THE FOURTH WORKSHOP ON DESIGNING AN EEL DATA CALL (WKEELDATA4)

VOLUME 4 | ISSUE 94

ICES SCIENTIFIC REPORTS

RAPPORTS
SCIENTIFIQUES DU CIEM

ICES INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA
CIEM CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

International Council for the Exploration of the Sea
Conseil International pour l'Exploration de la Mer

H.C. Andersens Boulevard 44-46
DK-1553 Copenhagen V
Denmark
Telephone (+45) 33 38 67 00
Telefax (+45) 33 93 42 15
www.ices.dk
info@ices.dk

ISSN number: 2618-1371

ICES Scientific Reports

Volume 4 | Issue 94

THE FOURTH WORKSHOP ON DESIGNING AN EEL DATA CALL (WKEELDATA4)

Recommended format for purpose of citation:

ICES. 2022. The Fourth Workshop on Designing an Eel Data Call (WKEELDATA4). ICES Scientific Reports. 4:94. 31 pp. https://doi.org/10.17895/ices.pub.21666836

Editors

Tea Basic • Hilaire Drouineau

Authors

Tea Basic • Laurent Beaulaton • Clarisse Boulenger • Cedric Briand • Hilaire Drouineau • Caroline Durif Derek Evans • Marko Freese • Jani Helminen • Inigo Martinez • Maria Mateo • Sukran Yalcin Ozdilek Jan-Dag Pohlmann • Sami Vesala

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

Contents

i Executive summary

The fourth Workshop on Designing an Eel Data Call (WKEELDATA4), chaired by Hilaire Drouineau (France) and Tea Bašić (UK), met virtually from 9 May–13 May 2022 to design a Data Call to all countries having natural production of European eel. Thirteen scientists from seven countries participated in this meeting, along with one participant from ICES.

The life cycle of the European eel is complex, with a unique spawning area in the Sargasso Sea and growth areas widely distributed across Europe and Northern Africa. The stock is genetically panmictic, but the continental eel stock shows strong local and regional differences in population dynamics and local stock structures (sex ratio, length and age distributions). Local impacts by fisheries vary from almost nil to heavy exploitation. Other forms of anthropogenic mortality (e.g. hydropower, pumping stations) impact on eel, with varying distribution and local relevance. Data on stock and impacts are reported to the Working Group on Eels (WGEEL), which supports the official recurrent ICES Advice on the stock. Data correspond to several different life stages, from juveniles to prespawning eels, in different habitats (from freshwater to saltwater environments).

To collect those data more efficiently, ICES and GFCM started a Data Call process in 2017. The ICES Workshop on Designing an Eel Data Call (WKEELDATA) generated the first version of the Data Call, improved the WGEEL database to host the collected data and integrated first data into the database. The Data Call and several related tools have then been progressively improved and developed during different successive workshops (WKTEEL, WKEELDATA2, WKEELDATA3). Currently, the Data Call relies on (1) a postgresql/postgis database that stores the collected data, (2) excel templates sent to data providers to collect the data, (3) a shiny application used to transfer the data between the template excel files and the database, while ensuring data integrity (that is also guaranteed by the relational database structure), and (4) a shiny application used to facilitate the visualisation of the data in the database.

Following the roadmap implemented during the recent Workshop on the Future of Eel Advice (WKFEA), this workshop has prepared the collection of biometric data collected under programmes such as EU DCF in the upcoming Data Call (Subgroup 1). Such data will complement biometric data originating from sites monitoring glass eel recruitment and yellow and silver eel abundance, that were already collected by WGEEL. The possible decrease in eel quality (e.g. contamination/diseases) was recognized as a serious threat in various WGEEL reports and at WKFEA. To address this point, the workshop proposed to set up a pilot Data Call on eel quality (Subgroup 3) alongside biometric data. Furthermore, WGEEL started working on the analysis of time series of yellow and silver eel abundance and pointed out some limitations in the meta-information available, especially regarding data reliability/quality. The workshop has proposed different modifications to the Data Call to address these problems, following WGEEL recommendations in 2021 (Subgroup 2). Finally, the workshop has updated all pre-existing templates files (Subgroup 2), developed new templates to collect the new types of data (Subgroup 1 and 3) and adapted the database and the shiny tool used to integrate the data (Subgroup 4).

ii Expert group information

Expert group name	The Fourth Workshop on designing an eel Data Call (WKEELDATA4)
Expert group cycle	Annual
Year cycle started	2017
Reporting year in cycle	1/1
Chair(s)	Tea Bašić, UK
	Hilaire Drouineau, France
Meeting venue and date	9-13 May 2022 by video conference (14 participants)

1 Terms of reference

WKEELDATA (ICES, 2017b) along with WGEEL (ICES, 2017a) and WKTEEL (ICES, 2018) have implemented a Data Call system for formalising and standardising the data provision to support WGEEL work. Data on recruitment, catches and landings from commercial and recreational fisheries, restocking, aquaculture production, rates of other human-induced mortalities on eel, biological characteristics of eel, etc. are provided by WGEEL participants in many complex spreadsheets. A second workshop and third workshops were held in 2019 and 2021 respectively, to continue to improve on the data available and to create processes for data preparation for the working group. This is the fourth workshop in the eel data cycle.

The WKEELDATA4 will design a Data Call to all ICES/EIFAAC/GFCM countries having natural production of European eel and prepare their integration in the eel database supporting WGEEL work. The Data Call 2022 will request the same data as every year (e.g. the 2020 Call), incorporating WGEEL recommendations, and will also collect biometric data (including from DCF programmes), following the ICES WKFEA roadmap. To achieve this aim, the WK will:

a) Update templates that will be used to report these data to the ICES and text for the 2022 Eel Data Call, following WGEEL recommendations;
b) Create new templates that will be used to report biometric data (including DCF data), following the WKFEA roadmap;
c) Develop/Update all the tools in the WGEEL's shiny application required to automatise the Data CCall;
d) Develop with ICES Data Centre the roadmap to achieve the data Call publication beginning of June and the data integration during the WGEEL meeting (first part):
- List the tasks to be done to finalise Data CCall preparation
- List and prioritise developments needed in the shiny application.

Additional tasks outlined include creating pilot templates for collecting eel quality data and associated database/shiny procedures, and addressing and prioritising shiny issues.

1.1 Organisation and progress during workshop

The meeting was held virtually, using TEAMS hosted by the ICES Secretariat, and was attended by 13 scientists from seven countries and one participant from ICES. The participants have used the WGEEL github (https://github.com/ices-eg/wg_WGEEL/) to facilitate the version control of different applications (shiny applications, R scripts) and to manage issue tracking.

The meeting started with a review and discussion of the ToRs and additional work to be done. The tasks outlined were divided into four subgroups: Subgroup 1 (biometric data), Subgroup 2 (update of existing templates), Subgroup 3 (eel quality data) and Subgroup 4, technical subgroup interacting with all other subgroups. Subgroup membership had been confirmed on the first day and each person was assigned a specific task/tasks. The technical subgroup leader gave a presentation outlining the tasks planned for the week.

The subgroups then split into breakouts for the next three days to address their tasks, but with workshop plenaries at end of each of each day to summarise progress and discuss any matters arising.

On the last day, draft Data Call annexes and draft Report were reviewed by all. A number of closing actions were identified and delivered over the following days, to produce this report, Data Call Annexes (table templates) and a draft Covering Letter for the 2022 Eel Data Call.

2 Subgroup 1: Biometric data

This subgroup tasks were:

- To update time series Data Call files to include biometric data measured at the individual level
- To create new templates for collecting other biometric data (e.g. from EU DCF)
- To modify the database as required (with Subgroup 4)
- To develop shiny routines required to carry out the integration of new data (with Subgroup 4)

The WKFEA roadmap (ICES, 2021a) and the recent WKEMP (ICES, in press) underlined the importance of collecting biometric data to inform on key parameters of the population dynamics, such as age-at-silvering, sex-ratio. Since 2019, WGEEL has been collecting annual biometric data associated with the time series of abundance of glass eel (recruitment), yellow eel (standing stock) and silver eel (spawning stock) (ICES, 2019). However, those time series of abundance are often collected sporadically and at few monitoring sites, so that related biometric data are not necessarily representative of the biometric trends at a larger scale (e.g. EMUs). To address this, WKFEA considered that collecting the biometry data originating from the EU Data Collection Framework (EU DCF) and other programmes (e.g. General Fisheries Commission for the Mediterranean Data Collection Reference Framework: GFCM DCRF) was a priority. In this context, one of the objectives of this workshop was to modify the Data Call to handle this task.

The group decided to collect both individual data (i.e. biometry of a given fish) and aggregated data (i.e. estimators of average biometry values over multiple fishes) for two reasons:

- in some situations, individual data may not be available while aggregated data are
- the data collection, especially under EU DCF, can be based on specific statistical sampling strategies (e.g. stratified sampling) so that aggregated data is not necessarily a "simple" arithmetic mean of individual data. It is hoped that with sampling strategies provided, aggregated data can give a representative overview of biometry at the EMU scale.

To handle these new data, modifications of the database were needed. The new relational diagram of the database is presented in the following diagram (Figure 2.1). In summary, distinct tables were created to handle individual data and grouped data. Moreover, the database was moved from a "wide format" (i.e. a row per individual/group and a column per biometric data) to a long format (table "a row per biometric data and multiple rows per fish/group"), with tables for data originating from time-series (t_metricgroupseries_megser for group, t_metricindseries_meiser for individual) and tables for other sampling schemes such as DCF (t_metricgroupsamp_megsa for group, t_metricindsamp_meisa for individual). Meta-information on fishes and on groups are stored in dedicated new tables (t_groupsamp_grsa, t_groupseries_grser, t_fishsamp_fisa, t_fishseries_fiser). This long-format structure is more flexible and allows for possible future collection of new metrics, but also the inclusion of eel quality data (e.g. contamination, diseases – see Subgroup 3). For DCF data, a table was also created (t_sampinginfo_sai) to keep the information on the sampling strategy (sampling scheme, EMU, country etc.). Alongside, a dictionary of collected metrics (biometric data, quality data) was created to ensure consistency in the naming of variables and stored into a reference table (tr_metrictype_mty; see Annex 4).

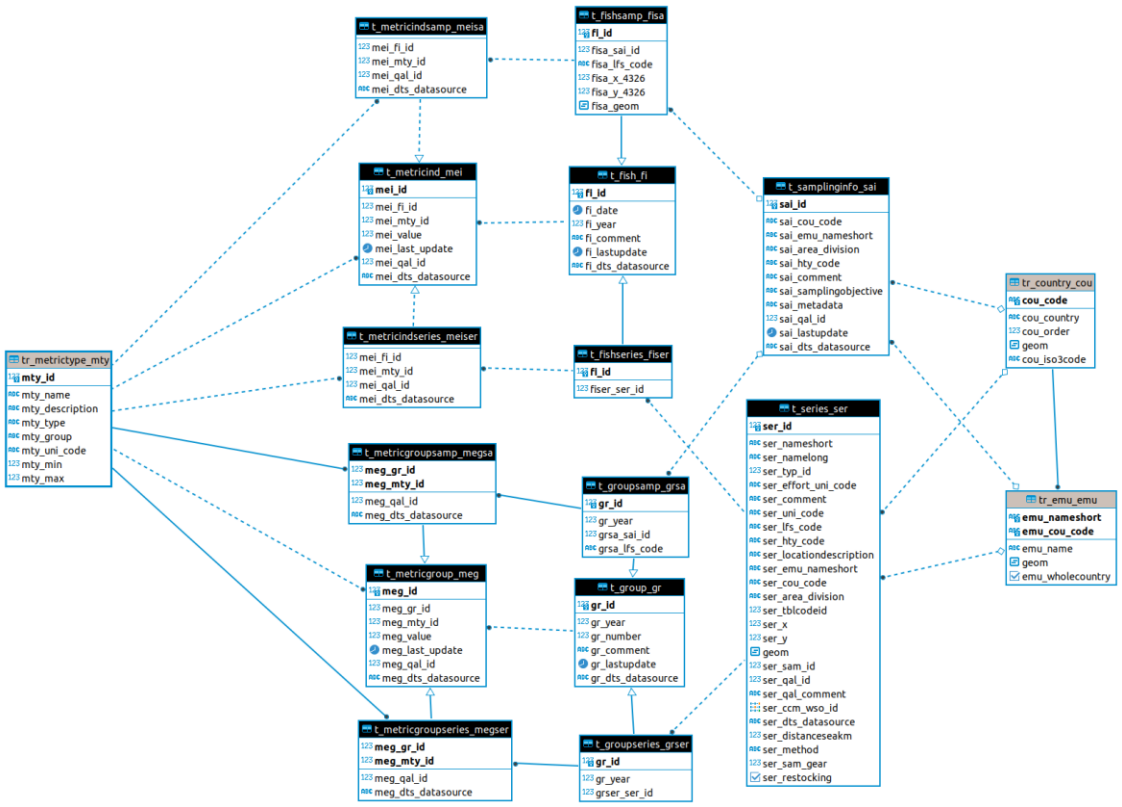

Figure 2.1: ECR diagram of the database (focus is on the new tables handling eel biometric and quality data).

The group modified existing templates used to collect biometric data associated with time series of abundance, and created new templates to collect biometric data from DCF and other programmes (e.g. GFCM). These templates are still in a "wide-format" since this format is easier to handle by data providers, but adaptations have been made to facilitate their subsequent transformation into the new long-format during the data integration process and to ensure data integrity. The shiny routines required to carry out this data integration (e.g. transferring the data provided in excel templates into the postgresql database) have been developed, as well as the routines required to transfer the pre-existing data from the wide format to the long-format.

3 Subgroup 2: Update of existing templates

This subgroup tasks were:

- To review and modify time series Data Call files if applicable based on recommendations from the last WGEEL report
- To highlight missing data under time series Data Call files required for further analysis and ensure these are sent back to data providers
- To improve description of quality indices used by data providers to determine the of quality of their annual data points
- To develop quality criteria for inclusion of the time series in further analysis
- to check all the Data Call files for any inconsistencies, specifically check readme, and missing units and add a delete spreadsheet
- To draft the cover letter

,

3.1 Time series Data Call files

Some parameters are essential for the analyses of yellow eel and silver eel time series. For example, the annual data quality index (das_qal_id) is used to identify the quality of the annual data points and can inform on data that are suitable for further analyses. Furthermore, environmental data can be used in the analysis to identify patterns. Therefore, to facilitate the reporting of these data, recommendations and guidelines are presented below.

3.1.1 Annual data quality index (das_qal_id)

For each annual data point entered in the database, there should be a data quality index associated with it. There are 4 quality indices that identify the status of the data but only three can be used by data providers (see Table 3.1).

Table 3.1: table summarizing the different quality the levels and when they should be used

qal_id	qal_level	qal_text	qal_kept
1	good quality	To be used when data are representative (see below for instruction on data that do not fit this category).	TRUE
2	modified	Not for providers to use, only WGEEL members can modify data if required and change the quality accordingly.	TRUE
4	warnings	To be given when data can be used by WGEEL, but with caution. Use this category when there are doubts about the quality of the data but data are thought to be reliable enough to be used (e.g. surveys modified by the covid crisis but with limited impacts, or data are not fully complete). Updates might be provided in the future (e.g. when not all catch return data have been collected in time for the Data Call). Please provide more details on the data under comments.	TRUE
3	bad quality	To be provided when the data are not representative i.e. if there is a particular data quality problem for the year in question that could affect their use for any subsequent analysis. For example, this is related to Covid-19 restrictions that resulted in many follow-ups not being conducted compared to previous years. Please provide more details in the comments.	FALSE

A decision tree (Figure 3.1) has been created to help data providers choose the appropriate data quality index given their data. It will be added together with Table 3.1 to new_data and updated_data tabs of the Data Call files. Examples of different scenarios are displayed in Figure 3.2.

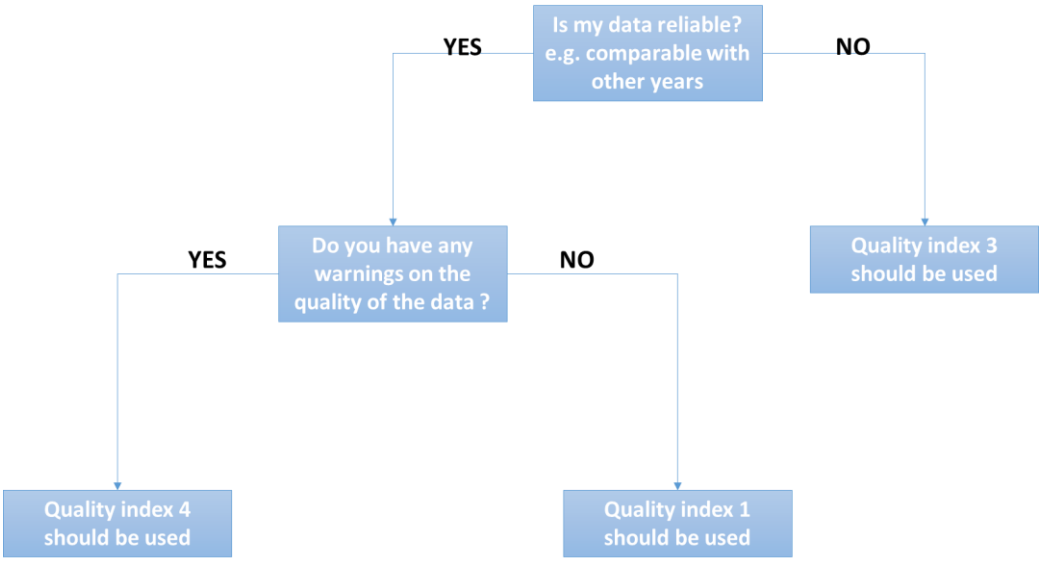

Figure 3.1: Decision tree aiming to help data providers in choosing the appropriate data quality index.

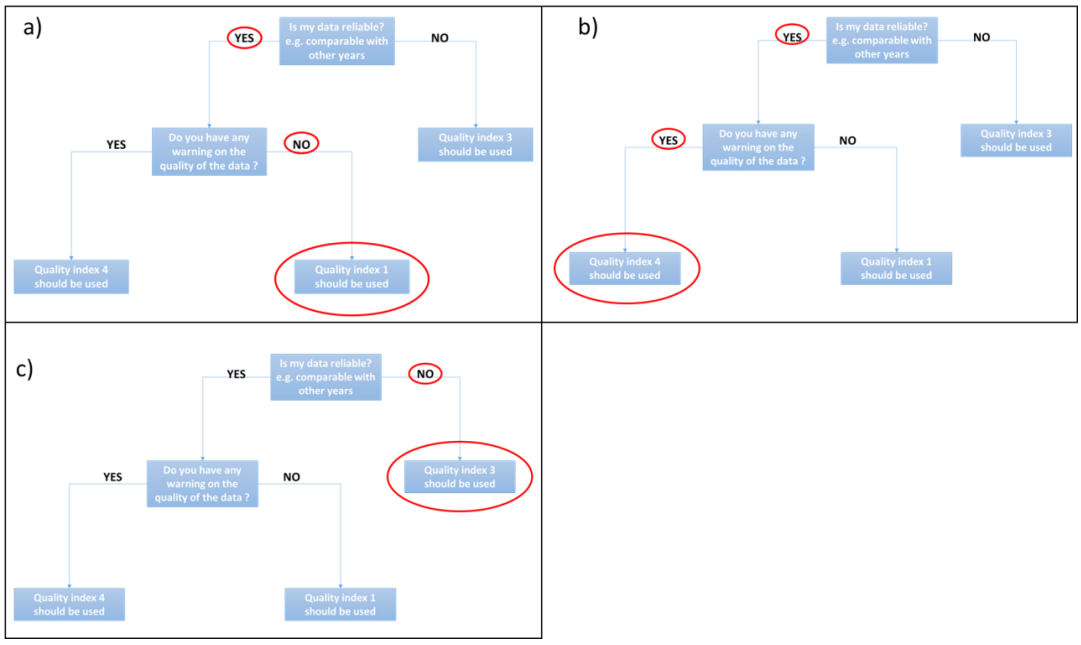

Figure 3.2: Examples of possible scenarios. In the first example, a) the data were considered reliable (e.g. monitoring covers the whole migration period, all representative sites sampled, model results are reliable) and definitive (there will be no change in the value provided). In the second example, b) the data were considered reliable but there are warnings on the quality of the data (e.g. future changes in the model that provides the estimates, only 50% of the migration period is monitored but this covers the majority of the peaks). In the third example, c) the data were judged not reliable because

a significant part of the monitoring could not be performed (e.g. monitoring cancelled due to Covid-19, floods or droughts not allowing the sampling, broken equipment).

3.1.2 Data selection rules for inclusion of yellow eel and silver eel in the analysis

As for the recruitment series, internal selection rules were defined for yellow and silver eel series to help identify those that can be included in further analyses by WGEEL.

a. Only data series with more than 10 years of data will be used for analyses.
b. Only series with annual data quality index (das_qal_id) provided will be used for analyses.
c. If there are two series reported from the same site (but different method for example), we will only use one of those (more reliable one, to be discussed with the data provider).

Depending on these rules, a series quality index (ser_qal_id) will be defined for every series. This series quality index will be recalculated every year. In addition, depending on the data analysis that will be used, other selection rules may be applied.

a. Within each series, annual data assigned poor quality (e.g. effort related restrictions, Covid-19 restrictions) may not be used in the analyses to avoid bias (das_qal_id = 3).
b. Depending on the whole monitoring period (minimum year-maximum year), if more than a percentage of annual data is missing the series cannot be used in the analyses.
c. Information on distance to the sea, restocking effect, habitat etc.could be useful for certain analyses. If not provided, the series may not be used in the analyses.

3.1.3 Missing information

For many series, information listed above is missing. In order to complete the missing information on effort and data quality, the lines with missing information will be extracted to the updated_data tab. Table 3.2 lists the number of data with missing quality index and effort per country.

Table 3.2: For each country, number of available time series of yellow and silver eel standing stock abundance and total number of available values, and number of data missing quality index and effort (note that effort is not required for all time series, and it will be dependent on the monitoring type).

	Yellow standing stock				Silver standing stock			
country	number of time series	number of non null data points	number of missing data quality indices	number of missing effort	number of time series	number of non null data points	number of missing data quality index	number of missing effort
DE	1	17	0	0	1	12	0	12
DK	1	13	0	0	1	20	0	20
ES	4	104	0	66	4	101	0	87
FI	2	7	0	0	2	11	0	7
FR	19	212	2	0	6	117	0	9
GB	47	997	9	0	6	95	62	95
GR	1	1	1	0	3	15	15	15
IE	5	69	0	1	2	70	54	0
LT	7	10	3	8	8	14	6	14
LV	2	10	0	2	2	10	0	10
NL	7	180	2	62	7	50	0	50
NO	1	89	89	89	1	46	46	46
PL	1	4	0	0				
PT	2	7	0	0	2	7	5	0
SE	6	141	0	56	3	84	80	2
not specified					4	74	74	0

Other general information is still missing for yellow and silver eel series such as distance to the sea and restocking effect (Table 3.3.)

Table 3.3: Number of time series of abundance with missing data on distance to the sea and restocking effect for yellow and silver eel series. Only countries for which at least one data is missing are displayed. The total number of times series is reported in table 3.2.

	Yellow		Silver	
	missing distance to the sea	missing restocking	missing distance to the sea	missing restocking
DK	1			
ES	2		2	
GB	44			
GR	1	1	3	3
NO			1	1
SE				1
not specified			4	4

Precaution for geographical coordinates and distance to the sea

In order to use distance to the sea information in the analyses, it must be calculated correctly, with several things taken into account:

a. The geographical coordinates of the series must be those of the monitoring location if it is unique (example: fish counting facility) or of the centroid of all the monitored sites (example: several sites for electrofishing)
b. The distance to the sea should be calculated following the course of the river and not 'as the crow flies'.

3.1.4 Future work on the time series

WGEEL (ICES, 2020, 2021b) has made preliminary trend analyses on yellow and silver eel series to investigate if common trends can be extracted. The trends in yellow and silver eel abundance are however conditioned by natural and anthropogenic environment, and will depend on growth, restocking, natural and anthropogenic mortalities and can therefore differ from the recruitment trend. Incorporating explanatory variables in the trend analyses would allow disentangling the contribution of environmental and anthropogenic factors to the observed trends. However, before asking for additional data, preliminary explanatory analysis is required to determine the exact form of the explanatory variables required. For example, when looking at the effect of restocking, we can consider it as a global variable (what is the impact of restocking for the whole series: none/low/medium/high) or as a annual variable (what is the impact of restocking for each year?). To elucidate which environmental variables and in what format are required from data providers, it is recommended to perform an initial explanatory analyses with a reduced number of series for which many variables can be gathered easily and tested during this year's WGEEL meeting.

3.2 All Data Call files updates and modifications

3.2.1 Adding a deleted_data tab

A deleted_data tab was added to all the Data Call templates. In this tab, the data providers can identify data that should be removed from the database. Instructions on how this tab works were also added to the tab and readme.

3.2.2 Updating readme information

In all Data Call files there is a readme tab that describes how to use the Data Call files. These readme texts were revised to identify any inconsistencies, typos, or unclear instructions. Corrections and modifications were made based on these findings.

The readme texts were not consistent between the files. In many instances there were important changes made to one file, but the same change had not been made in other files. Using these changes, all other Data Call files were updated so that the information in the readme is more consistent between the files. These changes included for example highlighting parts of the text that the data providers had often missed (*e.g.*, "Do not make changes to the data here") and adding sentences that had been previously only added to some of the files (*e.g.*, "Don't use if there is a zero in the cell").

The instructions on how to use the metadata tab and the new deleted_data tab were also added. The colours of the tabs and their responsive colours in the readme were updated so that they are consistent between the files. Specific instructions were added about data quality index to encourage data providers to provide it alongside any data they provide, since this is considered a priority. This includes the definition of the quality index within a table and a decision tree aiming at facilitating the choice of the appropriate value. The table and the decision tree have been added to new and updated data tabs for all templates.

Missing units were checked and added to data series templates under ref_unit sheet.

DK_Mari EMU was added and ES_Spai was removed from the tr_emu_em in all data files.

More instructions were provided on the reporting of the geographical coordinates and the distance to the sea under readme in time series data files.

4 Subgroup 3: Eel quality data

This subgroup tasks were:

- To create new templates to collect eel quality data
- To modify the database and shiny to be able to integrate the new data (with Subgroup 4)

4.1 Rationale/justification for the inclusion of Quality Parameters in the 2022 Eel Data Call

During the last decade, WGEEL has discussed the risks of reduced biological quality of (silver) eels and presented an overview of a variety of reports and data available on eel quality, with the main recommendations summarised in the following reports and sections:

- ICES 2008, WGEEL Leuven: section 6.2.4 Contamination in eel and its role in the decline of the stock
- ICES 2009 WGEEL Gothenburg – section 5.4.3 Quantifying the effects of eel quality on stock dynamics and integrating these in stock assessment methods
- Belpaire et al., 2011 publication: - Development of the European Eel Quality Database
- ICES (2011, 2012): recommendations were made to EU MS to take into account eel quality aspects such as contamination and disease status into regional eel management, these including observed or measured impairments of eels from reports

4.2 Transposing eel quality metrics into data indices and application of quality parameters:

ICES (2012; Chapter 6) advocated for the continued development and wider application of the European Eel Quality Index (EEQD).

Using eel quality parameters enabled the development of a *Reproductive Potential Model* (combining Eel quality with reproductive potential). This effectively meant the production of a tool which provided a way forward in developing approaches to quantify the effects of eel quality on reproductive success whilst integrating these indices into stock assessments. This reproduction potential is derived as a function of body size, muscle lipid content, and the relative migration distance from EMU to the Sargasso Sea (DSS) (ICES, 2013; Section 11.3).

4.3 Eel Quality Monitoring requirements

ICES (2012) recommended:

- Where eel quality is poor, silver eels leaving catchments may not be able to contribute to the overall spawning and recruitment of the European stock. There is a need to quantify the effects of eel quality on stock dynamics and integrating these into stock assessments. As a useful medium-term solution, we recommend a regular monitoring of the lipid content of escaping silver eels. As a key factor for reproduction and spawner quality, this information allows an approximate quantification of the number of potentially

successful female spawners leaving each river basin and their reproductive potential in terms of eggs produced (To EU Countries**).**
- We recommend an inclusion in the Eel Regulation that MS undertake a routine monitoring of lipid levels, contamination and diseases (to ICES Secretariat and EU).

ICES (2013) advised on the planning of future reporting of local eel stock assessments and for calculating the Reproductive Potential of silver eels for each EMUs (see Chapter 12.7.4). In particular the following information was regarded as the minimal requirement:

- For silver eels (Basic requirements for assessing the Reproduction Potential by EMU): mean size (mm), percentage lipid (indicating method) and the sum of PCB28, PCB52, PCB101, PCB138, PCB153 and PCB180 (Σ 6 PCBs) (ng/g wet weight), and prevalence (%) and abundance (n) of *Anguillicola crassus*, providing details of sample, site and date.
- For yellow eels (Basic requirements for assessing the quality of the yellow eels and Eel Quality Index by EMU): mean size (mm), total wet weight of PCB28, PCB52, PCB101, PCB138, PCB153 and PCB180 (Σ 6 PCBs), p,p'-DDD, p,p'-DDT, p,p'-DDE (Σ DDTs), cadmium, lead and mercury (ng/g wet weight), and prevalence (%) and abundance (n) of *Anguillicola crassus*, providing details of sample, site and date.
- Examples of quality parameter tables used previously by WGEEL are also provided (see Annex 5).

4.4 Measurements for Fat Content

Individual lipid levels, especially in silver eels, are of great importance as an indicator of eels energetic reserves and can be used to estimate migration success and reproductive fitness.

For methodological standards and background information, see Pohlmann et al. (2018):

- Non--invasive method of lipid determination often used is with "fatmeter" device. This handheld device uses microwave measurements and provides an indirect measurement of the water content in fish (by electric resistance or microwave absorption/reflection), which can be translated into fat content based on an inverse relationship of the ratio of water and fat content in fish.
- A standard measuring of fat in fish tissue is the gravimetric measurement of entire fish or subsamples (e.g. pieces of filet) by solvent extraction. A number of slightly different laboratory methods are based on this principle and provide information on the actual molecular content of lipids in biota samples.

4.5 Toxicity equivalents (TEQ) for dioxin-like contaminants

The group of dioxin-like contaminants are a group of chemicals made up by dioxins, furans and dioxin-like PCBs and due to their high toxic potential, have been identified as of special relevance for the quality assessment in European eels.

The Toxic Equivalent (TEQ) scheme weighs the toxicity of the less toxic compounds as fractions of the toxicity of the most toxic Dioxin TCDD. Each compound is attributed a specific "Toxic Equivalency Factor" (TEF). This factor indicates the degree of toxicity compared to 2,3,7,8-TCDD, which is given a reference value of 1. The TEF of each individual congener was defined by WHO in 2005.

4.6 Eel Quality specific ICES workshops

- ICES. 2015. Report of the Workshop of a Planning Group on the Monitoring of Eel Quality under the subject "Development of standardized and harmonized protocols for the estimation of eel quality" (WKPGMEQ), 20–22 January 2015, Brussels, Belgium. ICES CM 2014/SSGEF:14. 274 pp.
- ICES. 2016. Report of the Workshop of the Working Group on Eel and the Working Group on Biological Effects of Contaminants (WKBECEEL), 25–27 January 2016, Os, Norway. ICES CM 2015/SSGEPD:20. 98 pp.

4.7 Proposal for the upcoming Data Call

Taking into consideration the various recommendations and applications of limited amounts of eel quality data provided to date, the value of this data has driven the current addition of eel quality metrics to the annual Data Call (see Annex 4 and 5). As with biometric data provided it is anticipated that this will assist in a fuller stock wide quality assessment running alongside standard stock assessment protocols.

5 Subgroup 4: Technical subgroup

The WGEEL uses a database to store data required for the assessment, and two shiny applications: one for integrating data (transfer of data from excel templates provided by data providers to the postgresql database) and one for visualising data. A specific github (https://github.com/ices-eg/wg_WGEEL/issues) is used to manage these three tools (Figure 5.1). Some technical issues were listed to be fixed during this workshop (millestone: WKEELDATA4). Different types of issues have been solved:

- modification of shiny integration, database structure and templates to handle biometry data (see subgroups 1 and 3): issues #104, #205, #208

- allow the data provider to delete data if required (see subgroup 2): issue #183
- improve the templates to facilitate the work of data: issues #188, #204, #188, #207

- facilitate the data analysis and data visualisation: issues #173, #170, #137, #195
- improve the nomenclature of EMUs in the database: issues #178, #187, #201, #126

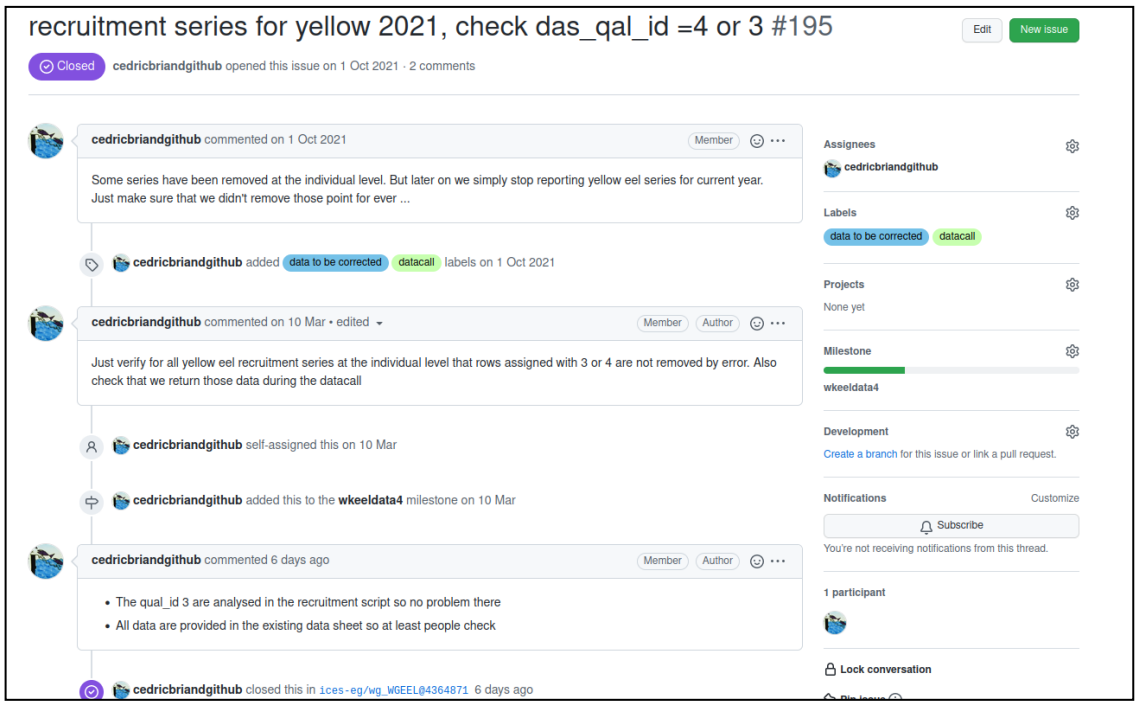

Figure 5.1: Illustrative screenshot of a sample github issue fixed during the workshop.

All these issues were, at least partially, fixed. Remaining issues are not preventing the Data Call to be issued and will be fixed before the next WGEEL meeting. More details on how issues were fixed can be found in the github issues pages where changes were monitored using the git version control system.

At the end of the week:

- 14 issues with milestone WKEELDATA4 were definitively closed, 7 are still open
- 69 commits have been pushed to github during the week of the workshop

6 Conclusion

The workshop reviewed data requirements for WGEEL, generated excel table templates (Annexes 1-9) that should simplify and standardise data submission, and their analyses and reporting, and adapted all related tools (including database and shiny applications).

This remains a developing work area, and the workshop anticipates that in 2023 the priority will become to finish work associated with the process of analysing time series data as well as biometry data collected under the EU DCF (and other) frameworks, and rebuilding the landings datasets by using corrections for the underreporting (see the WKFEA text roadmap for further details).

As specified in the ToR, the group produced a roadmap of the remaining tasks that should be addressed before the Data Call issued and then before the data integration session of the WGEEL:

1. Final revision for naming consistency in xls templates: 20th May
2. Finalise the database structure modification in the "production" server running database_edition_2022.sql and database_edition_2022.R: 20th May
3. Finalise the dictionary tables and integrate it in the database: 20th May
4. Finalise and test loading functions for the integration of new and modified templates: 30th May
5. Generate prefilled templates for each country based on "root" templates: 30th May
6. Issuing the Data Call: early June
7. Development, tests and corrections of the shiny data integration: 1st September

7 References

Belpaire, C., Geeraerts, C., Evans, D., Ciccotti, E., and Poole, R. 2011. The European eel quality database: towards a pan-European monitoring of eel quality. Environmental Monitoring and Assessment, 183: 273–284. https://doi.org/10.1007/s10661-011-1920-2

ICES, 2008. Report of the 2008 session of the Joint EIFAC/ICES Working Group on Eels. Leuven, Belgium, 3–9 September 2008. EIFAC Occasional Pa per. No. 43. ICES CM 2009/ACOM:15. Rome, FAO/Copenhagen, ICES. 2009. 192p.

ICES. 2009. Report of the 2009 session of the Joint EIFAC/ICES Working Group on Eels. ICES CM 2009/ACOM:15. Göteborg.

ICES. 2011. Report of the 2011 Session of the Joint EIFAAC/ICES Working Group on Eels. ICES CM 2011/ACOM:18. Lisbon.

ICES. 2012. Report of the Joint EIFAAC/ICES Working Group on Eels (WGEEL). ICES CM 2012/ACOM:18. Copenhagen.

ICES. 2013. Report of the Joint EIFAAC/ICES Working Group on Eels (WGEEL). ICES CM 2013/ACOM:18. Sukarietta, Copenhagen.

ICES. 2015. Report of the Workshop of a Planning Group on the Monitoring of Eel Quality under the subject "Development of standardized and harmonized protocols for the estimation of eel quality" (WKPGMEQ), 20–22 January 2015, Brussels, Belgium. ICES CM 2014/SSGEF:14. 274 pp.

ICES. 2016. Report of the Workshop of the Working Group on Eel and the Working Group on Biological Effects of Contaminants (WKBECEEL), 25–27 January 2016, Os, Norway. ICES CM 2015/SSGEPD:20. 98 pp.

ICES. 2017a. Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES CM 2017/ACOM:15. Kavala, Greece.

ICES. 2017b. Report of the Workshop on Designing an Eel Data Call (WKEELDATA). ICES CM 2017/SGIEOM:30. Rennes, France.

ICES. 2018. Report of the Workshop on Tools for Eel (WKTEEL). ICES CM 2018/ACOM:49. Rennes, France.

ICES. 2019. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 1:50. 177 pp. http://doi.org/10.17895/ices.pub.5545.

ICES. 2020. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports Volume 2 Issue 85. 223p.

ICES. 2021a. Workshop on the Future of Eel Advice (WKFEA). VOLUME 3 | ISSUE 13.

ICES. 2021b. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports Volume 2 Issue 85. Virtual.

ICES. In Press. Report of the Workshop for the Review of Eel Management Plan Progress Reports (WKEMP).

Pohlmann, J.D., Freese, M., Reiser, S. and Hanel, R., 2019. Evaluation of lethal and nonlethal assessment methods of muscle fat content in European eel (Anguilla anguilla). Canadian Journal of Fisheries and Aquatic Sciences, 76: 569-575. https://doi.org/10.1139/cjfas-2018-0032

Annex 1: List of participants

Name	Institute	Country (of institute)	Email
Tea Basic (Chair)	Cefas	UK	tea.basic@cefas.co.uk
Laurent Beaulaton	Office Français de la Biodiversité / Management of Diadromous Fish in their Environment, OFB, INRAe, Agrocampus Ouest, UNIV PAU and PAYS ADOUR/E2S UPPA	France	laurent.beaulaton@ofb.gouv.fr
Clarisse Boulenger	Office Français de la Biodiversité / Management of Diadromous Fish in their Environment, OFB, INRAe, Agrocampus Ouest, UNIV PAU and PAYS ADOUR/E2S UPPA	France	clarisse.boulenger@ofb.gouv.fr
Cédric Briand	EPTB Vilaine	France	cedric.briand@eptb-vilaine.fr
Hilaire Drouineau (Chair)	INRAE UR EABX / Management of Diadromous Fish in their Environment, OFB, INRAe, Agrocampus Ouest, UNIV PAU and PAYS ADOUR/E2S UPPA	France	Hilaire.drouineau@inrae.fr
Caroline Durif	Institute of Marine Research	Norway	caroline.durif@hi.no
Derek Evans	Agri-food and Biosciences Institute	UK	derek.evans@afbini.gov.uk
Marko Freese	Thuenen Institute	Germany	marko.freese@thuenen.de
Jani Helminen	Natural Resources Institute Finland	Finland	jani.helminen@luke.fi
Iñigo Martinez	International Secretariat for the Exploration of the Sea	Denmark	Inigo.martinez@ices.dk
María Mateo	Azti Sukarrieta	Spain	mmateo@azti.es
Sukran Yalcin Ozdilek	Canakkale Onsekiz Mart University	Turkey	sozdilek@comu.edu.tr
Jan-Dag Pohlmann	Thünen Institute Institute for Fisheries Ecology	Germany	jan.pohlmann@thuenen.de
Sami Vesala	Natural Resources Institute Finland	Finland	sami.vesala@luke.fi

Annex 2: Resolutions

The Fourth Workshop on Designing an Eel Data Call (WKEELDATA4)
Approved on the Resolutions Forum in April 2022

2022/2/FRSG33 A **Workshop on Designing an Eel Data Call** (WKEELDATA4), co-chaired by Tea Bašić (UK) and Hilaire Drouineau (FR), will meet virtually, 9 May–13 May 2022 to design a data Call to all ICES/EIFAAC/GFCM countries having natural production of European eel and prepare their integration in the eel database supporting WGEEL work. The data Call 2022 will request the same data as every year (e.g. the 2020 Call), incorporating WGEEL recommendations, and will also collect biometric data (including from DCF programmes), following the ICES WKFEA roadmap. To achieve this aim, the WK will:

a) Update templates that will be used to report these data to the ICES and text for the 2022 Eel Data Call, following WGEEL recommendations;
b) Create new templates that will be used to report biometric data (including DCF data), following the WKFEA roadmap;
c) Develop/Update all the tools in the WGEEL's shiny application required to automatise the data Call;
d) Develop with ICES Data Centre the roadmap to achieve the data Call publication beginning of June and the data integration during the WGEEL meeting (first part):
- List the tasks to be done to finalise data Call preparation
- List and prioritise developments needed in the shiny application.

WGEELDATA4 will report by the 27th of May 2022 for the attention of FSRG, WGEEL, WGDIAD, ACOM, SCICOM, EIFAAC, GFCM. The WK will require post-meeting work of estimated 15 man-days to run beta tests to validate the developments, which will be distributed among WK members.

Supporting information

Priority	This topic is a high priority for ICES and the countries/institutions supporting the work of the WGEEL because the present data collection procedures of WGEEL are complex and require a large resource in staff time before and during the WGEEL meetings. The refinement of data provision will save time and money, and it will facilitate the future benchmarking of the stock assessment process to support the ICES Advice.
Scientific justification	The WGEEL annually collates data on recruitment, landings from commercial and recreational fisheries, restocking, aquaculture production, rates of other human-induced mortalities on eels, biological characteristics of eels, etc. The development of various tools (database, standardised templates, shiny application for data integration and analysis) have allowed to greatly improve consistency in the data collection and to facilitate their use in the stock assessment process. Since additional data will be collected in 2022 based on WGEEL and WKFEA recommendations, the tools must be adapted to manage these specific types of data.
Resource requirements	The workshop will be run virtually. Videoconferencing system and sharepoint will be required.

Participants	WGEEL members in charge of the data collection and management. One or two persons in charge of answering to the data Call. The presence of a GFCM representative would be required to ensure the consistency between ICES and GFCM data Calls.
Secretariat facilities	The standard support for arranging the meeting, providing access to sharepoint, videoconferencing system and for formatting the report.
Financial	No financial implications.
Linkages to advisory committees	Links to ACOM as the data collection and related procedures are crucial for the work of WGEEL, providing the scientific basis for the ICES advice on fishing opportunities published by ACOM.
Linkages to other committees or groups	The results will be of direct benefit to the WGEEL and wider to WGDIAD.
Linkages to other organizations	The results will be of direct interest to DG MARE of the European Commission, in relation to the obligations of the Eel Regulation (EC1100/2007) and the EU MAP, and to GFCM in relation to planned eel Data Collection Framework Reference.

Annex 3: Agenda

Monday, 9th May

10:00	Welcome & Introductions
10:15	Reminder of Procedural Matters
10:30	Update on ToRs
10:45	Technical presentation of Database structure and shiny
11:20	Presentation of tasks and subgroups
11:40	Validation of Agenda
13:30	All task groups breakout
16:30	Plenary to discuss matters arising

Tuesday, 10h May

10:00	All task groups break out
16:30	Plenary to discuss matters arising

Wednesday, 11 May

10:00	All task groups break out
16:30	Plenary to discuss matters arising

Thursday, 12th May

10:00	All task groups break out
16:30	Plenary to receive draft report sections and tables, with short presentations on key points

Friday, 13th May

10:00	Plenary to review tables and report
17:30	WK close

Annex 4: Table of biometry and eel quality metrics

This table contains the different biometry metric and eel quality metrics currently listed in the database dictionary. These metrics will be requested in this 2022 Data Call (although eel quality metrics are optional).

mty_id	mty_name	mty_individual name	mty_description	mty_type	mty_method	mty_uni_code	mty_group	mty_min	mty_max
1	lengthmm		Total body length in millimeters (mm) or mean total body length for group	biometry		mm	both	50	1500
2	weightg		Weight (g) or mean weight for group	biometry		g	both	0,1	3000
3	ageyear		Age (year) or mean age for group	biometry		nr year	both	0	75
4	eye_diam_mean_mm		Eye diameter, or average of vertical and horizontal diameter (mm)	biometry		mm	individual	1	15
5	pectoral_lengthmm		Pectoral fin length (mm)	biometry		mm	individual	3	54
6	female_proportion	is_female_(1=female,0=male)	Female status (is_female) or percentage female in the population female/(male+female) for group	biometry		proportion	both	0	1
7	differentiated_proportion	is_differentiated_(1=differenti	Is the eel differentiated (male or female) or proportion of differentiated eel in the group	biometry		proportion	both	0	1
8	anguillicola_proportion	anguillicola_presence_(1=prese	Presence of anguillicola or Prevalence in proportion in group (between 0 and 1)	quality		proportion	both	0	1
9	anguillicola_intensity		*A. crassus* intensity or mean A. crassus intensity for group	quality		nr	both	0	
10	muscle_lipid_fatmeter_perc		Lipid percentage or mean muscle lipid percentage measured with fatmeter for group	quality	fatmeter	percent	both	0	
11	muscle_lipid_gravimeter_perc		Lipid percentage or mean muscle lipid percentage measured with gravimetrics for group	quality	gravimetry	percent	both	0	
12	sum_6_pcb		Sum of six PCBs or mean sum of six PCBs for groups	quality		ng/g	both	0	
13	evex_proportion	evex_presence_(1=present,0=a	EVE and EVEX presence (1= present, 0 = absent) or proportion in the group	quality		proportion	both	0	1
14	hva_proportion	hva_presence_(1=present,0=ab	HVA presence (1= present, 0 = absent) or proportion in the group	quality		proportion	both	0	1
15	pb		Lead (Pb) concentration or mean lead (Pb) concentration	quality		ng/g	both	0	
16	hg		Mercury (Hg) concentration or mean lead (Pb) concentration for group	quality		ng/g	both	0	
17	cd		Cadmium (Cd) concentration or mean cadmium concentration for group	quality		ng/g	both	0	
18	m_mean_lengthmm		Male mean total body length (mm)	biometry		mm	group	0	600
19	m_mean_weightg		Male mean weight (g)	biometry		g	group	0	800
20	m_mean_ageyear		Male mean age (year)	biometry		nr year	group	0	20
21	f_mean_lengthmm		Female mean body length (mm)	biometry		mm	group	0	1000
22	f_mean_weightg		Female mean weight (g)	biometry		g	group	0	1500
23	f_mean_age		Female mean age (year)	biometry		nr year	group	0	50
24	g_in_gy_proportion		Proportion of glass eel in number during the season when the series is a grouping of glass and yello	migration		proportion	group	0	1
25	s_in_ys_proportion		Proportion of silver eel in number in the group	migration		proportion	group	0	1
26	teq		Sum TEQ of measured dioxin-like PCBs or mean sum TEQ of measured dioxin-like PCBs	quality		ng/g	both	0	

Annex 5: Examples of Quality parameter tables used previously

a) Reproductive potential in silver eels per EMU.

EMU_CODE	SITE		YEAR		MALE		FEMALE	
No. silver eels	Mean size (mm)	% Lipids	Σ 6 PCBs* (ng/g ww)	No. silver eels	Mean size (mm)	% Lipids	Σ 6 PCBs* (ng/g ww)	

b) Eel Quality Index: Basic requirements for assessing the quality of the yellow eels in your EMU/basins. By EMU, provide the mean size (mm), total wet weight of PCB28, PCB52, PCB101, PCB138, PCB153 and PCB180 (Σ 6 PCBs), *p,p'*-DDD, *p,p'*-DDT, *p,p'*-DDE (Σ DDTs), cadmium, lead and mercury (ng/g wet weight) of yellow eel. Include a reference, if available.

EMU_CODE	SITE	YEAR	SEX	N	MEAN SIZE (MM)	Σ 6 PCBS (NG/G WW)	Σ DDTS (NG/G WW)	CAD-MIUM (NG/G WW)	LEAD (NG/G WW)	MER-CURY (NG/G WW)

c) **Presence and abundance of *Anguillicola crassus*. By EMU, report the prevalence and intensity of *Anguillicola crassus* in yellow and silver eel, providing details of when the site was surveyed, the number and mean size of yellow and silver eel sampled and a reference (if available).**

EMU_CODE	SITE		DATE/YEAR	YELLOW EEL			SILVER EEL	
N	Mean size (mm)	Prevalence (%)	Abundance (n)	N	Mean size (mm)	Prevalence (%)	Abundance (n)	

Annex 6: Cover Letter

A Cover Letter to accompany and explain the Data Call was drafted, based on previous letters and updated to reflect the changes and additions to the Data Call in 2022, and supplied to ICES for further discussion with the European Commission, GFCM and EIFAAC.

DCF national correspondents

Els Torreele, Ivana Vukov, Jørgen Dalskov, Elo Rasmann, Heikki Lehtinen, Louise Veron, Christoph Stransky, Kostas Katsafaros, Linda O'Hea, Mauro Bertelletti, Didzis Ustups, Vilda Griūnienė, Heleen Van Bemmel, Irek Wojcik, Suzana Faria Cano, Tim Berginc, Anna Hasslow, Maria del Pilar Vara del Río, Ivana Vukov, Jiří Dubec.

ICES ACOM members

Els Torreele; Morten Vinther; Robert Aps; Jari Raitaniemi; Alain Biseau; Colm Lordan; Linas Lozys; Bjarte Bogstad; Christopher Zimmermann; Didzis Ustups; Niels Hintzen; Jan Horbowy; Ivone Figueiredo; Francisco Velasco; Massimiliano Cardinale; Ewen D. Bell.

Our Ref: H.4/LWC/im/av **05 July 2022**

Subject: **Joint ICES/GFCM/EIFAAC Eel Data Call 2022**

Dear Reader,

Please find enclosed a document describing the rationale, scope and technical details of the Eel Data call for 2022. Data Call template annexes (the number dependent on the country, see below) are published on the ICES library so that each country can download their own tailored annexes (https://doi.org/10.17895/ices.pub.20014811).

The data will be used by WGEEL to conduct an assessment of the eel stock and factors affecting the stock in support of the recurrent ICES Advice.

For countries which are also EU members this data call is under the Council Regulation (EC) No 2017/1004.

The deadline for this data call is Monday 29th of August 2022.

For questions about the content of the data call, please contact: advice@ices.dk. For questions on data submission, please contact: data.call@ices.dk.

The data call will also available from the ICES website at: https://www.ices.dk/data/tools/Pages/Data-calls.aspx

Sincerely,

Lotte Worsøe Clausen

CC: Jan-Dag Pohlmann (WGEEL chair), Cédric Briand (WGEEL Stock Coordinator), Hilaire Drouineau (WGEEL Stock Assessor), Teppo Vehanen(EIFAAC), Ciaran O' Leary(EIFAAC), Elisabetta Morello (GFCM), DG MARE, Matthew Elliott (UK fisheries), datahjelp@hi.no.

Data Call Table of Contents

Joint ICES/GFCM/EIFAAC Eel Data Call 2022

1. Scope of the Data Call

This Data Call is limited to European eel (Table 1) and is addressed to all the countries within the geographic range of the European eel (North Atlantic, Baltic and Mediterranean Seas, and inland waters). These countries are distributed across different global and regional management organizations, such as those represented in WGEEL (EIFAAC, ICES, GFCM).

As in the previous 2021 data call, data submitters are supplied with tables of the historical data integrated to the WGEEL database and are asked to provide any revisions of data plus new data, for:

- Time series of recruits, yellow eel abundance and silver eel abundance
- Commercial, recreational and other fisheries landings
- Releases of eel to other waters, and
- Aquaculture production

New in 2022: data submitters are requested to submit:

- Individual biometric data available in relation to recruitment, yellow and silver eel time series under separate tabs on the time series templates (see further information below).
- All eel biometric data available (with the respective 'metadata') from sampling schemes such as EU DCF, GFCM DCRF etc.

Eel-quality data (e.g. muscle lipid content, anguilicola proportion etc.) can be provided as part of the biometric data, but provision of these data are optional for this 2022 Data Call.

Please notice also that a new annex 10 was created in 2022 in substitution of annex 9 (that has been deprecated).

Table 1. List of species.

Common name	ASFIS Code	Scientific name
European eel	ELE	*Anguilla anguilla*

2. Rationale

This is a joint Data Call from ICES, EIFAAC and GFCM to collect data from all countries within the geographic range states of the European eel.

This Data Call is intended to formalize data reporting across all countries with natural production of European eel to support the provision of ICES recurrent advice on the European eel stock.

The data provided for the Data Call 2022 will be used as the basis for the annual stock assessment in support of the advice for the eel stock, and will be integrated into the WGEEL database for the European Eel stock. This database will be used as basis for advice across the natural range of the European eel.

The new biometric data requested will be important to inform on key population parameters, such as age-at-silvering, sex ratio etc., and are necessary for developing the final Spatial Stock Assessment Model as outlined in the WKFEA roadmap (ICES, 2021[1]). Both individual data (i.e. biometry of a given fish) and aggregated data (i.e. estimators of average biometry values over multiple fishes) are requested as individual data might not always be available, and some sampling schemes might be based on specific statistical sampling strategies, thus requiring specific data aggregations.

3. Legal framework

The legal framework for the Data Call is as follows, though noting that these don't all apply to every eel producing country:

- Council Regulation (EC) No 2017/1004 concerning the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy.
- Council Regulation (EU) No 1380/2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and E(EC) No 639/2004 and Council Decision 2004/585/EC.
- Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel.

Generically, all the governments and intergovernmental commissions requesting and receiving advice from ICES have signed international agreements under UNCLOS 1995[2]. For non-EU states with fisheries operating in the North Atlantic, there is a requirement to make fisheries data available to support fisheries management under OSPAR, HELCOM, and UNCLOS.

This Data Call follows the principles of personal data protection, as referred to in paragraph (9) of the preamble in Council Regulation (EC) No 2017/1004.

Furthermore, the data provided through this data call for annex 1-3 are under ICES CC BY 4.0 (public access) policy (link) and data for annexes 4 to 8 and 10 are restricted to WGEEL access.

4. Deadlines

The data are requested to be delivered by Monday 29th of August 2022. This deadline is set to provide enough time for additional quality assurance prior to the WGEEL meeting. Missing the reporting deadline will compromise the indispensable data quality checking (on a stock basis) before the use of that data to update assessments.

[1] ICES. 2021. Workshop on the future of eel advice (WKFEA). ICES Scientific Reports. 3:13. 67 pp. https://doi.org/10.17895/ices.pub.5988

[2] United Nations (UN). 2011. Agreement related to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. Available at: https://documents-dds-ny.un.org/doc/UNDOC/GEN/N95/274/67/PDF/N9527467.pdf?OpenElement

5. Data to report

5.1. Geographic and temporal scope

The geographic scope is all waters (marine and inland waters) of countries within the natural range of the European eel (including FAO areas 27, 34 and 37). The data should be reported at the geographic scale of Eel Management Units (EMUs) or equivalent water bodies, where possible, except for aquaculture data which need to be reported per country.

The temporal unit is per year. The default temporal scope is 2000 to 2021 inclusive: however, this comprises all historical data for new time series (not previously submitted to ICES) and any new data requested (e.g. individual biometric data). For glass eel recruitment series only, the scope includes 2022 (i.e. all years not previously submitted, up to and including 2022).

5.2 Data Types

The Data Call is separated in annexes, each annex contains several sheets, including metadata, tabs returning the current state of the data in the database, and tabs to provide new data, to update data or to indicate which lines should be deleted. For some variables (e.g. EMUs, life-stage), authorized values are listed into referential tables for consistency (use only those values indicated in the annexes with the names starting with tr_). Annual updates are requested on the following data:

Time series of empirical data and associated biometric and optionally eel quality data (no model outputs):

- Recruitment (glass eel and yellow eel recruitment time series): Annex 1.
- Yellow eel abundance indices (providing measure of the standing stock, not recruitment): Annex 2.
- Silver eel abundance indices: Annex 3.

For annex 1 to 3, please check and complete the following tabs when necessary: series info, station, new data, updated data, deleted data, new group metrics, updated group metrics and deleted group metrics (previously named ***'biometry'***), and new individual metrics, updated individual metrics and deleted individual metrics.

Note that this is the first time that individual data are collected by WGEEL. Individual data should correspond to those used to build group metrics. Only biometric data are required while provision of eel-quality data (i.e. contaminants, diseases) is optional in this 2022 Data Call. Please check carefully the series_info table, as full information is required about the series for further processing / analysis by the working group. In addition, for each data point, please provide a "data" quality index that qualifies the reliability of the data; this is crucial to inform the working group on potential biases. Instructions are provided in the readme tab to explain how to choose the appropriate value for this index.

- Landings for commercial fisheries: Annex 4.
- Landings for recreational fisheries: Annex 5.
- Landings related to transport/relocation operations (when eels have been collected somewhere in traps and transported to other waters where they appear as release, this sheet is to be used to collect capture information): Annex 6.
- Releases: Annex 7.

- Aquaculture production: Annex 8.

For annex 4 to 8, please check and complete the following tabs when necessary: new data, updated data, deleted data. Data validated and used by WGEEL are shown in the tab "existing_kept"data, data discarded from analysis because it was updated, or submitted as duplicate or analysed as invalid are shown in the "existing_discarded" tab. Dictionary tables used by wgeel are provided for check (names starting with tr_). When a category of data is not present (e.g. glass eel landings, or yellow eel recreational landings), WGEEL needs to know why these data have not been integrated, for example because they:

i) do not exist (e.g. glass eel fishery simply never occurred at that place, the habitat does not exist); in that case data would be not pertinent (NP), or

ii) because they have not been collected or reported yet (NC).

Pre-filled data are reported to the national correspondents for validation under the "existing_data" tab; and under the "updated_data" (for data in which updates are required, such as missing data quality index) . Pre-filled entries highlight the data expected to be reported this year as a continuation of the existing series. These lines need to be either edited if data are available, or deleted if data are not yet reported.

- Annex 9. Notice that this data has been deprecated and no longer in use.

- Other sampling data: Annex 10. This is a new annex in 2022 in substitution of annex 9.

This is a new type of data requested in 2022. It corresponds to biometric-data not already covered in data collected in annexes 1-3, from sampling schemes such as EU DCF, GFCM DCRF etc. The sampling information ("sampling_info" tab) should first be completed. The objective is to get a consistent sampling scheme at the EMU scale, and information about sampling objective and strategy should be provided. If different sampling strategies are used to collect different indices (e.g. one for biometrics and one for contaminants) describe them in separate rows. The format of Annex 10 is then similar to that used to report the group and individual metrics in annexes 1 to 3: new, updated and deleted group metrics and new, updated and deleted individual metrics.
For annex 10, the provision of eel quality data (e.g. contaminants, diseases – tab "new_data") is optional in this 2022 Data Call. Note also that the current Annex 10 is not equivalent to the previous Annex 9 on mortality requested under the 2021 data call.

Alongside each of these eel data sets, we request the following metadata in all annexes:

- Data Custodian: name and email address of a person who can be contacted about the dataset.
- Method used: short description of the method used to collect the data.
- Indication on whether there was a change brought to existing data.

Important for data submitters: Further instructions are found in the ReadMe section in the data input sheets of Annexes 1 to 10, and in text-boxes attached to the data entry sheets.

Concerning all annexes, if any of the values already integrated require corrections or an update (e.g. due to incomplete reporting in past data calls), please do not make the correction in the "existing_data" tab but instead provide the corrections by copying the old line of data and make corrections in the dedicated "updated data" tab. If a data entry needs to be deleted, please copy the old line of data from the "existing_data" tab into the dedicated "deleted data" tab and provide

a comment under the respective column ending by qal_comment justifying this action if the column is present.

6. Data submission

Nine template tables (Annexes) are provided for this Data Call (**notice that previous annex 9 has been deprecated and a new annex 10 hs been created instead**. The annexes are published on the ICES library so that each country can download their own tailored annexes (https://doi.org/10.17895/ices.pub.20014811).

- Annex 1 Time Series Recruitment
- Annex 2 Time Series Yellow Standing Stock
- Annex 3 Time Series Silver
- Annex 4 Landings Commercial
- Annex 5 Landings Recreational
- Annex 6 Landings Other
- Annex 7 Releases
- Annex 8 Aquaculture
- Annex 10 Other sampling Data:

Annexes have been adapted to each country, so for instance a country will not have an annex related to aquaculture if aquaculture data were never reported for that country; please notify the eel stock coordinator (cedric.briand@eptb-vilaine.fr) if you have data to report but the relevant annex is missing.

Data files should be submitted to data.call@ices.dk in as few e-mails as possible. Both e-mail subject and file name must include year, working group, country, and data type references.

"2022 DC WGEEL [country] [type of data] " (example: 2022 DC WGEEL FR LANDINGS COMMERCIAL)

In the case of GFCM Experts and/or Focal Points participating in WGEEL, when submitting data to ICES, a copy of the email (and data) should be sent to the GFCM DCRF team (DCRF@gfcmonline.org) for information.

Electronic Advice outputs

All advice outputs based on data held by ICES will also be provided as electronic outputs.
After validation by the working group, data corresponding to annexes 4 to 8, that provide basic information on the stock status, may be made available in the future using a Shiny-app hosted in ICES.
To comply with the ICES Transparent Assessmeent Framework and since the current ICES advice on the status of the European eel population is based on an analysis of time-series of recruitment (provided within annex 1), those time-series, once validated and pre-treated by the WGEEL, are intended to become public and available online under ICES CC BY 4.0 policy (link). Other time-series of abundance (input data provided through annexes 2 and 3), biometry/contamination/diseases data (within annexes 1 to 3 and 10) are not intended to be made publicly available in the short term since they are not underpinning the Advice. However, any data provided as a response to the data call are considered to be publicly available by default (under CC BY license), unless the data submitter states otherwise.

All data, corresponding to annex 4 and 8, include those discarded as part of the screening of duplicates and quality check procedure by WGEEL. These discarded data are made available to the reporting country during the following datacall as part of the "discarded_data" tab of the excel files returned to to the data provider.

7. Contact information

- Send all data submissions (and questions concerning data submissions) to: data.call@ices.dk
- For questions on general advice, please contact: advice@ices.dk
- For support concerning issues about the data call (i.e. annexes), please contact:
    - Cédric Briand. WGEEL Stock Coordinator. Email: cedric.briand@eptb-vilaine.fr
    - Hilaire Drouineau. WGEEL Stock Assessor. Email: hilaire.drouineau@irstea.fr
- For support concerning the WGEEL, please contact the chair: Jan-Dag Pohlmann. Chair. Email: jan.pohlmann@thuenen.de