WORKING GROUP ON GOVERNANCE OF THE REGIONAL DATABASE & ESTIMATION SYSTEM (WGRDBES; OUTPUTS FROM 2020 MEETING)

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i Executive summary

The Working Group on Governance of the Regional Database & Estimation System (WGRDBES-GOV) provides the governance function for both the existing Regional Database (RDB) and the new Regional Database & Estimation System (RDBES) that is currently in development. It is composed of representatives from ICES member countries and EU Regional Coordination Groups (RCGs). In this report, the WGRDBESGOV reviews the RDBES developments performed during 2020 and plans for the work required in 2021 and beyond. It also considers how RDB data has been used and proposes changes required to the current Data Policy.

The RDBES is currently planned to replace both the existing ICES InterCatch and RDB database systems and has an important part to play in increasing transparency and improving the quality of stock assessment within ICES. To this end, two workshops have been planned for 2021 which will help data submitters with the transition to the new system. A new working group is also proposed to enable the ICES community to move forward with estimation using the RDBES data model. Following on from the data call issued in 2020, another test data call is also planned for 2021 which will give further motivation for people to become involved and provide a robust test of the process.

The RDB and RDBES must ensure that data can be used by the RCGs and authorised groups in ICES whilst ensuring that only permitted users have access to the confidential data – the rules relating to this have previously been defined in the RDB Data Policy. In line with discussions at the ICES Data and Information Group (DIG), it is proposed to split the current Data Policy into two new documents: a Data License, and a Data Governance document.

It is important to remember that the ultimate success of the RDBES will rely on the effort and contributions from a large number of people in the wider ICES/EU data collection community and not just the relatively small groups who attend the WGRDBESGOV or Core Group meetings. The WGRDBESGOV continues to encourage these contributions.

ii Expert group information

Expert group name	Working Group on Governance of the Regional Database & Estimation System (WGRDBESGOV)
Expert group cycle	Multiannual fixed term
Year cycle started	2020
Reporting year in cycle	1/3
Chairs	David Currie, Ireland
	Katja Ringdahl, Sweden
Meeting venue and dates	1-3 December 2020, Online, 31 participants

1 Development status of the RDBES

This section reviews the work done on the RDBES so far, and plans for the future work required. It fulfils ToR (a): "*Review the status of the development of the new commercial fisheries Regional Database & Estimation System (RDBES) and its project plan for implementation, including the funding of the outstanding development. Adjust the project plan as required. Oversee and advise on the interpretation and prioritisation of recommendations for the RDBES development. Identify user guidance and training required for RDBES users.*"

1.1 ICES RDBES system development summary

The reasons for developing the RDBES include:

- Provide a regional estimation system for ICES stock assessments
- Give RCGs access to detailed data in the way it was collected
- Support the collection of design-based data collections
- To increase the data quality, documentation of data, and transparency of estimations
- To facilitate the production of fisheries management advice and reports
- To increase the awareness of fisheries data collected and the overall usage of these data.

Comparison between RDBES and RDB

The following tables and diagrams give a brief summary of the difference between the existing Regional Database (RDB) and the new Regional Database & Estimation System (RDBES) that is in development.

Functionality	RDBES	RDB
Support statistical sound sampling schemes (4S)	Yes	No
Store statistically collected sample data with statistical information	Yes	No
Store collected data the way it was collected, which support some conclusions	Yes	No
Statistical estimations can be made from the data stored including uncertainties	Yes	No
Support regional sampling	Yes	No
Storing regional sampling data from different countries under the same sampling scheme	Yes	No
Fully support landing obligations categories	Yes	No

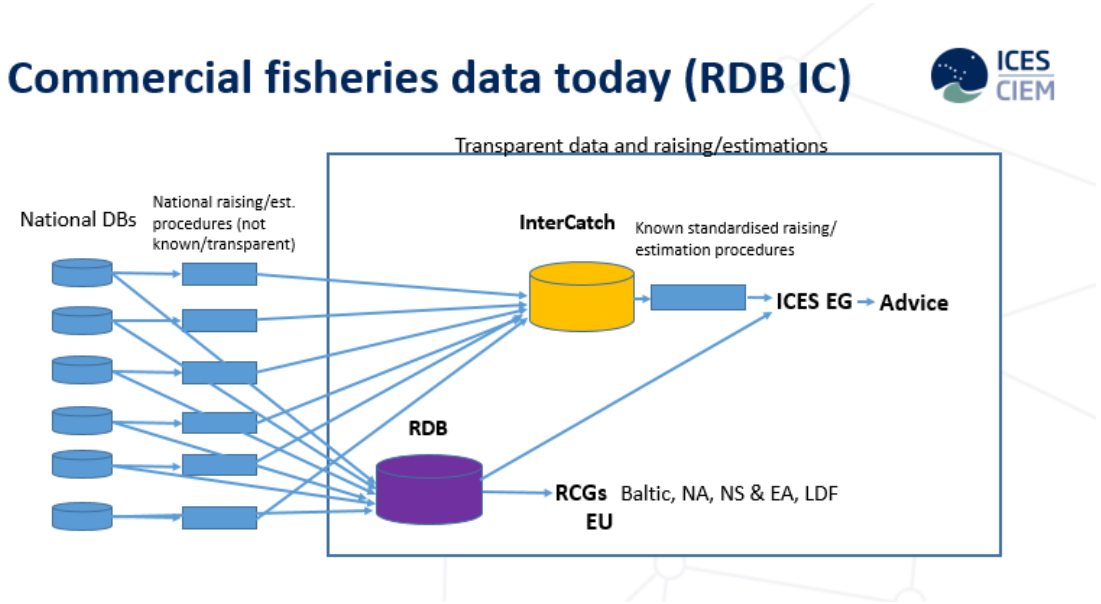

Figure 1

Currently the main users of the RDB are the RCGs, with some requests for data received by ICES expert groups. In the future the RDBES will continue to support the RCGs but there will also be a much stronger link to ICES expert groups involved in the production of advice.

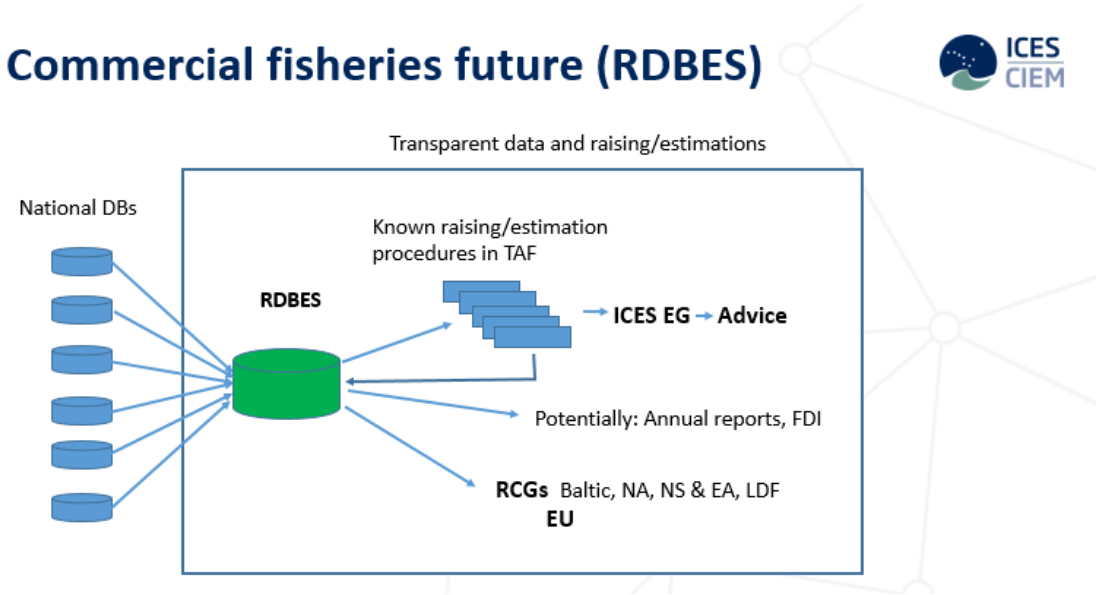

Figure 2

RDBES system developments by ICES in 2020 include:

- Synchronising RECO tables and Local RDBES vocabulary tables (before: an http call wrapped in dll. Now a more secure method has been implemented: Message broker service/SQL server service broker)
- Updated hierarchies imports and optimised them.
- Finished and optimised import for CL and CE,
- Looked into further optimisation for potentially large CL and CE files

- Upload of VD and SL including: schema validation check, overwriting check
- Download of CL, CE, VD and SL
- Duplicate data check against data in the file for CL, CE, VD and SL
- Overwriting rules implemented (include display data)
- Logging including username and IP address to improve diagnostics of the system
- Updating data models and documentation on GitHub
- Checks:
    - Subsample check (Parent Id must exist and SA unique SAsequenceNumber field)
    - LEencryptedVesselCode mandatory check (because the reference to VD was made optional)
    - Look up validation check (VD and SL are out of hierarchies)
    - Invalid cluster check
- Stop of hierarchies at any level: Update of code, everywhere; import, checks, XSDs, converter, export
- zip file upload feature
- feature of adding a test country for each user for test purpose in the security module
- implement a disclaimer as part of data download
- Stock definition page (on going)
- General small updates and optimisations e.g. user security/management page, update to ICES template header

Every time there is change to a field many components in the system have to be updated:

- Changes to DB
- Schema validation
- Duplicate data check
- CSV to XML conversion
- Overwriting
- Upload
- Download

The new version of RDBES was released on the web at the end of May (version 1.18) in connection with the first RDBES data call sent the 27 May 2020. The version has been frozen since then, because of the data call.

The next steps are:

- Quality checks
- Output format
- Upgrade NET CORE and angular
- Data viewing of all 52 hierarchies, CL, CE, VD and SL
- Data inspections
- Specify more roles and access
- Data exchange with Transparent Assessment Framework, TAF, both ways
- Results check
- Support the countries in uploading data

1.2 The view of the European Commission on topics related to the transition from the RDB to the RDBES

The European Commission (COM) is overall supportive of the development of compatible regional databases and the WGRDBESGOV expressed that this is very appreciated and motivating. As discussed previously, COM would appreciate having the national workplans and annual reports at least partially completed using the RDBES. COM currently receives information from end users of scientific advice (ICES) on data transmission issues – this should continue in the future.

There were a number of points raised on specific topics:

Governance

- Continue to have RCG chairs involved in the governance of the RDBES
- Access to data is provided in line with EU policy (MS ownership of data and agreement before use; RCGs have access to the RDB at all times and can use the data; confidentiality rules) and to be clarified to end users of the RDBES
- Extension of the RDBES to PETS, by-catch sensitive species, diadromous, large pelagics, and recreational data would be positive.

Communication

- The paper used for the non-recurrent advice request in support of the DCF is a good basis for providing information to DG MARE.
    - Focus on the benefits for member states and COM of the RDBES in comparison to the RDB
- It's important to be in contact with RDB Med and BS Regional Database development and maintain compatibility between the systems.
- More information is needed on how the RDBES will affect the work of stock assessors.

Adoption and Legacy

- The RCGs were in general supportive of the RDBES. There should continue to be good communication with the RCGs - the RCG representatives in the WGRDBESGOV should continue to ensure they are kept aware of progress and new features of the database.
- Be sure to channel information to member states which are not represented in the RCGs
- Have a standing invitation to RCG chairs to the WGRBDESGOV
- No legislative changes are needed – Art 18 of the DCF supports the development of databases.
- The existing RDB should be preserved in the future and be kept functional, available, and accessible for RCG work, in parallel with the RDBES. It will not have the same time series as the RDBES, so it will provide access to the historical data.

Funding

- In 2020 COM financed a non-recurrent advice request for RDBES supporting the DCF implementation. This produced a report, which will help MS evaluate the data accuracy (precision and bias) in their design-based estimation systems. The delivery of this report is due by 18th December and has a budget of 14,745 euros.
- Discussions are ongoing between COM and ICES on the 2021 financing of the RDBES and other investments in the quality of advice.

Questions & discussion

Currently, in the RDB, UK data are available, and this data is grouped by the different regions in the UK (e.g. Wales, Isle of Man, Scotland, England). The question was raised how to handle this situation with the upcoming Brexit. The COM is in favour that these data which are currently available (i.e. UK), should stay available. In general, WGRDBESGOV remarked, a consistent approach is needed in the upload of the data between the years, irrespective if this is by UK region, or not. The UK is requested by ICES to look into this also to make sure that data when starting to be uploaded to RDBES could happen in a comparable way with the existing data in the RDB and these data stay available.

The COM also asked a number of specific questions:

1. Will there be a historical data call in the RDBES? If so, will there be an overlap between RDB and RDBES time series?

The intention is to include historical data in the RDBES (this will be requested via future data calls) however the priority is to deal with current data first. In the future, once historical data is in the RDBES then there will probably be an overlap with the time-series present in the RDB. In this case, given its higher statistical quality, the data in the RDBES should take precedence over that in the RDB.

The road-map for RDBES development does include initial considerations about uploading historical data – these considerations will need to be further fleshed out. The road-map is updated on an annual basis by the group and published in its annual report.

2. Will the RDBES be fully accessible to COM? If not, what will be accessible?

Here is the relevant statement from the RDBES Data Policy (https://doi.org/10.17895/ices.data.7575):

"*Persons from the European Commission have full access to, or can receive, EU countries' data from the RDB/RDBES.*"

A related point is:

"*EU Member States (MS) grant permission for detailed data to be used by the RCG's for the purposes of Article 9 of the DCF.*"

So, in both the RDB and RDBES the Commission can have access to EU MS data, and EU MS data can be used by the RCGs.

It should also be noted that a country still owns the data that they have uploaded to the RDB and RDBES according to the data policy:

"***Data ownership***

The national data in RDBES is owned by the individual countries."

Data from a country that has previously uploaded data to the RDB and RDBES, but is no longer an EU MS is no longer available to the Commission or RCGs, unless that country gives explicit permission.

3. Will RDBES have training on how to use it?

Yes. Since the RDBES is a new system we are currently doing training via ICES workshops – these allow people to become familiar with the system and also provide them with an opportunity to give feedback on the system functions. In the future, as the development is completed and the system is finalised, these workshops will become closer to the training that ICES already provide for their systems like InterCatch.

4. What is the outcome of the data policy paper of the SC-RDBES? Has it been consulted / adopted by NCs or RCG chairs?

The updated Data Policy was agreed by the Decision Meeting of the NCs and was published by ICES on 17th November 2020 (https://doi.org/10.17895/ices.data.7575). We need to send a mail to the NCs and RCGs chairs to inform them of this publication.

5. What was your experience with MS replies on the pre-approved ICES WG, which have access to detailed data from the RDBES?

The updated Data Policy was only agreed and published recently so MS have not had a chance to send their pre-approvals to ICES yet. When we mail the NCs and RCG chairs we will highlight this option to ensure they are aware of it. It should be noted that in the past when receiving explicit requests from specific ICES WG/EG for access to detailed data from the RDB, all countries have been positive and allowed access to the detailed data.

6. What was the experience with the MS providing data to the RDBES under the 2020 data call?

This topic is covered in this report in Section 1.5.

1.3 Summary of the second workshop on populating the RDBES data model (WKRDB-POP2)

The workshop took place from 2–5 June 2020, and was chaired by David Currie (Ireland) and Edvin Fuglebakk (Norway). The aims of the workshop were to explain the data model developed for the RDBES, assist in populating it with real data for the first test data call for the RDBES, and encourage participants to take part in ongoing testing of the RDBES data submission system. The workshop was held online due to the ongoing COVID-19 restrictions - there were 68 participants from 27 different institutions, and 22 different countries. This was an increase in participation when compared to the first workshop on populating the RDBES data model (29 participants) and it was clear that the online format made it easier for people to attend.

Some issues with data conversion have been identified and are documented in the workshop report. None of the identified issues are thought to be serious impediments to moving forward with the RDBES development according to the roadmap agreed in 2019. The RDBES Core Group (the group of people developing the RDBES data model) and ICES Data Centre will look at the results of this workshop and either respond to individual questions or adapt the data model and documentation as required.

The ICES Data Centre will keep in contact with participants that have expressed interest in taking part in ongoing testing and keep them up-to-date with any data model changes.

1.4 Summary of the second workshop on design-based estimation using the RDBES data model (WKRDB-EST2)

The Second Workshop on Estimation with the RDBES data model (WKRDB-EST2) was chaired by Nuno Prista, Sweden and Kirsten Birch Håkansson, Denmark, and more than 20 experts combining programming, statistical and fisheries knowledge met online from 14–18 September 2020. Its Terms of Reference were a) Development and documentation of R scripts for design-based estimation for each hierarchy in the RDBES data model; b) Identify and document issues problems with RDBES data model relating to design-based estimation, and c) Develop a roadmap for future improvements to the estimation procedures within the RDBES;

Main outcomes

- A collaborative process, involving all stages of development (from function scripting to package maintenance) was discussed and trialled
- Data preparation and estimation functions developed collaboratively in open-source code (GitHub)
- Initial estimation tests indicate data model suitable for design-based estimation
- Significant progress in variance estimation (will allow for confidence intervals around estimates delivered)
- A package "icesRDBES" was started that will contain the functions, document them, quality check them and make them available to the wider community
- Discussed and suggested solutions to existing data model issues related to estimation

It is suggested to change this workshop into a three year fixed-term working group (WGRDBES-EST) to secure the steady and continuous development of all the main estimators relevant for the ICES community e.g. ratio estimators and handling of industry refusals. The new WG should also reflect on issues such as the long-term maintenance of the code it develops and a system for peer-review of its work.

1.5 RDBES Test Data Call Summary

1.5.1 Overview of data submissions by country

The table below summarises the countries that were requested for data for the test data call and gives an overview of the datasets that were submitted by countries. The countries that didn't reply to the data call were: Faroe Islands, Iceland, Lithuania and Russia. England, Finland, Guernsey, Isle of Man, Jersey and Wales didn't submit sample data, but submitted catch data and effort data, except Guernsey that only submitted effort data. Portugal only submitted sample data, and not catch and effort data.

	Sample data (Commercial)	Catch data (Commercial)	Effort data (Commercial)
BELGIUM	Yes	Yes	Yes
DENMARK	Yes	Yes	Yes
England	No	Yes	Yes
ESTONIA	Yes	Yes	Yes
Faroe Islands	No	No	No
Finland	No	Yes	Yes
FRANCE	Yes	Yes	Yes
GERMANY	Yes	Yes	Yes
Iceland	No	No	No
GUERNSEY	No	No	Yes
IRELAND	Yes	Yes	Yes
ISLE OF MAN	No	Yes	Yes
JERSEY	No	Yes	Yes

	Sample data (Commercial)	Catch data (Commercial)	Effort data (Commercial)
LATVIA	Yes	Yes	Yes
Lithuania	No	No	No
NETHERLANDS	Yes	Yes	Yes
Northern Ireland	Yes	Yes	Yes
NORWAY	Yes	Yes	Yes
POLAND	Yes	Yes	Yes
PORTUGAL	Yes	No	No
Russia	No	No	No
Scotland	Yes	Yes	Yes
SPAIN	Yes	Yes	Yes
SWEDEN	Yes	Yes	Yes
UK (England and Wales)	Yes	Yes	Yes
Wales	No	Yes	Yes

The discussions and analysis below is only regarding effort data (CE) and landings data (CL), as the sample data were not available to the subgroup.

1.5.2 Analysis of the effort and landings data uploaded for the RDBES test data call

In the RDBES test data call, data were requested for 2019, and only for a specified selection of stocks. Some countries have submitted data effort and landings data only for these stocks, while other countries have submitted full data sets for 2019.

The RDBES data call has introduced possibilities to upload both official and scientific landings and effort. The data might be corrected scientifically based on e.g. samples, areas corrected with position data, corrections for overweight in boxes or unallocated catches. Graphs resulting from analysis of the RDBES 2020 test data all can be found in Annex 3. This shows that landings and effort data submitted for the 2020 test data call have been based on official data, and the possibility to have different scientific estimates for landings and effort has not been used in the test data call.

No systematic errors have been identified with the tests made during the WGRDBESGOV meeting, but a data report should be sent as feedback for the data submitters to check.

1.5.3 Evaluation of the CE and CL data model

The data call format for the CE and CL data is two tables including everything on the level of ICES rectangle and metier with many different purposes.

It is suggested that data submitters get a chance for giving feedback regarding the CE and CL data format before the next test data call is drafted. In some cases, the national administration is preparing the effort and landings data, and should have the possibility to give feedback. It is also important to involve persons working with small-scale fisheries to get their input regarding the data model.

1.5.4 Data upload and feedback for CE and CL data

The group agrees that after submitting data for the RDBES, data submitters should get feedback. This will make it possible to ensure and improve the quality of the data. It can follow the same procedure as the ICES VMS data call where a subgroup has the responsibility to run the R mark-down script to get an overview of the data submitted, the subgroup looks through the report and lists potential issues that the data submitter can either explain or correct. Explanations should be picked up and stored, so that they are not questioned again. The QC script can be stored at GitHub, to make it possible for data submitters to run the QC report before data are uploaded. Examples of checks that can be made for national reports can be found in Annex 4. These can include maps by ICES rectangles that shows the spatial distribution of effort and landings data to check for data outside the expected extent, and graphs and tables showing landings and effort by areas, vessel length categories and métiers.

In the test data call, only a limited list of stocks were requested, but when a full data set is requested, the uploaded data can be compared with other data sources like the RDB or FDI to check the completeness. Other checks to include would be to combine CE and CL data to verify that they are matching. Once a time series of data are uploaded, inter-annual variability in data including number of records of different variables or spatial distribution of data per country can be illustrated. The group responsible for developing the data validation script can be a subgroup under the RDBES core group with additional members recruited.

Currently codes and ranges are checked during data upload, and further checks can be incorporated in the RDBES upload based on the core groups input.

Reports on RDBES data content are also needed at regional level and comparisons between countries are beneficial for coordination purposes.

It is noted that when writing emails about upload issues to the RDB support, the reply can be difficult to read. In the header it refers to an incident number that is unknown to the recipient, and it writes that the incident can be followed via a link, but the link is not accessible to the recipient.

When uploading data, if overwriting existing data is based on a combination of unique codes in the CL and CE data, it can be a different combination after correcting the data. There should be a possibility to delete data in the upload facility.

1.6 Progress on Recreational data

Under the current "2+2" RDBES funding agreed by ICES detailed data on bycatch and PETS AND/OR recreational data should be incorporated in the RDBES by 2023[1]. Given the heavy workload of the ICES Data Centre and RDBES Core group in preparing the RDBES to store and use commercial fisheries data it was agreed that the best way forward was to arrange a test data call using CSV/Excel file submission based on the proposed recreational data format. This would mean the proposed recreational data format could be evaluated without the heavy burden of first adapting the RDBES database and upload portal to handle it. In this way progress can be made on recreational data without waiting for the commercial data developments to be completed.

[1] ICES. 2020. Steering Committee of the Regional Fisheries Database (SCRDB; outputs from 2019 meeting). ICES Scientific Reports. 2:24. 57 pp. http://doi.org/10.17895/ices.pub.5992

This work will be carried out with tight collaboration between the RCG ISSG on Marine Recreational Fisheries, the ICES WGRFS and the Fish & Co Project. In addition, we need to ensure that this work is done in communication with the RDBES Core Group to ensure that the transition to the RDBES will be as easy as possible.

1.7 Progress on Long Distance Fisheries data

After the 2019 SCRDB meeting, several updates and additions were made to reference tables and to the instructions for MS providing data to the RDB for RCG LDF. Among the changes was the use of 'subpolygon' as this allowed to differentiate the various areas in use in the CECAF area. The area codification differs from the ICES area. Apart from certain technicalities, the implementation of subpolygon in the datasets worked well.

Some (MS) specific issues regarding the upload remained. The following issues were discussed at this meeting:

- MS reported issues with the upload of polyvalent trips to the RDB. The structure of the RDB is set up to allow for only one (the predominant) metier during a trip. A technical solution at the side of the data providers might be to split trips according to the registered metier effort of the trip. This might however be virtually impossible as this data might not be available. MS experiencing this issue are encouraged to participate to the WKRDB-POP meetings and bring actual data for discussion and find a way forward.
- The group concluded that this issue might be of broader relevance e.g. in relation to small scale fisheries, often deploying various gears during a trip as well.
- MS reported missing species in the reference lists. MS are invited to provide an overview of the missing species to ICES for inclusion.
- Through the RCG LDF data call, MS were requested to update their LDF data in the RDB to account for the correct area/subpolygon codification as currently available. Updating the data however requires overwriting (and consequently deleting) previously uploaded data. The common workaround is to delete data of commercial landings, based on e.g. species or year. For species having an overlap with other regions, all data from a country for that species is being deleted as no distinction can be made between the regions. Thus, such an update requires a full upload from the MS again. This is problematic as this may e.g. require the involvement of various institutes within a MS. It seems that the data can only be deleted manually, also involving a lot of work and considered potentially 'dangerous' for the existing datasets as these might be in use at the same time.

  For Spain in particular, updated and extended data from the Canaries will be included next year and thus, new uploads will be needed for the period 2014-2019. It is also relevant for those MS that have not added the "polygon" field yet, as requested, and will need to do it for all the time series available in the future.

  Given that the RDB format and processes are frozen at this stage, the group concluded that no specific measures could be taken to progress on this issue. The overwriting rules are described in the Regional DataBase FishFrame documentation (page 3 of the RDB Exchange format document). Future solutions might be available in the RDBES as e.g. the responsible institute or department may be registered under the CL and CE tables. This is currently not the case, but this suggestion may be included in future requests on changes to the RDBES.

The RCG made good use of the data for their analysis of the fisheries and created updated versions of catch and effort overviews. As in previous years, these overviews were based on the overview format as created by the Intersessional subgroup on RDB catch, effort and sampling overviews. From 2019 onwards, RCG LDF is represented in this subgroup.

Prior to the next RCG LDF meeting, the future structure of the overviews will be discussed interessionally. Some tweaking of the overviews might be required to better address the RCG needs. It is also planned to include in the overview the report tables that are being produced on a yearly basis. Preparing this in advance of the RCG, will significantly lower the workload of the participants, allowing them to focus mainly on data analysis.

1.8 Progress on Large Pelagic data

Previous discussions on the topic of large pelagic (LP) data have highlighted that the utility of a regional database for the RCG LP is for European Union-wide storage and estimations/corrections (on data) but not for modelling stock assessment (currently made by the relevant RFMO). Generally, it was highlighted that the best way for the LP group to make sure their needs are considered during RDBES development is for them to send representatives to the RDBES Core Group meetings - however national institutes are not always able to allow people to commit their time to this task. ICES have provided funding for the technical development of the RDBES but this would not currently include work specifically for the LP group's requirements. If the LP data only requires minor changes then it is possible that it could be included within the current development - if more substantial changes are required, then additional funding would need to be found.

The RCG LP selected one stock (the tropical tuna associated with the purse seiner, where data almost fits with the RDBES data model) and included it in the stocks requested in the RDBES test data call in 2020.

1.9 Progress on Bycatch data

ICES Secretariat had two meetings the 4th and 5th Feb. 2020 with the chair of the Working Group on Bycatch of Protected Species (WGBYC) where their wishes and what was achievable was discussed and expectations adjusted. WGBYC's requests were brought forward by ICES Secretariat to the Core Group and discussed and the final fields and mandatory/optional status was finalised the 11th March. The agreed information is in the current RDBES data format - this includes most of WGBYC's request.

The WGBYC chairs have been asked if they think it is possible to find a small group of a few people from WGBYC, who should upload and download WGBYC data into the RDBES, to test if the RDBES fulfils the needs of WGBYC. Nuno Prista will be the contact and support person and give feedback. The WGBYC was asked to give feedback to the Core Group by end of March 2021.

1.10 Progress on Diadromous data

There has been certain discussion about diadromous data at previous meetings - some of the important points raised were:

- Currently, no direct funding is available
- An eel database is currently being developed – There is a need for further discussion between ICES and WGEEL about the way forward
- WGEEL and ICES to review data use policies for eel data
- Need to trial an eel assessment in TAF
- Salmon data at an earlier state than eel data
- In general, it was felt that whilst it would be a positive step for the diadromous data to be centrally hosted, there were a number of steps to be taken before agreeing whether the RDBES is the appropriate place for all/some of this data.

Limited progress was made during 2020:

- In line with its aims, the majority of RDBES development work has been focused on providing a data storage and estimation system for commercial fisheries data for the RCGs (NANSEA, BSEA) and ICES
- There was a WebEx in Dec 2019 to discuss the eel database and the best way to move forward
    - Could/should ICES host the eel database?
    - Could/should it be brought under the RDBES umbrella?
    - Alignment with GFCM?
- Need to engage with WGNAS, WGBAST, WGTRUTTA about their data needs
- Need to be realistic given the funding situation and limited resources

There have been concerns about how to proceed with including diadromous data in the RDBES data model - in fact, some diadromous groups are currently developing their own databases. That complicates the process of developing RDBES, because data will be in different places. Diadromous group representatives explained that it is non-DCF data that will be stored in a separate database. DCF work will be communicated with ICES. WGEEL is in the process of developing an assessment and is identifying data needed. Finding a way to store DCF diadromous data in the RDBES is needed - WGEEL has to test if their data fit with the RDBES data model.

There was a question about WGBAST data that were uploaded to the InterCatch database. The answer was that InterCatch will be switched off in the future and there will be no conversions from it to the RDBES. MSs should re-upload all data to the RDBES so that ICES assessment working groups should be able to download data from one source.

There is a need to communicate with the relevant diadromous WG chairs to ask about DCF data needs.

1.11 Development road-map

Evaluation of progress in the roadmap during 2020

The development of RDBES during 2020 followed the roadmap set by SCRDB 2019. The set of workshops and deliverables forecasted in that roadmap was, for the most, accomplished irrespective of present covid-19 pandemic, constituting strong evidence of the commitment of the ICES community to the development of the system.

System specification continued within the core group of development of the RDBES and a new version of the data model (v1.18) released. This update incorporated feedback given during 2018 by WKRDB-POP, WKRDB-EST, WGCATCH (including by-catch subgroup). In parallel with the annual RDB data call, a first test data call on the RDBES data of 11 stocks was issued early in the year. WKRDB-POP2, a workshop to support countries in the population of the RDBES, was organized online in late May and registered a large interest from the community (68 participants, 22 countries). Throughout the year, system development continued at ICES Data Centre. That development was successfully tested in September 30th when countries uploaded their data to RDBES.

On the estimation system side, WKRDB-EST2 was held in late September. This WK was held online and continued the development of code for future design-based estimation gathering 25 experts with a wide variety of skills (statistics, programming, database development, fisheries). At the end of the week the core package that will host functions for RDBES estimation ("icesRDBES") was agreed upon and created. Given the busy agenda, WKRATIO, a workshop aiming at improving ratio estimation of commercial catches and that will use the RDBES as input format is scheduled for the first half of 2021.

Slower progress was achieved in terms of TAF implementation of the RDBES. Following the plan, early in the year PGDATA described RDBES within the context ICES QAF and WKTAFBN carried out first tests on adapting RDBES to TAF. WKRDB-RAISE&TAF, a workshop meant to replicate current InterCatch estimates using RDBES data, was however postponed to 2021 largely due to difficulty in finding chairs under the already busy agenda (see above). This postponement configures a small delay in the preparation work for RDBES to replace InterCatch but does not appear, at present, to hamper the original goal of setting up a system that can rely on RDBES to both raise data and perform stock coordination by 2024.

Update of 2020–2024 road map

The following table updates the SCRDB 2019 roadmap for development of the RDBES by incorporating developments in 2020 and discussions held during WGRDBESGOV.

Columns 2 to 4 provide a quick overview of the status of the three systems (RDB, InterCatch and RDBES) and will be of general interest to RCGs, assessment working groups, EU Commission and ICES countries in general. Columns 5 and 6 provide an overview of assessment related RDBES-processes (data calls and estimation). The remaining columns detail activities by ICES secretariat and EGs, RCGs and individual countries.

Important updates are highlighted in red to reflect the adjustments found needed after an evaluation of the progress achieved during 2020 and the experience gathered since 2019 in terms of improving the planning of activities.

At present the original goal of setting up a system that can rely on RDBES to both raise data and perform stock coordination by 2024 is still achievable. It much however be noticed that the present plan is drawn under the assumption of full collaboration and engagement of ICES community in RDBES processes. The present update thus puts emphasis on clear communication and engagement with countries, RCGs and AWGs, so that all developments are in sync and lead to the final product. To this end, it is of particular importance the engagement of the Council, ACOM and WGCHAIRS on promoting the consideration of RDBES in the assessment processes, in particular, the participation of stock assessors and stock coordinators of stocks in 2021 RDBES data call in WKRDB-RAISE&TAF 2021.

Year	RDB System	InterCatch	RDBES	Data calls	Estimation incl. stock co-ordination	ICES Secretariat	Core Group	WGCATCH / WGQUALITY	Countries	RCGs
2021	**Production** Data in/out	**Production** Data in/out	**Development** Test data in/out	Test all stocks CL and CE; Test selected stocks CS 2018-2020; test bycatch	Test estimation of selected stocks and bycatch (TAF)	System development	**WGRDB-EST** continue design-based estimation package **WKRDB-POP3** target all stocks of data-call. **WKRDB-RAISE&TAF** to help countries with migrating estimation routines	**WGQUALITY**: Describe how the RDBES fits an end-to-end ICES quality management system. **WKRATIO** to develop ratio estimation based on RDBES format **WGCATCH** to evaluate progress and provide guidelines and algorithms for general estimations (ratio/statistical/ design-based).	Upload data requested in datacall (**30/09**). Start migrating estimation routines to TAF using RDBES format as input Start adapting national databases / data management systems to meet RDBES needs Allocate resources for RDBES-related processes such as EGs and RCG test group	Plan adaptation of the tools and code to RDBES format. Request countries to participate in RDBES-related workshops and RCG RDBES test group. Respond to WGRDBESGOV recommendations Alert countries to the need to allocate sufficient time for RDBES tests and adaptation of their national databases.
2022	**Production** Data in/out	**Production** Data in/out	**Production** Data in/out	All stocks 2021 data. Bycatch/PETS data and/or recreational data	Test estimation of all stocks and bycatch in TAF	System maintenance and additional development	WGRDB-EST to accommodate ratio estimators in the design-based estimation package. Specify any further RDBES changes required.	WGCATCH to evaluate progress and provide guidelines and algorithms for general estimations (ratio/statistical/ design-based).	Final test data call. Upload data for all stocks. Finish migrating estimation routines to TAF using RDBES format as input and perform estimation for all stocks. Continue adapting national databases / data management	Implement plan to adapt RCG tools and code using RDBES format Request countries to participate in RDBES-related workshops and RCG RDBES test group. Respond to WGRDBESGOV recommendations

Year	RDB System	InterCatch	RDBES	Data calls	Estimation incl. stock co-ordination	ICES Secretariat	Core Group	WGCATCH / WGQUALITY	Countries	RCGs
									systems to meet RDBES needs	Alert countries to the need to allocate sufficient time for RDBES tests and adaptation of their national databases
2023	**Stay alive** Data out	**Stay alive** Data out	**Production** Data in/out	All stocks 2022 data, and historic data if possible. Bycatch/PETS data and/or recreational data	Estimation in TAF for all stocks.	System maintenance and additional development	WGRDB-EST to finalize design-based estimation package. Specify any further RDBES changes required.	WGCATCH to evaluate progress and provide guidelines and algorithms for general estimations (ratio/statistical/ design-based).	Real data call. Upload data for all stocks. Perform estimation for all stocks. Finalize adaptions national databases / data management systems to meet RDBES needs	Use RCG tools and code adapted to RDBES format Request countries to participate in RDBES-related workshops and RCG RDBES test group. Respond to WGRDBESGOV recommendations
2024	**Terminated** (if appropriate).	**Terminated** (if appropriate)	**Production** Data in/out		Estimation in TAF for all stocks.	System maintenance and additional development				

Detailed plan for 2021

The following table details plans for RDBES development during 2021. The focus here is in communication and linkages between different actors so some duplication exists.

Month	Data calls	Estimation incl. stock coordination	ICES Secretariat	Core Group	WGCATCH / WGQUALITY	Countries and RCGs	WGRDBESGOV
Jan	**31/01:** Data call announced *Data call to include all stocks CL and CE; selected stocks and bycatch data CS 2018-2020; bycatch; stress need to upload bycatch (DCF and dedicated studies)*		Articulate with WGRDBESGOV and WGTAFGOV the selection of stock for data call *Data call to include all stocks CL and CE; selected stocks and bycatch data CS 2018-2020; bycatch; stress need to upload bycatch (DCF and dedicated studies)* **31/01:** Announce data call System development	Review 2021 work-plan and define plan for RCG test group Finalize ToRs and announce plan for RDBES-related EGs (WKRATIO, WKRDB-POP3, WGRDBES-EST, WKRDB-RAISE&TAF) Articulate with WGRDBESGOV and WGTAFGOV the selection of stock for data call	WGQUALITY: Describe how the RDBES fits an end-to-end ICES quality management system.	Plan allocation of resources for RDBES-related processes such RDBES data call, RDBES EGs and RCG test group Start migrating estimation rou-tines to TAF using RDBES format as input. It is *suggested focus is put on test stocks and later expand to all* Start adapting national databases / data management systems to meet RDBES needs	**Mid-January:** Call WKRDB-RAISE&TAF prep-meeting *(try to secure stock assessors, coordinators and data submitters of data call stocks and decide stocks to address in WK, define dates and chairs; Stress the importance of WKRDB RAISE&TAF next to COUNCIL, ACOM, WGCHAIRS* Articulate with WGTAFGOV the selection of stock for data call Finalize ToRs for WKRDB-RAISE&TAF prep-meeting (try to secure stock assessors, coordinators and data submitters of data call stocks and decide stocks to address in WK) – articulate with WGTAFGOV stock selection Conference call RCG chairs and explain what is expected of them Steer and follow-up on RDBES roadmap implementation
Feb			System development	Engage with WGBYC		**RCGs:** Request EU countries to participate in RDBES-	WKRDB-RAISE&TAF prep meeting (1-2 hours)

					related workshops and RCG RDBES test group. **RCGs:** Alert EU countries to the need to allocate sufficient time for RDBES tests and adaptation of their national databases	Steer and follow-up on RDBES roadmap implementation
Mar	**31/03:** Data call issued	System development Issue Datacall				Promote first meeting among national database managers to discuss needs and challenges related to RDBES Steer and follow-up on RDBES roadmap implementation
Apr		System development	Finalize updates, Discuss WGBYC by-catch comments, freeze model			Steer and follow-up on RDBES roadmap implementation
May		System development	Finalize quality reports for CE and CL tables Focus on estimation	WKRATIO to develop ratio estimation based on RDBES format	Participate in WKRATIO	Steer and follow-up on RDBES roadmap implementation
Jun		System development	WKRDB-POP3 (*target all stocks, incl by-catch)* Focus on estimation		Participate in WKRDB-POP3 **RCGs**: Plan processes for adaptation of the tools and code to RDBES format (e.g., ISSG 2021/2022 work). **RCGs**: Respond to WGRDBESGOV recommendations **RCGs**: *Discuss a process identifying how (eg. migrating data to the RDBES, data calls) the data in the RDB shall be secured when the RDB is terminated and processes needed to support this.*	Steer and follow-up on RDBES roadmap implementation Steer and follow-up on RDBES roadmap implementation

Jul							Steer and follow-up on RDBES roadmap implementation
Aug			System development	Focus on estimation Discuss comments from RCG long-distance and RCG groups on diadromous and rec fish groups			Steer and follow-up on RDBES roadmap implementation
Sep	Data call deadline 30/09		System development	**20-24 September** WGRDBES-EST		**30/09:** Upload data requested in datacall *Data call to include 2018-2020 CL and CE for all stocks; 2018-2020 CS data for selected stocks; and bycatch data (both DCF and dedicated studies* Participate in WGRDBES-EST	Steer and follow-up on RDBES roadmap implementation
Oct		WKRDB-RAISE&TAF (dates to be determined)	System development	WKRDB-RAISE&TAF *focus on one / two stocks where we cover all step from national estimation to final results. Needs to attract Data Submitters, Stock Coordinators and Stock assessors.*		Participate in WKRAISE&TAF	
Nov			System development		WGCATCH to evaluate progress and provide guidelines and algorithms for general estimations (ratio/statistical/ design-based). *plan WKs on post-stratification and estimation of rare bycatches*	Participate in WGCATCH	Steer and follow-up on RDBES roadmap implementation

Dec	System development	Review progress achieved in migrating estimation routines to TAF using RDBES format as input and Adaptation of national databases / data management systems to meet RDBES needs	WGRDBESGOV meeting

1.12 Mediterranean & Black Sea regional database progress summary

A proposal was submitted under MARE/2020/08 "Strengthening regional cooperation in the area of fisheries data collection" for the development of the regional database for the Mediterranean and Black Seas (Annex 3). The project will take 24 months and involves 6 partners (HCMR, COISPA, SIBM, CNR, NISEA, IFREMER) from 3 EU member states. 5 members of the Consortium have participated and implemented the previous grants MARE/2014/19 Med & BS and STREAM (MARE/2016/22). Most of the Work package or Task Leaders in the proposal also played a key role in the previous grants.

In the framework of this project, the Med&BS-RDB will be created as a web-based integrated fisheries information system. State of the art open source packages and programming languages will be used to develop the functionalities and tools of the proposed system which will cover the following topics:

- data validation;
- data processing;
- input – output;
- data mining;
- graphical user interface;
- mapping;
- security;

The proposed system will be fully operational after the project completion (24 months' duration) supporting reliable scientific advice. The hosting location will be decided by discussions between the Commission, RCG and Member States. The expected results at the end of the project are the following:

- building a co-creation process with the RCG, Member States and end-users.
- creating a communication channel with ICES, the chairs of the RCG North Atlantic, North Sea & Eastern Arctic and Baltic.

This will contribute to a durable project product, the Med&BS-RDB which will be a tool allowing for further developing the Data Collection Process. The expected outcomes of the project are:

- catalogue of compatibility issues with RDBES data model;
- database structure, referential integrity;
- common codification system, common exchange format;
- upload procedures, advanced data mining subsystem;
- validation procedures;
- data processing tools to support specific data calls (including VMS analysis procedures, estimation of fishing pressure from small scale fisheries using a multi-criteria decision analysis);
- automatic reporting tools (linked to the DCF processes);
- a state of the art web-based user interface to interact with all processes (upload data, validate data, report data, search, compare, compile, aggregate, plot, visualize data etc);
- definitions on data governance issues, access rights, user roles and security aspects;
- definition of compliance and legal;

- description of infrastructure;
- description about the business continuity;
- convention to support and maintain the Med&BS-RDB;
- manuals covering all implementation phases;

The establishment and implementation of the Med&BS-RDB will involve different stakeholders: the Commission, the Member States of the RCG Med & BS, the main end users of the region (STECF, GFCM, ICCAT) and the developer. The role of the existing Member States' dedicated Steering Committee (currently working on the Med&BS-RDB content, the data policy and the main functionalities) will be crucial.

The Med&BS-RDB will support the work of the RCGs, facilitating a better performance towards efficient management, fast response times of data processing and increase of data robustness delivered to end-users. In addition, the regional databases facilitate the work of the EU Member States by reducing the multiple data submissions (for data calls) under different formats. The Med&BS-RDB will allow end users to calculate statistical estimates of data, and help to streamline and ease the reporting of member states on the EU data collection.

As an added value for the Med&BS-RDB, a series of advanced functionalities will be incorporated allowing for:

- estimation and mapping of effort and landings by rectangle for the small scale fisheries,
- analysis of VMS data and
- estimation of ecological indicators (distribution of fishing activities, aggregation of fishing activity, areas not impacted by mobile bottom gears).

2 User feedback

This section fulfils ToR (b): "*Provide a platform for user feedback to the Regional Database & Estimation System (RDBES). Appropriate actions to be taken with assigned responsibilities and resource requirements will be listed and prioritised. Ensure that any required sub-groups (including the existing "Core group") are created and function effectively whilst needed.*"

2.1 RDBES Core Group summary

The RDBES Core Group supports the ICES Data Centre in the RDBES development – membership of this group is open to suitably interested and qualified people. It has the following ToRs:

1. Follow, and advise on the development of the project
2. Provide substantial input to the user requirement specifications, including:
    a) The drafting of a requirement specification document.
    b) Specify data exchange format,
    c) Define user roles, processing of data, data checks, methods for estimation, output.
3. Be responsive to the project team in providing input to issues in the implementation of the RDBES.
4. Testing and approval of developments

The Core Group also provides guidance to countries who wish to upload data to the RDBES. The active members of the Core Group are:

- David Currie, Marine Institute, Ireland
- Edvin Fuglebakk, IMR, Norway
- Henrik Kjems-Nielsen (Chair), ICES
- Josefine Egekvist, DTU Aqua, Denmark
- Kirsten Birch Håkansson, DTU Aqua, Denmark
- Laurent Dubroca, IFREMER, France
- Liz Clarke, Scotland
- Marta Suska, MIR, Poland
- Nuno Prista, SLU Aqua, Sweden

All countries can participate in the Core Group and contribute to the specifications and testing of the RDBES.

The Core Group has been specifying the data model of the RDBES. It has been discussed and specified what information is needed and how it should be structured. In the previous year the group normally had web meetings every month. It was needed to freeze the data model/data format for the data call. That meant the Core Group was asked if they could have weekly meetings, which they agreed to. From March to May the group had 15 online meetings. In May it was agreed to freeze the data model. After the data call was sent the meetings shifted to answer issues posted on the public RDBES issues GitHub website. From June we have had 20 weekly online meetings until now. There have been a total of 36 web meetings from January to agree on the data model and answer issues

The Core Group finished the specifications of the RDBES so it was possible to freeze the data model, though there were and always will be open issues. They also supported people at the

national institutes with their issues in e.g. choosing the right hierarchy and filling in the fields correctly.

Questions & discussion

The question was raised about the effort of the member states for the preparation of the workshops and their participation at the workshops. Overall, the attendance was good, the fact this year's workshops were virtual meetings was helpful. However, it is still the case that countries involved from the start are up to date with procedures and data upload but countries who came into the process late still have a long way to go.

It could be beneficial if participants from the core group reduce their activity in these workshops (but stay available for support) so that other countries can step in. If 'leading' countries step back, other countries could be more challenged to take in the knowledge. Also, the core group support is important during preparation of data call. The expected date for data call 2021 is not clear yet, but we are aiming for mid-March 2021. There are still issues to resolve, and as such it is not yet possible to fix a date.

2.2 Métiers

During the last three years, the métier codes describing fisheries have been revised. In 2018, a workshop it was clear that métier codes are allocated differently across nations, and best practices were discussed. An intersessional group under the RCG's was established and in 2019 the group worked on a suggestion for harmonized métier codes without overlapping mesh sizes, and work on a script to allocate métier codes to transversal data was started. In 2020, the group continued to develop an operationalized métier list and species list and made improvements to the script. In the Liaison meeting in September 2020, the codes for métiers and reference lists were approved to be implemented by MS and it was agreed that the meter list will be incorporated into the RDBES.

In 2020/2021 the RCG intersessional subgroup will continue the work to assist in implementation of the métier codes nationally and in data calls, and is preparing a manual for using the script. The métier list, species list and scripts are available on the RCG GitHub (https://github.com/ices-eg/RCGs/tree/master/Metiers).

How should non-EU countries be informed about the new list of metiers? What channels of communication should be used to do that? The formal way is to communicate through ACOM members. The less formal way is through data submitters - it is anticipated that data submitters could give practical feedback. There was a suggestion to include the new metier list in the next RDBES test data call.

Another concern is related to the maintenance of the updated metier list. An amendment process should be established because problems with metier codes will arise after they are published. Setting up a task group for metier list maintenance was suggested.

It was agreed by WGRDBESGOV that the new métier codes should be requested for the 2021 RDBES test data call, and that non-EU countries that are requested for RDBES data should be notified via email to ACOM members.

2.3 Data aggregation variables

- RCGs: "*WGRDBESGOV to adjust and update the Data policy and data guidelines. The RDB Data policy is yet not covering all possible aggregation variables of the RDB data (census and sampling data). The RDB catch and effort overviews offer some new combinations that can be used to specify and update the policy to make it either more flexible or adding the missing parameter. More information; RCG NA NS&EA RCG Baltic 2020 report PART I Section 5.2.1 and Annex 4 (review data policy)*"
    - The new Data License includes the requested changes and the draft will be circulated for feedback and approval in due course. See Annex 5.

2.4 Other recommendations

- WGNSSK: "*There is a standard list of métier for every stocks accessible in InterCatch under 1. Check or Create Fleets/Metiers. That list probably needs to be revised as some métier are not common and pop up from time to time in InterCatch making it hard for stock assessors to do the raising (especially when they never seen that métier before). This issues should "go away" with RDBES normally.*"
    - It was unclear what the group was actually being asked to do in this recommendation. The WGNSSK chairs were asked to clarify but did not respond. No further action was taken on this recommendation

- RCGs: "*WGRDBESGOV to set up a standardized way for the Upload logs as integral part of the Uploading process of the RDBES. The Upload-logs are important documents that support the understanding and reading of the census and sampling data overviews. Yet they are stand-alone Excel sheets with only a few standardized fields. Integrating them in the upload process will improve their usage and make the content available during the analysis of the data. More information; RCG NA NS&EA RCG Baltic 2020 report PART I Section 5.2.1, Annex 5*"
    - Whilst the group agrees with this recommendation it thinks it is a low priority compared to the other remaining work on the RDBES development. The combination of data quality reports (such as the example shown for CE and CL data in this report) and the PGDATA proposed "Series of ICES Sampling Protocols" documents which will describe the sampling design should be very helpful to understand the data in the RDBES - new Upload Logs should complement these. It should be noted that the current RDB upload logs mix different types of information (e.g. incomplete data submissions, differing interpretations). Given that the RDBES Core Group already has a significant work-load specification of an upload log system could be a good task for the RDBES testing group that some participants volunteered for during the WKRDB-POP2 workshop. The RDBES testing group will consider how an effective Upload Log system should be implemented in the RDBES so that data submitters can highlight known issues in the data.

- WGSMART: "*Cooperation on the future streamlining and integration of the SmartDots database with the Regional Database (RDBES) and DATRAS.*"
    - This is a very important point and it is vital that related ICES databases such as SmartDots, DATRAS, and the RDBES are as interoperable as possible. A first meeting was held in October 2020 to discuss how biological variables are recorded in the RDBES (see minutes in appendix 7). Further discussions should be held between the groups and people responsible.

3 Summary of the use of the RDB/RDBES

This section fulfils ToR (c): "*Oversee and summarize how the existing commercial fisheries Regional Database (RDB) and the new Regional Database & Estimation System (RDBES) are used in the EU Regional Coordination Groups (RCGs), and ICES expert groups, along with any other uses. Where possible, share any outputs with other interested groups and users.*"

3.1 RDB Data Call Summary

The following tables provide a summary of the data uploaded by RCG participants in response to the RDB data call (note that this is a different data call to the test RDBES data call discussed earlier in this report).

Upload summary by RCG NANSEA countries

Landings species

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	55	58	57	60	55	76	75	79	75	81	80
Channel Islands							39	39	56	42	42
Denmark	87	91	86	89	100	105	99	104	114	107	113
England		141	141	140	135	130	129	131	158	150	149
Estonia	11	14	11	14	17	9	13	14	18	15	11
France		125	124	98			233	251	239	247	240
Germany		35	63	64	61	60	65	75	81	85	86
Ireland	120	129	121	129	127	112	110	110	108	109	110
Latvia	1	1	1	1	1	1	1	2	6	8	5
Lithuania	3	9	11	23	3	9	5	6	6	9	7
Netherlands	69	82	84	91	89	91	92	98	95	82	82
Northern Ireland		61	67	67	60		62	57	64	74	69
Poland	9	9	9	10	10	15	17	18	19	26	27
Portugal	197	203	196	333	319	341	332	301	325	348	263
Scotland		118	115	116	108	98	101	112	127	116	114
Spain						102	104	110	124	123	120
Sweden	57	66	66	67	66	63	71	72	68	67	73
United Kingdom								6	3		
Wales		79	80	71	64	65	69	71	68	62	67

The data was as expected apart from a small reduction for Portugal.

Landings records

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	51949	52704	54256	55657	51787	72330	74510	74886	80442	86365	88596
Channel Islands							881	921	1206	693	783
Denmark	167206	169541	165711	167129	158750	175256	182588	199104	191012	199282	195256
England		61540	64800	61961	99902	92776	146962	152457	138020	127362	131571
Estonia	153	184	170	140	278	62	310	282	357	282	199
France		376528	370908	295039			406989	570031	330515	465901	467537
Germany		3836	16202	15137	15304	14721	16564	16809	16706	16528	18304
Ireland	17031	16982	16226	17286	27758	27278	26304	27037	27043	24812	24279
Latvia	22	21	21	33	26	28	13	16	84	12	91
Lithuania	14	27	51	131	11	236	246	215	364	419	402
Netherlands	34581	34571	34881	33223	29716	30125	35021	36949	26539	26072	31644
Northern Ireland		3850	3270	3213	5666		9107	10197	10193	10638	10859
Poland	58	47	10	26	53	146	92	255	92	121	328
Portugal	16155	18593	18711	121035	120358	138938	135123	62977	137381	135826	97230
Scotland		23184	22970	22659	38448	37319	94700	102416	112767	117008	118864
Spain						135574	131879	136596	130563	137174	133904
Sweden	38211	37716	29662	28313	32002	31159	34719	39436	33098	31397	31386
United Kingdom								6	5		
Wales		3019	2987	2662	3568	3848	4679	4640	4452	3697	3655

The data was as expected apart from a small reduction for Portugal.

Effort numbers of metiers

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	17	19	19	18	15	18	17	16	15	14	14
Channel Islands							10	9	13	9	12
Denmark	81	68	72	63	59	61	59	62	63	53	60
England		134	127	122	122	121	103	107	113	99	101
Estonia	2	2	2	2	3	3	3	3	4	3	2
France		52	54	53			188	145	182	69	68
Germany		45	35	36	31	27	27	32	37	34	37
Ireland	24	25	24	24	27	22	18	16	23	23	24
Latvia	1	1	1	1	1	1	1	1	2	4	2
Lithuania	2	5	8	8	3	6	5	8	4	3	7
Netherlands	51	52	48	49	48	41	59	48	39	31	38
Northern Ireland		35	31	32	28		27	30	27	28	28
Poland	2	1	1	1	1	2	2	1	3	4	6
Portugal	20	21	19	22	22	19	19	18	24	25	22
Scotland		79	76	76	70	71	62	71	73	70	78
Spain						40	39	38	37	40	39
Sweden	48	42	40	49	55	45	46	42	45	44	38
United Kingdom								1	1		
Wales		32	37	37	31	32	33	31	35	30	35

The effort data was as expected.

Number of species from samples HL

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	11	25	20	17	15	14	15	15	16	19	16
Denmark	93	94	94	92	97	95	100	93	95	117	112
England	138	132	129	153	132	115	131	129	128	35	28
Estonia	1	1	1	7	15	2		7			
France				1					267	270	269
Germany	72	87	70	110	107	111	100	107	133	123	131
Ireland	113	116	126	125	105	108	124	104	108	105	97
Latvia	1	1	5	1	1	1	1	1			
Lithuania			11	8	2	2	2	2	2	2	2
Netherlands	33	38	40	41	37	42	41	41	49	33	88
Northern Ireland								57		57	
Poland	11	18	3	17	16	16	30	35	20	11	18
Portugal	213	214	235	224	233	228	240	225	255	256	235
Scotland		24	26	26	144	114	130	126	109	111	119
Spain	27	34	24	29	28	222	221	215	221	192	194
Sweden	4	75	76	81	71	80	98	90	97	99	91
United Kingdom	54	65	58	70	60	60	57		53		28
Wales								10		10	8

The HL data was as expected.

Number of species from samples CA with age data

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	7	7	7	7	3	7	7	7	9	9	8
Denmark	19	21	23	23	23	22	22	24	23	23	20
England	14	15	17	21	18	17	15	17	18	15	15
Estonia								4			
France				20				23	21	25	30
Germany	10	10	10	11	10	12	11	9	10	11	1
Ireland	12	13	13	13	12	11	10	12	12	10	10
Lithuania									1		
Netherlands	14	15	14	14	14	14	13	14	14	11	12
Northern Ireland								5		4	
Poland	1	2	3	1	1	1	3	3	2	2	1
Portugal	7	6	7	7	7	5	5	6	5	5	6
Scotland		11	10	11	12	12	11	11	12	13	13
Spain	3	3	7	7	7	16	22	7	21	21	22
Sweden	4	5	6	5	5	5	5	5	5	5	5
United Kingdom									4		19
Wales								4		8	8

The CA data was as expected.

Uploads by RCG Baltic countries

Landings species

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Denmark	50	59	49	51	54	57	55	63	64	60	57
Estonia	28	38	40	33	38	35	31	35	38	31	37
Finland	22	22	22	22	22	22	20	20	19	20	20
Germany	43	43	40	45	46	45	44	40	45	44	43
Latvia	30	12	12	12	12	33	34	34	32	33	35
Lithuania	12	11	13	26	12	25	23	22	24	24	26
Poland	36	38	36	34	36	34	33	32	36	36	40
Sweden	49	46	46	41	41	44	45	48	42	47	51

The data was as expected.

Landings records

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Denmark	40919	36057	33916	31473	29616	27370	27868	25848	23986	23075	23236
Estonia	641	3904	4010	15639	18422	20526	19586	19129	19937	18992	18922
Finland	8587	8574	8602	8321	8407	15683	15414	14446	13195	11368	11504
Germany	16699	14613	14511	15353	13409	14287	13469	12237	13019	11749	12505
Latvia	3632	2507	2579	2454	2522	3853	3912	3945	3282	4571	4490
Lithuania	187	131	374	479	507	686	856	1038	941	1030	954
Poland	8244	7773	9557	11009	11249	12010	12260	12615	12295	11715	11736
Sweden	22030	17273	16485	15032	17077	15625	15871	14643	12138	10798	9501

The data was as expected.

Effort numbers of metiers

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Denmark	53	59	57	50	50	45	43	48	50	45	49
Estonia	3	2	2	2	2	2	2	1	3	3	6
Finland	14	15	14	15	13	14	14	14	15	16	15
Germany	49	49	49	44	46	42	43	44	36	43	44
Latvia	12	14	12	14	14	13	14	13	13	14	14
Lithuania	8	8	8	7	9	10	11	11	9	11	10
Poland	32	30	38	41	41	39	30	30	28	28	29
Sweden	46	52	52	50	48	45	47	47	44	43	49

The metiers data was as expected.

Number of species from samples HL

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Denmark	37	45	38	29	39	42	31	39	32	32	37
Estonia	5	12	19	30	32	42	3	6	6	6	3
Finland	22	26	30	32	31	33	33	32	31	30	35
Germany	24	30	25	27	30	32	20	38	32	28	25
Latvia	4	6	16	13	14	17	16	19	26	31	27
Lithuania	4	4	4	4	9	15	13	8	16	7	7
Poland	29	29	40	44	46	47	50	40	35	36	38
Sweden	45	29	42	43	50	49	42	43	46	50	42

The HL data was as expected.

Number of species from samples CA with age data

Row Labels	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Denmark	8	10	10	10	10	9	8	8	8	8	8
Estonia	4	8	7	7	11	9	3	5	5	5	3
Finland	6	6	6	7	5	5	6	5	6	7	9
Germany	8	8	9	10	11	8	8	8	8	8	4
Latvia	5	5	8	9	9	7	9	10	8	9	10
Lithuania	4	4	4	4	4	6	4	4	3	3	6
Poland	12	11	12	16	17	18	16	17	16	10	14
Sweden	6	5	5	6	6	6	5	6	6	5	3

The CA data was as expected.

Questions & discussion

Very few requests to use RDB data outside RCG meetings were submitted to ICES during 2020 (WGBYC requested CE, CL data in in March, and a French scientist requested French CE data in June) - this was possibly due to the effect of Covid-19 restrictions impacting people's workloads.

The United Kingdom country specific data can be uploaded by a different country than flag country or under a general UK country to RDB. RDB has all needed country codes and structures to enable data uploads by country.

3.2 Use of RDB in RCG sub-groups

The RDB data was used by RCG intersessional subgroup called "RDB catch, effort and sampling overviews". The subgroup consists of members of three RCGs: North Sea & Eastern Arctic, North Atlantic and Baltic Sea. The chairs of the three RCGs agreed on guidelines for intersessional subgroups. The work of the subgroup was carried out throughout the year and was focused on creating tools for internal RCG work and preparatory work for decision making, including input for regional work plans and working groups. The tasks of the subgroup were divided into two main blocks. The first one concerned updating fisheries overviews based on commercial landings (CL) and commercial effort (CE) data from the RDB. The second block was aimed at the development of sampling overviews based on commercial sampling (CS) data from the RDB. RDB extraction files, documents and protocols are stored on a restricted ICES SharePoint site.

The existing fisheries overviews done by RCG were compiled and updated according to the feedback from RCGs and the RCG Decision meeting. The repository of scripts was updated and cleaned, outputs were integrated, updated script was generated. The main result of this part of subgroup work was a series of documents entitled "RDB catch and effort overviews" prepared separately for North Sea and Eastern Arctic, North Atlantic and Baltic Sea. It is expected that these documents will be approved for use by RCGs and for selected ICES work. Any other use and publication would need further approval.

The work on the analysis of sampling data already done by RCGs was reviewed. As the main focus of the previous data analysis was focused primarily on catch and effort data, the work on sampling data had to be developed from the beginning. In the first step, a common repository for code developed by participants was created. The subgroup participants identified many plots, graphs, maps and other outputs that can be produced based on sampling data from the RDB. It was decided to use interactive tools to produce data analysis outputs. The Shiny R environment has been chosen because it allows to dynamically create plots and other outputs on different levels of aggregation. This solution was considered to be more convenient than compiling hundreds of plots and graphs into one static document. A draft document with exemplary outputs was produced. It contains an introduction on how to set up the Shiny R application.

The "RDB catch, effort and sampling overviews" subgroup made three recommendations during the 2020 RCG meeting. Two of them were addressed to WGRDBESGOV.

The first recommendation refers to the aggregation variables of the RDB data specified in the RDB Data Policy. The subgroup suggests adding missing parameters or updating the RDB Data Policy to make it more flexible. More details can be found in the RCG NA NS&EA Baltic report. In Annex 4, a summary of the RDB data policy rules can be found. It is followed by a table with descriptions of fisheries overviews outputs with information on corresponding data policy rules. Among all items listed in the table, there are data analysis outputs having a level of aggregation which is not covered by the current RDB Data Policy.

The second recommendation made by the subgroup is to integrate the RDB upload logs in the data upload process. Currently, upload logs are stand-alone documents with only a few standardized fields. Making them an integral part of the uploading process will improve their availability and usage during the analysis of the RDB data.

It should be noted that the tools described use the RDB format so there will be some work required to migrate the code to use the new RDBES format.

3.3 Special request on data precision and bias

The European Commission requested ICES to provide output on evaluating data accuracy (precision and bias) for design-based estimation at a national level in the form of a report covering the following subjects:

- Definition of the prerequisites that a MS will need to meet to be able to use the tools (e.g. MS data will need to be in the RDBES data format; the MS will need to be carrying out probabilistic sampling and recording certain data)
- Specification of the statistical functions to allow MS to evaluate bias and estimate precision for design-based estimation. These can either be implemented in the statistical language R and delivered alongside the report, or clearly specified in pseudo-code so that the future implementation of them in R is straightforward.
- Identification of further functions that would be required in the future to evaluate data accuracy for other type of estimation, and for regional data estimation
- Recommendations for further work and a roadmap of how to extend the advice to other types of bias and precision estimation.

The annual national work-plans and reports of EU member states (MS) are an important record of the data quality processes that are applied at national level - specifically this information is summarised in table 5A of the EU-MAP. This table typically asks whether documentation on a subject exists and, if so, where that documentation can be found. The subjects covered include sampling design, quality checks at the point of data capture, evaluation of precision and bias, and editing and imputation methods. The contents of these tables have been analysed during inter-sessional work of the RCGs and it has been seen that MS have difficulty answering some of these questions since there is a lack of guidance or tools available on the subject[2].

In particular, the documentation around data accuracy, bias and precision has been observed to be one of the weaker areas - specifically related to the following questions:

- "Are processes to evaluate data accuracy (bias and precision) documented?"
- "Where can documentation on processes to evaluate accuracy be found?"

When completing this table one MS commented "*Presently, we do not evaluate bias and precision of our data because we are not aware of routine tools available for such estimates on a national level. As soon as routines are available we will use these. (...)*"

It can be seen that tools to evaluate data accuracy relating to bias and precision at a national level are required. Evaluation of this bias and precision at a national level will also be relevant to ICES and the Commission since these data feed into stock assessments and can affect the accuracy of their outputs. To enable this advice to be used by all MS (and ICES member countries if they desire) it should be based on a common data format from which statistical bias and precision can be correctly calculated. The new RDBES data model provides that format since it provides a common structure to describe both the detailed sampling data and, importantly, the sampling design underlying how those data were obtained.

Still, just having data in a sophisticated data structure like the RDBES is not enough: the very estimation of precision and bias for individual programmes is a complex subject frequently found diversely implemented in different countries. For example, there are a number of different estimation techniques which can be used to create inputs for stock assessment from biological

[2] RCG NA NS&EA RCG Baltic 2020. Regional Coordination Group North Atlantic, North Sea & Eastern Arctic and Regional Coordination Group Baltic. 2020. Part I Report, 110 pgs. Part II Decisions and Recommendations, 7 pgs. Part III, Intersessional Subgroup (ISSG) 2019-2020 Reports, 154 pgs. (https://datacollection.jrc.ec.europa.eu/docs/rcg)

data - broadly these can be categorised as “model-based” and “design-based” estimation methods. (Model based methods are in common use but involve assumptions on sampling as well as on nature which can be difficult to verify whereas design-based estimators involve only assumptions on sampling which are in principle controllable and easier to scrutinise.)

To resolve this, in the first instance the tools will relate specifically to design-based estimation since substantial further work will be required for it to be applied to other types of estimation - a road-map has been produced for the work required to extend the tools to these other types of estimation in the future.

The report aims to support EU member states in evaluating the statistical accuracy of their catch sampling data, where accuracy refers to the closeness of statistical estimates to their true values. Statistical accuracy is considered in terms of two components: precision and bias. Random uncertainties inherent in estimates due to sampling are described by precision, whilst systematic differences between the estimate and the true value are described by bias. Since this is a complex subject and sampling programmes are usually implemented differently in different countries the work presented relates only to national probabilistic sampling and design-based estimation. To use the code developed member states will need to convert their national data to the commercial fisheries Regional Database & Estimation System (RDBES) data format.

The evaluation of data precision has been performed using two complementary techniques. For relatively simple sampling designs it is possible to use analytical functions to calculate the precision (or a related statistical measure such as variance) of a statistical estimate. We present these calculations and implementations of them in R code. For more complicated sampling designs, the use of analytical functions is usually not feasible. In these cases, it is necessary to evaluate precision using a resampling technique such as bootstrapping. The report discusses when bootstrapping is appropriate and gives a number of worked examples describing how bootstrapping can be applied in different cases.

The evaluation of bias in catch sampling is a difficult subject and most biases are generally hard to quantify. It should be noted that there can be a number of different types of bias occurring at different points in the data collection and advice production cycle – in this report we only consider bias that may occur as a result of sampling, not other biases such as those that may be present in particular estimators, or stock assessment models. Our approach to bias builds on the previous work available in the ICES literature to identify and enumerate common sources of bias in catch sampling programs. The information was collated and an evaluation performed as to whether data stored using the RDBES data format can inform about potential biases. Reports are presented that can help member states to identify deviations in their sampling programmes and sampling variability that can potentially lead to bias in catch estimates.

The report is a first step towards providing EU member states with a set of tools that can be used to characterise the precision and bias of their catch sampling data. The aim is to provide a solid foundation that whilst immediately useful in itself has greater value as a building block for future work. To this end a summary of the further activity that is required to extend the work to other scenarios (such as regional sampling programmes) is presented.

The group participants expressed interest in the new tool, and declared a willingness to use it as soon as it is ready. It was pointed out that even though functions dealing with data precision were created before using them was hard because countries had to prepare the data in the proper format. This could be really time consuming and discourage people from using the functions. Now, when we have the data in the standard RDBES format, which the scripts will be adjusted to, the user does not have to spend time converting the data.

The intention is to adapt the RCG code for fisheries overviews to the new data format which will be useful for the potential bias analysis.

4 Data Governance

This section fulfils ToR (d): "*Review the data governance framework of the commercial fisheries Regional Database (RDB) and Regional Database & Estimation System (RDBES).*"

4.1 Review of RDB/RDBES Data Governance

Review of data governance process for RDBES with respect to EU countries and non-EU countries

In the past the data governance processes surrounding the Regional Database have only had to consider EU member states. However, since there are now EU and non-EU countries uploading to both the Regional Database (RDB) and Regional Database & Estimation System (RDBES) it is necessary to review these processes.

Steering Group

The composition of the steering group (formerly called the SCRDB, and now called the WGRDBESGOV) has been defined in a previous meeting and is repeated here for convenience.

The group consists of the following categories of members:

a) Up to two representatives from each RCG that uploads data to the RDBES. RCGs that do not currently upload data but are intending to may also send one representative after approval from the Chair(s).
b) One representative from each ICES member country that wishes to attend.
c) Representatives from the ICES secretariat.
d) Representatives from the European Commission.
e) Chair invited guests.
f) Observers.

The guidelines for the group follow the "ICES guidelines for Expert Groups" but noting that:

- Chair(s) will be appointed from the members in categories (a) and (b) above
- If voting is necessary then the members from categories (a) and (b) have a single vote per person, members from categories (c), (d), (e), and (f) cannot vote
- The group will meet once per year. It can also create subgroups to work intersessionally.
- The group report will also be sent to the RCGs.

Since this group structure allows effective input from both ICES member countries and the EU Regional Coordination Groups there is no need for it to be revised.

Approval of Data Policy Changes

In the past any changes to the Data Policy have been drafted at the annual meeting of the SCRDB/WGRDBESGOV, sent to the RCGs for discussion, and then sent to the National Correspondents for approval. This process usually takes around 10-11 months before a final decision

is reached and any agreed changes to the policy are published. It is clear that this process needs to be expanded to account for non-EU countries.

In the future any proposed changes to the RDB/RDBES Data Policy will also be sent to the ACOM delegates of non-EU ICES member countries for feedback at the same time as they are sent to the RCGs. Each delegate will then need to implement their own national method of gathering feedback. The WGRDBESGOV will collate any feedback from the RCGs and non-EU ICES member countries to produce a final draft. This final draft will need to be unanimously agreed by the National Correspondents of the EU member states, and non-EU ICES member countries ACOM delegates who will receive the RDBES data call. If there is unanimous agreement from the countries who will receive the RDBES data call then the changed Data Policy will be published ahead of the RDBES data call. If there is not unanimous agreement from the countries who will receive the RDBES data call then the existing Data Policy remains in effect. This process is shown graphically in Figure 3.

A discussion was also had as to whether it was possible to speed up the approval process to allow for faster decisions. Given the existing meeting schedules and work-loads it was agreed that it would not be feasible for the National Correspondents to agree on any changes before they have been discussed at the RCGs so the approval step could not be moved any earlier in the year than September / October. The alternative approach that was agreed allows the WGRBDESGOV to continue drafting changes to the data policy through the first few months of the year rather than just at its December meeting - in this way the group can ensure the draft policy is as up-to-date as possible before being sent for wider feedback.

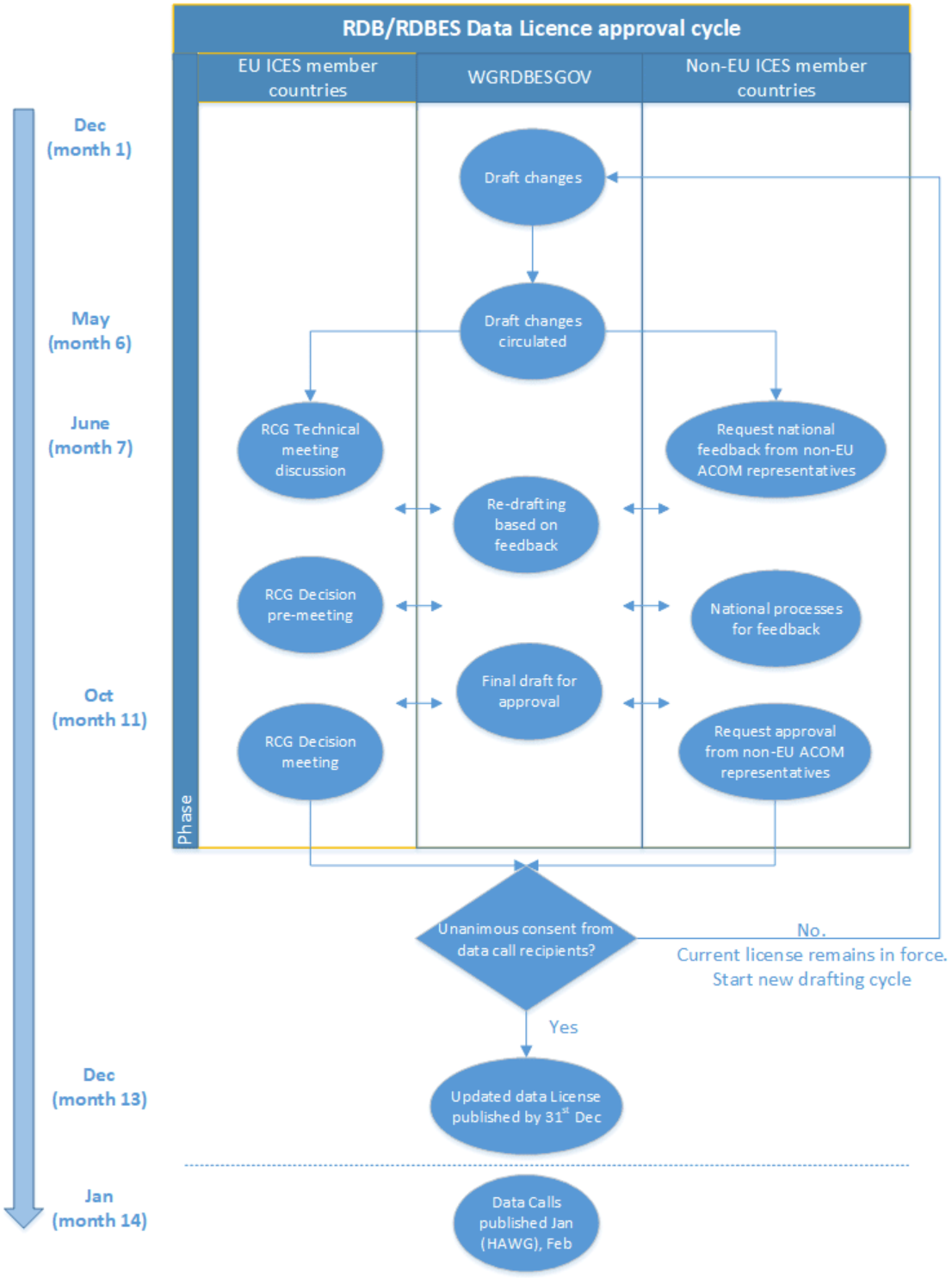
RDB/RDBES Data Licence approval cycle
EU ICES member countries
WGRDBESGOV
Non-EU ICES member countries
Phase
Dec (month 1)
May (month 6)
June (month 7)
Oct (month 11)
Dec (month 13)
Jan (month 14)
Draft changes
Draft changes circulated
RCG Technical meeting discussion
Request national feedback from non-EU ACOM representatives
Re-drafting based on feedback
RCG Decision pre-meeting
National processes for feedback
Final draft for approval
RCG Decision meeting
Request approval from non-EU ACOM representatives
Unanimous consent from data call recipients?
No.
Current license remains in force.
Start new drafting cycle
Yes
Updated data License published by 31st Dec
Data Calls published Jan (HAWG), Feb

Figure 3

Changes required to the current data policy/licence

The changes made to the existing data policy are summarised below - the most significant change is that the policy has been split into two new documents - a data license and a data governance document. The data license specifies who can access the RDBES data and what they can do with it.

When	Where	What	Why
3/12/2020	-	RDB Data Policy split into two separate documents: RDB Data License (this document) and RDB Data Governance.	ICES will have a single overall Data Policy to cover all data, with a number of Data Licenses specifying the usage conditions of specific data sets
3/12/2020	Section 2a	The date for publishing the list of pre-approved ICES WGs has been changed from "01 Dec" to "31 Jan".	Practical reasons.
3/12/2020	Section 2a	The time limit for responding to requests from pre-approved ICES WGs for access to detailed data has been reduced from two months to one month to comply with the DCF recast.	Compliance with article 17(3) of the recast DCF.
3/12/2020	Section 2a	Added 3 sentences to explicitly state that users of detailed data must sign the "Conditions for detailed RDBES data use" agreement.	Clarification
3/12/2020	Section 5	Changed a reference to "SCRDB" to refer to "WGRDBESGOV".	The group name has changed.
3/12/2020	Annex 2	Aggregation rules for CE and CL data have been updated to include Harbour and Landing country variables.	Recommendation from the RCGs
3/12/2020	Annex 3	Added this table of changes as a separate Annex	To give detailed information on changes to the licence

Review of proposed change from a data policy to a data license

Currently ICES has an overall Data Policy which states all dataset and data products are by default publicly available. However, there are a number of exceptions to this policy including:

- Commercial catch data from the Regional Fisheries Database (RDB-FishFrame) and InterCatch, which have independent data policies.
- VMS and Logbook data, which are governed by the conditions under the specific data call.
- Biodiversity data portal where data may have been provided by non-governmental organisations.
- Vulnerable Marine Ecosystems (VME) data portal, where location information is sensitive.

Due to this more restrictive access to data the RDB/RDBES currently has its own Data Policy.

Within the ICES Data and Information Group (DIG) there has been work done to move towards the creation of a single ICES Data Policy, with multiple Data Licenses. The Policy will define the overall principles of provision and access to data, and then the Licenses will define what can a user do with specific data. The intention is for the default ICES license to be open, and then have more restrictive licenses for specific data sets (such as the RDB/RDBES data). The intention is

not to change the usage conditions of the data, but just re-format the document that defines these and align with similar licences for data managed at ICES. The group agreed this was a sensible change to make.

There was a short discussion concerning code/software licences. It was pointed out that there should be a distinction between data and code licence. In most cases licences for coding in the content of ICES will be open licences.

While talking about data licences, it was clarified that a licence is a way of giving people rights to use the data. At the same time, the data owner does not have any legal liability if they use the data incorrectly, interpret them wrongly, use for their own purposes, or if there are any errors in the data.

There was also a question about the possibility to track the usage of RDB data. It would be useful if there was a possibility to know where the data were used. The one solution could be keeping the record of the people downloading the data from the RDB - but that would not help if the people who already have the data, don't refer to it anyway. Another solution could be to use DOIs. However, as the RDB is not open access, it might cause some frustration among users trying to open it. This could be solved by minting a DOI for the whole RDBES database.

In the current RDBES Data Policy there is some information that clearly belongs in a Data License, but there is also some more general information. It was agreed that the existing Data Policy would be split into two separate documents: 1) a data license which defines who can use the data and what they can use it for, and 2) a data governance document which would define the overall management of the RDBES (e.g. the existence of this governance group). These two draft documents are shown in Annex 5.

To help people identify how the existing Data Policy translates to the new Data License, and Data Governance document two mappings have been created and are shown below.

1) Mapping from data policy to data license

Original location in policy	New location	Comments / changes
-	Equivalent headings to CC-BY 4.0 added	Added
Goal, paragraph 1	Section 1, points 1 and 2	
Scope, sentence 1 and 2	Section 1, points 3 and 4	
Goal, sentence "The database herein…"	Section 1, point 5	
Acces Rights, "The DCF defines…" paragraph	Section 1, points 6a and 6b	Check bookmarks
Acces Rights, "According to the DCF…"	Section 1, point 7	
"Governance of the RDBES" heading and paragraph	Section 1, point 8	Needs updating
"Security" section "The RDBES follows the …" sentence	Section 1, point 9	
"Data ownership" heading and paragraph	Section 1, point 10	
"Scope", sentence "This policy applies to all…"	Section 2, point 1	The word "policy" was changed to "license"
"Access Rights" section, the text from "Data use for fisheries management…" until the end of the section	Section 2a	The date for publishing the list of pre-approved ICES WGs has been changed from "01 Dec" to "31 Jan" The time limit for responding to requests from pre-approved ICES WGs for access to detailed data has been reduced from two months to one month to comply with the DCF recast. Added 3 sentences to explicitly state that users of detailed data must sign the "Conditions for detailed RDBES data use '' agreement.
"Policy for use of data" section, "Correct and appropriate data interpretation is solely the responsibility of data users" sentence	-	In the current policy this sentence in the "Policy for use of data" section is a duplicate with a sentence in the "Disclaimer" section. The duplication has not been transferred to the license
"Policy for use of data", "Data sources (individual data providers) …" sentence to end of section	Section 3, points 1 – 4	
"Data Quality", whole section	Section 5, points 1 and 2	Changed a reference to "SCRDB" to refer to "WGRDBESGOV"
"Disclaimer" whole section	Section 5, points 3, 4, 5, and 6	
Annex 1	Annex 1	Unchanged
Annex 2	Annex 2	Aggregation rules for CE and CL data have been updated to include Harbour and Landing country variables.
-	Annex 3	Added

2) Mapping from data policy to data governance document

Original location in policy	New location	Comments / changes
"Goal" section from "The main aim…" to "…for data submission, data access and usage rights."	"Aims" section	
"Access roles", whole section	"Access roles" section	
"Policy for data providers", whole section	"Policy for data providers" section	
"Policy for Use of Data", "ICES, as the host and maintainer…" sentence	"Access roles" section	
"Security" section from "RDBES is hosted on a secure server…" to "….or equivalent secure system" paragraph	"Security" section	

Next steps

Discussion will be had with the ICES Data Centre, Data and Information Group, and other relevant data governance groups to ensure that the RDB/RDBES data license is in line with other such licenses being created for restricted ICES data sets. In accordance with the approval cycle discussed earlier further drafts may be produced before being circulated to the RCGs and ICES member countries for feedback.

5 New chair(s) and next meeting date and venue

The next meeting will be held 30 November – 2 December 2021 with the location to be confirmed nearer the time. The next group chair/s will be agreed intersessionally.

6 Actions

Who	What	When
RDBES core group	Formulate email to data submitters for feedback regarding the RDBES CE and CL data format before the 2021 test data call is drafted.	Before 2021 test RDBES test data call is drafted
RDBES core group	To invite additional experts to the RDBES core group responsible for data validation. These experts can develop data validation scripts (R markdown), test it using the data submitted for the 2020 RDBES test data call and make the validation scripts available to data submitters.	Before 2021 test RDBES test data call is launched
RDBES core group	Work with UK data submitters to ensure coding of UK data is consistent in the RDBES	Before 2021 test RDBES data is submitted
RDBES core group	Send email to non-EU countries ACOM member to inform them of the new metier list	Before 2021 test RDBES test data call is launched
RDBES testing group	Consider how an Upload Log system should be implemented in the RDBES so that data submitters can highlight known issues in the data	End of 2021
WGRDBESGOV chairs	Continue interoperability discussion with WGSMART / WGBIOP / DATAS	End of 2021
TBC	Evaluate CS data submitted to 2020 RDBES test data call - liaise with data submitters about any issues identified.	Before 2021 RDBES test data call submission
Henrik	Draft and circulate 2021 RDBES test data call	5/3/2021
Henrik	Issue 2021 RDBES test data call	31/5/2021
David and Edvin	Draft and submit WKRDB-POP3 resolution	28/2/2021
Nuno and Kirsten	Draft and submit WGRDB-EST group resolution	15/2/2021
David and Katja	Identify WKRDB-RAISE&TAF chairs	28/2/2021
WKRDB-RAISE&TAF chairs	Draft and submit WKRDB-RAISE&TAF resolution	31/3/2021

Annex 1: List of participants

Name	Institute	Country (of institute)	Email
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Annex 2: Resolutions

2020/FT/DSTSG01

A **Working Group on Governance of the Regional Database & Estimation System** (WGRDBESGOV), chaired by David Currie, Ireland and Katja Ringdahl, Sweden, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2020	1st – 3rd December	Online	Interim report by 1st Feb 2021 to DSTSG	
Year 2021	TBC	TBC	Interim report by TBC to DSTSG	
Year 2022	TBC	TBC	Final report by TBC to DSTSG	

ToR descriptors

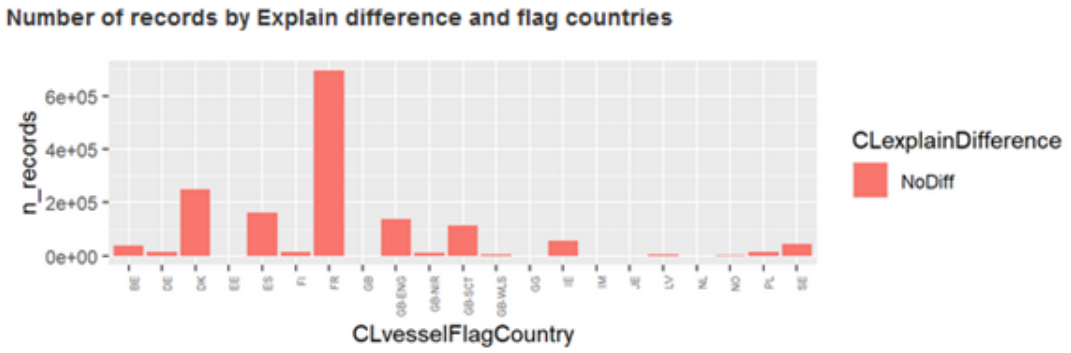
ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
a	Review the status of the development of the new commercial fisheries Regional Database & Estimation System (RDBES) and its project plan for implementation, including the funding of the outstanding development. Adjust the project plan as required. Oversee and advise on the interpretation and prioritisation of recommendations for the RDBES development. Identify user guidance and training required for RDBES users.	The commercial fisheries Regional Database & Estimation System (RDBES) will be extensively used by ICES member states, the EU Regional Coordination Groups, and ICES expert groups to store detailed commercial fisheries sample data. The RDBES is also intended to replace the current ICES InterCatch system so will also function as a database and estimation system for ICES Fisheries Advice. The RDBES is therefore a key development to support the ICES advisory process.	3.1, 3.2, 3.3	3 years	An up-to-date roadmap for the Regional Database & Estimation System (RDBES) developments describing when functionality will be available. The RDBES project plan is monitored and fulfilled. Recommendations for relevant workshops are made.
b	Provide a platform for user feedback to the Regional Database & Estimation System (RDBES). Appropriate actions to be taken with assigned responsibilities and resource requirements will	The Regional Database & Estimation System (RDBES) should develop to meet the requirements of a broad range of users and thus needs to be responsive to user feedback.	3.1, 3.2, 3.3	3 years / generic ToR	A public Regional Database & Estimation System (RDBES) GitHub site is maintained - this makes the data model available, and provides a

ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
	be listed and prioritised. Ensure that any required sub-groups (including the existing "Core group") are created and function effectively whilst needed.				platform for users to raise and discuss issues. Sub-groups (such as the existing "Core group") complete any required tasks (e.g. refining specifications and answering user queries) Recommendations from users are responded to.
c	Oversee and summarize how the existing commercial fisheries Regional Database (RDB) and the new Regional Database & Estimation System (RDBES) are used in the EU Regional Coordination Groups (RCGs), and ICES expert groups, along with any other uses. Where possible, share any outputs with other interested groups and users.	The aims of the new Regional Database & Estimation System (RDBES) include increasing the awareness of fisheries data collected by the users of the RDBES and the overall usage of these data. Therefor it is important to monitor how different users are using the data.	3.1, 3.2, 3.3	3 years / generic ToR	Summaries of the existing commercial fisheries Regional Database (RDB) and the new Regional Database & Estimation System (RDBES) data calls are published annually. Summaries of the use of RDB/RDBES data are published annually.
d	Review the data governance framework of the commercial fisheries Regional Database (RDB) and Regional Database & Estimation System (RDBES)	The Regional Database & Estimation System (RDBES) is intended to host data from multiple ICES member countries and EU member states. Different users will have different permissions (depending on their needs). Data governance of the RDBES is therefore a key topic to ensure that it can function in a secure and efficient manner.	3.1, 3.2, 3.3	3 years / generic ToR	Appropriate Regional Database (RDB) and Regional Database & Estimation System (RDBES) data governance policies are agreed and implemented

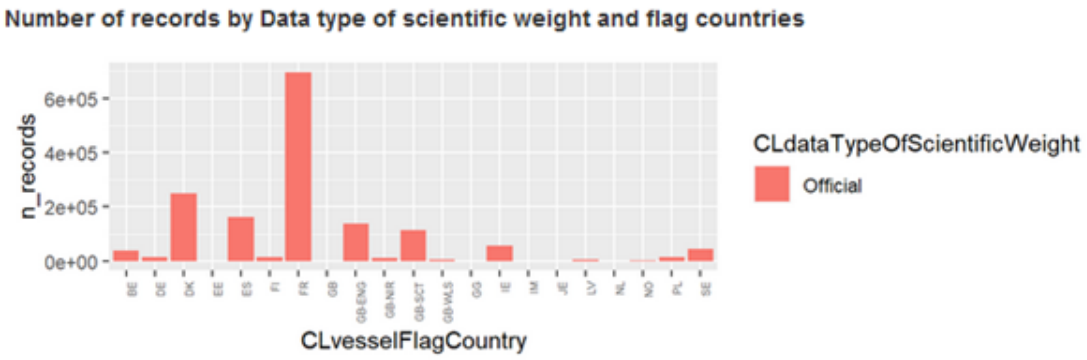
Annex 3: Analysis of CE and CL data submitted for the 2020 RDBES test data call

The below checks of the effort and landings data submitted for the 2020 RDBES test data call have been made to create an overview of the types of data submitted and if the possibilities to report both official landings and effort data and scientific estimates have been used.

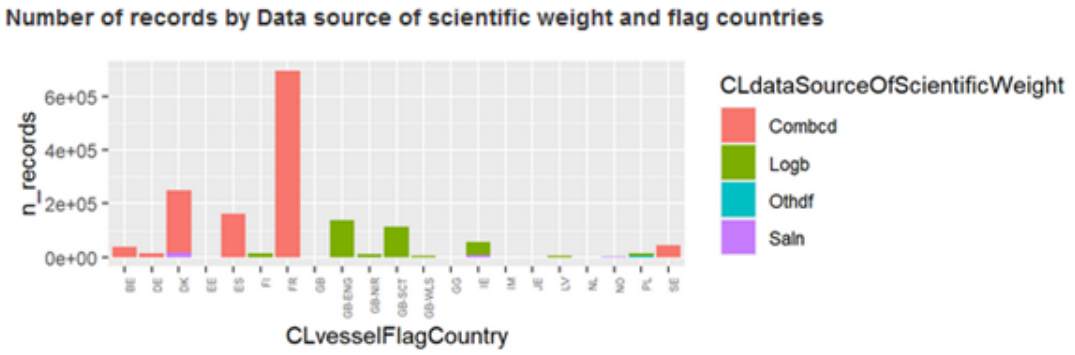
In the landings table the differences can be explained by "Sample data", "Unallocated catches", "Area misreporting" and "Correction for overweight in boxes". In the data submitted for the test data call no countries have explained differences in official and scientific landings:



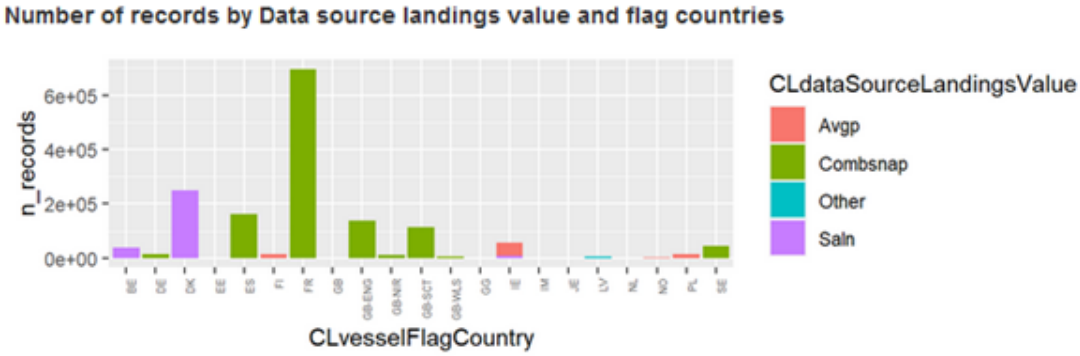
In the CL data, it is possible to inform about the type of data used for the scientific weight, and it is possible to enter "Official" or "Estimate". Only "Official" has been used in the test data call.



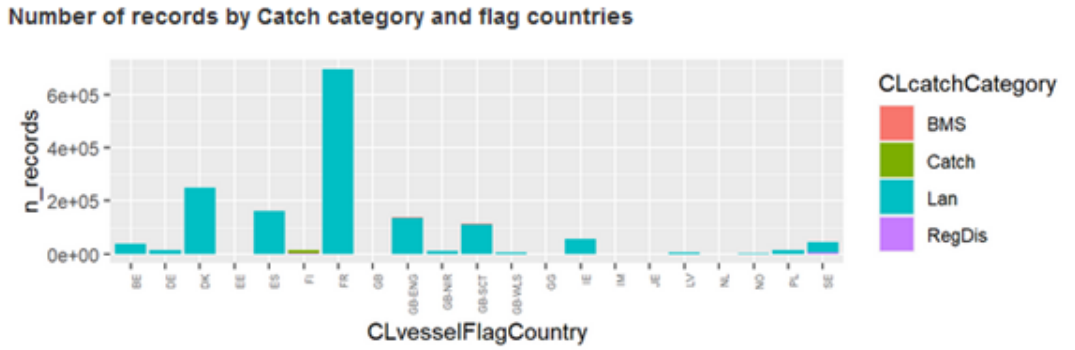
The data source for scientific weight can be specified as "Logbook" (Logb), "Sales notes" (Saln), "Other declarative forms" (Othdf), "Combination of official data" (Combcd) or "Sampling data". The figure below shows that different official data sources have been used.



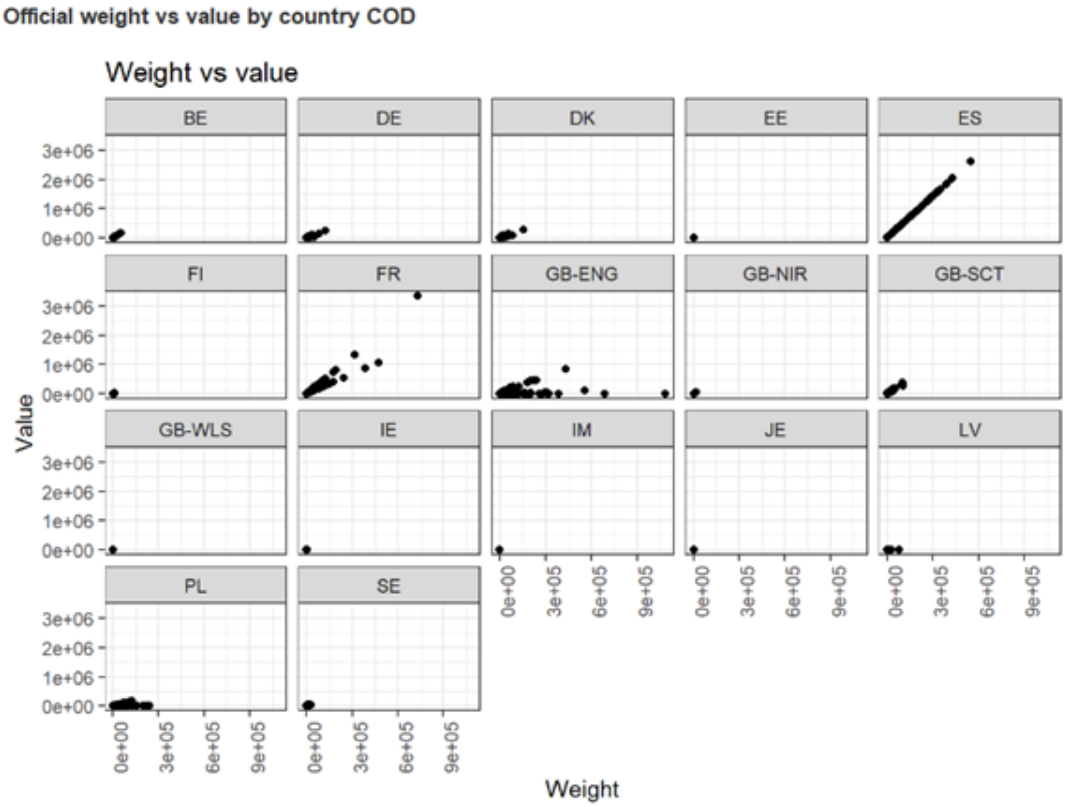
The data source for landings value can be specified as "Sales notes" (Saln), "Average prices" (Avgp), "Combination of sales notes and average prices" (Combsnap) or "Other" (Other). The figure below shows the different data sources used.



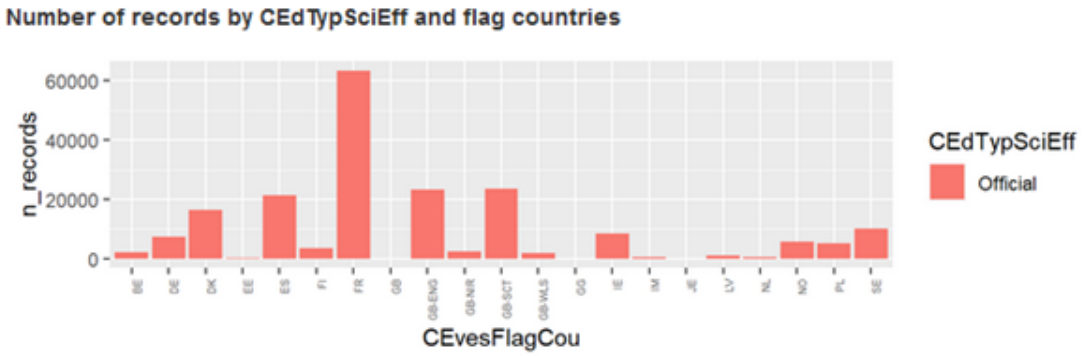
In the data call format, it is specified that it is possible to upload the catch categories "Lan" (landings), "Regdis" (Logbook registered discards) and "BMS" (Landings below minimum reference size). Finland has uploaded an additional category called "Catch".



Below official weight is plotted against the value of landings of cod as an example of a plot for checking data quality. A note about the use of CL data is that the column CLspeciesCode should be used instead of the CLspeciesFaoCode, as the FAO code is only partially filled in.



The effort data are also only based on official data, and not scientific data.

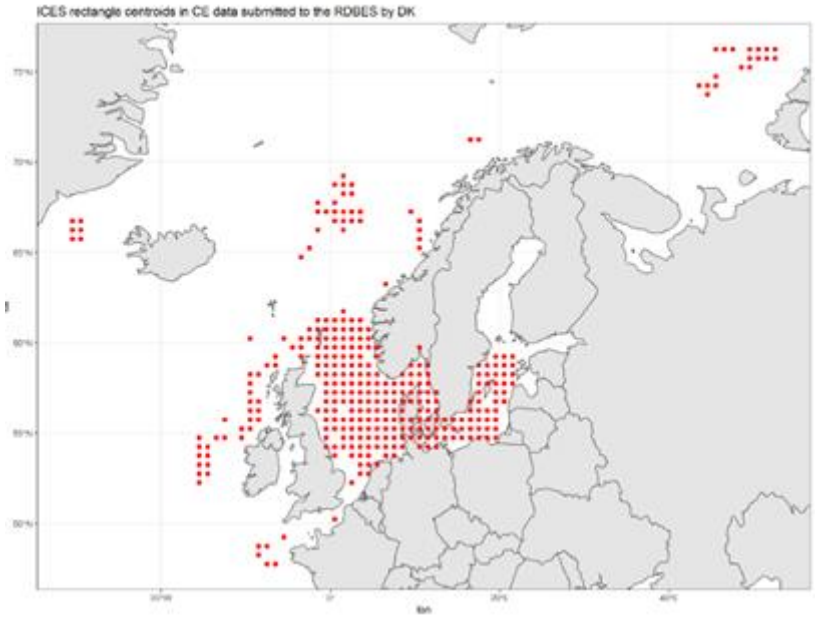


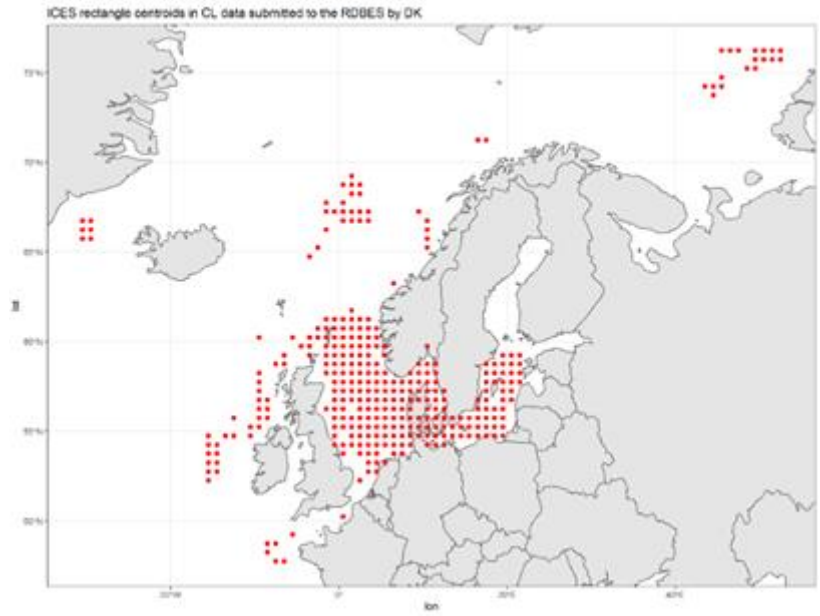
As the data submitted is only based on official records, and not scientific estimates, the fields for including RSE and qualitative bias have not been used.

Annex 4: National QC report examples

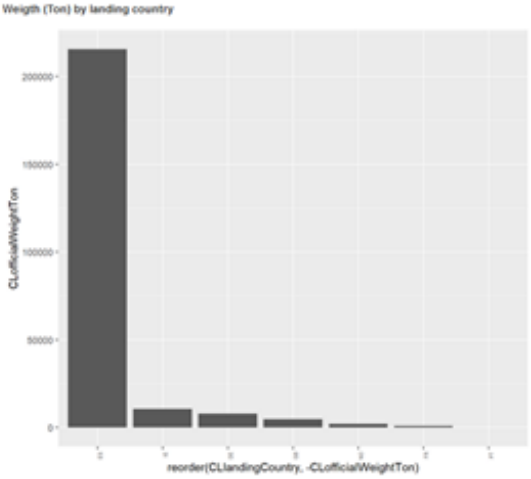
Below are examples of maps, graphs and tables that can be used to validate national data in a QC report.

Maps by ICES rectangles (example from Denmark)

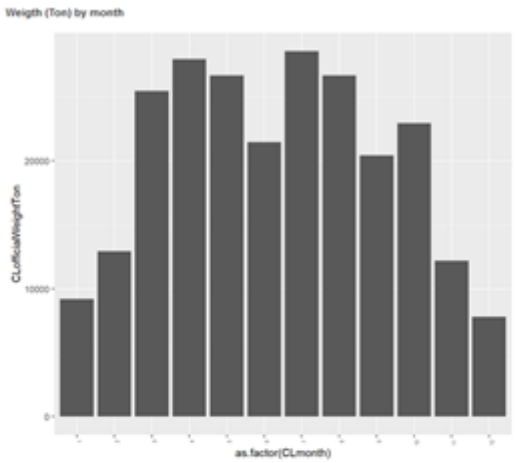




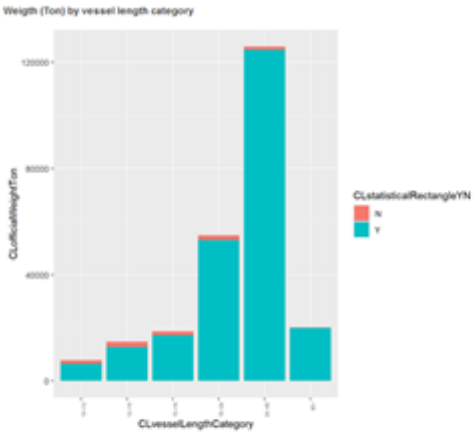
Landings data (example from Spain)



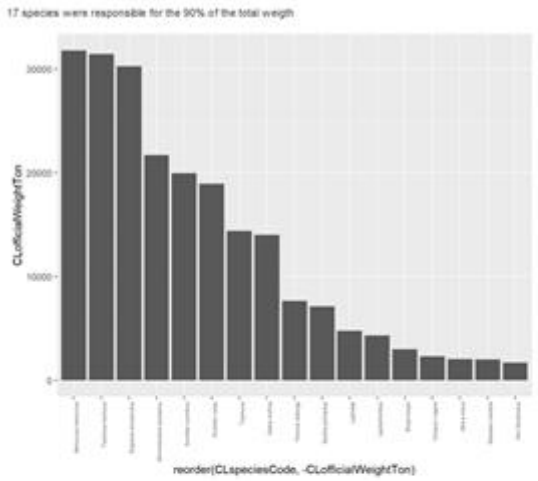
CLyear	CLlandingCountry	CLofficialWeightTon
2019	ES	215445
2019	IE	10750
2019	DE	8049
2019	GB	4749
2019	NO	2133
2019	FR	950
2019	PT	43



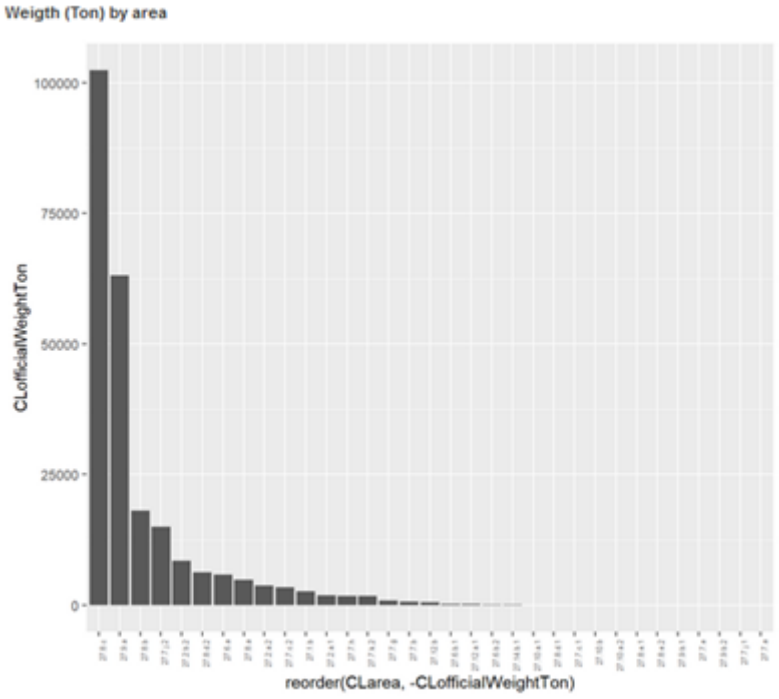
CLyear	CLmonth	CLofficialWeightTon
2019	1	9197
2019	2	12916
2019	3	25441
2019	4	27927
2019	5	26666
2019	6	21455
2019	7	28543
2019	8	26643
2019	9	20398
2019	10	22941
2019	11	12192
2019	12	7800

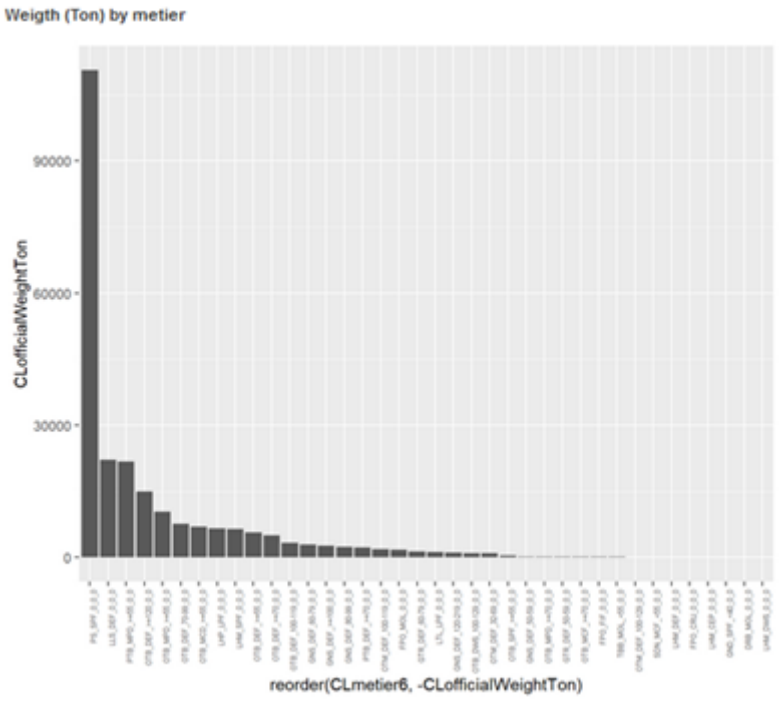


CLvesselLengthCategory	CLofficialWeightTon
10-<12	7823
12-<15	14824
15-<18	18677
18-<24	54848
24-<40	125829
40<	20119



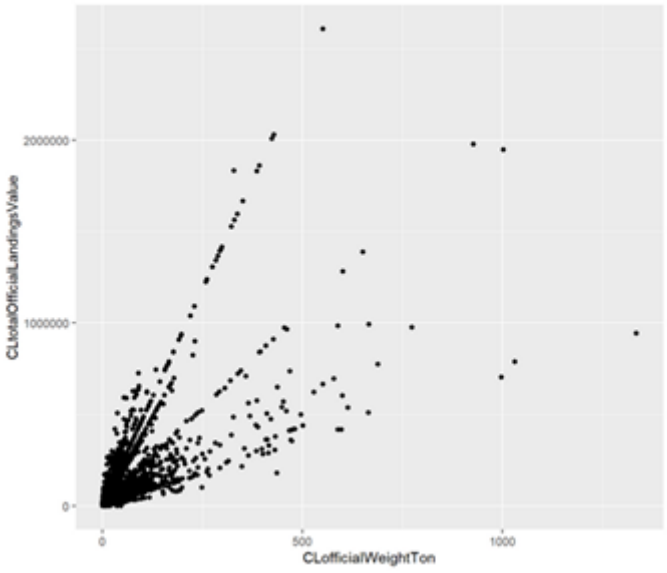
CLyear	CLspeciesCode	CLofficialWeightTon	cumprop
2019	Merluccius merluccius	31771	0
2019	Trachurus trachurus	31423	0
2019	Engraulis encrasicolus	30260	0
2019	Micromesistius poutassou	21701	0
2019	Scomber scombrus	19935	1
2019	Scomber colias	18933	1
2019	Trachurus	14379	1
2019	Gadus morhua	13985	1
2019	Thunnus alalunga	7617	1
2019	Sardina pilchardus	7117	1
2019	Lophiidae	4747	1
2019	Lepidorhombus	4314	1
2019	Boops boops	2961	1
2019	Octopus vulgaris	2301	1
2019	Mola mola	2019	1
2019	Sebastes mentella	1994	1
2019	Illex illecebrosus	1672	1


Weigth (Ton) by area
100000
75000
50000
25000
0
CLofficialWeightTon
reorder(CLarea, -CLofficialWeightTon)


Weigth (Ton) by metier
90000
60000
30000
0
CLofficialWeightTon
reorder(CLmetier6, -CLofficialWeightTon)

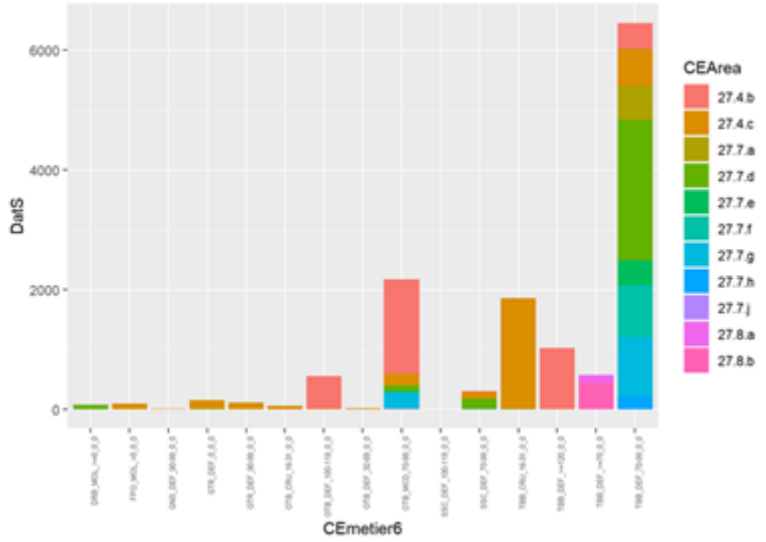
CLyear	CLmetier6	CLofficialWeightTon
2019	PS_SPF_0_0_0	110518
2019	LLS_DEF_0_0_0	22195
2019	PTB_MPD_>=55_0_0	21698
2019	OTB_DEF_>=120_0_0	14926
2019	OTB_MPD_>=55_0_0	10378
2019	OTB_DEF_70-99_0_0	7613
2019	OTB_MCD_>=55_0_0	6988
2019	LHP_LPF_0_0_0	6592
2019	LHM_SPF_0_0_0	6449
2019	OTB_DEF_>=55_0_0	5675
2019	OTB_DEF_>=70_0_0	4936
2019	OTB_DEF_100-119_0_0	3272
2019	GNS_DEF_60-79_0_0	2927
2019	GNS_DEF_>=100_0_0	2624
2019	GNS_DEF_80-99_0_0	2413
2019	PTB_DEF_>=70_0_0	2268
2019	OTM_DEF_100-119_0_0	1908
2019	FPO_MOL_0_0_0	1735
2019	GTR_DEF_60-79_0_0	1340
2019	LTL_LPF_0_0_0	1144
2019	GNS_DEF_120-219_0_0	1094
2019	OTB_DWS_100-129_0_0	935
2019	OTM_DEF_32-69_0_0	902
2019	OTB_SPF_>=55_0_0	423
2019	GNS_DEF_50-59_0_0	219
2019	OTB_MPD_>=70_0_0	181
2019	GTR_DEF_50-59_0_0	162
2019	OTB_MCF_>=70_0_0	156
2019	FPO_FIF_0_0_0	143
2019	TBB_MOL_<55_0_0	120
2019	OTM_DEF_100-129_0_0	61
2019	SDN_MCF_<55_0_0	52
2019	LHM_DEF_0_0_0	26
2019	FPO_CRU_0_0_0	23
2019	LHM_CEP_0_0_0	12
2019	GND_SPF_<40_0_0	6
2019	DRB_MOL_0_0_0	4
2019	LHM_DWS_0_0_0	1

Official weight vs landings value



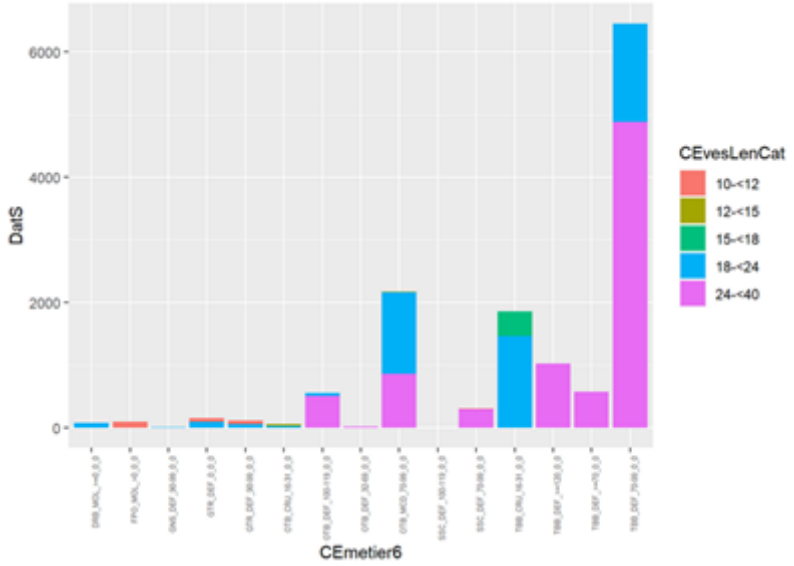
Effort data (example from Belgium)

Days at sea by metier and area



	27.4.b	27.4.c	27.7.a	27.7.d	27.7.e	27.7.f	27.7.g	27.7.h	27.7.j	27.8.a	27.8.b
DRB_MOL_>=0_0_0	NA	NA	NA	71.00	NA	NA	NA	NA	NA	NA	NA
FPO_MOL_>0_0_0	NA	89.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
GNS_DEF_90-99_0_0	NA	3.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
GTR_DEF_0_0_0	NA	149.00	NA	4.00	NA	NA	NA	NA	NA	NA	NA
GTR_DEF_90-99_0_0	NA	116.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
OTB_CRU_16-31_0_0	NA	56.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
OTB_DEF_100-119_0_0	551.52	5.50	NA	NA	NA	NA	NA	NA	NA	NA	NA
OTB_DEF_32-69_0_0	NA	16.00	NA	2.00	NA	NA	NA	NA	NA	NA	NA
OTB_MCD_70-99_0_0	1585.02	183.00	12.67	92.26	20.36	3.07	273.20	3.11	2.33	NA	NA
SSC_DEF_100-119_0_0	NA	NA	NA	2.00	NA	NA	NA	NA	NA	NA	NA
SSC_DEF_70-99_0_0	14.67	103.00	NA	178.32	4.00	NA	NA	NA	NA	NA	NA
TBB_CRU_16-31_0_0	NA	1849.50	NA	8.50	NA	NA	NA	NA	NA	NA	NA
TBB_DEF_>=120_0_0	1026.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TBB_DEF_>=70_0_0	NA	NA	NA	NA	NA	NA	NA	NA	NA	126.56	446.46
TBB_DEF_70-99_0_0	428.97	621.23	565.32	2347.18	411.04	874.06	993.99	211.24	0.88	NA	NA

Days at sea by metier and vessel length group



	10-<12	12-<15	15-<18	18-<24	24-<40
DRB_MOL_>=0_0_0	NA	NA	NA	71.00	NA
FPO_MOL_>0_0_0	89	NA	NA	NA	NA
GNS_DEF_90-99_0_0	NA	NA	NA	3.00	NA
GTR_DEF_0_0_0	58	NA	NA	95.00	NA
GTR_DEF_90-99_0_0	57	NA	NA	59.00	NA
OTB_CRU_16-31_0_0	NA	34	NA	22.00	NA
OTB_DEF_100-119_0_0	NA	NA	NA	49.99	507.03
OTB_DEF_32-69_0_0	NA	NA	NA	1.00	17.00
OTB_MCD_70-99_0_0	NA	12	NA	1300.00	863.02
SSC_DEF_100-119_0_0	NA	NA	NA	NA	2.00
SSC_DEF_70-99_0_0	1	NA	NA	NA	298.99
TBB_CRU_16-31_0_0	NA	1	395	1462.00	NA
TBB_DEF_>=120_0_0	NA	NA	NA	NA	1026.01
TBB_DEF_>=70_0_0	NA	NA	NA	NA	573.02
TBB_DEF_70-99_0_0	NA	NA	NA	1569.01	4884.90

Days at sea by vessel length and area

	27.4.b	27.4.c	27.7.a	27.7.d	27.7.e	27.7.f	27.7.g	27.7.h	27.7.j	27.8.a	27.8.b
10-<12	NA	205.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
12-<15	NA	47.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
15-<18	NA	395.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
18-<24	1168.99	2254.84	NA	1065.67	18.73	80.57	43.20	NA	NA	NA	NA
24-<40	2437.20	289.39	577.99	1639.59	416.67	796.56	1223.99	214.35	3.21	126.56	446.46

Annex 5: Draft Data License and Governance Documents

Draft Data License

Section 1 – Definitions.

1. The present Regional Database, and the new Regional Database and Estimation System are herein referred to as the RDBES.
2. The Regulation (EU) 2017/1004[3] is hereafter referred to as the Data Collection Framework (DCF).
3. For the European Union Member States, the basis for data policy rules are the provisions of the DCF. (See annex 1 for relevant articles of DCF)
4. For non-EU countries, the basis for data policy rules is in accordance with the limitations on data use specified by each country[4].
5. The database herein is a regional database as referred to in Article 18(1) of the DCF.
6. The DCF defines:
    a) Detailed data as data based on primary data in a form that does not allow natural persons or legal entities to be identified directly or indirectly
    b) Aggregated data as the output resulting from summarising the primary or detailed data for specific analytical purposes
7. According to the DCF, provision on access rights and time frame are described under Articles 17(1), 17(3) and 17(4) provided in the annex 1 to this document.
8. Governance of the RDBES - the RDBES is hosted by ICES and is managed by a steering committee (SCRDBES).
9. The RDBES follows the principles of personal data protection, as referred to in Article 2 of the DCF.
10. Data ownership - the national data in RDBES is owned by the individual countries.

Section 2 – Scope.

1. This license applies to all providers and users of data uploaded into the RDBES, and to ICES activities for providing access to data.

2a License grant.

1. Data use for fisheries management:
    a) Advice to Fisheries Management
        i. Countries grant permission for aggregated data, see Annex 2, to be used by ICES in the provision of scientific advice to the European Commission and other ICES clients of scientific advice. A list of the ICES groups

[3] Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on 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 and repealing Council Regulation (EC) No 199/2008 (recast)

[4] In response to official data calls to the RDBES

that require access to aggregated data will be provided to the RCG's and ACOM members by 31 Jan each year.

ii. EU Member States (MS) grant permission for detailed data to be used by the RCG's for the purposes of Article 9 of the DCF.

iii. An ICES entity on the approved list in (i), requiring detailed data from the RDBES, via the RDBES host can request access in writing to each country and EU MS[5]. The EU MS will be obliged to respond within one month from the date of the request. If approval is given users of detailed data must sign the "Conditions for detailed RDBES data use" agreement.

iv. EU MS / ICES countries can choose to pre-approve access to detailed data for all EGs on the list in (i) – this approval must be given in writing to the RDBES host. This approval must be renewed by 31 Jan each year in writing to the RDBES host. Users of detailed data must sign the "Conditions for detailed RDBES data use" agreement.

2. Other uses

   a) An entity requiring detailed or aggregated data from the RDBES, can request access in writing to each Country. The EU MS will be obliged to respond two months from the date of the request. If approval is given users of detailed data must sign the "Conditions for detailed RDBES data use" agreement.

3. For requests related to scientific publication, for EU MS Article 17(7) of the DCF applies.
4. Persons from the European Commission have full access to, or can receive, EU countries' data from the RDB/RDBES.
5. An inventory of data housed in the RDBES is available without restriction on the RDBES website.

2b Other rights.

[NO CONTENT]

Section 3 – License Conditions.

1. Data sources (individual data providers) must be duly acknowledged.
2. Data Users are obliged to inform ICES of any suspected problems in the data.
3. Data Users must respect any and all restrictions on the use or reproduction of data such as restrictions on use for commercial purposes
4. Data can be shown in reports as described in Annex 2

Section 4 – Sui Generis Database Rights.

[NO CONTENT]

Section 5 – Disclaimer of Warranties and Limitation of Liability.

1. According to Articles 14(1) of the DCF Member States are responsible for the quality and completeness of the primary data collected under national work plans, and for the detailed and aggregated data derived therefrom which are transmitted to end-users of scientific data. For non-EU countries, with reference to the ICES Data policy, data providers are responsible for the quality and completeness of data delivered to ICES.
2. On the basis of the recommendations made by the WGRDBESGOV, ICES develops and applies quality assurance procedures as appropriate and feasible, and in cooperation

[5] The focal point in EU MS being National Correspondents in consultation with individual countries or autonomous data providers within member states. For non EU countries the ICES delegate is considered the focal point.

with data providers and other organizations. ICES may also receive reports on potentially erroneous data. ICES will inform data providers of relevant quality issues.

3. Correct and appropriate data interpretation is solely the responsibility of data users.
4. Data Users must not expressly or otherwise imply ICES substantiation of their work, results, conclusions and/or recommendations.
5. Whilst the data have been quality controlled by the supplying institutes, there are inherent flaws in gathering the information and care should be taken in analysing the data for purposes that the data were not primarily intended for. Thus users are urged to treat the data with caution.
6. If the user has any queries on the validity of the data, to report errors, or the conclusions to be drawn from the analysis they have undertaken, please contact RDBsupport@ices.dk. If the query is about a specific national dataset then the user may wish to contact the National Focal Point for Fisheries data collection (https://datacollection.jrc.ec.europa.eu/docs/national-correspondent) or ACOM member for non-EU countries (http://ices.dk/community/groups/Pages/ACOM.aspx).

Section 6 – Term and Termination.

[NO CONTENT]

Section 7 – Other Terms and Conditions.

[NO CONTENT]

Section 8 – Interpretation.

[NO CONTENT]

Draft Data Governance Document

Aims

The main aim of the RDBES is to:

1. To ensure that data can be made available for the coordination of regional fisheries data sampling plans, including for the DCF Regional Coordination Groups (RCGs),
2. To provide a regional estimation system such that statistical estimates of quantities of interest can be produced from sample data,
3. To serve and facilitate the production of fisheries management advice and status reports,
4. To increase the awareness of fisheries data collected by the users of the RDBES and the overall usage of these data.

Access Roles

Based on the access granted in **Error! Reference source not found.**, users are given access to RDBES according to a role based matrix. For simplification and as guidance, the version presented below is shown with fewer roles and access types than are available in the actual role matrix that controls access in RDBES. All roles are managed by password controlled login, with the exception of 'Public' where no login is granted/required.

	Data Owner	Detailed Data Reader	Aggregated Data Reader	Public
Manage	X			
Process/estimate	X	X		
Read/Download data				
- Detailed data	X	X		
- Aggregated data	X	X	X	
- Inventory	X	X	X	X

ICES, as the host and maintainer of the RDBES, will make data available in a timely way according to the defined Error! Reference source not found.

Policy for Data Providers

Although the ICES Data Centre may perform some data quality/integrity control, the data providers always retain complete responsibility for data processing and data quality, according to Articles 14 and 16 of the DCF.

When changes (new data and revisions) are made in the data source (the national database containing the primary data) countries are responsible to in a timely manner update and process their own data in the RDBES.

It is the responsibility of the data provider to make sure that data that cannot be identified to any individual vessel or legal entity or at a resolution violating confidentiality rules[6].

[6] The principles of personal data protection, as referred to in Article 17(2) in Regulation (EU) 2017/1004.

Security

RDBES is hosted on a secure server and restricted to persons who have a user name and a password, a user name is for the sole use of that individual. Login is through a website secured with HTTPS protocol.

Extracted data may also be shared with authorised users via a secure SharePoint, private git repository or equivalent secure system.

Annex 6: Draft resolutions for proposed workshops and expert group

This annex contains draft resolutions for two proposed workshops and an expert group – these will be further worked on after the meeting before being submitted for approval

Third Workshop on Populating the RDBES data model (WKRDBES-POP3)

The **Third Workshop on Populating the RDBES data model (WKRDBES-POP3)** chaired by David Currie, Ireland and Edvin Fuglebakk, Norway will be held online from X - X 2021 to:

a. Describe and explain the RDBES data model to national data submitters using worked examples.
b. Provide hands-on guidance and assistance to national data submitters to write working data extraction scripts to convert national data formats to the RDBES data format.
c. Identify and document any problems in converting national data formats to the RDBES format.
d. Encourage national data submitters to join the RDBES testing group.

WKRDB-POP2 will present a written report to ACOM by 31st August 2021.

Supporting information

Priority	The activities of this workshop will promote the development of a Regional Database and Estimation System, RDBES. This workshop will help countries to correctly convert their national data formats to the RDBES format. The RDBES when it is implemented works as a database for the Baltic Sea, North Sea & Eastern Arctic, North Atlantic and Long Distance Fisheries Regional Coordination Groups (RCGs). The RDBES will also function as a database and estimation system for ICES Fisheries Advice. The development will concentrate on harmonisation, quality assuring, documentation, approved estimation methods and transparency. Consequently, these activities are considered to have a very high priority. ICES will issue a data call in 2020 for 2019 sample, landings and effort data in the new RDBES format from selected stocks. The ideal conclusion is that at the end of this workshop each person attending has developed working scripts to extract the data that will be requested by the RDBES data call
Scientific justification	The RDBES will be extensively used by the RCGs and ICES both to store detailed fisheries sample data and use it for estimation - therefore it is essential that national data submitters are familiar with the RDBES format and confident in correctly converting their national data to this format. The first WKRDB-POP in 2019 started this process which was conntinued in 2020. It is necessary to hold a third workshop because (i) a broader participation including non-EU countries and data submitters dealing with data on bycatch, large pelagic and long distance fisheries is needed (ii)there have been some changes to the RDBES data model, and (iii) not all data submitters were able to attend the previous workshops. **ToR a) – Describe and explain the RDBES data model to national data submitters using worked examples**

	The RDBES data format will be explained using its documentation, and a number of worked examples. These worked examples will play an important role in illustrating the types of decisions that data submitters will need to make. **ToR b) – Provide hands-on guidance and assistance to national data submitters to write working data extraction scripts to convert national data formats to the RDBES data format** This is the most important part of the workshop and will occupy the majority of the workshop's time - it will entail the RDBES Core Group providing practical assistance to the attendees. The workshop attendees must be familiar with their own national sampling programme designs, and must have made preparations necessary to provide real data sets of their national samples to the workshop. The Core Group will then help them to convert their data to the new RDBES format. The more work that attendees have done in trying to populate the RDBES format with their own data before the workshop the more value they will gain from this work. When new questions are identified and resolved they can be added to the RDBES "Frequently Asked Questions" so that other people can benefit from the answers. **ToR c) – Identify and document any problems in converting national data formats to the RDBES format problems** If it is not clear how particular data should be converted to the RDBES format then this will be recorded for future discussion and resolution. **ToR d) - Encourage national data submitters to join the RDBES testing group** Rigorous and in-depth testing needs to be done in 2020 to ensure RDBES can meet its deliverables and to ensure the system and all supporting facilities are functioning as envisioned and designed. The current "RDBES Core Group" can do some of the testing, but a wider selection of contributors such as national data submitters is required to cater for all the tests required.
Resource requirements	Members of the "RDBES Core Group" will be requested to participate as hands-on instructors/demonstrators. The ICES Data Centre will provide technical support for RDBES data uploading.
Participants	~30 people
Secretariat facilities	SharePoint
Financial	No financial implications.
Linkages to advisory committees	There are no direct linkages with the advisory committees, but most of the stock assessment Working Groups will be impacted by the development of the RDBES.
Linkages to other committees or groups	There is a link to WGCATCH and PGDATA.
Linkages to other organizations	The RDBES will support the work done by the RCGs under the European Commission, EC. The aim is also allow the RDBES to support the countries in providing data for the data calls under the EC.

Workshop on Raising Data using the RDBES and TAF (WKRDBES-RAISE&TAF)

The **Workshop on Raising Data using the RDBES and TAF (WKRDBES-RAISE&TAF)**, chaired by XX, and XX will be held online from YY 2021 with the objective to:

- start the process of transition to RDBES for the EWGs to guarantee the transparency and quality of the advice (Advice Plan – Assuring Quality)
- have a first workshop (of a series) to understand how to implement the RDBES system in the current national and ICES system for processing the commercial fisheries data
- to enhance and continue the ongoing quality & transparency process of the ICES system

WKRAISE&TAF will report by 31/12/2021 for the attention of the Advisory Committee.

Supporting information

Priority	High. The WGRDBESGOV voiced the clear need to promote the use of the RDBES in replacement of InterCatch. National institutes need to be prepared to change the national raising of data towards the use of the RDBES format. In preparation of this workshop, a consultaion meeting will take place early 2021 with the stock assesors of the ten stocks included in the RDBES data call 2020.
Scientific justification	The RDBES format will be used by the national instutues data providers the stock coordinators, RCGs and other WGs such as WGCATCH. Therefore it is essential that national data submitters are familiar with the RDBES format and confident in correctly converting their national data to this format **Term of reference** a) Reproduce the 2020 upload (2019 data) to Intercatch by producing R-scripts that raise national data extracted from the RDBES format to national level estimates. Compare with previously uploaded estimates (all estimates generally uploaded to Intercatch for the specific stock). b) Reproduce the 2020 stock coordination (2019 data) previously done in Intercatch with the R-scripts that run on ToRa output. Compare with previously achieved estimates. c) Identify and set up a TAF routine and roles for ToR a & b d) Develop the approach how to implement the RDBES system in the ICES community.
Resource requirements	Members of the "WGRDBESGOV Core Group" will be requested to participate, as well the ICES Data Centre.
Participants	- Stock coordinators and stock assessors for the selected stocks - National data submitters (the national estimations) - Experts form the WGRDBESGOV Core group - ICES Data Centre (incl. TAF) - ACOM vice-chair
Secretariat facilities	None.
Financial	No financial implications.

Linkages to advisory committees	There is a direct linkages with the advisory committees, as most of the stock assessment Working Groups will be impacted by the development of the RDBES.
Linkages to other committees or groups	There is a very close working relationship with all the heries
Linkages to other organizations	The work of this group is closely aligned with WGRDBESGOV, WGCATCH, EWGs WGQUALITY. The RDBES will support the work done by the RCGs under the European Commission, EC. The aim is also to allow the RDBES to support the countries in providing data for the data calls under the EC

Working Group on Estimation with the RDBES data model (WGRDBES-EST)

A **Working Group on Estimation with the RDBES data model (WGRDBES-EST)**, chaired by Kirsten Birch Håkansson, Denmark and Nuno Prista, Sweden, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2021	20 to 24 September	Online	Interim report by 18 December to DSTSG	
Year 2022	To be determined	To be determined	Interim report by tbd to DSTSG	
Year 2023	To be determined	To be determined	Final report by tbd to DSTSG	

ToR descriptors

ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
a	Develop and document R scripts and functions for statistical estimation using the RDBES data format	The commercial fisheries Regional Database & Estimation System (RDBES) will be extensively used by ICES member states, the EU Regional Coordination Groups, and ICES expert groups to store detailed commercial fisheries sample data. The RDBES is also intended to replace the current ICES InterCatch system so will also function as a database and estimation system for ICES Fisheries Advice. Estimation within the RDBES will be done by means of R-scripts and functions that secure the transparency and reproducibility of assessment inputs and that will ultimately integrate TAF. WKRDB-EST (1&2) have started developing those scripts and functions from the perspective of the simpler forms of design-based estimation. WGRDBES-EST will finalize that work and extend it to more complex	3.1, 3.2, 3.3	Regular activity every year with intersessional work	Documented R-scripts and functions to be added to icesRDBES package

		statistical estimation methods.			
b	Identify and document any problems with RDBES data model relating to statistical estimation	The RDBES data model will keep being improved by the core-group of RDBES development as feedback is received from RCGs, EGs (e.g., WGCATCH, WGBYC) and national users. The implications of updates of the data model for estimation need continuous evaluation. In parallel as WGRDBES-EST carries its work, new aspects of the data model may be found required to carry out specific estimation methods or obtain specific types of results	3.1, 3.2, 3.3	Regular activity every year	List of recommendations to ICES data center and WGRDBESGOV on aspects needing development in the RDBES data model
c	Coordinate the peer-review and work towards the inclusion of ToR a) outputs in the icesRDBES package	Worldwide availability and systematic code and methodological peer review of RDBES estimation functions ans scripts may be achieved by their incorporation in icesRDBES package and publication on CRAN (https://cran.r-project.org/)	3.1, 3.2, 3.3	Regular activity every year with intersessional work	IcesRDBES package and associated peer-reviewed documentation
d	Establish a road forward to the improvement of estimates of commercial catches used in ICES assessments	As the work of WGRDBES-EST progresses there is a need to update andinform WGRDBESGOV on the best path forward to keep improving commercial catch estimates used in ICES.	3.1, 3.2, 3.3	Regular activity every year	List of recommendations to WGRDBESGOV on aspects needing consideration in efforts to improve estimation of commercial catches

Summary of the Work Plan

Year 1	**Tor a)** discuss the feedback from wgrdbesgov on wkrdb-est2 progress and the progress achieved intersessionally after that wk, identifying the r-code that needs development and/or refinement and/or testing. Develop necessary code and functions. Tor b) evaluate intersessional updates of the rdbes data model from an estimation perspective. Document any problems with rdbes data model relating to statistical estimation and suggest solutions **Tor c)** continue the work started during wkrdb-est2 in icesrdbes package, incorporating existing developments; prepare a standalone icespackage; test and implement compatibility of the icesrdbes package with cran requirements; suggest a work-flow and roadmap for peer-review of icesrdbes functions and scripts **Tor d)** evaluate progress obtained in estimation of commercial catches and suggest a way forward to wgrdbesgov.

Year 2	**ToR a)** Discuss the feedback from WGRDBESGOV on last years progress and the progress achieved in interssessional work, related WKs and WGs and individual contributions related to commercial catch estimation, identifying the R-code that needs development and/or refinement and/or testing. Carry out those actions. **ToR b)** Evaluate intersessional updates of the RDBES data model from an estimation perspective.. Document any problems with RDBES data model relating to statistical estimation and suggest solutions **ToR c)** Continue the work of previous year in icesRDBES package, incorporating new developments in the prepare a standalone icesPackage; test and implement compatibility of the icesRDBES package with CRAN requirements; suggest work-flow and roadmap for longer term icesRDBES maintainence to WGRDBESGOV **ToR d)** evaluate progress obtained in estimation of commercial catches and suggest a way forward to WGRDBESGOV.
Year 3	**ToR a)** Discuss the feedback from WGRDBESGOV on last years progress and the progress achieved in interssessional work, related WKs and WGs and individual contributions related to commercial catch estimation, identifying the R-code that needs development and/or refinement and/or testing. Carry out those actions. **ToR b)** Evaluate intersessional updates of the RDBES data model from an estimation perspective.. Document any problems with RDBES data model relating to statistical estimation and suggest solutions **ToR c)** Continue the work of previous year in icesRDBES package, incorporating new developments; Publish the icesRDBES package on CRAN **ToR d)** evaluate progress obtained in estimation of commercial catches and suggest a way forward to WGRDBESGOV.

Supporting information

Priority	This working group is considered of very high priority. The activities of this WG will promote the development of a Regional Database and Estimation System (RDBES) by developing the algorithms and code required for the estimation of commercial catches within the RDBES. The RDBES will be integrated in TAF and work as a database for both ICES and the Baltic Sea, North Sea & Eastern Arctic, and North Atlantic Regional Coordination Groups (RCGs), producing the high-quality, transparent, estimates required by ICES Fisheries Advice.
Resource requirements	The members of the core group of RDBES development are requested to participate and coordinate algoritm and code development ahead of the meetings.
Participants	The Group is normally attended by about 20members. Participants should be proficient in writing own scripts and functions in R language and/or have good knowledge of survey sampling and estimation.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	There are no direct linkages with ACOM, but most of the Stock Assessment Working Groups will be impacted by the development of the RDBES.
Linkages to other committees or groups	There is a direct link to WGRDBESGOV and close links to activities of WGTAFGOV, WGQUALITY, WGBIOP, WGCATCH and WGBYC. There is an indirect link with WGRFS.
Linkages to other organizations	The RDBES estimates are connected to regional data collection defined by the RCGs under the European Commission. The RDBES will also support the ICES countries in providing data for both national and international assessments and optimizing their sampling programmes. In the case of EU MS, the RDBES is expected to facilitate and improve the quality of provision of commercial catch data requested under different data calls.

Annex 7: Interoperability between RDBES and SmartDots

Biological variables in the Regional Database & Estimation System (RDBES)

1/10/2020
Present: David Currie, Julie Davies, Jane Godiksen, Nuno Prista, Adriana Villamor

1. To ensure interoperability between different ICES system how do we harmonise / coordinate the values in the RDBES code lists with those used by other relevant systems? Who decides what values are allowed?

    - We agreed that the best course of action would be for the RDBES to use the SEXCO reference list http://vocab.ices.dk/?ref=45 for sex instead of RS_Sex.

    - An entry for "T" might need to be added to this list, along with distinguishing the 2 different cases of Unsexed (not attempted, and attempted but not possible)

        - **ACTION: DC** and **NP** to discuss with the RDBES "Core Group" (issue 22 https://github.com/ices-tools-dev/RDBES/issues/22)

2. Is trying to link the value of BVfishId to ids in SmartDots (or other systems) practical?

    a. The fishID in SmartDots doesn't have a uniform structure – it is up to the data submitters what value they use.

    b. In SmartDots the fishId value is unique within an event (e.g. an ageing workshop)– it's possible that it might also be consistent between events

    ACTION: JG to check whether the same fishId is used in SmartDots when the same sample is used in 2 different events

    c. SmartDots contains data on the submitting institute, species, sex, and area so it could be possible to check that the characteristics of a fish in the RDBES data are consistent with those in SmartDots after they have been matched using BVfishId. This would help detect "accidental" matches where a BVfishID in RDBES happens to match with a fishID in SmartDots (for that institute) but they aren't really the same fish.

    d. We can bring Carlos from the ICES Data Centre in to the discussion on how this matching could work at a later point

    e. The RDBES list RS_MethodForMeasurement contains some entries from the existing SampleType http://vocab.ices.dk/?ref=1507 list. Possibly we could add some required RDBES values to this list and use it instead of RS_MethodForMeasurement, or combine it with another reference list.

    ACTION: DC and **NP** to discuss with the RDBES "Core Group" (issue 86 https://github.com/ices-tools-dev/RDBES/issues/86)

f. It was discussed whether the ICES Reference Code system could create a new code list which automatically combined a number of other code lists. (This could be needed because the RDBES BV table stores its biological variable data in rows, rather than specific columns – therefore each column needs to allow values which could be relevant for length, weight, age, sex etc.) Any changes in the original code lists would need to propagate to the new combined list automatically because relying on manual editing would mean they were likely to go out-of-sync.

ACTION: AV to check whether this is possible

g. WGBIOP will propose a new "Observation methods" list (e.g. "Microscope-based, transmitted light", "Image-based, transmitted light", "Image-based") which could be incorporated into the current RS_MeasurementEquipment list

ACTION: DC, **NP**, **JD** to look at list once it is available and see if we can merge it with RS_MeasurementEquipment
(issue 83 https://github.com/ices-tools-dev/RDBES/issues/83)

3. More of an RDBES development issue but currently we can record any value we like in BVvalue – we probably need to allow people to specify the actual code list the value is from (and validate that the value is in that list).

   a. Validation of the value submitted in BVvalue against a code list dynamically specified in BVvalueType is mention in issue 18 https://github.com/ices-tools-dev/RDBES/issues/18 as not being implemented yet.

   b. Since SmartDots currently forces people to use the "SMSF" maturity scale http://vocab.ices.dk/?CodeID=201781 , and DATRAS will be only allowing this scale shortly, it also makes sense for the RDBES to use this scale. Any references to maturity scale should specify that it's the SMSF maturity scale, and only values from this scale should used.

   c. **ACTION: DC** and **NP** to discuss with the RDBES "Core Group" (issue 84 https://github.com/ices-tools-dev/RDBES/issues/84)

4. What about QA scores https://vocab.ices.dk/?ref=1395 originated under PGCCDBS? Now the vocab is age specific but should we can make it generic? Currently being used in DATRAS for age. 2019 Recommendation from WGBIOP to PGDATA/RCG's *All National laboratories implement the AQ codes agreed upon by WGBIOP to be used for recording age quality in SmartDots and other ICES/GFCM databases.*

   a. We agree this would be a good idea – it could either be added as an extra column in the BV table, or included as another BVvalueType. If it is made generic then it would make sense to be an extra column, if it stays specific to ageing then it would be fine to be added as rows

   b. **ACTION: DC** and **NP** to discuss with the RDBES "Core Group" (issue 85 https://github.com/ices-tools-dev/RDBES/issues/85)