target specie/group of species based on the fishing trip 'results)*	e.g. declarative forms data, sales note data, stakeholder interviews, fishing activity calendar, vessels fishing licenses data, expert knowledge, ...	e.g. target specie, group of target species, species composition profile, list of determinant/indicator/discriminative species, ... *follow-up question* : Reference table to aggregate species into group of species ? Hierarchical table ? One specie <-> One group of species table ?	e.g. first principal target specie or group of species, combination of first tops target species/group of species, decision rule based on threshold percentage by determinant/indicator species/group of species, ... + expert knowledge ?	e.g. landings weight, landings value, landings weight and value depending of the species, ... *follow-up question:* are discards or BMS landings taking into account ?	e.g. **yes** *(métier defined by fishing sequence (3) /fishing operation)* or **no** only one métier is defined by fishing trip *(metier defined by fishing trip/vessel*month, ... or defined by fishing sequence/fishing operation but only the principal métier is assigned to the fishing trip) , ...*

(3) aggrégation of similar fishing operations within a fishing trip by e.g. day/gear/mesh size/dimension

Country (MS	Supra region	Vessel length	Validation	Consolidation	Fishing trip without landings	Other issues
FRA (France)	e.g. '– Baltic Sea, North Sea and Eastern Arctic and North atlantic – Mediterranean Sea and Black Sea – Other region – Long-distance fisheries	**e.g. in particular to distinguish vessels with logbooks (>+8/10 m length) and vessels without logbooks (<8/10m length). Separate lines by vessel length have to be informed only if they are structural/significant changes in the way to assign metier otherwise vessel length should be aggregated (e.g. <10m and >=10m)**	e.g. confronted with a list of frame of reference of métiers by region, misreporting/innacuracies *(e.g. gear used)* taking into account ? If yes how ?, ...	e.g expert knowledge, evaluation of the métier quality based on the knowledges of the vessel common practices – fisherisel/fleets regulation – vessels fishing licences, consolidation at the vessel level *('rare 'métiers remove, avoiding multiplication of métiers, definition of the vessel' fishing strategy (5)) , ...*	Small description of the methodology used to assign fishing trips without any landings *(zero landings fishing trips)* into métier.	Small description of any eventual other issues needing to be awared
			e.g. confronted with a list of frame of reference of métiers by region, misreporting/innacuracies *(e.g. gear used)* taking into account ? If yes how ?, ...	e.g expert knowledge, evaluation of the métier quality based on the knowledges of the vessel common practices – fisherisel/fleets regulation – vessels fishing licences, consolidation at the vessel level *('rare 'métiers remove, avoiding multiplication of métiers, definition of the vessel' fishing strategy (5)) , ...*	Small description of the methodology used to assign fishing trips without any landings *(zero landings fishing trips)* into métier.	Small description of any eventual other issues needing to be awared

(5) for example, a vessel could have a very opportunistic fishing strategy targeting all the demersal fish species (DEF) when another could target specific specie as Anglerfish (MNZ)

Annex 2: Examples of métier descriptions

Metier description report

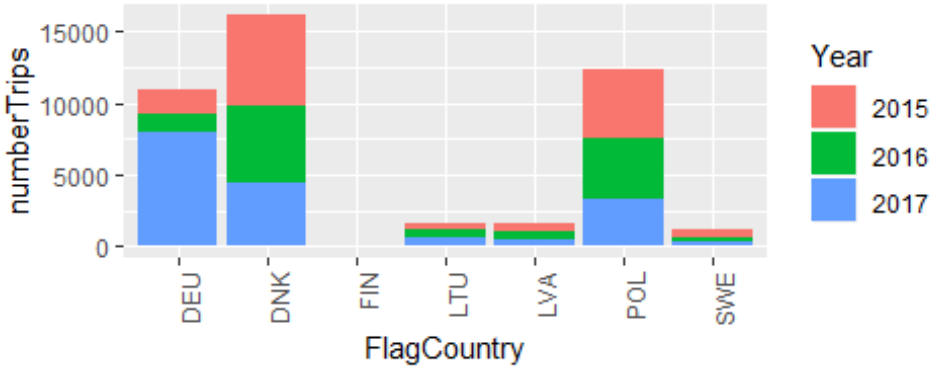
Josefine Egekvist, DTU Aqua

26 april, 2019

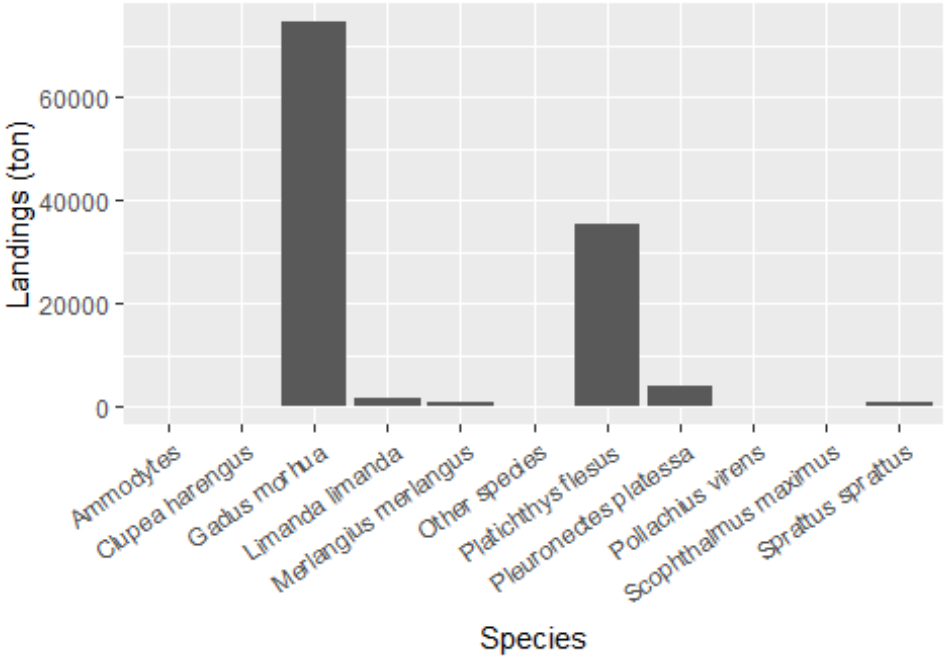
Region: Baltic Sea, Metier: OTB_DEF_>=105_1_120 , years: 2015,2016,2017

Data source: RDB CE and CL data

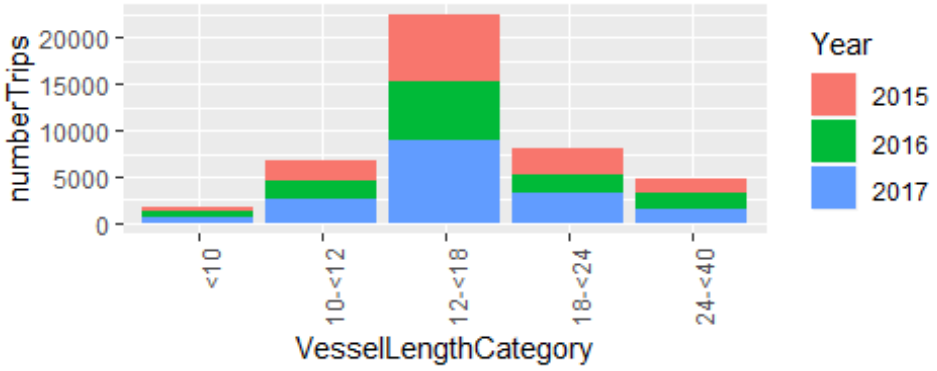
Number of trips by flag countries: DEU, DNK, FIN, LTU, LVA, POL, SWE



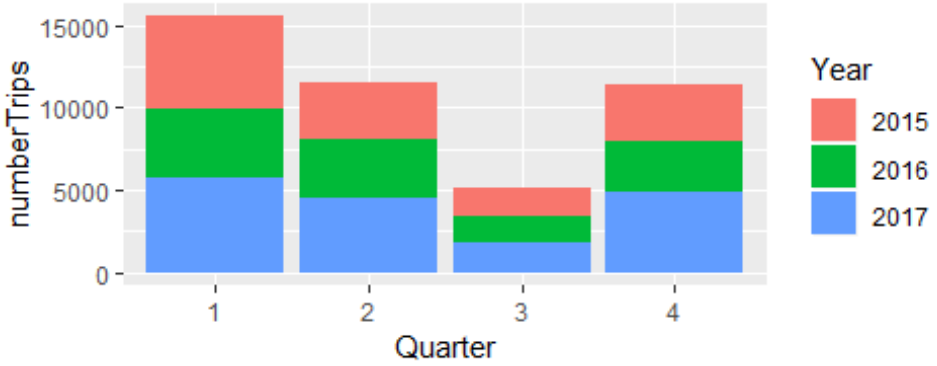
Top 10 species landed by metier. The rest are summarised in "Other species". Average yearly landings during the period 2015,2016,2017



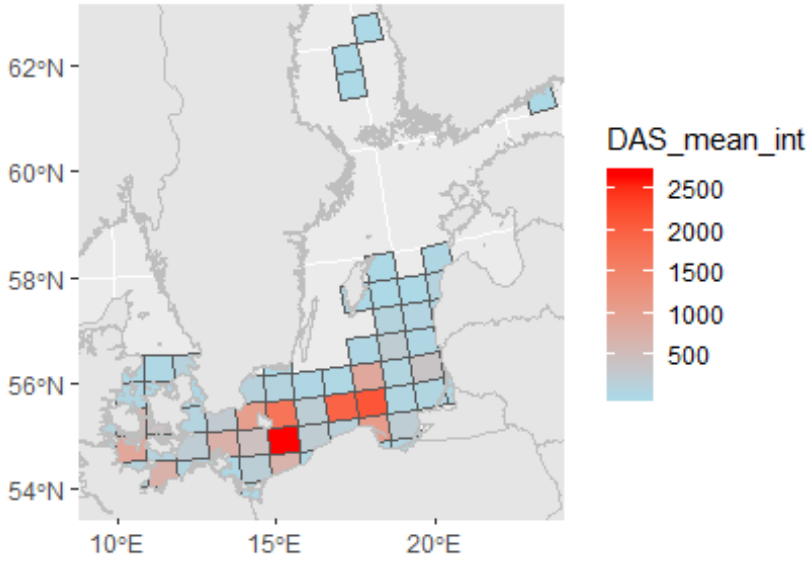
Number of vessels by vessel length group:



Seasonal pattern of fishing activity: Number of trips by quarter



Days at Sea by ICES rectangle, yearly average 2015-2017



Comments:

Metier description report

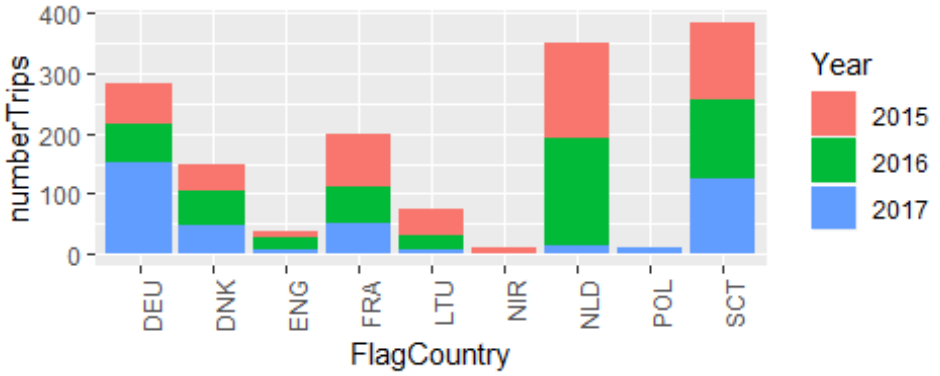
Josefine Egekvist, DTU Aqua

28 april, 2019

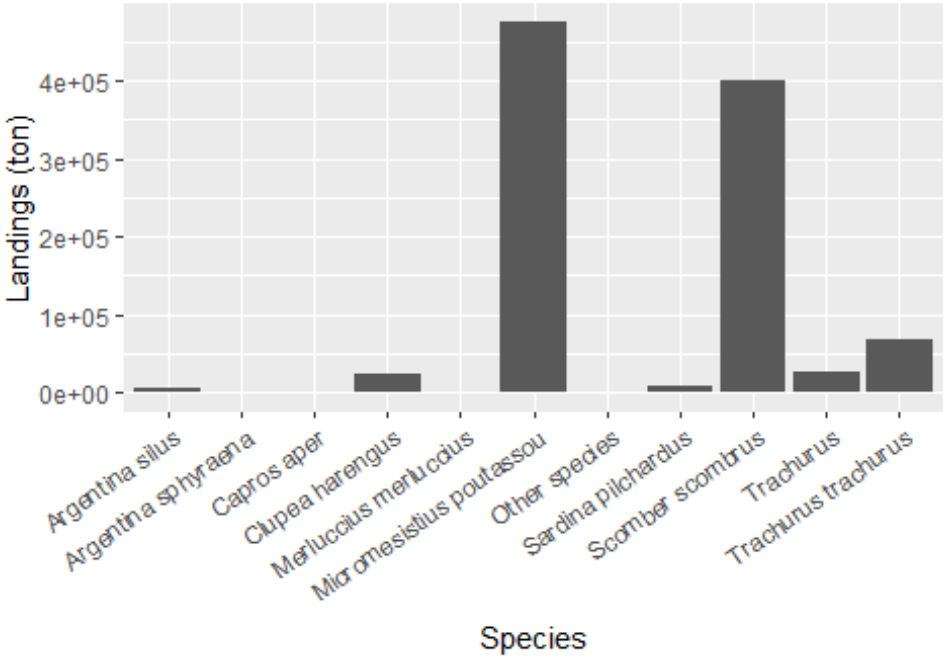
Region: North Atlantic, Metier: OTM_SPF_32-69_0_0 , years: 2015,2016,2017

Data source: RDB CE and CL data

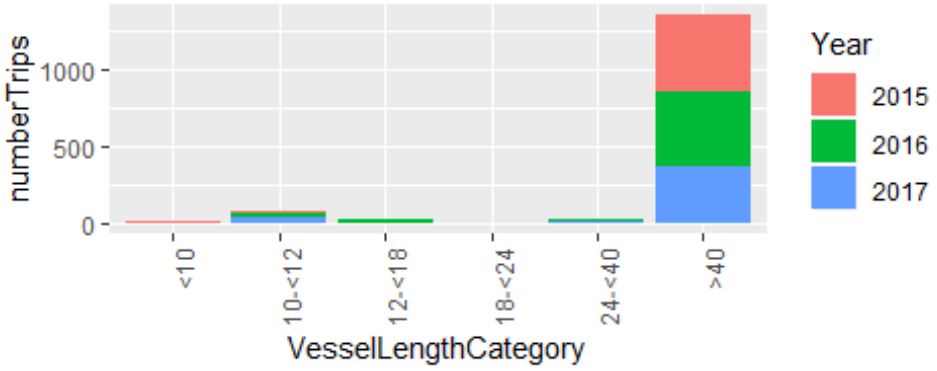
Number of trips by flag countries: LTU, DNK, SCT, ENG, FRA, NIR, NLD, DEU, POL



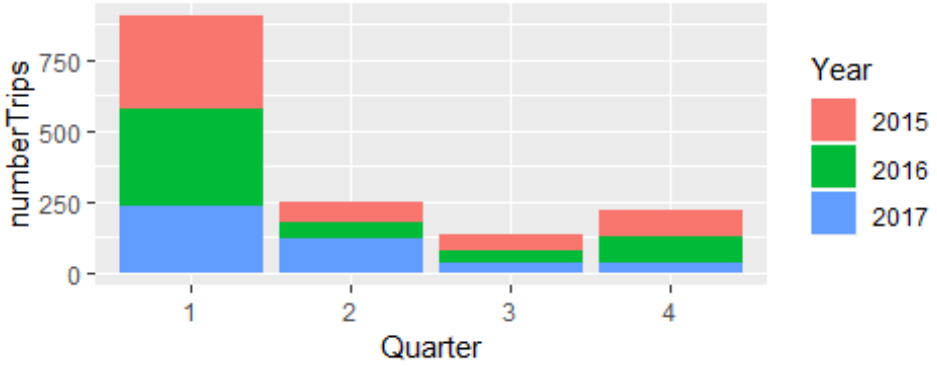
Top 10 species landed by metier. The rest are summarised in "Other species". Average yearly landings during the period 2015,2016,2017



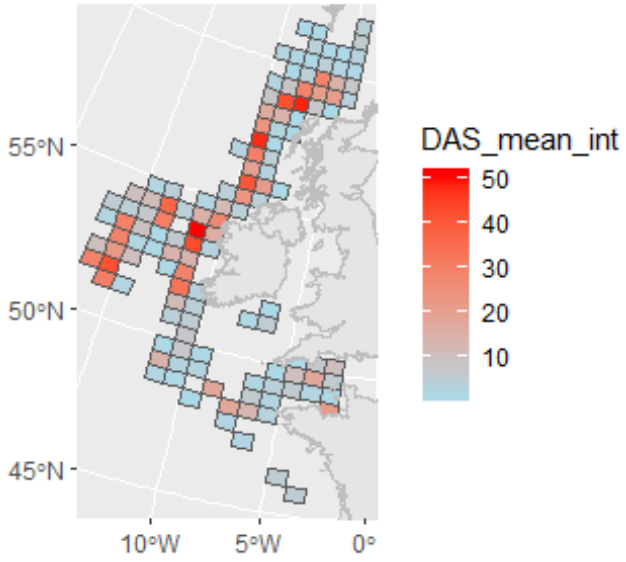
Number of vessels by vessel length group:



Seasonal pattern of fishing activity: Number of trips by quarter



Days at Sea by ICES rectangle, yearly average 2015-2017



Comments:

Metier description report

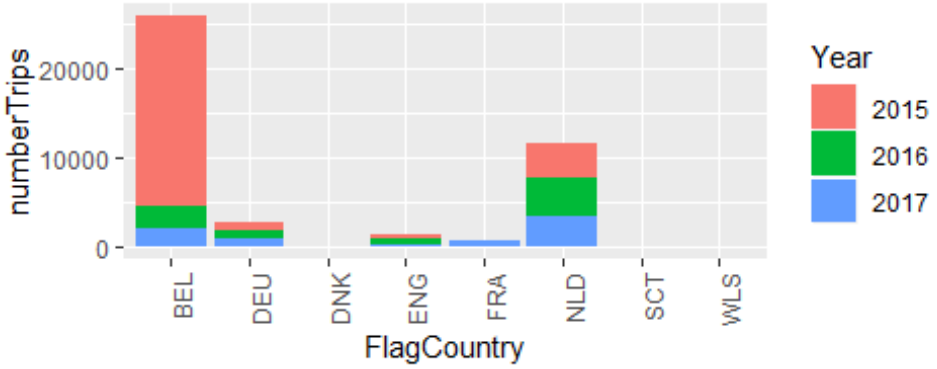
Josefine Egekvist, DTU Aqua

28 april, 2019

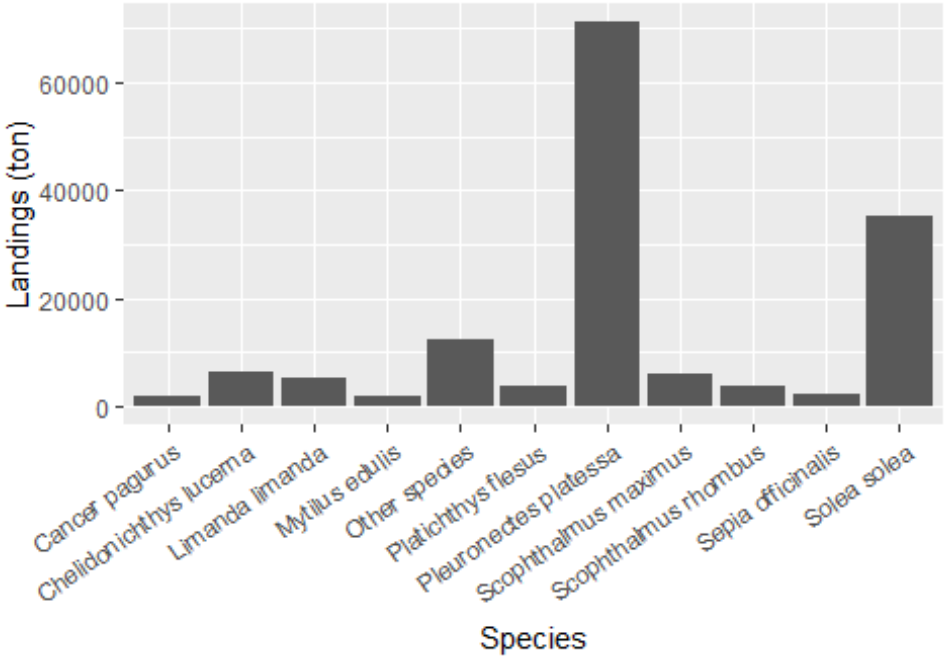
Region: North Sea and Eastern Arctic, Metier: TBB_DEF_70-99_0_0 , years: 2015,2016,2017

Data source: RDB CE and CL data

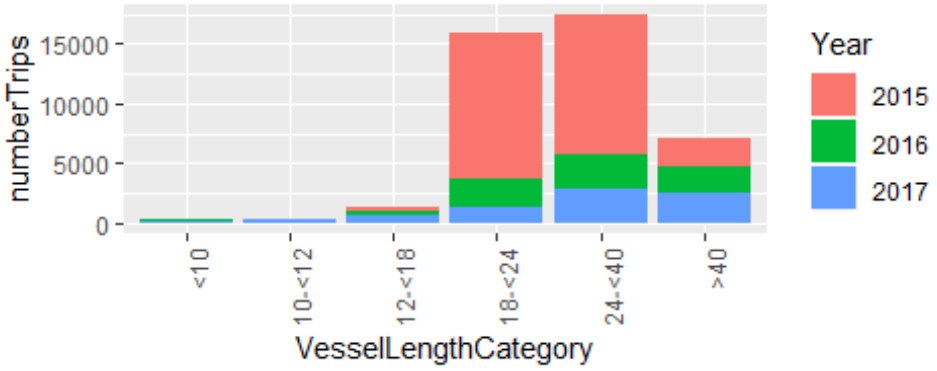
Number of trips by flag countries: BEL, DEU, ENG, NLD, SCT, WLS, DNK, FRA, IRL



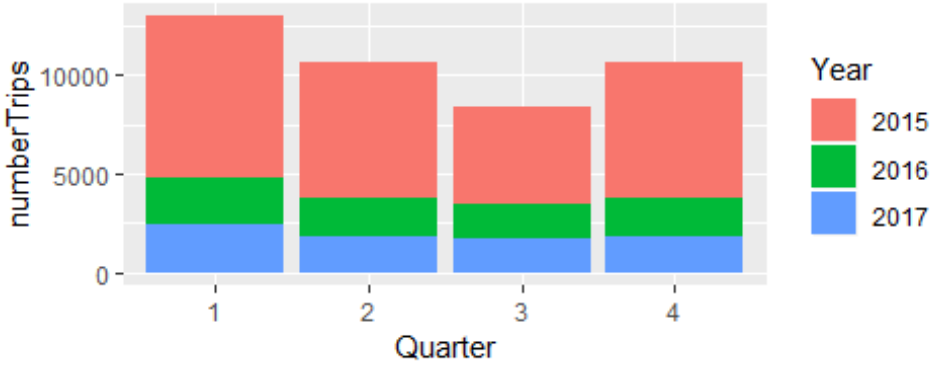
Top 10 species landed by metier. The rest are summarised in "Other species". Average yearly landings during the period 2015,2016,2017



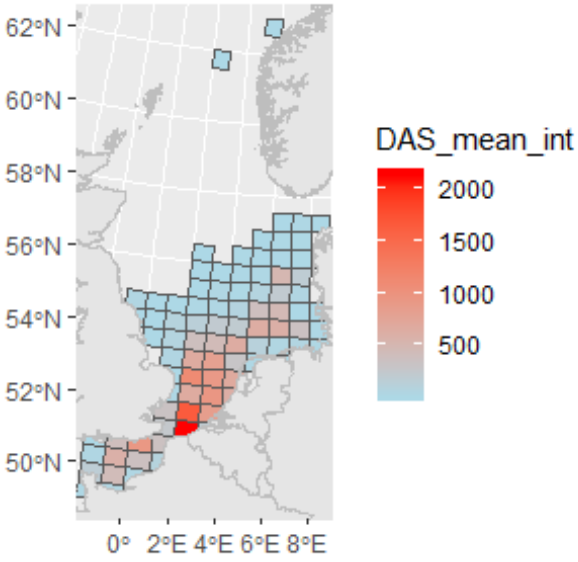
Number of vessels by vessel length group:



Seasonal pattern of fishing activity: Number of trips by quarter



Days at Sea by ICES rectangle, yearly average 2015-2017



Comments:

Annex 3: Proposed métier structure

Baltic Sea

RCG	Metier	Suggested structure	Species group
BS	FYK_ANA_>0_0_0	For FYK,FPN,FPO, FIX to use >0_0_0	ANA
BS	FPN_ANA_>0_0_0		ANA
BS	FPO_ANA_>0_0_0		ANA
BS	FPN_CAT_>0_0_0		CAT
BS	FYK_CAT_>0_0_0		CAT
BS	FPO_CAT_>0_0_0		CAT
BS	FYK_DEF_>0_0_0		DEF
BS	FPN_DEF_>0_0_0		DEF
BS	FPO_DEF_>0_0_0		DEF
BS	FPN_FWS_>0_0_0		FWS
BS	FYK_FWS_>0_0_0		FWS
BS	FPO_FWS_>0_0_0		FWS
BS	FYK_SPF_>0_0_0		SPF
BS	FPN_SPF_>0_0_0		SPF
BS	FPO_SPF_>0_0_0		SPF
BS	LHP_FIF_0_0_0	For LLS, LHP, LLD, LHM, LTL to use _0_0_0	FIF
BS	LLD_ANA_0_0_0		ANA
BS	LLD_SPF_0_0_0		SPF
BS	LLS_ANA_0_0_0		ANA
BS	LLS_CAT_0_0_0		CAT
BS	LLS_DEF_0_0_0		DEF
BS	LLS_FWS_0_0_0		FWS
BS	LLS_SPF_0_0_0		SPF
BS	GNS_CAT_>0_0_0	>0_0_0 if mesh size unknown	CAT
BS	GNS_FWS_>0_0_0		FWS
BS	GTR_FWS_>0_0_0		FWS
BS	OTB_FWS_>0_0_0		FWS
BS	SB_FIF_>0_0_0		FIF
BS	OTB_CRU_>0_0_0		CRU
BS	OTM_FWS_>0_0_0		FWS
BS	OTT_CRU_>0_0_0		CRU
BS	PTB_FWS_>0_0_0		FWS
BS	PTM_FWS_>0_0_0		FWS
BS	SSC_FWS_>0_0_0		FWS
BS	GND_ANA_>=157_0_0	GND gear is prohibited	ANA
BS	GNS_ANA_>=157_0_0	Proposal for a standardization/harmonization of the mesh-size ranges of passive gears=> 16-31/32-89/90-109/110-156/>=157	ANA
BS	GNS_ANA_110-156_0_0		ANA
BS	GNS_ANA_90-109_0_0		ANA
BS	GNS_DEF_>=157_0_0		DEF
BS	GNS_DEF_110-156_0_0		DEF
BS	GNS_DEF_60-79_0_0		DEF
BS	GNS_DEF_90-109_0_0		DEF
BS	GNS_SPF_>=157_0_0		SPF
BS	GNS_SPF_110-156_0_0		SPF
BS	GNS_SPF_16-109_0_0		SPF
BS	GNS_SPF_32-109_0_0		SPF
BS	GTR_DEF_>=157_0_0		DEF
BS	GTR_DEF_110-156_0_0		DEF

BS	GTR_DEF_90-109_0_0		DEF
BS	GTR_SPF_>=157_0_0		SPF
BS	GTR_SPF_110-156_0_0		SPF
BS	GTR_SPF_16-109_0_0		SPF
BS	GTR_SPF_32-109_0_0		SPF
BS	MIS_MIS_0_0_0	For missing gears	MIS
BS	OTB_DEF_<16_0_0	Proposal for a standardization/harmonization of the mesh-size ranges of active gears=> <16/ 16-31/32-89/90-104/>=105, since 2018 for T90 >=115	DEF
BS	OTB_DEF_>=105_1_110		DEF
BS	OTB_DEF_>=105_1_120		DEF
BS	OTB_DEF_>=110_0_0		DEF
BS	OTB_DEF_>=120_0_0		DEF
BS	OTB_DEF_90-104_0_0		DEF
BS	OTB_SPF_>=105_1_110		SPF
BS	OTB_SPF_>=105_1_120		SPF
BS	OTB_SPF_>=120_0_0		SPF
BS	OTB_SPF_16-104_0_0		SPF
BS	OTB_SPF_16-31_0_0		SPF
BS	OTB_SPF_32-104_0_0		SPF
BS	OTB_SPF_32-89_0_0		SPF
BS	OTB_SPF_90-104_0_0		SPF
BS	OTM_DEF_<16_0_0		DEF
BS	OTM_DEF_>=105_1_110		DEF
BS	OTM_DEF_>=105_1_120		DEF
BS	OTM_DEF_>=120_0_0		DEF
BS	OTM_DEF_90-104_0_0		DEF
BS	OTM_SPF_>=105_1_110		SPF
BS	OTM_SPF_>=105_1_120		SPF
BS	OTM_SPF_>=120_0_0		SPF
BS	OTM_SPF_16-104_0_0		SPF
BS	OTM_SPF_16-31_0_0		SPF
BS	OTM_SPF_32-104_0_0		SPF
BS	OTM_SPF_32-89_0_0		SPF
BS	OTM_SPF_90-104_0_0		SPF
BS	OTT_DEF_<16_0_0		DEF
BS	OTT_DEF_>=105_1_110		DEF
BS	OTT_DEF_>=105_1_120		DEF
BS	OTT_DEF_>=120_0_0		DEF
BS	OTT_DEF_90-104_0_0		DEF
BS	OTT_SPF_>=105_1_110		SPF
BS	OTT_SPF_>=105_1_120		SPF
BS	OTT_SPF_>=120_0_0		SPF
BS	OTT_SPF_16-104_0_0		SPF
BS	OTT_SPF_16-31_0_0		SPF
BS	OTT_SPF_32-104_0_0		SPF
BS	OTT_SPF_32-89_0_0		SPF
BS	OTT_SPF_90-104_0_0		SPF
BS	PS_SPF_>=105_1_110		SPF
BS	PS_SPF_>=105_1_120		SPF
BS	PS_SPF_>=120_0_0		SPF
BS	PS_SPF_16-104_0_0		SPF
BS	PS_SPF_16-31_0_0		SPF
BS	PS_SPF_32-104_0_0		SPF
BS	PS_SPF_32-89_0_0		SPF
BS	PS_SPF_90-104_0_0		SPF

BS	PTB_DEF_<16_0_0		DEF
BS	PTB_DEF_>=105_1_110		DEF
BS	PTB_DEF_>=105_1_120		DEF
BS	PTB_DEF_>=120_0_0		DEF
BS	PTB_DEF_90-104_0_0		DEF
BS	PTB_SPF_>=105_1_110		SPF
BS	PTB_SPF_>=105_1_120		SPF
BS	PTB_SPF_16-104_0_0		SPF
BS	PTB_SPF_16-31_0_0		SPF
BS	PTB_SPF_32-104_0_0		SPF
BS	PTB_SPF_32-89_0_0		SPF
BS	PTB_SPF_90-104_0_0		SPF
BS	PTM_DEF_<16_0_0		DEF
BS	PTM_DEF_>=105_1_110		DEF
BS	PTM_DEF_>=105_1_120		DEF
BS	PTM_DEF_>=120_0_0		DEF
BS	PTM_DEF_90-104_0_0		DEF
BS	PTM_SPF_>=105_1_110		SPF
BS	PTM_SPF_>=105_1_120		SPF
BS	PTM_SPF_>=120_0_0		SPF
BS	PTM_SPF_16-104_0_0		SPF
BS	PTM_SPF_16-31_0_0		SPF
BS	PTM_SPF_32-104_0_0		SPF
BS	PTM_SPF_32-89_0_0		SPF
BS	PTM_SPF_90-104_0_0		SPF
BS	SDN_DEF_<16_0_0		DEF
BS	SDN_DEF_>=105_1_110		DEF
BS	SDN_DEF_>=105_1_120		DEF
BS	SDN_DEF_>=120_0_0		DEF
BS	SDN_DEF_90-104_0_0		DEF
BS	SDN_SPF_>=105_1_110		SPF
BS	SDN_SPF_>=105_1_120		SPF
BS	SDN_SPF_>=120_0_0		SPF
BS	SDN_SPF_16-104_0_0		SPF
BS	SDN_SPF_16-31_0_0		SPF
BS	SDN_SPF_32-104_0_0		SPF
BS	SDN_SPF_32-89_0_0		SPF
BS	SDN_SPF_90-104_0_0		SPF
BS	SPR_DEF_<16_0_0		DEF
BS	SPR_DEF_>=105_1_110		DEF
BS	SPR_DEF_>=105_1_120		DEF
BS	SPR_DEF_>=120_0_0		DEF
BS	SPR_DEF_90-104_0_0		DEF
BS	SSC_DEF_<16_0_0		DEF
BS	SSC_DEF_>=105_1_110		DEF
BS	SSC_DEF_>=105_1_120		DEF
BS	SSC_DEF_>=120_0_0		DEF
BS	SSC_DEF_90-104_0_0		DEF

North Sea and Eastern Arctic

For each metier of the list of metiers that was output in the 2018 DCF Métier workshop and for the North Sea and Eastern Arctic, a proposal of metier structure list (including mesh-size range harmonized/standardized) has been made (see the column “Comment”). The final metier structure list proposed can be found in the “MétierF” column where the column “Metier informed in ICES database” indicate if the metier has been or not declared in the current ICES database.

Written in red is a new mesh size range proposal in order to harmonize/standardize the mesh-size ranges and avoid overlapping.

Red-coloured means that the métier is not found in the ICES RDB (CE/CL) database. The RCG’s should evaluate the necessity to keep them.

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 3 NSEA”.

North Atlantic

For each metier of the list of metiers that was output in the 2018 DCF Métier workshop and for the North Sea and Eastern arctic, a proposal of metier structure list (including mesh-size range harmonized/standardized) has been made (see the column “Comment”). The final metier structure list proposed can be found in the “MétierF” column where the column “Metier informed in ICES database” indicate if the metier has been or not declared in the current ICES database.

Written in red is a new mesh size range proposal in order to harmonize/standardize the mesh-size ranges and avoid overlapping.

Red-coloured means that the métier is not found in the ICES RDB (CE/CL) database. The RCG’s should evaluate the necessity to keep them.

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 3 NA”.

Long distance fisheries

RCG	Metier	Suggested structure	Species group
LD	FPN_LPF_0_0_0		LPF
LD	FPO_CRU_30_0_0		CRU
LD	FPO_FIF_30_0_0	For FYK,FPN,FPO, FIX to use >0_0_0	FIF
LD	LHM_LPF_0_0_0		LPF
LD	LHP_FIF_0_0_0		FIF
LD	LHP_LPF_0_0_0		LPF
LD	LHP_MOL_0_0_0		MOL
LD	LHP_SPF_0_0_0		SPF
LD	LLD_DWF_0_0_0		DWF
LD	LLD_LPF_0_0_0		LPF
LD	LLS_DEF_0_0_0		DEF
LD	LLS_FIF_0_0_0		FIF
LD	LLS_MOL_0_0_0		MOL
LD	LLS_SPF_0_0_0		SPF
LD	LTL_LPF_0_0_0	For LLS, LHP, LLD, LHM, LTL to use _0_0_0	LPF
LD	MIS_DES_0_0_0		DES
LD	MISC_DEF_0_0_0		DEF
LD	MISC_FIF_0_0_0		FIF
LD	MISC_LPF_0_0_0		LPF
LD	MISC_MOL_0_0_0		MOL
LD	MISC_SPF_0_0_0	For missing gears use 'MIS' not 'MISC'	SPF
LD	OTB_CEP_>=70_0_0		CEP
LD	OTB_CEP_>=70_0_0		CEP
LD	OTB_CRU_>=40_0_0		CRU
LD	OTB_DEF_>=70_0_0	Proposal for a standardization/harmonization of the mesh-size ranges => 10-31/32-69/70-119/>=120 >0_0_0 if mesh-size unknown	DEF
LD	OTB_MCF_>=70_0_0		MCF
LD	OTM_LPF_>=70_0_0		LPF
LD	OTM_MCF_>=70_0_0		MCF
LD	OTM_SPF_>=40_0_0		SPF
LD	OTM_SPF_>=40_0_0		SPF
LD	OTM_SPF_32_69_0_0	Proposal for a standardization/harmonization of the mesh-size ranges => 10-31/32-69/70-119/>=120 >0_0_0 if mesh-size unknown	SPF
LD	OTM_SPF_45-65_0_0		SPF
LD	PS_LPF_>=14_0_0		LPF
LD	PS_LPF_0_0_0		LPF
LD	PS_LPF_14_0_0		LPF
LD	PS_SPF_0_0_0		SPF
LD	PS_SPF_10_0_0	Proposal for a standardization/harmonization of the mesh-size ranges => 10-31/32-69/70-119/>=120 >0_0_0 if mesh-size unknown	SPF
LD	PS_SPF_16_0_0		SPF
LD	PTM_LPF_>=55_0_0		LPF
LD	PTM_LPF_>=70_0_0		LPF
LD	PTM_LPF_0_0_0	Proposal for a standardization/harmonization of the mesh-size ranges => 10-31/32-69/70-119/>=120 >0_0_0 if mesh-size unknown	LPF
LD	PTM_LPF_100-119_0_0		LPF

Mediterranean

For each metier of the list of metiers that was output in the 2018 DCF Métier workshop and for the Mediterranean, a proposal of metier structure list (including mesh-size range harmonized/standardized) has been made (see the column “Comment”). The final metier structure list proposed can be find in the “MétierF” column.

Written in red is a new mesh size range proposal in order to harmonize/standardize the mesh-size ranges and avoid overlapping.

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 3 MED”.

Annex 4: Current métier codes in RDB and changes needed

Baltic Sea

Region	MetierLvl6	DEU	DNK	EST	FIN	IRL	LTU	LVA	POL	SWE	Proposal for metier mesh size range
BS	DRB_MOL_>=0_0_0		15								DRB_MOL_>0_0_0
BS	DRB_MOL_>0_0_0									12	no changes needed
BS	DRB_MOL_0_0_0	100									DRB_MOL_>0_0_0
BS	FPN_ANA_>0_0_0	50	565							613	no changes needed
BS	FPN_CAT_>0_0_0	391	11072							35107	no changes needed
BS	FPN_CRU_>0_0_0		794								no changes needed
BS	FPN_DEF_>0_0_0	602	3879							404	no changes needed
BS	FPN_FWS_>0_0_0	3192	102						8	1524	no changes needed
BS	FPN_SPF_>0_0_0	565	2924	1441				10071		393	no changes needed
BS	FPO_ANA_>0_0_0	2							1773	34373	no changes needed
BS	FPO_CAT_>0_0_0	1171	310						1485	6226	no changes needed
BS	FPO_CRU_>0_0_0								4	1	no changes needed
BS	FPO_CRU_0_0_0					1					FPO_CRU_>0_0_0
BS	FPO_DEF_>0_0_0	1531	158						2756	1245	no changes needed
BS	FPO_FIF_>0_0_0								1132		no changes needed
BS	FPO_FWS_>0_0_0	143			15082			8974	109746	7638	no changes needed
BS	FPO_MOL_>0_0_0		2								no changes needed
BS	FPO_MOL_0_0_0					2					FPO_MOL_>0_0_0
BS	FPO_SPF_>0_0_0	686	1				2671		9389	14	no changes needed
BS	FYK_ANA_>0_0_0				145551					1829	no changes needed
BS	FYK_CAT_>0_0_0		3							24684	no changes needed
BS	FYK_FWS_>0_0_0				181840			7589		1864	no changes needed
BS	FYK_SPF_>0_0_0				56083					3253	no changes needed
BS	GND_ANA_>=157_0_0		5						23	7	GND gear is prohibited
BS	GNS_ANA_>=157_0_0	1391	196					576	20782	368	no changes needed
BS	GNS_ANA_110-156_0_0		1070						1672	862	no changes needed
BS	GNS_ANA_90-109_0_0		1								no changes needed
BS	GNS_CAT_>0_0_0	1291	9273						204	200	if mesh size unknown
BS	GNS_CRU_>0_0_0		5437								if mesh size unknown
BS	GNS_DEF_>=157_0_0		36354				1570	178	6387	10114	no changes needed
BS	GNS_DEF_>=220_0_0							921			GNS_DEF_>=157_0_0
BS	GNS_DEF_110-156_0_0	85595	117432	61	492		6453	24290	185643	73992	no changes needed
BS	GNS_DEF_60-79_0_0							199			GNS_DEF_32-89_0_0
BS	GNS_DEF_90-109_0_0		707				35			50	no changes needed
BS	GNS_FWS_>0_0_0	33983	2091		714326		6203	18612	119518	70232	if mesh size unknown
BS	GNS_SPF_>=157_0_0		45						4	12	no changes needed
BS	GNS_SPF_110-156_0_0		673				474		29		no changes needed
BS	GNS_SPF_16-109_0_0				28800		115	14907	3	19078	GNS_SPF_16-31 or 32-89 or 90-109_0_0
BS	GNS_SPF_32-109_0_0	36811	2418				5317		20768	7865	GNS_SPF_32-89 or 90-109_0_0
BS	GTR_CAT_>0_0_0									175	if mesh size unknown
BS	GTR_DEF_>=157_0_0									2311	no changes needed
BS	GTR_DEF_0_0_0								3		if mesh size unknown GTR_CAT_>0_0_0
BS	GTR_DEF_110-156_0_0	18769								5326	no changes needed
BS	GTR_DEF_90-109_0_0									1	no changes needed
BS	GTR_FWS_>0_0_0	25							172	198	if mesh size unknown
BS	GTR_SPF_32-109_0_0	72								1	GTR_SPF_32-89 or 90-109_0_0

BS	LHP_FIF_0_0_0	175	303							860	no changes needed
BS	LLD_ANA_0_0_0	4	2017		452			6	4790	664	no changes needed
BS	LLD_DEF_0_0_0								3		no changes needed
BS	LLD_SPF_0_0_0		1						6		no changes needed
BS	LLS_ANA_0_0_0	19	329						51	9	no changes needed
BS	LLS_CAT_0_0_0	3204	545						2639	153	no changes needed
BS	LLS_DEF_0_0_0	1336	7401		16		153	532	10213	9746	no changes needed
BS	LLS_FWS_0_0_0	1479	11		18127				645		no changes needed
BS	LLS_SPF_0_0_0	87	22						159		no changes needed
BS	MIS_MIS_0_0_0		294		392				3	201	for missing gears
BS	No_logbook6					5					for missing gears MIS_MIS_0_0_0
BS	NULL	62			367						for missing gears MIS_MIS_0_0_0
BS	OTB_CAT_0_0_0	1									if mesh size unknown OTB_CAT_>0_0_0
BS	OTB_CRU_>0_0_0	21	507							1	if mesh size unknown
BS	OTB_DEF_<16_0_0	3	120						137		no changes needed
BS	OTB_DEF_>=105_1_110	2922	8646					337		2105	no changes needed
BS	OTB_DEF_>=105_1_120	22497	51781		105		4577	3635	38945	6631	no changes needed
BS	OTB_DEF_>=120_0_0					10	364			2278	for T90 trawls from 2018 OTB_DEF_>=115_0_0
BS	OTB_DEF_100-119_0_0					1					OTB_DEF_90-104_0_0
BS	OTB_DEF_90-104_0_0	7979	3654								no changes needed
BS	OTB_FWS_>0_0_0	321	5						4255	15	if mesh size unknown
BS	OTB_SPF_>=105_1_120		4								no changes needed
BS	OTB_SPF_>=120_0_0								108		for T90 trawls from 2018 OTB_SPF_>=115_0_0
BS	OTB_SPF_16-104_0_0	29	4							3554	OTB_SPF_16-31 or 32-89 or 90-104_0_0
BS	OTB_SPF_16-31_0_0	206	71				6	2	402	4783	no changes needed
BS	OTB_SPF_32-104_0_0	16	45						898	859	OTB_SPF_32-89 or 90-104_0_0
BS	OTB_SPF_32-89_0_0	130	74								no changes needed
BS	OTB_SPF_90-104_0_0		8								no changes needed
BS	OTM_DEF_<16_0_0		17						1523		no changes needed
BS	OTM_DEF_>=105_1_110	45	20	626						29	no changes needed
BS	OTM_DEF_>=105_1_120	247	62		775		54	42	157	98	no changes needed
BS	OTM_DEF_>=120_0_0						1			13	for T90 trawls from 2018 OTM_DEF_>=115_0_0
BS	OTM_DEF_90-104_0_0	1									no changes needed
BS	OTM_FWS_>0_0_0				1058						if mesh size unknown
BS	OTM_SPF_>=105_1_110		2								no changes needed
BS	OTM_SPF_>=105_1_120						1				no changes needed
BS	OTM_SPF_16-104_0_0	329	180	29784	35587		649		429	1844	OTM_SPF_16-31 or 32-89 or 90-104_0_0
BS	OTM_SPF_16-31_0_0	378	1092				2543	51825	19903	931	no changes needed
BS	OTM_SPF_32-104_0_0	19	683				248		9564	715	OTM_SPF_32-89 or 90-104_0_0
BS	OTM_SPF_32-69_0_0					6	3				OTM_SPF_32-89_0_0
BS	OTM_SPF_32-89_0_0	14	64				129		10580		no changes needed
BS	OTM_SPF_40-59_0_0						7				OTM_SPF_32-89_0_0
BS	OTT_CRU_>0_0_0									2	if mesh size unknown
BS	OTT_DEF_>=105_1_110									1	no changes needed
BS	OTT_DEF_>=105_1_120	4								2081	no changes needed
BS	OTT_DEF_>=120_0_0									187	for T90 trawls from 2018 OTT_DEF_>=115_0_0
BS	PS_SPF_16-31_0_0		1							874	no changes needed
BS	PS_SP-F_32-104_0_0									53	PS_SPF_32-89 or 90-104_0_0

BS	PTB_DEF_<16_0_0		526								no changes needed
BS	PTB_DEF_>=105_1_110	668	53							10	no changes needed
BS	PTB_DEF_>=105_1_120	4428	594						25	23	no changes needed
BS	PTB_DEF_90-104_0_0	1074	8								no changes needed
BS	PTB_FWS_>0_0_0	747								5139	if mesh size unknown
BS	PTB_SPF_>=105_1_110		2								no changes needed
BS	PTB_SPF_>=105_1_120		3						1		no changes needed
BS	PTB_SPF_16-104_0_0	11	11						2	139	PTB_SPF_16-31 or 32-89 or 90-104_0_0
BS	PTB_SPF_16-31_0_0	823	560						1198		no changes needed
BS	PTB_SPF_32-104_0_0	2099	428						1631	235	PTB_SPF_32-89 or 90-104_0_0
BS	PTB_SPF_32-89_0_0	885	86								no changes needed
BS	PTM_DEF_<16_0_0		936						3		no changes needed
BS	PTM_DEF_>=105_1_110		1								no changes needed
BS	PTM_DEF_>=105_1_120	65	12						2		no changes needed
BS	PTM_DEF_90-104_0_0	16	23								no changes needed
BS	PTM_FWS_>0_0_0	6	4		579						if mesh size unknown
BS	PTM_LPF_100-119_0_0					2					PTM_LPF_90-104_0_0
BS	PTM_LPF_32-69_0_0					1					PTM_LPF_32-89_0_0
BS	PTM_SPF_<16_0_0						45				no changes needed
BS	PTM_SPF_>=105_1_110		2								no changes needed
BS	PTM_SPF_>=105_1_120								1		no changes needed
BS	PTM_SPF_16-104_0_0	211	296				41		11	701	PTM_SPF_16-31 or 32-89 or 90-104_0_0
BS	PTM_SPF_16-31_0_0	419	1597				404	6	3070	838	no changes needed
BS	PTM_SPF_32-104_0_0	7624	1611						844	825	PTM_SPF_32-89 or 90-104_0_0
BS	PTM_SPF_32-69_0_0					5					PTM_SPF_32-89_0_0
BS	PTM_SPF_32-89_0_0	415	448								no changes needed
BS	PTM_SPF_90-104_0_0		1								no changes needed
BS	SB_FIF_>0_0_0								39	72	if mesh size unknown
BS	SDN_DEF_>=105_1_110	10	125					1582			no changes needed
BS	SDN_DEF_>=105_1_120	27	1055	75					30		no changes needed
BS	SDN_DEF_90-104_0_0		9								no changes needed
BS	SDN_SPF_32-104_0_0	1							55		SDN_SPF_32-89 or 90-104_0_0
BS	SSC_DEF_<16_0_0		1								no changes needed
BS	SSC_DEF_>=105_1_110	51	93								no changes needed
BS	SSC_DEF_>=105_1_120	60	418								no changes needed
BS	SSC_FWS_>0_0_0				429				44		if mesh size unknown

North Sea and Eastern Arctic

The list of metiers that was output in the 2018 DCF Métier workshop for the North Sea and Eastern arctic and the resulting proposed metier structure presented in ANNEX 3 has been compared with the current ICES RDB database and the metier codes nowadays used. This comparison highlight the changes needed with the new proposed metier structure and also highlight some adds/changes needed to this proposed metier structure list (metier to add or mesh-size range to expand).

Orange-coloured, metier found in the ICES RDB database but not listed in the proposed metier structure list presented in ANNEX 3. Integration of this metier into the list *(e.g. FPN_CAT)?*

Blue-coloured, proposal to expand the mesh-size ranges listed in the proposed metier structure list presented in ANNEX 3 *(e.g. add the possibility to have less than 90 mesh size range for the metier GND_DEF metier).*

Yellow-coloured, proposed re-codification of the current metier codes used into a metier code listed in the proposed metier structure list presented in ANNEX 3 *(e.g. FPO_DEF => FPO_FIF)*.

Green-coloured, proposed re-codification of the mesh-size range used in the current metier codes into the standardized mesh-size range proposed in the metier structure list presented in ANNEX 3 *(e.g. GND_DEF_>=100_0_0 => GNS_DEF_100-119 or GND_DEF_120-219 or GND_DEF_>=220_0_0)* and new mesh size range proposed not already used in order to harmonize/standardize the mesh size range *(e.g. GND_DEF_>0_0_0).*

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 4 NSEA”.

North Atlantic

The list of metiers that was output in the 2018 Métier workshop for the North Atlantic and the resultant proposed metier structure presented in ANNEX 3 has been compared with the current ICES RDB database and the metier codes nowadays used. This comparison highlight the changes needed with the new proposed metier structure and also highlight some adds/changes needed to this proposed metier structure list (metier to add or mesh-size range to expand).

Orange-coloured, metier informed in the ICES database but not listed in the proposed metier structure list presented in ANNEX 3. Integration of this metier into the list *(e.g. FPO_CAT)?*

Yellow-coloured, proposed trans codification of the current metier codes used into a metier code listed in the proposed metier structure list presented in ANNEX 3 *(e.g. FPO_DEF => FPO_FIF)*.

Green-coloured, proposed trans codification of the mesh-size range used in the current metier codes into the standardized mesh-size range proposed in the metier structure list presented in ANNEX 3 *(e.g. GND_DEF_>=100_0_0 => GNS_DEF_100-119 or GND_DEF_120-219 or GND_DEF_>=220_0_0)* and new mesh size range proposed not already used in order to harmonize/standardize the mesh size range *(e.g. GND_DEF_>0_0_0).*

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 4 NA”.

Annex 5: Comparison of the proposed list presented in ANNEX 3 with the French overview metier DCF5 North Sea and Eastern Arctic (2017).

North Sea and Eastern Arctic

Orange-coloured, metier found in the French overview *(nb vessels and vessel*month)* but not listed in the proposed metier structure list presented in ANNEX 3. Integration of this metier into the list *(e.g. FOO_MOL)*

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 5 NSEA”.

North Atlantic

Orange-coloured, metier informed in the French overview *(nb vessels and vessel*month)* but not listed in the proposed metier structure list presented in ANNEX 3. Integration of this metier into the list *(e.g. DIV_DES)*

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 5 NA”.

Mediterranean

Orange-coloured, metier informed in the French overview *(nb vessels and vessel*month)* but not listed in the proposed metier structure list presented in ANNEX 3. Integration of this metier into the list *(e.g. DIV_DES)*

Link to Excel file (copy the link and click “Download”): https://github.com/ices-eg/RCGs/blob/master/Metiers/Reference_lists/ANNEX_Report%20RCG%20ISSG%20on%20Metier%20Issues%2017052019_Metier_lists.xlsx. The list is in the sheet “ANNEX 5 MED”.