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EUMAP SOCIAL PILOT STUDIES EVALUATION REPORT

2021

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Contents

Background and introduction 4

General Observations and Conclusions 4

1 Austria 9

2 Croatia 13

3 Czech Republic 14

4 Denmark 15

5 Estonia 16

6 Finland 16

7 France 17

8 Germany 18

9 Greece 20

10 Ireland 21

11 Italy 23

12 Latvia 25

13 Lithuania 26

14 Malta 28

15 The Netherlands 29

16 Portugal 30

17 Romania 32

18 Spain 33

19 Slovenia 34

List of abbreviations 37

Background and introduction

Under the EU MAP 2017-2019, Member States had a possibility to execute pilot studies on four new areas of data collection: (1) recreational fisheries, (2) impacts on marine ecosystem, (3) employment data and (4) aquaculture environment. Short descriptions of these pilot studies are included in the work plans and annual reports. DG MARE intends to make an in-depth analysis of the outcomes and progress of the pilot studies - those already finished 2017-2019 and those still running for 2020-2021.

The Commission requested MS to submit a detailed but concise report in English (maximum 30 pages) with description of each pilot study (aim, methodology, available results, inclusion (or not) in regular sampling, difficulties encountered during the implementation, lessons learned and additional useful information). MS submitted their pilot studies reports by March 2021. However, some reports came later and/or did not follow the proposed format for the report.

The Commission then requested STECF to evaluate the pilot study reports, in first instance through specific ad-hoc contracts and then through the STECF Plenary. After endorsement by STECF Plenary, all reports will be publicly available on the DCF website under the annual reports and work plans section.

The following text refers to the assessment of Member States pilot studies on the collection of social variables: employment by education level and nationality, as per table 6 of the Commission Implementing Decision (EU) 2016/1251. According to the EUMAP social indicators must be collected each third year starting 2018. By the time when this report been written all EU countries had to provide social data collected to STECF data calls, therefore numeric results of data collection implementation are available through STECF reports: Social data in the EU fisheries sector (STECF-19-03), The EU Fish Processing Sector Economic Report (STECF-19-15) and The EU Aquaculture Sector – Economic report 2020 (STECF-20-12).

The report contains an overview of methodological strategies applied by EU Member States to implement social pilot studies and results achieved, as well as, analysis of individual countries approaches, methods used to collect social indicators, difficulties encountered, and lessons learned during implementation of pilot studies. This report can be used for future coordination of methodological development and harmonisation of the data collection approaches within the EUMAP. As well as for drafting of National data collection Work Plans and Regional Work Plans.

Under each countries section “Methodology and results of the pilot study” the social data collection general principles, such as list of data sources, survey sampling strategies and sampling techniques are provided. It aims to provide an overview of the social data collection strategy used by Member States and assist development of future best practice description for social data collection by RCG ECON.

The importance of social data in the frame of EUMAP been highlighted by several STECF working groups and in 2018 established ICES WGSOCIAL that aims to integrate social science to ICES. Social data collection enables monitoring of the impact of fisheries management policy on fishing communities during transition to MSY. The social dimension is part of the Common Fisheries Policy and was included within the Europe 2021-2027 strategy and furthermore a range of support measures are permitted under EMFAF Regulation ((EU) No 2021/1139) which “should contribute to achieving the environmental, economic, social and employment objectives of the CFP.

General Observations and Conclusions

This report provides an overview of reports provided by 19 EU Member States: pilot studies Nr.3 were implemented by 17 Member States, while one reported that social data collection is implemented by National Statistical Office on a regular basis starting 2019 and another provided methodology used to report economic and social data during the data call in 2019. Other Member States did not plan the pilot studies to collect social indicators and therefore did not have to report to the Commission.

Most of the pilot studies were implemented in fishing and aquaculture sectors. However, 7 MS presented results of pilots for the social data collection for processing sector.

The main strategy applied for all sectors implementing pilot studies in most Member States was the following:

- Investigate what kind of social information is already collected in the country and could be used for the EUMAP. Various sources of administrative information have been investigated, such as National Statistical institutions, Insurance companies, Employment offices, Taxations and Tax Agencies, Health organisations, companies reports for internal use. In addition research and studies implemented for the other purposes not directly related to the EU MAP but collecting social information under different regulations were checked.
- Determine what information is not yet available under administrative sources but needs to be obtained to fulfil the EU MAP obligations, or what information is available at another resolution and cannot be comparable with the EU MAP.
- Development of survey questionnaire to cover information needed.

- In many cases, the survey was combined with the economic survey or tested separately in order to merge data collection efforts in the future.

There was close cooperation with organizations professionally engaged in social surveys, and in some cases, psychologists were involved in compiling questions to make the survey clearer to the respondents. The data collectors and fisheries scientists were also in direct contact with respondents to provide the clarifications on the aims of the study and content of questionnaires.

Implementation period and reference year

The reference year in most of pilot studies was 2017 for the survey implemented in 2018. However, some pilot studies were prolonged to several years. It seems for most countries it is easier to add the social data collection to the economic survey and adopt the same reference year as for economic data. However, a few countries mentioned that it might be easier to collect data for the same reference year as the social data collection year.

From the survey implementation point of view, it might be easier to answer questions about current employees employed in the organisation, rather than asking about the previous years, especially in case of direct engagement (face to face or phone interviews). This might be important for Member States that mentioned that certain information might not be stored and collected within the companies, e.g., nationality of employees, or education level. However, in cases of data availability at company level and postal or online surveys implementation, use of consistent reference year throughout the questionnaire is important.

Variables: EU MAP and additional

All variables required in the EU MAP Table 6 were collected. In most cases, countries reported using definitions agreed by PGECON in 2017[1]. However, deviations and discrepancies related to the data resolution and groups could be mentioned.

The information about education level was collected in more detailed resolution defined in the International Standard Classification of Education (ISCED) 2011[2]. For example, the variable 'education level' that was proposed to group to 3 main groups by PGECON 2017 (low, medium and high education), can also be presented as the following groups proposed by ISCED 2011:

0 Early childhood education
1 Primary education
2 Lower secondary education
3 Upper secondary education
4 Post-secondary non-tertiary education
5 Short-cycle tertiary education
6 Bachelor's or equivalent level
7 Master's or equivalent level
8 Doctoral or equivalent level
9 Not elsewhere classified

In some cases, more detailed information was obtained about the 'workers on board' due to the additional requirements for such information requested by the end users, for example job roles on-board: skipper and/or navigators, ship engineers, ship deck personnel.

Additionally professional qualification was requested in some surveys for the following groups:

- task at work (owner, sailor, technician);
- employee profession (motorist, diver, engineer, navigator);
- professional qualifications (the International Standard Classification of Occupations (ISCO) were applied to indicate by qualification code the 'Employee position at work').

Some countries included other additional variables to their questionnaire forms:

- vocational trainings;
- information on residence (region and province);
- hours worked on the vessel and on land;
- average days of fishing /year;
- types of on shore activities;
- activities other than fishing but related to the sector (fishing tourism, processing industry, etc.);
- employment in other sectors;
- the role of women and family;
- employee hiring date.

Population and observation unit

[1] A. Motova, M. Elliott, E. Jackson, K. N. Andersen Social data collection sharing experience and identifying the best practices, PGECON WS report, 2017
[2] international-standard-classification-of-education-isced-2011-en.pdf (unesco.org)

The Statistical Classification of Economic Activities in the European Community (NACE Rev2) was used to identify the population (classes: Fleet 03.11, 03.12; Aquaculture 03.21, 03.22; Fish processing 10.20) by 7 countries; other countries used the same definitions as for the economic data collection. In aquaculture and fish processing the observation unit was enterprise (all employee during the year). For fishing sector two options were applied – enterprise and vessel. If the vessel was an observation unit and fleet population from Fleet Register was considered, collected social information could be separated by the fleet segments and linked to the economic data. Some countries collected the data per each employee, identifying each employees age, education, nationality and other EU MAP indicators, while others collected those indicators as defined by PGECON (e.g., employees by age groups, predefined nationalities, or similar). The latest approach makes combined grouping of indicators, such as for example mean age of skippers in the fishing sector impossible. In some cases, where the administrative sources were used for the data collection, the observation units were employees in the sector, however countries had issues allocating those employees to the specific vessels and fishing fleets.

The number of employees in the fish processing sector per company is normally bigger, therefore in some countries that collected social indicators for fishing sector per employee, data for fish processing sector was at company level grouped to the predefined groups within social indicators categories. In most cases predefined groups proposed by PGECON Workshop on Social Variables in 2017 was applied.

Collection of indicators at individual employees level should be preferred over predefined groups, as this approach gives higher flexibility for future analyses.

Survey and data collection process

Stratification: for the data delivered from the administrative sources, different types of stratification was applied. For the social data in aquaculture and fish processing sector, regional stratification was applied in some countries, while in most cases the data was stratified not for data collection purposes. For the fishing fleet the data in some cases was collected per fishing fleet, or grouped to small scale, large-scale and distant water fleet. Different resolution between economic and social data may cause issues in socio-economic analysis when the links between data sets should be provided.

Type of data collection scheme: in most cases, Census was used to implement the pilot studies. Census level information was also available from the administrative sources. However, when this type of data collection technique was used for the survey, response rates were quite low, except cases where countries introduced legal requirement to provide data. Some countries also mentioned in their conclusions that by the next data collection period (in 2021) they are planning to introduce social indicators to the legal framework that is expected to improve response rates. Probability Sample Survey (PSS), non- Probability Sample Survey (NPSS), the Indirect surveys and projections were applied by fewer Member States. The projections were used in those cases when shares calculated based on other social data sources were applied to the number of employees estimated by e.g., a fleet segment.

Two main types of data sources were used: administrative data from databases or national registers, and survey based on questionnaire forms. In a few cases, the data was recalculated from statistical/administrative data sources applying rates on number of employees available from the economic surveys.

Coverage (% from total population): for census the response rate was represented by a wide range of responses (from 18% to 100%). However, in cases of applied legal obligations to respond, or high-resolution administrative data sources, the countries reached response rates close to 100%. Four countries used Probability Sample Survey during their pilot studies. As are result those countries survey response rates variated between 7.5% and 26% depending on the sector and stratification unit.

Raising/estimation procedure: in most cases, countries avoided raising the data from the sample to the population. Seven countries mentioned that they raised social indicators from the samples collected to the population. Different types of proportions were used to estimate the totals, e.g., proportions using GT; average number of employees by fishing vessels and fleet segment, proportions applied to the number of employees within the strata.

Overall results

After implementation of the social pilot studies, most of the results were incorporated to the regular surveys. Fourteen Member States mentioned incorporating results of the pilot studies to the regular data collection or integrating social data collection to the economic surveys and questionnaire. Among those countries that integrated social data collection to the regular surveys, five Member States included social indicators to their annual economic survey. Annual frequency for the social data collection is considered clearer for respondents in their countries. In some Member States, the social indicators are planned to be collected each third year separately from economic data collection exercise. The frequency of the data collection (annual or three-annual) is chosen by Member State individually based on obtained experience during the pilot studies. Inclusion of additional survey questions, or additional survey form on an annual basis to the existing economic data collection might negatively affect the response rate and data quality for the economic survey. Especially in cases when it is already difficult to obtain necessary response rates and data submission is voluntary. Additional information making questionnaire too long and overloaded with questions might overload respondents and reduce willingness to participate in the survey.

In most cases, social-demographic data is not expected to change annually and survey implemented once in three or more years should provide reliable overview of the demographic situation in the sector. In such situations, the countries chose three-annual survey frequency as prescribed by the EU MAP.

The problem linking economic and social indicators may be relevant in the fishing sector in cases when the data is collected per company, or country using administrative sources, but not split by the vessels and fleet segments. Otherwise, the population should be in line with NACE Rev2 classification for all sectors (fleet, aquaculture, fish processing).

Combination of the administrative sources with data collected by survey provides a complete result. Clear information about the methodology how data was raised from sample to the population should be provided when Member States are using different types of data collection.

The inclusion of new additional variables in the data collection should be done with caution as expanding a list of variables in the questionnaire may reduce the quality of the data and response rate. It is also important to highlight that if additional variables are included in the survey, the purpose of these variables, how they are going to be used and clear definitions should be clarified before the expansion of the survey.

1 Austria

Pilot Study 3a

1.1 Methodology and results of the pilot study

The first aim of the pilot study was testing a methodology and find a suitable solution for collection of all variables covered by EUMAP (Table 6 and Table 7) by segments (defined in accordance to Table 9) in case data collection under the EUMAP becomes mandatory for Austria. The second aim was to create a suitable starting point to ensure optimum response in case if landlocked countries being subject to mandatory collection of socio-economic data in the future.

The pilot was conducted in two main steps:

1. Different existing databases with aquaculture statistic were analysed during the desk research identifying the availability of the socio- economic variables from Table 6 and 7.
2. A pilot data collection was designed and conducted via interviews. A questionnaire following EUMAP variables and their corresponding definitions as well as PGECON recommendations (definitions and calculation), was prepared and pre-tested. The questionnaire was very detailed, aiming to gain as much information as possible to evaluate and reduce the scope for potential future surveys, where reasonable.

Most of the data was collected during face-to-face interviews; phone interviews (satisfying results) and postal survey (dissatisfying results). To ensure a reasonable distinction between production, processing and marketing, the collected data referred to aquaculture primary production.

The survey was carried out using a stratified random sampling. Companies with similar characteristics (level of turnover; fish species group; type of production) were combined in strata. Average values for the sector were used for the monetary valuation of juvenile fish and spawn production, as in the aquaculture production statistics prices are only collected for edible fish. As a next step, companies were selected by random sampling from the defined strata. Strata that exhibited a very small number of companies (highest share of total production/turnover; recirculation systems) were aimed to be covered entirely by the survey.

Based on the survey data, the data for the individual strata was extrapolated to the overall population. For each company in the population a normal distribution was assumed for each of the extrapolated variables; in case the company took part in the survey, the available empirical data was used instead. The expected value, variance and correlations result from the calculated models were analysed to choose the extrapolation method. The model with the best fitting result for the available data per stratum was selected for the final extrapolation.

In the case of the aquaculture sector, however, only a small amount of data can be used as explanatory variables, since the sample is low, especially for economic variables. In addition to the general possibility of model errors, there is also the possibility of over- or underestimation in the case of limited survey data. Thus, a qualitative result of Pilot Study 3a is the conclusion that the heterogeneity of the sector and the limited data basis for statistical projections lead to high standard deviations and would partly require very large samples to obtain reliable estimates for some variables.

Table 1-1 Summary of the methodology used in Austrian pilot study 3a

	Aquaculture
Implementation Period and Duration	November 2017 – October 2019
Reference year	2017
Variables (EUMAP tab. 6)	EUMAP Table 6; Table 7 and Table 9
Additional variables	NA
Population	NACE Rev2 (classes: 03.22)
Observation unit	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	PSS
Stratification	Country (focus on trout or carp farming)
Data source	administrative data; survey data
Coverage (% from total population)	survey data – 13,4%
Raised Y/N [If raised what is the methodology collecting]	Yes [proportions]

1.2 Difficulties encountered and solutions

As the data was planned to be collected for aquaculture primary production, companies whose production does not fall into the primary production according to national guidelines, but into the processing area (e.g., caviar), were removed from the population due to lack of relevance.

The already existing data partly covers the required social variables, with a trade-off between the use of reliable sources and the coverage of the sector. There are no data sources for most of the economic data for the sector.

The review of the existing data has shown that the required segmentation EUMAP Table 9 cannot be applied to most of the existing data sets.

The results show that, due to the high heterogeneity of the sector, standard deviation for some variables is quite high (range between 3% for fish feed to 99% for non-EU/EWR employment). The method used would require significantly larger samples in order to obtain reliable data for variables currently exhibiting a high standard deviation.

Low response rate from companies with low production volumes. These are mostly small part-time farms or one-person businesses that consider their own importance for the sector to be too small and therefore do not want to take part in a survey.

The non- participation of some companies with the highest turnover in the sector makes the extrapolation of the data for the population more difficult, as it is particularly challenging to model not-surveyed companies within these very heterogeneous strata.

1.3 Conclusions

As a result of pilot study on the collection of socio-economic data, a comprehensive picture of data availability in the Austrian fisheries and aquaculture sectors was created. Possibilities to collect not yet available data sets were investigated and to the extent possible, made operational (first pilot data collection). Thereby, not only the possibility of collecting data and generating a pilot data set, but also

the practicability, proportionality as well as the technical optimisation of data collection were identified.

Direct contacts during the surveys lead to good data quality at company level but are very resource intensive. In general, it is considered by Austria that the survey effort for the aquaculture companies should be kept as low as possible to ensure compliance and sufficient response rates and avoid survey fatigue. Therefore, already existing data from administrative databases should be used at the best possible extent for potential future data collection, and a collection of not available data should only be carried out by means of a greatly reduced and thus time-saving survey at longer intervals.

Data reporting on weight of production, sales revenue from aquaculture production, costs of fish feed and livestock, as well as social variables (employment including age, education, nationality) was considered satisfactory. Depreciation, capital value and financial results data were not sufficiently reported.

At present, regular data sampling in Austria is not mandatory. In case regular data collection becomes mandatory, there are several options:

- ✓ To extend Austrian EUROSTAT data collection, as it is based on legal obligations.
- ✓ EMFF funding applications. Filling in application forms is mandatory, therefore sound responses can be expected. However, EMFF applications are spread over several years.
- ✓ To extend Austrian Agricultural Structure Survey. Every 10 years a full survey of all agricultural and forestry holdings exceeding a certain threshold is carried out. Currently, only marginal information on aquaculture is collected. This type of data collection is well established, but time interval between surveys is considerable.
- ✓ Surveys with longer time intervals, interpolated by virtual. This might be a constructive solution for the small-scale Austrian sector, avoiding the otherwise overburdening of farmers while gaining only subordinate relevant data compared to EU level.

Pilot Study 3b

1.4 Methodology and results of the pilot study

The aim of Pilot Study 3b was to develop and apply the typical farm approach for the Austrian aquaculture sector for the first time. The required data correspond to the variables in Tables 6 and 7, with segmentation defined according to Table 9.

The aim of Study 3b encompasses:

- ✓ the generation of socio-economic data of representative trout and carp farms,
- ✓ the statistical projection of the representative farms on the corresponding segment level of the overall population,
- ✓ the further methodical development as a basis for a possible sector-specific data collection.

Typical farms of Austrian trout and carp production are established as baseline of the current prevailing practice and cost structure. Using these empirically grounded ‘virtual’ farm datasets, generated in focus groups, a structured preparation of key sector-specific data on economic indicators was performed. In applying the typical farm approach, a structured preparation of key sector-specific data on social and economic indicators were performed and typical model farms for trout and carp production for two major Austrian aquaculture production regions were defined.

The typical farm approach represents a data acquisition strategy for key figures and operational indicators of agricultural companies based on so-called model farms. It does not generate empirical,

but virtual data for sector-typical model farms. The methodology is used for agricultural data analysis by statistical and research institutions (Langrell et al. 2012).

Table 1-2 Summary of the methodology used in Austrian pilot study 3b

	Aquaculture
Implementation Period and Duration	April 2020 – March 2021 (was extended till September 2021 due to COVID -19
Reference year	Ongoing
Variables (EUMAP)	identification of variables ongoing
Additional variables	identification of variables ongoing
Population	Enterprises in two major Austrian aquaculture production regions which exhibit the highest production for carp and trout.
Observation unit	Enterprise based on 'model' farms
Type of data collection scheme (Census, PSS, Non-PSS)	Projections
Stratification	Lower Austria – NUTS: AT 12 Upper Austria – NUTS: AT 31
Data source	survey tool/ model data
Coverage (% from total population)	NA
Raised Y/N [If raised what is the methodology collecting]	NA

1.5 Difficulties encountered and solutions

Pilot Study 3b is still under development.

1.6 Conclusions

Pilot Study 3b focuses on a method for data interpolation by the so-called typical farm approach. To make use of “simplified methodologies” is possible for Member States whose aquaculture production is below the threshold of 2.5 % of overall EU production. This might be a constructive solution for the small-scale Austrian sector.

Pilot Study 3b is still under development. Therefore, no outcomes or recommendations can yet be reported.

2 Croatia

2.1 Methodology and results of the pilot study

The aim of the pilot study was to analyse the feasibility of collecting social variables as indicated in the Table 6 of the EUMAP Regulation, separately for the fishing and aquaculture sectors.

Social information was collected as part of economic survey in 2018. Additional questionnaire was designed and added to the survey. Questionnaires requested to provide data per employee. Data collection was conducted by phone contacts with respondents, introducing them to the data collection, and sending questionnaires with fill in guidelines by post or email. The respondents were given one month to fill in and submit questionnaires.

Table 2-1 Summary of the methodology used in Croatian pilot study

	Aquaculture	Fishing fleet	Processing industry
Duration and Implementation Period	2018		
Reference year	2017		
Variables (EUMAP)	Table 6	Table 6	Table 11
Additional variables	NA (questionnaire in Croatian)		
Population	As for economic survey		
Observation unit	Employee		
Type of data collection scheme (Census, PSS, Non-PSS)	As for economic survey		
Stratification	Country	GSA 17	Country
Data source	Survey questionnaire		
Coverage (% from total population)	NA	35% for vessels >12 m and 8% for small scale coastal fishing fleet.	NA
Raised Y/N [If raised what is the methodology collecting]	NA		

2.2 Difficulties encountered and solutions

The results were as expected, no significant difficulties identified.

As a result of pilot exercise minor changes will be made in the questionnaire including:

- ✓ change in reference year and
- ✓ removal of column “OIB - personal identification number”, that was previously requested for each employee, since it does not contribute much to the expected results and requires additional effort from respondents.

2.3 Conclusions

Data collection on social data planned in 2021 will be carried out following the same methodology, which was applied during the pilot study in 2018. The social data collection will be implemented as a part of economic survey using additional data forms required for social indicators.

3 Czech Republic

3.1 Methodology and results of the pilot study

Pilot data collection was implemented through the project led by Mendel University in Brno, with the main goal of the project being to verify the conditions and ensure long-term efficient and effective data collection for aquaculture sector in the Czech Republic.

The methodology was developed as a staged approach during which:

1. As a first step the analysis of existing data in the aquaculture sector in the Czech Republic (what kind of data aquaculture companies record) and an analysis of newly needed data according to EUMAP has been conducted;
2. As a second phase design of a methodology for data collection and processing was conducted. This methodology contains a list of indicators according to the requirements of the EUMAP, as well as a proposal for a methodology for collecting individual indicators and data.

The methodology defined was used to collect data for 2017 (economic indicators) and 2018 (economic and social indicators). The data was collected through the Czech Fish Farmers´ Association using methodology developed by the University.

In 2017 43 aquaculture companies sampled represented 9.0% of the total population that covered 70% of the total production by the Czech aquaculture sector. In 2018 44 aquaculture companies sampled represented 9.2% of the total population that covered 70% of the total production.

Table 3-1 Summary of the methodology used in Czech Republic pilot study

	Aquaculture
Duration and implementation period	2017 and 2018
Reference year	2017 and 2018
Variables (EUMAP)	Table 7 (economic data) 2017, Table 7 & Table 6 (social data) for 2018
Additional variables	Economic and social variables.
Population	Defined by previous study, reference year 2016
Observation unit	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Census (response rate <10%)
Stratification	By scale of production (5 groups from < 5 tonnes to >1000 tonnes)
Data source	Previous study by Mendel University.
Coverage (% from total population)	Smaller companies (<5 tonnes) were excluded from the target population and as it seems from the estimation procedure. Response rate was 9,0% in 2017 and 9.2% in 2018 covering 70% of production.
Raised Y/N [If raised what is the methodology collecting]	Yes [no information]

3.2 Difficulties encountered and solutions

No difficulties were identified in the pilot study. Main difficulty might be with the low response rate. As it seems from the text of the pilot report census approach with the low response rate (<10%) was implemented during the pilot years. The target population of companies that farm more than 5 tonnes of fish was covered at a level of 22% of companies, or 70% of production, while small companies were not covered at all.

3.3 Conclusions

The results and indicators are presented in the pilot report. Based on the results the pilot was successful.

It is not clear however from the report if data collection has become annual and what is expected frequency of the data collection exercise in the future. It is also not clear how population will be reviewed in the future as according to the pilot report the population was identified based on separate study by the Mendel University of Brno and the same list of companies has been used to collect 2017 and 2018 data.

4 Denmark

4.1 Methodology and results of the pilot study

The aim of the pilot study was to verify if existing social data collected on education and labour market surveys performed by Statistics Denmark could fulfil the requirements of EUMAP on social variables for the people working in fishing and aquaculture sector by collecting data on employment in fishing sector and aquaculture by education level and nationality.

The pilot focused on how existing administrative and statistical data sources could fulfil the EUMAP requirements.

Table 4-1 Summary of the methodology used in Danish pilot study

	Fishing fleet and aquaculture
Duration and implementation period	200 hours in 2018
Reference year	2016
Variables (EUMAP)	Employment by education level and nationality
Additional variables	None
Population	As for economic data collection
Observation unit	Person (allocated to sector through Central Business Register)
Type of data collection scheme (Census, PSS, Non-PSS)	Census
Stratification	No stratification for data collection purposes, however data can be presented and grouped as for EUMAP
Data source	Labour Market Account (LMA) in combination with Central Company Register

Coverage (% from total population)	Administrative data (100%)
Raised Y/N [If raised what is the methodology collecting]	Not relvant

4.2 Difficulties encountered and solutions

No major difficulties encountered during the pilot study; however, report mentions some difficulties linking personal data in Labour Market Account (LMA) to companies (stored in Central Companies Register) and vessels in the economic fleet population.

4.3 Conclusions

The pilot study showed that the use of the LMA register in combination with the statistical units in the EUMAP statistics is rational way to enhance the results of the fleet economic and aquaculture statistic for EUMAP.

The existing data collection on education and employment status should be used when aquaculture and fleet economic data are combined with data on socio economic status for the labour force.

5 Estonia

Pilot was not implemented in Estonia. In 2019 Estonia changed economic and social data collector to Statistics Estonia and since then National statistical office is fully in charge of methodology for data collection for social and economic indicators.

6 Finland

6.1 Methodology and results of the pilot study

The main aim of the pilot study was to collect, calculate and report the social data as required in the EUMAP Table 6.

Social data were collected by combining official data from Statistics Finland. The estimates of the social variables were calculated according to PGECON guidelines using SAS software. Calculations are based on the ratios of employees by age, sex, employment status and education level in fishing sector from employment statistics. Final estimates for social variables were produced by applying those ratios to financial statement data (FTE and number of employees). The data collection scheme used was census.

Table 6-1 Summary of the methodology used in Finish pilot study

	All sectors
Duration and implementation period	two years during 2018 and 2019
Reference year	2017 and 2018

All sectors	
Variables (EUMAP)	Table 6 and Table 11
Additional variables	None
Population	as defined for economic data collection of EUMAP
Observation unit	Vessel/Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Census
Stratification	Not applicable
Data source	Administrative data
Coverage (% from total population)	100%
Raised Y/N [If raised what is the methodology collecting]	Yes [applying ratios to financial statement data]

6.2 Difficulties encountered and solutions

Social data consists of derived variables and require additional personnel resources to set up processing procedure for the social data estimation.

6.3 Conclusions

The social data collection pilot for Finish fishing, aquaculture and seafood processing sectors was successfully implemented during for 2018 and 2019. The social variables were completely derived from the administrative sources of Statistic Finland and the additional survey for EUMAP data was not required. The social data estimation can be carried out on a regular annul base.

7 France

7.1 Methodology and results of the pilot study

The objective of the pilot study was to provide social data for employment by education level and employment by nationality.

The data on employment by education level and nationality was fully extracted from administrative data source managed by Directorate of Maritime Affairs. The register contains information on jobs at sea. The records available specify the age, sex and nationality of each seafarer registered in the ENIM register (special social security regime for seafarers).

Table 7-1 Summary of the methodology used in French pilot study

Fishing fleet	
Duration and implementation period	Unknown
Reference year	2018
Variables (EUMAP)	Employment by education level and nationality
Additional variables	None

	Fishing fleet
Population	All employees working on board
Observation unit	Seafarers
Type of data collection scheme (Census, PSS, Non-PSS)	Census
Stratification	No stratification for data collection purposes, however data presented and grouped as for EUMAP
Data source	ENIM register by Directorate of Maritime Affairs
Coverage (% from total population)	Administrative data - 100%
Raised Y/N [If raised what is the methodology collecting]	Not applicable

7.2 Difficulties encountered and solutions

Seems that the main difficulty for the pilot was to get access to the register, therefore data on employment by education level was not covered, however expected to be covered for 2021 in 2022.

7.3 Conclusions

No need to implement additional data collection as administrative data sources can be used to extract data at EUMAP segmentation level.

8 Germany

8.1 Methodology and results of the pilot study

The main aim of the pilot study was to find out which data from the EUMAP Table 6 should be collected and which can be extracted from administrative sources like Federal Employment Office, Employer's Liability Insurance Association and to extent the resolution level for the collected social data.

Two methods were used for fishing sector:

1. administrative statistical sources from the Federal Employment Office; Employers' Liability Insurance Association statistic
2. direct requests to provide data to fishing enterprises via e-mail, mail survey and a phone call.

Similarly, two methods were also used for the aquaculture sector: Federal Employment Office statistics and survey of aquaculture enterprises.

The employment data from administrative sources for both sectors were provided by following nationality: German, foreigner, Non-EU Europeans, EU without Germany, and by EU MS.

Federal Employment Statistics data does not match with DCF categories and were provided by three groups: "employees subject to social insurance contributions", "marginal employment" (less than 450€/month or less than 70 workdays/year), and "apprentices". These data are available by gender. The Federal Employment Statistics can also provide data on age classes recommended by DCF: <15, 15-25, 25-40, 40-65, >65.

Fishing sector: full coverage for the hight seas vessels was achieved and a partial coverage for the other vessels. Not all requested variables for the EUMAP Table 6 are available under administrative sources (Liability Insurance Association) and distinction between Large Scale Fleet (LSF) and Small-Scale Fleet (SSF) is not provided. The threshold of 250 GT is applied for administrative data. Also, the age classes differ from the DCF classification, namely the thresholds of 15 and 40 years.

Liability Insurance Association (ELIA) provide quite detailed information on education level, gender, nationality and employment level. This information is not available by vessel size category or vessel age class. ELIA data provide information on number of self-employed fishermen grouped by vessel type which is not consistent with the DCF vessel classification.

Aquaculture: not all requested variables for the EUMAP Table 6 are available in administrative sources. The information on number of employees, employment status, gender and nationality were covered by the information from Federal Employment Office. The information on gender, unpaid labour, level of education and age (by age groups <=14, 15-24, 25-32, 33-39, 40-49, 50-57, 58-64, >=65) were collected by survey. The census data obtained from administrative source was merged with data received from survey where the low response rate was determined. In addition, merging census data with projection from survey led to a more detailed employment status in the aquaculture sector: owners, employee full-time, employee part-time, apprentices, unpaid family labour.

Table 8-1 Summary of the methodology used in German pilot study

	Fishing fleet	Aquaculture
Duration and implementation period	6 months in 2018	6 months in 2018-2019
Reference year	2017	2017 and 2018
Variables (EUMAP)	Table 6	
Additional variables	None	more detailed employment status
Population	NACE Rev2 (classes: 03.11; 03.12) / Fleet Register	NACE Rev2 (classes: 03.21; 03.22; -)
Observation unit	Enterprise/vessel	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Combination of census with the survey	
Stratification	No stratification for data collection purposes, therefore, however different types of stratification in administrative sources	
Data source	administrative data in combination with survey	
Coverage (% from total population)	administrative data - 100%; survey data - 100% - hight seas, partial coverage - other vessels	administrative data - 100%; survey data - low response rate
Raised Y/N [If raised what is the methodology collecting]	Yes [proportions]	Yes [proportions]

8.2 Difficulties encountered and solutions

Fishing fleet: to fulfil the EUMAP Table 6 requirements the information available in different data sources should be combined. The original source for the estimation of employment in fishing fleet data is the Fishing Fleet Register in combination with logbooks and sales notes. ELIA data do not fully equal

these figures. The existing information from the Federal Employment Office and from the Insurance Association does not reflect the fleet segmentation under the DCF. The Federal Employment Office does not cover self-employed workforce. However, the ELIA data can be used to determine ratios between certain classes (e.g., employment, gender, or education level). These ratios can be applied to the estimates of employment produced for EUMAP.

Important discrepancies were detected for the female employees due to the different statistical classification of economic activities between administrative statistic and DCF. Federal Employment Statistics data is not limited to onboard activities (or activities directly related to fishing) as is defined under the DCF but includes also onshore activities such as accounting or administration.

Aquaculture: information from Federal Employment Office does not consider family (unpaid) labour or owners as part of the unpaid labour.

8.3 Conclusions

The social data collection for German fishing fleet and aquaculture implemented during the pilot study was based on information from several data sources: official statistics and administrative data sources in combination with surveys. It covers all fishing and aquaculture enterprises and areas. Under the pilot study several methodologies were tested in order to collect the full list of variables from EUMAP Table 6. The estimation procedure can be applied to the information received from the several data sources or to the data based on different resolutions. The data received from surveys can be raised from sample to the total population. The administrative data for fleet can be used to determine ratios between certain classes. These ratios can be applied to the estimates from the register, logbooks and sales notes.

One of the issues raised during the pilot study was related to the current definitions for the social indicators. The proposed social variables groups should be in line with the recommendations from STECF and RCG ECON work groups. In particular the clear definitions related to age classes, employment status, unpaid labour and distinction between owners, employees full-time, employees part-time, apprentices and unpaid (family) labour should be applied, where possible.

The regional resolution instead of fleet segmentation for social data collection in fleet is more appropriate for German fishing sector.

The following aspects provided in the German pilot study report could be taken into account for future social data collection:

- ✓ Distinguish between high seas fleet and “non-high seas” fleet rather than between fleet segments.
- ✓ Consider a regional component at least for employment data.
- ✓ Consider ratios instead of absolute numbers and reconsider the frequency of social data collection.

To fulfil the requirements under the DCF the social data collection could be implemented for the German fishing and aquaculture sectors on the regular base.

9 Greece

9.1 Methodology and results of the pilot study

The aim of the pilot study was to collect and estimate the social variables as required in EUMAP Table 6 mainly focused on engaged crew and unpaid labour of the vessels, covering gender, age, education level, crew members' nationality and the vessel's unpaid workers.

The stratified random sampling without replacement was used for the survey based on 'gear class' and 'vessel length' accounted for the determination of sample size, while the registry port for the distribution of sample over geographical areas. The geographical distribution of vessels is taken into consideration for the construction of sampling strata. Following the biological data collection sampling scheme, the coastal and marine line were divided to 12 areas.

The sample unit was the vessel and it was selected randomly from each segment. The social variables from the EUMAP Table 6 were included in the questionnaire form used for the survey. The social data collection was aligned with economic data collection and the same type of data collection scheme was used – Probability Sample Survey. The face-to-face interviews were applied, and the interviewers were fish scientists who receive the appropriate training yearly to collect the questionnaires.

Table 9-1 Summary of the methodology used in Greek pilot study

	Fleet
Duration and implementation period	one year during 2017
Reference year	2017
Variables (EUMAP)	Table 6
Additional variables	None
Population	National Fishing Fleet in Fleet Register
Observation unit	Vessel
Type of data collection scheme (Census, PSS, Non-PSS)	PSS
Stratification	Greek 12 geographical coastal and marine areas in combination with fleets fishing technique and vessel size groups.
Data source	Survey questionnaire
Coverage (% from total population)	NA
Raised Y/N [If raised what is the methodology collecting]	Yes [estimated at the sample level for each fleet segment separately; average number of employees for each social variable of each fleet segment was estimated and then multiplied by the number of active vessels in each fleet segment]

9.2 Difficulties encountered and solutions

Only minor difficulties related to the lack of age and education level information about all crew members mostly in large-scale fishing fleets that does not affect main estimates.

9.3 Conclusions

For social data collection the same approach that was already developed in previous periods for economic data collection was successfully applied. The stratified random sampling of the Greek fleet is considered the most proper sampling technique due to the heterogeneous nature of fishing fleet segments. The triennially data collection is planned as it is required by the EUMAP and next data collection will be held in 2021 for the reference year 2020.

10 Ireland

10.1 Methodology and results of the pilot study

The main aim of the pilot study was to assess feasibility of gathering data on social variables from the fishing and aquaculture sector as listed in EUMAP Table 6.

Fishing sector: the data was collected by postal survey that was circulated to all active vessels and by access to indirect sources if these can be identified. The methods used for raising the data from the sample to the population level requires the use of proportional raising methodologies using gross tonnage. The expected outcome was an improvement of the amount of information collected however concerns were raised about quality of the initial survey returns for these new indicators. Survey response rates for these variables ranged from 11-17%.

Aquaculture: it was decided to run the pilot study using the existing annual economic questionnaire adapted to accommodate new questions to capture the socio-employment data. For aquaculture a sample survey design was used, targeting 20% of the industry. The returns from the sample questionnaire resulted in a response rate of between 7.5 and 12%.

Table 10-1 Summary of the methodology used in Irish pilot study

	Fishing fleet	Aquaculture
Duration and implementation period	During 2017	2017-2019
Reference year	2017	2016-2018
Variables (EUMAP)	Table 6	
Additional variables	vocational trainings	None
Population	National Fishing Fleet Register	Active aquaculture enterprises
Observation unit	Vessel	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	PSS	PSS
Stratification	Country	Country
Data source	Survey questionnaire	Survey questionnaire
Coverage (% from total population)	11%-17%	7.5%-12%
Raised Y/N [If raised what is the methodology collecting]	Yes [proportional raising using GT]	NA

10.2 Difficulties encountered and solutions

Fishing fleet: an issue concerning the relevance of, and justification to collect social variables was raised. As the variables were added to the usual economic annual survey, the responses were impacted by the usual low to medium response rates.

Aquaculture: the decision to collect certain data by non-random sampling has alleviated the survey burden on clients but at the expense decreasing the potential pool of data available. In addition, data collection, until December 2020, was totally reliant upon the goodwill by and perceived relevance to the industry. The socio-employment data collection is viewed as another addition to a growing number of legal obligations.

10.3 Conclusions

Annual collection was considered as the better approach, rather than an off-on approach which might cause confusion or irritation to respondents. The social variables have been incorporated into annual questionnaire and the collection of these variables was an established part of the economic survey. Communication with the industry in fishing sector led to the inclusion of questions on vocational trainings alongside education level as these are more important and relevant to the industry. This information will be collected from 2021.

For the aquaculture sector a Covid-19 assistance scheme, in November 2020, made survey response a condition of successful application. This decision provided an opportunity to add the socio employment questions to the census part of the aquaculture survey resulting in an increase in response for this data by 300%. While schemes of this nature are one-off that give dramatic results that may quickly fall away in subsequent data collection years.

11 Italy

11.1 Methodology and results of the pilot study

The aim of the pilot study was to collect social variables listed in the EUMAP Table 6, suggest sound methodology approach and test the methodology in two selected case studies for small-scale fleet and large-scale fleet and for aquaculture on the production segment of long-line mussel farming.

Fishing fleet: the pilot study was implemented in two steps: a desk analysis and a field survey.

Several international, national and regional sources of employment data in the primary sector have been scrutinized during desk analysis. Such analysis also allowed to collect a primary data for the fleet geographical distribution and the fishing fleet segments.

Based on the results of the desk analysis the field survey covered two case studies. The desk analysis allowed to obtain the data and information needed for the subsequent field survey. The number of units to be covered in each fleet case study and the content of the questionnaire were defined during the first step. The survey was based on face-to-face interviews using predefined questionnaires. The participants of a focus groups attended by fishermen, ship-owners, administrative staff of fishing cooperatives and ship-owner associations were selected on the basis of a judgmental sampling. The main result was the validation of the methodology for the collection of socio-demographic data on employment by education level and nationality of the Italian fishing fleet indicated in the EUMAP Table

6. The study also developed a questionnaire that includes quantitative and qualitative information that allowed to deepen specific aspects concerning the socio-demographic profile of the Italian fishers. These included legal aspects on collective labour agreements, the typologies of activities carried out on the vessels and on shore, the involvement of family members, often considered as unpaid workers, the "invisible" role of women. For the first time all this information was structured rationally.

Aquaculture: the methodological test was applied to segment of long-line mussel farming. The same sample chosen for the collection of economic parameters was investigated. Social data was collected in a sample of 59 mussel farms. The PGECON 2017 recommendations for the social data collection in fleet also was considered valid for the aquaculture sector.

Table 11-1 Summary of the methodology used in Italian pilot study

	Fishing fleet	Aquaculture
Duration and implementation period	June-December 2017	during 2017
Reference year	2017	2017
Variables (EUMAP)	Table 6	
Additional variables	information on residence (Region and Province); task (owner, owner, sailor, hub, etc.); professional qualifications (motorist, diver, expert in navigation safety systems, etc.); hours worked on the vessel and on land; average days of fishing /year; types of on shore activities; activities other than fishing but concerning the sector (fishing tourism, processing industry, etc.); employment in other sectors; the role of women and family;	NA
Population	Vessels in the segments: DTS> 12 m; HOK >12m; PGP <12 m	segment of long-line mussel farming
Observation unit	vessel	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Non-PSS	PSS
Stratification	GSA 16 – Large Scale fleet; GSA 17 - Small scale fleet	Country
Data source	Survey questionnaire/desk analysis (administrative sources)	Survey questionnaire
Coverage (% from total population)	from 0,5% to 42% (depend on vessel segment and operating area)	26%
Raised Y/N [If raised what is the methodology collecting]	Yes [on the basis of the average number of employees by fishing vessels and aggregated by fleet segment]	Yes [proportions]

11.2 Difficulties encountered and solutions

The main difficulty encountered during the pilot study was that the social information is not immediately available in the company. In some cases, the respondents needed to contact the workers

directly within the company. The time required for the acquisition of information is often not compatible with company commitments.

11.3 Conclusions

Fishing fleet: the conclusion from the desk analysis was that a specific survey would be preferable because all the available data sources showed a lot of fragmentation, both in terms of time (not the same body produces data for all years) and variables detected (each body collected data only by observing a few social variables of interest).
The pilot study considered that the best approach for routine data collection should be the implementation of a Simple Random Sampling for the estimation of the number of vessels falling into the macro fleet segmentation of SSF and LSF and distributed by GSA. The vessel is the reference statistical unit and the raising to the population has to be carried out on the basis of the average number of employees by fishing vessels and aggregated by fleet segment. The methodology will be extended to social data collection in 2021 (reference year 2020).
Aquaculture: the pilot study on the sample of the mussel farming segment made it possible to verify the procedures for collecting social information from the production companies without reporting any difficulties. The results from pilot study once processed and validated in the procedures will allow the definition of variables and collection methods valid and usable on a routine base in a subsequent three-year collection.

12 Latvia

12.1 Methodology and results of the pilot study

The main aim of the pilot study was organization and implementation of the social data collection. The pilot study results could provide adequate data on employment variability. It was planned that the collected social data could be used for the social data analysis in fishing, aquaculture and fish processing sectors. Furthermore, the received social data could be included into subsequent forecast for the development of Latvian fishing fleet.

The pilot study was conducted in order to evaluate feasibility of the data collection for the variables: employment by gender, employment by age, employment by education level, nationality, employment by employment status.

The survey was implemented in two phases:

1. All potential businesses were contacted (attempted to contact) by surveying company selected to implement the survey and were informed about the survey;
2. Detailed questionnaires were distributed among companies that agreed to take part in the survey during the first stage of the pilot

The initial questyionnaire forms and interviews were developed by BIOR following EUMAP methodology and were defined by sector. External consultancy company experienced in public opinion monitoring and surveying was hired to complete the survey.

Table 12-1 Summary of the methodology used in Latvian pilot study

	All sectors (fishing fleet, aquaculture and processing industry)
Duration and implementation period	2 years in 20017-2018
Reference year	2017
Variables (EUMAP)	Table 6 and Table 11 (for processing)
Additional variables	Duration of occupation in the sector, field of education, employment status (by students, workers, pensionners, etc.). Raw material for processing industry
Population	NACE Rev 2. 03.1; 03.2 and 10.2
Observation unit	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Non-PSS (self selection)
Stratification	No stratification applied during the survey
Data source	Survey questionnaire
Coverage (% from total population)	24%(fishing fleet); 21% (aquaculture) and 23% (processing industry)
Raised Y/N [If raised what is the methodology collecting]	N

12.2 Difficulties encountered and solutions

Limited response rate was the main issue. Some difficulties mentioned with certain questions that were difficult to respond for the respondents and complicated survey form.

As a result of pilot implementation there were several recommendations provided to BIOR to avoid difficulties next time during the data collection of the social variables. Proposals were:

- ✓ avoid separation of the survey into two stages, however initial personal contact was seen as positively affecting response rate;
- ✓ no separation of questionnaires by the sectors and subsectors of the population, but to produce one single questionnare distributing it to all companies in the combined population;
- ✓ updated and changed some questions in the survey form.

12.3 Conclusions

The social data collection was added to regular data collection on a treannual basis with proposed updates of the methodology.

13 Lithuania

13.1 Methodology and results of the pilot study

The aims of pilot study were to prepare the methodology for collecting social data for the fishing fleet and fish processing industries in Lithuania based on the requirements set out in the EUMAP Tables 6

and 11; carry out statistical survey, summarize and analyse the results and prepare data sets for reporting data to end-users.

The study consisted of three phases:

- ✓ The first phase of pilot study involved preparation and planning tasks. In preparation for the study, availability and feasibility of access to administrative data sources regarding social indicators of employment in fishing fleet and fish processing industry were analysed. Legal acts relevant to the study and the requirements set there, as well as the PGECON 2017 recommendations and methodological guidelines for the collection of social indicators were also examined. Absence of available social data in the administrative data sources to fulfil the requirements set in EUMAP led to the need to conduct the survey.
- ✓ During the second stage data collection through additional questionnaire distributed with the regular census survey on economic data for fleet and fish processing industry was launched. The survey questionnaires were sent by e-mail or delivered directly to the companies. Complementary information, such as guidelines and example of how to fill in the questionnaires correctly was provided. All responses were analysed for data quality, completeness and accuracy. If inaccuracies were found, the company that filled in the questionnaire was contacted and the data were corrected. The data of the questionnaires, after assessing their quality and completeness, were entered into the data entry forms prepared for this purpose in the database.
- ✓ During the last stage collected social data were aggregated for the reporting purpose. Reporting structure, methods of raising from the sample, stratification, possibility of reporting combined variables, uses of "unknown" variables were discussed and presented in the PGECON WS (Athens 2018), where Lithuanian representatives were attending.

Table 13-1 Summary of the methodology used in Lithuanian pilot study

	Fishing fleet	Fish Processing
Duration and implementation period	2018	
Reference year	2017	
Variables (EUMAP)	Table 6 and 11.	
Additional variables	- employee hiring date; - employee profession; - employee position in the work, indicated by qualification code of the profession according to the International Standard Classification of Occupations (ISCO); - workers: workers on board (ship deck service managers; ship deck personnel; ship engine department personnel); workers on shore; - employment by education level: early childhood education; primary education; lower secondary education; upper secondary education; post-secondary non-tertiary; short-cycle tertiary education; bachelor's or equivalent level; master's or equivalent level; doctoral or equivalent level	
Population	NACE Rev 2	
Observation unit	Enterprise/vessel	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Census	
Stratification	CECAF, NAFO, NEAFC, Baltic Sea	Local Administrative Units, 2 level

	Fishing fleet	Fish Processing
Data source	administrative data; survey data	
Coverage (% from total population)	96%	83%
Raised Y/N [If raised what is the methodology collecting]	N	N

13.2 Difficulties encountered and solutions

Large scale enterprises (>250 employees) had challenges to report social data as data for nationality and education are not regularly systematized in the enterprise accountancy systems and sector had additional excessive administrative burden to compile social data report from the individual records.

13.3 Conclusions

All expected outcomes indicated in the aims of pilot study were achieved. Based on the pilot study, methodology of social data collection for fishing fleet and fish processing industry was prepared. Social data, collected under the census survey were checked for quality, aggregated by the end-user needs and timely reported to data call. Social data collection was included to regular census survey.

14 Malta

14.1 Methodology and results of the pilot study

The aim of the pilot study was to collect data on employment, and more specifically on employment by education level and employment by nationality. The objective was to provide a better understanding on how education level and nationality are correlated with employment in the fishing sector.

For the collection of data, the Department Fishery and Aquaculture (DFA) used questionnaires which were delivered directly to the respondents. The data collectors are trained by the DFA Scientific and/or Economic Officers prior to their field work to avoid any difficulties during the data collection process. The data was collected through direct interviews on a census basis, meaning that the target population and the frame population were the same. Assuring the quality of the data collected, a first level check was carried out by the officers responsible for the collection of the data. Additionally, manual checks and R scripts were also utilized.

Table 14-1 Summary of the methodology used in Maltese pilot study

	Fishing fleet
Duration and implementation period	three years 2017-2019
Reference year	2016 and 2018
Variables (EUMA)	employment by educational level; employment by nationality
Additional variables	education level was operationalized as: no education, primary education, secondary education, post-secondary education, tertiary education
Population	Fleet Register

	Fishing fleet
Observation unit	Vessel
Type of data collection scheme (Census, PSS, Non-PSS)	Census
Stratification	GSA 15
Data source	Survey questionnaire
Coverage (% from total population)	lower than 100%
Raised Y/N [If raised what is the methodology collecting]	NA

14.2 Difficulties encountered and solutions

No difficulties.

14.3 Conclusions

The pilot study was implemented as part of the fleet economic survey carried out each year. The expected outcomes of the pilot study were to provide a better understanding on how education level and nationality relate to the fishing sector. Collecting data on socioeconomic variables is crucial for in-depth understanding of the fishing sector. That would allow the Department of Fisheries to plan its future initiatives, drafting future policy and interventions in more targeted ways, which would address the real issues in the sector. The social data collection has been included into regular economic survey at a terannual basis.

15 The Netherlands

15.1 Methodology and results of the pilot study

The Netherlands carried out a pilot study to collect data on employment by education level and employment by nationality for 2017. The objective of the pilot study was to find out what is the most efficient way of data collection for the social variables and whether the social data show patterns that should be taken into account when designing the regular data collection for these variables and when aggregating the data.

The following types of sectors were cowered during the social pilot:

- ✓ Aquaculture: similar as defined in DCF and Dutch programme
- ✓ Cutter sector: part of the Large-scale fishing fleet (DCF)
- ✓ Pelagic freezer trawlers: part of the Large-scale fishing fleet (DCF)
- ✓ Other coastal fishing: Active part of other coastal fishing fleet in Dutch programme, which coincides largely with the small- scale fishing fleet (DCF)
- ✓ Inactive vessels: part of other coastal fishing in Dutch programme

Fishing fleet: data were collected by questionnaire and direct contacts with the companies operating vessels which are also providing economic data for the DCF. The cutter fleet (have an overall landings value of more than 50,000 Euro per year), the pelagic trawlers (engine powers over 3500 kW and is

longer than 59 meter) and coastal vessels (have an overall landings value of less than 50,000 Euro per year; this category also includes inactive vessels) were used as frame populations. Questionnaires were sent to the vessel owners followed up by a phone call to ensure the maximum response levels possible. Analysis of variance was used to check for significant differences in crew characteristics between various fleet segments. The data was aggregated using post stratification where necessary.

Aquaculture: the frame population was the companies that have an aquaculture license and (mostly) culture mussels and oysters. Data were collected by paper questionnaire sent to the companies' owners. The respondents could respond either by filling in the paper or online questionnaire forms.

Table 15-1 Summary of the methodology used in the Dutch pilot study

	Fishing fleet	Aquaculture
Duration and implementation period	Unknown	
Reference year	2017	
Variables (EUMAP)	Table 6	
Additional variables	None	
Population	Cutter fleet; pelagic trawler fleet; coastal vessels	Mussels and oysters aquaculture companies
Observation unit	Company/Vessel	Company
Type of data collection scheme (Census, PSS, Non-PSS)	Census	
Stratification	As for economic data collection	
Data source	Survey questionnaire	
Coverage (% from total population)	cutters and large pelagic trawlers - 30-38%; coastal - 12%; inactive vessels - 4%	30-38%
Raised Y/N [If raised what is the methodology collecting]	No information	

15.2 Difficulties encountered and solutions

The low response rate for educational level for the people working on large pelagic trawler might be because this information is not readily available and recorded at the company administration level and thus requires more effort for the companies to collect it from their employees. This might also explain the delayed provision of the pelagic trawl sector data.

15.3 Conclusions

The distribution of the surveys was aligned with the existing data collection in order to prevent an increase of the administrative burden from the respondents and increase the chance of a good response rate. The data obtained provide a general demographic profile of the people working in the Dutch fishing and aquaculture sectors and can show trends after some years of data collection. However more fine scaled answer categories will allow for more detail in the analyses.

The pilot results were integrated to the regular data collection for economic indicators at a triannual basis (according to the WP).

16 Portugal

16.1 Methodology and results of the pilot study

According to the report provided by Portugal, there was no pilot implemented for the social data collection in Portugal. However the country reported the methodology used to provide social indicators to the STECF data call for economic and social variables in 2019.

The aim of the work was to respond to the EU data call on social and economic indicators.

Portugal used a combination of administrative data sources and questionnaire for the part of the population that was not covered by crew register of Direção Geral da Autoridade Marítima (DGAM).

The administrative information includes crew records for 1837 vessels, or close to 50% of the employees in fishing fleet in 2017. The information was also verified by the correspondence of the available data with the sample defined for the collection of economic data for the year 2017.

The sample was based on the sampling for economic data using covariance associated with the income variable, for the year 2016.

Aquaculture

As result of different levels of activity and target population (hatchery and fish units, shellfish units), two kinds of questionnaires were developed, both as census-like operations:

- ✓ the first one, more complete, was set for the universe of hatcheries and all fish farming unit;
- ✓ the second questionnaire is developed to collect data on shellfish farming units

Table 16-1 Summary of the methodology used in Portugal pilot study

	Fishing fleet	Aquaculture
Duration and implementation period	2019	
Reference year	2017	
Variables (EUMAP)	Table 6	
Additional variables	None	
Population	Fishing fleet employees	NACE Code 03.02
Observation unit	Employee	Establishment identified within annual aquaculture license register.
Type of data collection scheme (Census, PSS, Non-PSS)	Census (50% of population) + PSS	Census
Stratification	3 main groups as defined by AER (SSF, DWF and LSF), plus geo indicator and supra region.	Hatcheries and fish farming units vs shellfish farms
Data source	Combination of crew register of Direção Geral da Autoridade Marítima (DGAM) and survey	Combination of Fisheries Administration acts and National Registry of Aquaculture
Coverage (% from total population)	18-100%	

	Fishing fleet	Aquaculture
Raised Y/N [If raised what is the methodology collecting]	Y [algorithm based on the formulations of Cochran (1977) and Thompson (2002)]	Y [census level indicators are used for estimation procedures]

16.2 Difficulties encountered and solutions

There was no pilot implemented, the methodology reported was used to address STECF data calls.

16.3 Conclusions

Added to regular economic data collection at a triannual basis and response to the survey questionnaire to be obligatory by law by 2021.

17 Romania

17.1 Methodology and results of the pilot study

The aim of the pilot study was to establish a methodology to facilitate collection of the data on the employment in the seafood sector by developing and testing the most effective tools / ways of obtaining social component of the fishing fleet, aquaculture and fish processing industry.

The data collected aimed to characterize employees in the fishing, aquaculture and processing industry. The overall objective of the study was to analyse social circumstances using the following main indicators: the structure of the workforce by gender, age, level of education, nationality and professional status, FTE by gender and national level.

By orders issued by the Ministry of Agriculture and Rural Development, economic operators had the obligation to complete the social data in questionnaires collected in accordance with the requirements of Decision (EU) 1251/2016.

Fishing fleet

The pilot study was based on quantitative and qualitative methods:

1. The qualitative method included organisation of the focus group / round table discussion with experts and professional organizations that set the content of the questionnaire.
2. The quantitative method focused on the distribution and collection of the completed questionnaire with all the required data. The data collected was checked with the information obtained during the interviews carried out by the National Agency for Fisheries and Aquaculture (NAFA) inspectors and the Marine Research and Development "Grigore Antipa" (NIMRD) survey personnel, with the fishermen during the expeditions made at sea and in the coastal zone.

Thus, the methodological approach included an analysis of primary research, followed by questionnaires, individual interviews and focus groups.

Aquaculture and processing industry

The study that contains data on employment levels by education and nationality, was conducted in the following steps:

1. The questionnaire was created in accordance with Table 6 of the Union's multiannual program, following consultations with aquaculture specialists, the specialists of the Research and Development Institute for Aquatic Ecology, Fisheries and Aquaculture Galati (IRDAEFA), NAFA agents and processing organizations.

2. For the aquaculture sector, sample size for pilot study was determined, depending on employees groups by gender, age, level of education, nationality, professional status. Sample size and participating units in study - processing sector, were established, taking into consideration the seniority of the unit in the fish processing sector and its continuity, as well as the promptitude of the unit in the data reporting process, the involvement of the persons with sufficient knowledge in the field for each segment (segment 1-10 employees, segment 11-50 employees, segment 51-250 employees, segment ≥251 employees).

3. The collection of social data was done by completing the interview questionnaire with the aim to obtain coherent and comparable information on the social variables collected.

Table 17-1 Summary of the methodology used in Romanian pilot study

	All sectors
Duration and implementation period	2017-2019
Reference year	2017-2019
Variables (EUMAP tab. 6)	Table 6
Additional variables	No specific variables mentioned
Population	Vessel owners/ active aquaculture companies/NACE Rev2 10.2
Observation unit	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Census with obligatory response
Stratification	As for economic data collection, covers GSA 29 / by company size in case of processing industry.
Data source	Legal obligation
Coverage (% from total population)	100%
Raised Y/N [If raised what is the methodology collecting]	Not applicabe

17.2 Difficulties encountered and solutions

The results of the study reliant on the extent to which respondents answered all the key points of the survey, especially considered sensitive. While face-to-face discussions (both group and individual) have the advantage of capturing the free speech of respondents, stimulating interaction among participants, surprise motives, stories, and a broader view of the subject. At the same time, face-to face discussions can inhibit certain respondents, at least for the start, and in the case of group focus, there is a risk of stronger voices taking control over the discussion. All these limitations can be overcome with the help of discussion moderators who can help responders engage in discussion, better organize their speech, overcome the fear of expressing diverging views from other participants, and not feel pressure to express desirable opinions.

The expected objectives have been achieved. There were no deviations from the initial planning. No difficulties encountered during the pilot implementation.

17.3 Conclusions

Added to regular data collection on an annual basis.

18 Spain

18.1 Methodology and results of the pilot study

The main objective of the pilot study was to find out what is the best data collection system and determine issues associated with the survey, analyse definitions of the questions in the questionnaire and to detect and eliminate possible problems, due to ambiguities in the questions, excessively lengthy wording, or questions which may bias the answers.

The stratified random sampling was used and the social variables were included in the questionnaire for economic data collection. The face-to-face or telephone interviews were implemented during the survey duration. Planned response rate was higher than 95%.

Table 18-1 Summary of the methodology used in Spanish pilot study 3a

	Fishing fleet
Duration and implementation period	two years during 2016 and 2017
Reference year	2015; 2016; from 2017 on the regular base
Variables (EUMAP)	Table 6
Additional variables	NA
Population	As for economic data collection
Observation unit	As for economic data collection. Indicators grouped in line with PGECON report.
Type of data collection scheme (Census, PSS, Non-PSS)	Census and PSS
Stratification	As for economic data collection
Data source	Survey questionnaire
Coverage (% from total population)	95%-100%
Raised Y/N [If raised what is the methodology collecting]	Yes [no information]

18.2 Difficulties encountered and solutions

No difficulties.

18.3 Conclusions

The social data collection for Spanish fishing fleet was implemented in the frame of pilot study for the years 2015 and 2016. After the first year of pilot study implementation the questions and intervals

were adjusted, and the social data collection was incorporated into the annual questionnaire for economic data collection. The socio-economic data collection was carried out on the regular base from 2018 when the first social data for 2017 was collected. The same sampling methodologies, areas and segmentation are applied as for economic data collection.

19 Slovenia

19.1 Methodology and results of the pilot study

Aim of the pilot study is to establish a methodology for collecting of social variables, according to the Commission Implementing Decision (EU) 2016/1251 adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019, and to transfer this methodology to regular data collection. Collected data could be used for socio-economic data analysis in fishing fleet, aquaculture and fish processing sectors.

The main objectives of the pilot study were:

- ✓ To test the research process and protocol.
- ✓ To identify variables of interest and decide how to operationalize each one.
- ✓ To test an intervention strategy and identify the components that are most important to the facilitation of the intervention.
- ✓ To test methodological changes to implementation or administration of instrument and train personnel on the administration of instruments.
- ✓ To develop and test the efficacy of research instruments and protocols.
- ✓ To estimate statistical parameters for later analyses.

The pilot studies were carried out by the Fisheries research institute of Slovenia. Pilot studies were based on quantitative and qualitative methods. The pilot was delivered in two phases: the first phase pilot involved in-depth interviews with focus groups to establish the issues to be addressed in a large-scale survey; the questionnaire, e.g., the wording and the order of the questions, or the range of answers on multiple-choice questions, were piloted; at the final stage research process was tested (e.g., the different ways of distributing and collecting the questionnaires).

During the first phase, analysis whatever the necessary data is already being collected, what type of information is available and at what stratification. In depth interviews with Employment Service of Slovenia, Statistical Office and Pension and Disability Insurance Institute of Slovenia were conducted. The interviews showed that the information needed for EUMAP was not collected. The exception is Statistical Office of the Republic of Slovenia where some social data are collected, but not at a sufficiently high level of stratification defined in the EUMAP and PGECON recommendations.

During the second phase the questionnaire for fishing, aquaculture and fish processing sectors was developed. In order to achieve the best possible data quality, census was chosen as the type of data collection, therefore questionnaires were sent by regular mail and e-mail to all the entities concerned.

All indicators were defined for questionnaire in accordance with the PGECON recommendations. Data for fishing sector and aquaculture was collected per employee, while collecting data for processing industry, indicators were predefined to the groups agreed by PGECON.

The data collection for all seafood sectors (fishing fleet, aquaculture and fish processing industry) was integrated to annual economic surveys.

Table 19-1 Summary of the methodology used in Slovenian pilot study

	Fishing fleet	Aquaculture	Processing industry
Duration and implementation period	one year, 2018		
Reference year	2017		
Variables (EUMAP)	Table 6		Table 11
Additional variables	None		Data collected for groups of indicators as per PGECON recommendation
Population	As for economic data collection		
Observation unit	Fisher	Employee	Enterprise
Type of data collection scheme (Census, PSS, Non-PSS)	Census		
Stratification	No stratification for data collection purpose		
Data source	Survey (part of economic)		
Coverage (% from total population)	0.96	0.85	All Slovenian companies
Raised Y/N [If raised what is the methodology collecting]	Y [unclear]		

19.2 Difficulties encountered and solutions

No difficulties encountered during the survey.

For the future it is needed to make clear delimitation between professional fishers that live from fishing only and with fisheries related complementary activities and fishers whose primary source of income is not from fishing. Currently both groups of fishers have fishing licences for commercial fishing even if their fishing activity may vary a lot. Some fishers in practice go to sea less than 60 days and others more than 250 days. Both groups are considered professional fishers even if their main income is from fishing and with fisheries related and complementary activities or from other activities outside fisheries.

19.3 Conclusions

Collection of social indicators was added to regular data collection as part of economic survey.

List of abbreviations

CECAF - Fishery Committee for the Eastern Central Atlantic

DCF – Data Collection Framework

DFA - Department Fishery and Aquaculture

DGAM - Direção Geral da Autoridade Marítima

ELIA - Liability Insurance Association

EUMAP – EU Multiannual Programme

FTE – Full Time Employment

GSA –

IRDAEFA - Research and Development Institute for Aquatic Ecology, Fisheries and Aquaculture Galati

ISCED - International Standard Classification of Education

ISCO - International Standard Classification of Occupations

LMA - Labour Market Account

LSF - Large Scale Fleet

NACE - Statistical Classification of Economic Activities in the European Community

NAFA - National Agency for Fisheries and Aquaculture

NAFO – Northwest Atlantic Fisheries Organisation

NEAFC – North East Atlantic Fisheries Commission

NIMRD - Marine Research and Development "Grigore Antipa"

PGECON – Planning Group on Economics

PSS - Probability Sample Survey

SSF – Small Scale Fleet

STECF – Scientific Technical Economic Committee for Fishery