Regional Coordination Group
North Atlantic
North Sea & Eastern Arctic

Regional Coordination Group
Baltic

Intersessional Subgroup (ISSG) 2021-2022 Reports

RCG NANSEA AND RCG BALTIC REPORT

Part III

25 May, 7-10 June2022

Hybrid Meeting

Supported by

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RCG NA NS&EA RCG Baltic 2022. Regional Coordination Group North Atlantic, North Sea & Eastern Arctic and Regional Coordination Group Baltic. 2022. Part I Report, 100 pgs. Part II Decisions and Recommendations, 13 pgs. Part III, Intersessional Subgroup (ISSG) 2021-2022 Reports, 159 pgs. (https://datacollection.jrc.ec.europa.eu/docs/rcg)

This document is the product of two Regional Coordination Group under the auspices of the Expert Group on Fisheries Data Collection (EC - DCF) and does not necessarily represent the view of the EU Expert Group (NCs).

Contents

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1 ISSG End-users and RCGs

1.1 Background

The aim of this ISSG is to review and streamline dialogue between data providers (RCGs) and end users (ICES) in order to identify effective processes to meet end-user needs and allow the RCG to prioritize its activity relating to future data collections, storage and transmission functions. The ISSG was established as a pan regional group in 2018. During the RCG NA, NS & EA and RCG Baltic Technical meeting in 2020 it was decided that this ISSG should have a more generic focus. It was therefore decided to keep the annual information meetings between ICES and the RCG chairs to ensure the good cooperation and to be able to follow the progress over time.

1.2 Work-plan

Main tasks defined for 2021-2022:

1. Continue the RCG commercial sampling Covid-19 overviews for 2021
2. Communication channel between ICES and RCG chairs
    - Finalize and start communicating the mandates and remits documents within ICES
    - Implement the proposed route of recommendations
3. Communication channel between COM and RCG chairs
4. Communication channel between end-user and RCG chairs

1.3 Progress during 2021/2022

During the season 2021-2022 the ISSG had one virtual meeting (9th March) with ICES and the Commission. During this meeting general issues were discussed (minutes of the meeting can be found in Annex 1.I), including:

- Recommendations
    - Contents of recommendations
        - Mandate and remits of the RCG NANSEA and RCG Baltic
    - Route of recommendations
    - ICES recommendations database
    - Follow-up on RCG recommendations 2020-2021
- End user needs on a general scale
- Covid-19 RCG overviews (see also Annex 1.II)
- UK related issues
- Update on Regional Work Plans (RWPs)
- Follow-up on action points defined during end-user meeting 2021
- RCG ISSGs

In addition, following the experience gained after analysing responses from the coronavirus pandemic questionnaire and in the face of recent events, the RCG chairs decided to update and restructure the questionnaire. The aim of this questionnaire is to collect information on the impact of various factors on data collection from commercial fisheries sampling and research surveys. The questionnaire was sent to all NCs with the request to fill in the questionnaire concerning the 1st and 2nd (covering April-May) quarter of 2022 before the RCG Technical Meeting in June 2022 so analysis can be conducted during the Technical Meeting.

1.4 Roadmap/follow-up

Main tasks defined for 2022-2023

1. Create overviews of the impact of various factors on data collection from commercial fisheries sampling and research surveys
2. Communication channel between ICES and RCG chairs
3. Communication channel between Commission and RCG chairs
4. Communication channel between end-user and RCG chairs

1.5 SG Participants

Name	E-mail	MS
Maciej Adamowicz	madamowicz@mir.gdynia.pl	POL
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ANNEX 1.1. Minutes Regional Coordination Group Intersessional Subgroup End-User meeting

Date	9 March 2022	**Venue**	
Time	11:00 – 15:15	Online, Webex	

Attendees

Name & Surname	Organisation	Role & position
Sven Stötera	RCG Baltic	Co-chair
Maciej Adamowicz	RCG Baltic	Co-chair
Harriet van Overzee	RCG NANSEA	Co-chair
Dália Reis	RCG NANSEA	Co-chair
Helen McCormick	RCG Sub Group Corona pandemic	RCG participant
Susana Rivero	RCG Secretariat	Observer
Lotte Worsøe Clausen	ICES	End-user
Jan de Haes	ICES	End-user
Ruth Fernández	ICES	End-user
Blanca García Alvarez	DG MARE	End-user

Objectives

- The main objective of this RCG ISSG meeting is to keep and maintain the dialogue between data providers (RCGs) and end-users.

Morning session 11:00 – 13:00

1. Communication channel between ICES, DGMARE and RCG chairs - Recommendations

In 2021 the RCG chairs discussed with ICES secretariat and the ICES SG & SCICOM chairs how to improve both the (i) contents and (ii) the route of the recommendations:

(i) Contents of recommendations

The mandate and remits of the RCG NANSEA and RCG Baltic have been summarized in the RCG NANSEA and RCG Baltic Report Part III (2021) with the aim that ICES Expert Group may better target their recommendations to the RCGs. Lotte noted that the mandate and remits document can be helpful in guiding ICES groups. RCG chairs sent the most recent version of the mandate and remits document to Jan during the meeting. The document can be shared with the relevant ICES groups ***(action point Lotte/Jan).***

(ii) Route of recommendations

A route of the recommendations was proposed and made graphical by the RCG chairs (Figure 1.1). Important note is that while this Figure seems quite static, it should leave room for flexibility in timing. For example, after the RCG Technical Meeting (TM) June 2021 a recommendation was forwarded to ICES regarding for changing the design and setup of the North Sea Mackerel egg survey (R06). The tight time window for reply by ICES, that differed from time path proposed in

Figure 1.1, was essential for the RCG in order to determine whether a decision by the relevant National Correspondents (NCs) on the future setup and timing of the North Sea Mackerel survey had to be taken during the Decision Meeting (DM) scheduled in September 2021. Thankfully ICES followed the tight time window and a decision could be taken during the DM.

Lotte notes that in general she agrees with Figure 1.1. However, due to the timing of some of ICES WGs, a delay in ICES response to some of the RCG recommendations needs to be expected. Furthermore, the aim that ICES presents their recommendations of the previous year in Q1 may be challenging.

Q: Does ICES have a similar workflow with the other RCGs?
A: Have focused with Baltic and NANSEA first. The aim is that at a certain point the scope is broadened to the other RCGs. It must be kept in mind here that the RCG LP, RCG Med & Black Sea, and RCG LDF have a different way of working with end-users. It is not certain whether a similar workflow is possible with the other RCGs. Flexibility is key here. The RCG secretariat can, where necessary, streamline for the other RCGs. In addition, there is also the process within ICES with the SCICOM and SG chairs.

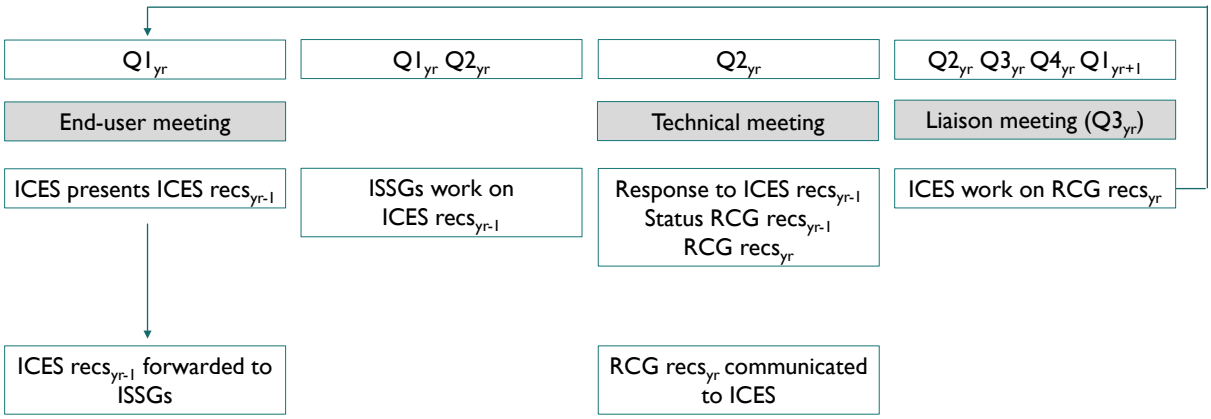

Figure 1.1: Proposed route of recommendations throughout the year

2. *Communication channel between ICES, DGMARE and RCG chairs - ICES recommendation database*

Within ICES the recommendations for RCGs or relevant for the RCGs are registered in GitHub (using "issues" in GitHub). Recommendations can then be ticked as "in progress", "finished" etc. This is still work in progress. It needs to be investigated how the RCGs can be included in this GitHub. RCG Baltic and NANSEA chairs have been invited through email to join the ICES-EG/RCG recommendations repository. ***Action point Jan*:** To resend the invite to Dalia and Maciej to join the repository.

At present the list with ISSG tasks and participants, and RCG recommendations cannot be found on the RCG website (http://fisheries-rcg.eu/). It would be beneficial if there could be a link on the RCG website to these datasets (with the necessary log in). This would entail a link between the RCG website and the RCG

SharePoint that is hosted by ICES. RCG chairs and secretariat need to narrow down what type of link they would like to have and communicate this to Jan ***(action point RCG chairs)***. Jan can then forward this to the relevant IT people within ICES ***(action point Jan)***.

3. Follow up end-user needs on general scale

End-user needs on PETS
Work is ongoing in ISSG PETS, still defining end-user needs.

End-user needs on Date Limited Stocks
May need some help to facilitate to get it in a more structured and lower workload here. This is still under development. Based on the feedback on the WKLIFE datacall, ICES would like to have a discussion on how to make this smoother. Something for ICES to work on this year, and revert to next year ***(action point ICES/Lotte)***.

Data transmission
Related to DT indeed Blanca would like to liaise with Lotte. Last year received information that was not feasible for the tool. This was an email on a more general level. Blanca and Lotte will pick this up bi-laterally together ***(action point Blanca/Lotte)***.
It is possible to use the DT tool (Data Transmission Monitoring Tool, DTMT) if delay in RDB data submission continues by EU Member States. It was mentioned that RCGs can post data transmission issues in DTMT but they need to be prepared in a specified format that will be sent by MARE ***(action point Blanca)***.

4. Covid-19 RCG overviews

Helen McCormick presented the RCG Covid-19 heatmaps for 2020 and 2021 (by quarter and area). Overviews are perceived as encouraging, sampling seems to have improved throughout the Covid-19 pandemic. The heatmaps are experienced as useful by the ICES WGs; the 2020 heatmaps have been informative on the effect from Covid-19 on the data when analysing the data. This year the RCG Covid-19 heatmaps for 2020 and 2021 will be forwarded to the ICES WGs.

> **Q:** Did you receive the information from all MSs?
> **A:** For 2021 two countries did not provide the data.
>
> **Q:** Can the underlying spreadsheet of the heatmaps provide additional relevant information for the ICES WGs?
> **A:** The main spreadsheet only contains the scoring. MSs could be contacted if any additional information is needed on the scoring. The spreadsheets also contained and additional sheet where the MS could mention of sampling was suspended. However, not all MSs filled this sheet.
>
> **Q:** Does this work need to continue in 2022?
> **A:** Wait until the TM to decide. For now, Lotte does not see the immediate need.

Action point RCG: Forward the presentation to Lotte and Blanca.
Action point Lotte: Forward the heatmaps to the relevant ICES WGs.
Action point Lotte: Will contact Maciej/Helen directly if any background information is needed.

5. Covid-19 ICES

The data for the Celtic Sea was impacted. Furthermore, there were some issues with the discard sampling and some survey issues. Other than that, mitigation measures were done following the guidelines and were able to provide advice regardless Covid-19. Guidelines will not be updated this year.

6. UK related issues

How to keep the link between the UK and RCGs as open as possible.

> **Q:** Can the UK be invited to the RCG Technical Meeting? Can other interested third countries join?
> **A:** RCG Members consist of the Commission, NCs and experts. In addition, there can be permanent observers (e.g. ICES), and observers (e.g. UK, Norway)[1]. An observer cannot vote in decisions.

> **Q:** Should the RDB datacall for the 2021 data be sent to UK?
> **A:** No; a response given by UK regarding this point: "*The UK maintained obligations to report on data collected under the DCF until the end of 2020, therefore the EU does have right to access UK DCF data collected prior to 1st January 2021. The UK will not respond to Regional Coordination Groups (RCG) data calls going forward.*" (ICES WGRDBESGOV report)[2].

The UK is ICES member country; and there is a specific memorandum of understanding (MoU) between ICES and UK. In the MoU surveys and collaboration will continue through ICES. The UK will continue to contribute data to the RDBES (once properly rolled out) under the ICES data call. The UK is updating their data collection plan at the end of 2024. The re-evaluation will include ICES as end-user.

7. Follow-up on RCG recommendations 2020-2021

The RCG recommendations directed to ICES have been included in the GitHub.

7.1 RCG 2021 recommendations

ICES followed up with the chairs of the different groups to see what the status is. Comments are in the GitHub. R06 is done and decision has been made. Other Recommendations have the TM 2022 as deadline. There are some extra notes on R11 and R12 (both regard PETS). Jan will look through the notes and will let RCG chairs know if there are any immediate action needed from the RCG side ***(action point Jan).***

7.2 Pending RCG 2020 recommendations

R03 (Implement Upload-logs as standard tool into RDBES) – response WGRDBESGOV 2021: "*Whilst the group agrees with this recommendation it is a low priority compared to the other remaining work on the RDBES development*".

[1] Article 9.7 of Regulation (EU) 2017/1004.
[2] The former UK NC remains available to deal with any residual issues from the historical DCF programme. ICES has a new contact point for their data calls.

R05 (ICES to setup a Workshop on a "pilot FIRMOG"in 2021) – ToRs have been approved; workshop will take place in October-November 2022.
R06 (Revision of the survey effort and coverage of the IBWSS) – there is a new chair, did not get response from former chair. Waiting for an answer, still in progress.

Afternoon session 14:00 – 15:15

8. Update of Regional Work Plans (RWPs)

Tomorrow the NC meeting (10th March 2022) will virtually take place where NCs, RCG chairs and grant coordinators will be present and updates regarding RWPs will be presented. From the Commission part an update/information about the differences in adopting a national work plan (NWP) and regional work plan (RWP) will be given. In short, it is not simple to adopt a regional work plan. The Commission is happy with the RWPs, but whether a legal adoption by the Commission is needed or an agreement under the RCG is enough is still under discussion. The questions for the NCs should be in the agenda of the RCG TM.

Information about the grants (also FishnCo project) can be found on the RCG website (http://fisheries-rcg.eu/). Mare and FishnCo are working on harmonizing RWP Table 2.1.

Promising item for the Baltic RWP is small pelagic sampling in the Baltic. The RCG ISSG working on this item continued in autumn 2021 after the DM. All MSs are now involved. The ISSG is actively using the RDBES, uploading data in regionally agreed scheme where different hierarchies are used. There is active support from WGCATCH and experts to figure out best guidelines and ensure Statistically Sound Sampling. For now, sampling and datasets by minimal consent, working on unified sampling scheme to fit regional fishing pattern and MS capacities.

Q: Is there any scope for PETS to be sampled?
A: Not now.

Mixing (sprat and herring) is unknown in this fishery. Countries have different datasets for analysis.
ICES is planning benchmark 2023 Baltic. Work will be conducted this year and preliminary results on mixing sprat/herring will be ready in May.

9. Follow-up on Action points defined during end-user meeting 2021

Most action points defined in end-user meeting 2021 have been dealt with. Three remaining action points were discussed.

- Approach WGQUALITY chair when Shiny R app is further developed

  It was discussed during the end-user meeting 2021 whether ICES could consider hosting the Shiny R app when catch, effort and sampling overviews are in the end phase. It was noted that the idea needs to be more concrete before it can be considered. Especially on data policy, privacy, aggregation level, server maintenance etc. The action point for the RCG chairs defined during the end-user meeting 2021 remains until the Shiny R app is finished ***(action point RCG chairs).***
- Inform chairs when report with preliminary PETS bycatch species list is published

The lists of fish, mammals and bird bycatch relevance (by ICES Ecoregion) have been finalized and agreed b\y ACOM and will be annexed to the "Roadmap for ICES bycatch advice document" soon. The lists will be also included in the upcoming data-call related to WGBYC work. The lists can be shared with RCGs now if there is interest. There was a recommendation by ACOM to include those lists within ICES vocabularies; to be confirmed and carried out.

- Keep RCG chairs informed on special request for DG Environment about PETS

  The special request from OSPAR was finalized in December 2021. Advice on estimates of bycatch mortality of marine mammals (harbour porpoise *Phocoena phocoena*, common dolphin *Delphinus delphis*, grey seal *Halichoerus grypus*) within the OSPAR maritime area was published; *https://www.ices.dk/sites/pub/Publication%20Reports/Forms/DispForm.aspx?ID=38428*.

  The request from DGENV on improving PETS bycatch monitoring is ongoing;
  - A review service on "MONITORING PETS BYCATCH OF MAMMALS< BIRDS< TURTLES AND FISH" was published on 28 February; *https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2022/ICES%20Review%20Service_DGENV%20Bycatch%20Monitoring%20PETS.pdf*
  - A technical service compiling an inventory of current PETS bycatch monitoring programs in EU (and ICES) countries is ongoing. Based on work by WKPETSAMP in 2018, WGCATCH 2021 generated and improved template to gather metadata from each monitoring survey. This template is being reviewed at the moment by WGBYC members. Once agreed the template will be sent out together with the data call related to WGBYC work (~April 2022) for data submitters to fill in.
  - Two workshops are planned for 2023 on improving bycatch monitoring. Dates to be decided. Some RCG members are already candidates to chair these meetings.

  ICES received a special request from DGMARE on estimation of mortality of common dolphin in the Bay of Bisay and mitigation measures. A proposal is being developed to answer this request. A workshop is planned at the end of October and advice is planned to be published in December 2022.

  Q: When will the WGBYC datacall be launched?
  A: Planned by end April – early May, with request for 2021 data.

10. RCG ISSGs

An update of the RCG ISSG is given, all ISSGs are actively working or will start working soon.

Q: is there an easy access to facilitate all the good work is done and can be filtered through to the ICES groups. Perhaps alerts when an ISSG report is ready? Develop a tool/forum with automated generated alert?
A: SecWeb did not include this but could perhaps create a platform in future.

Q: Is it possible to make the ISSGs more visible on the RCG website? At present, you need to go through several clicks to get there.

A: Point is taken by RCG secretariat, that will try to have a look at it and will take this feedback to the next SecWeb meeting ***(action point RCG secretariat)***.

11. AOB

The suspension of all ICES Committees and Expert Groups planned for March causes disruption. If there is clarity at a certain point Lotte will update RCG chairs on anything related to RCG work ***(action point Lotte).***

Overview Action Points End-User meeting 9 March 2022

Action	Partner/Person in charge
1. Share the RCG mandate and remits document with the relevant ICES groups.	Lotte/Jan
2. Resend the invite to Dalia and Maciej to join the ICES-EG/RCG recommendations repository.	Jan
3. RCG chairs and secretariat need to narrow down what type of link they would like to have and communicate this to Jan.	RCG chairs and secretariat
4. Once action point 3 is communicated, forward this information to the relevant IT people within ICES.	Jan
5. Work on making WKLIFE datacall smoother.	Lotte/ICES
6. Discuss bi-laterally (Blanca & Lotte) the more general mail on DT that was sent by ICES.	Blanca/Lotte
7. Provide DTMT format in which data transmission issues can be posted.	Blanca
8. Forward the presentation with the RCG COVID-19 heatmaps to Lotte and Blanca.	RCG chairs
9. Once received forward the RCG COVID-19 heatmaps to the relevant ICES WGs.	Lotte
10. If any questions arise on the RCG COVID-19 heatmaps Lotte will directly contact Maciej/Helen.	Lotte
11. Jan will go through the notes on the recommendations and will let RCG chairs know if there are any immediate action needed from the RCG side.	Jan
12. Approach WGQUALITY chair when Shiny R app is further developed.	RCG chairs
13. Take feedback on visibility of ISSGs on RCG website back to next SecWeb meeting.	RCG secretariat
14. RCG chairs will be updated on anything related to RCG work once there is clarity on suspension of ICES meetings.	Lotte

The meeting ends by 15:15 (CET).

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ANNEX 1.11. Implications of the Corona Virus on sampling in 2020 and 2021 (presented during 9th March 2022 End-User meeting)

A questionnaire was designed to collect information by country of the impact of COVID-19 on commercial sampling by stock and region. NCs were requested to fill in the questionnaire for March 2020, Q2-Q4 2020, Q1-Q4 2021. The following questions were addressed in the questionnaire:

- Fishing effort:
  - was the effort for this stock reduced because of COVID-19?
- Landings:
  - was your planned age sampling on landings for this stock reduced because of COVID-19?
  - was your planned length sampling of landings for this stock reduced because of COVID-19?
- Unwanted catch:
  - did COVID-19 impact you sampling to get estimates on discards weight?
  - was your planned age sampling on the unwanted part of the catch reduced because of COVID-19
  - was your planned length sampling on the unwanted part of the catch reduced because of COVID-19?

MSs were requested to answer the questions for each stock with extreme impact (75-100%), medium impact (25-75%), low/Null impact (0-25%), or not applicable. The responses were scored (1 - low/null impact, 2 - medium impact, 3 - extreme impact) and heat plots of the average score were created by quarter, stock and region.

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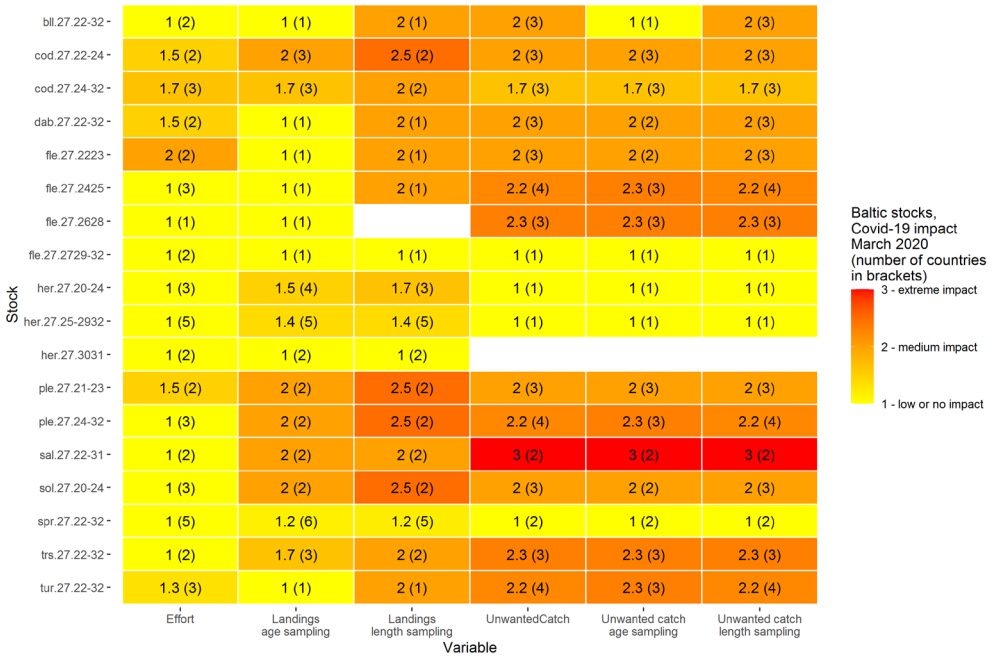
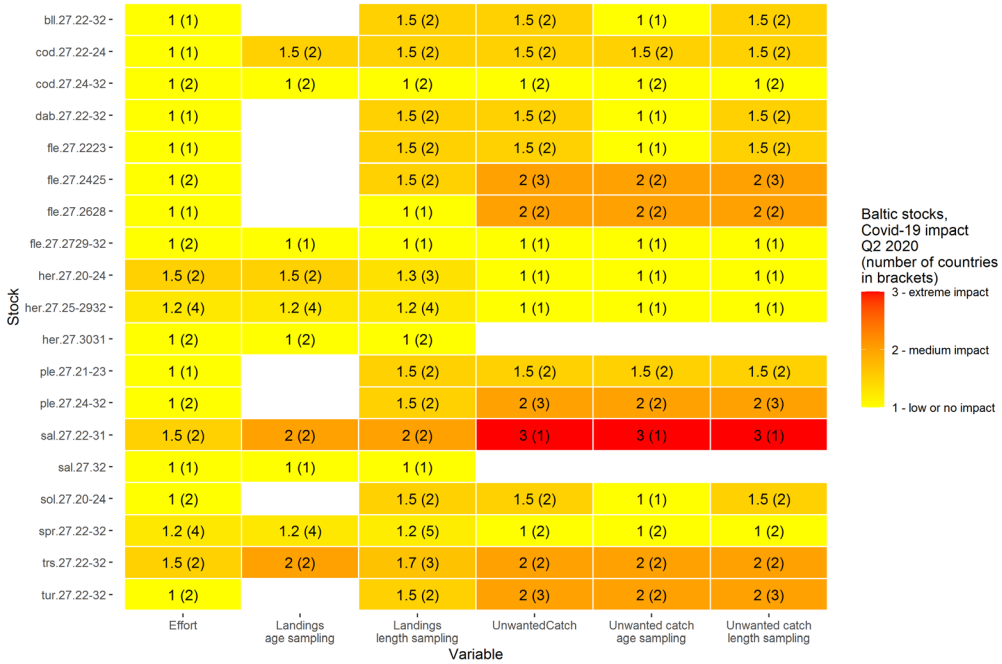
Baltic stocks

Baltic stocks 2020 March:



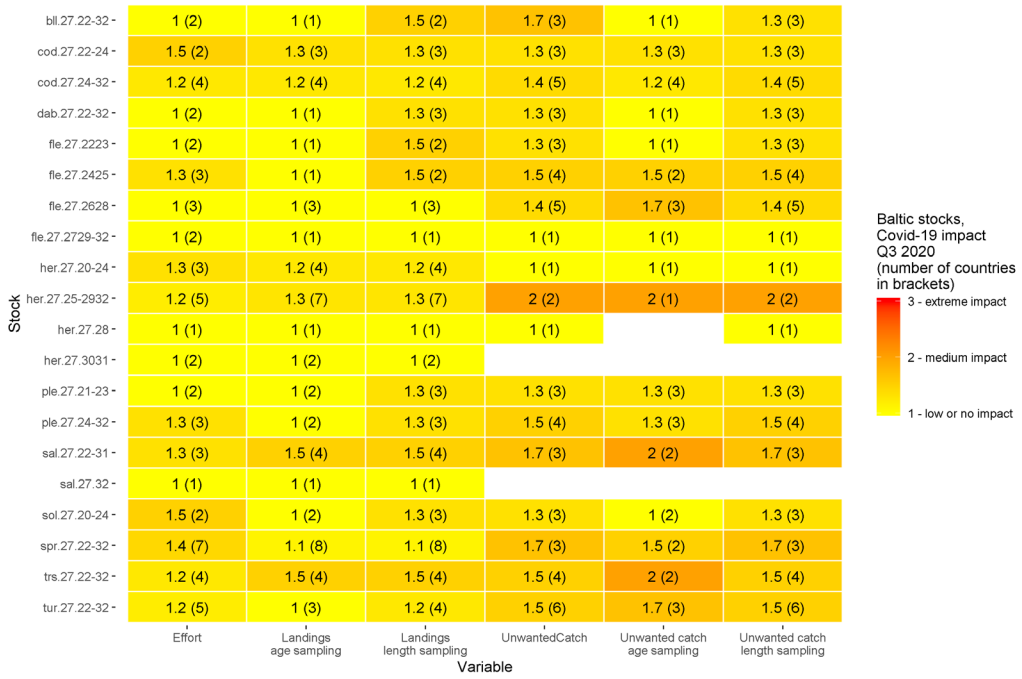
Baltic stocks

Baltic stocks 2020 Q2:



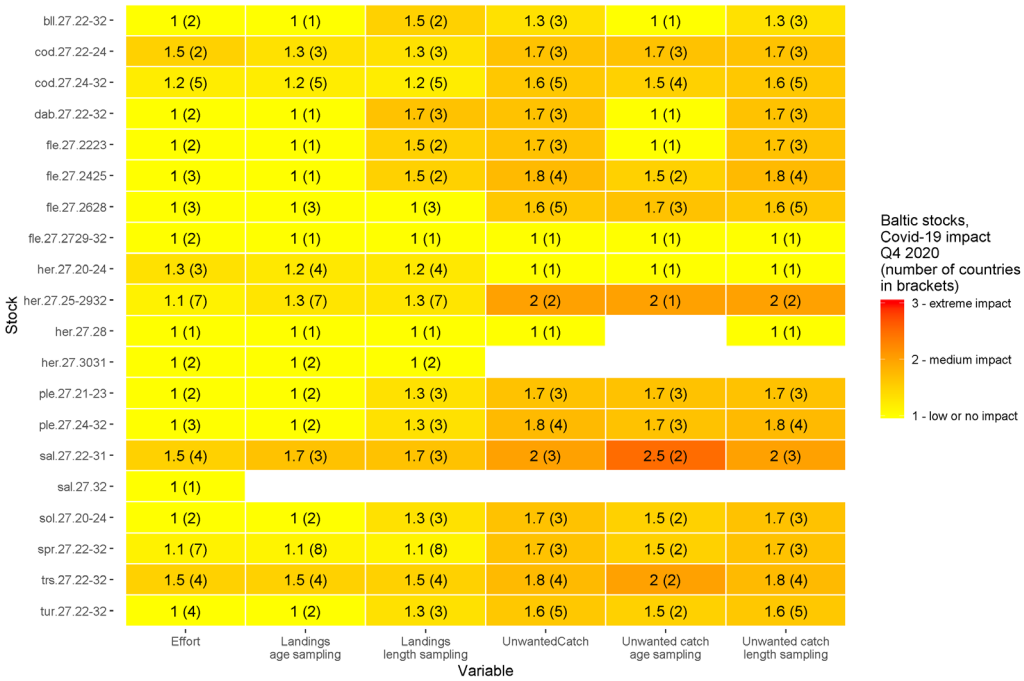
Baltic stocks

Baltic stocks 2020 Q3:



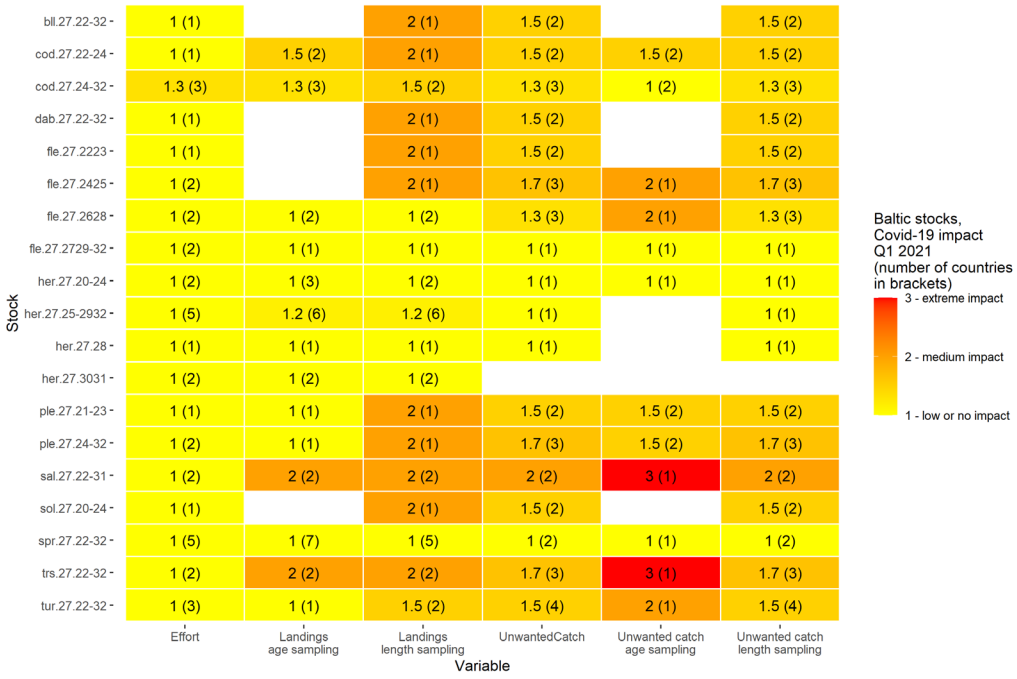
Baltic stocks

Baltic stocks 2020 Q4:



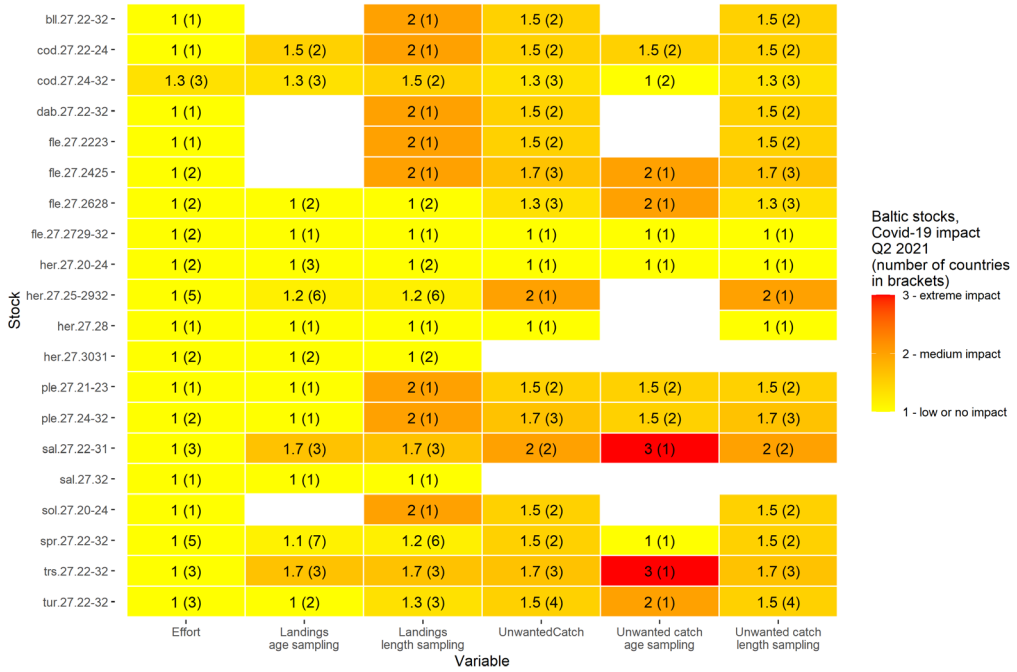
Baltic stocks

Baltic stocks 2021 Q1:



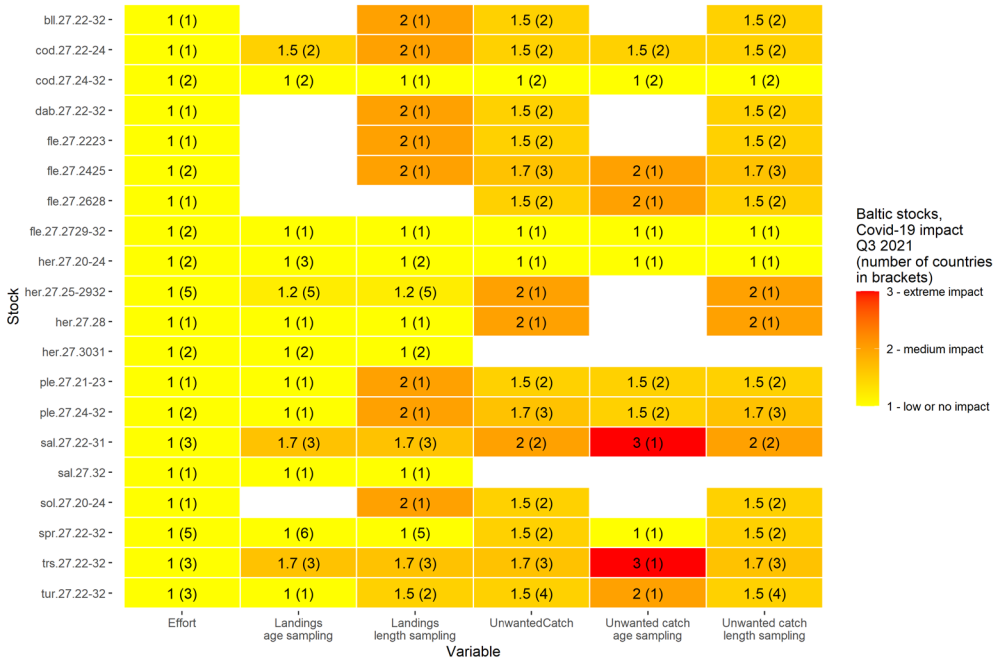
Baltic stocks

Baltic stocks 2021 Q2:



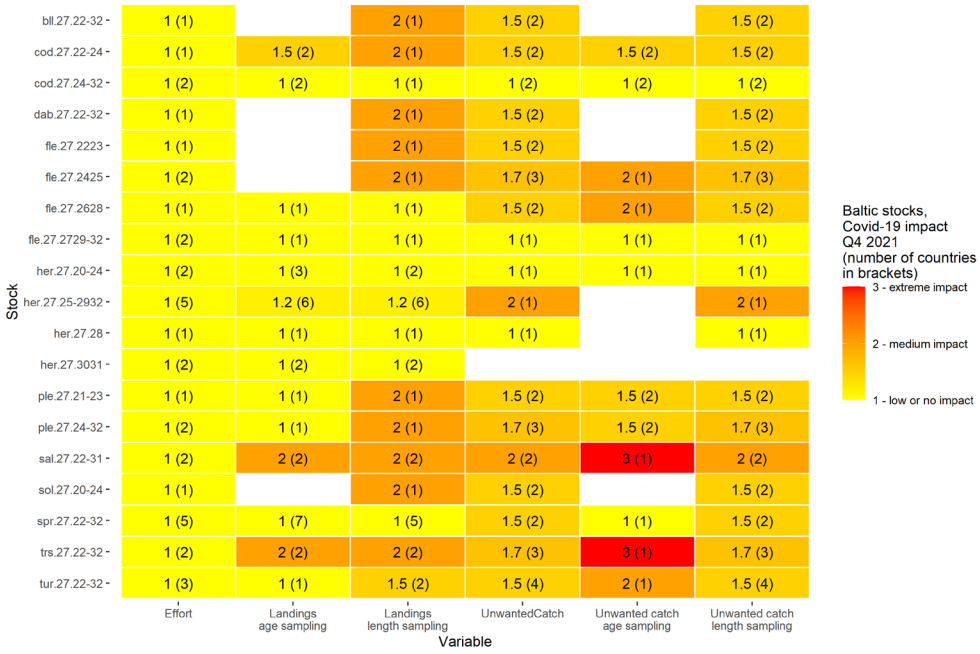
Baltic stocks

Baltic stocks 2021 Q3:



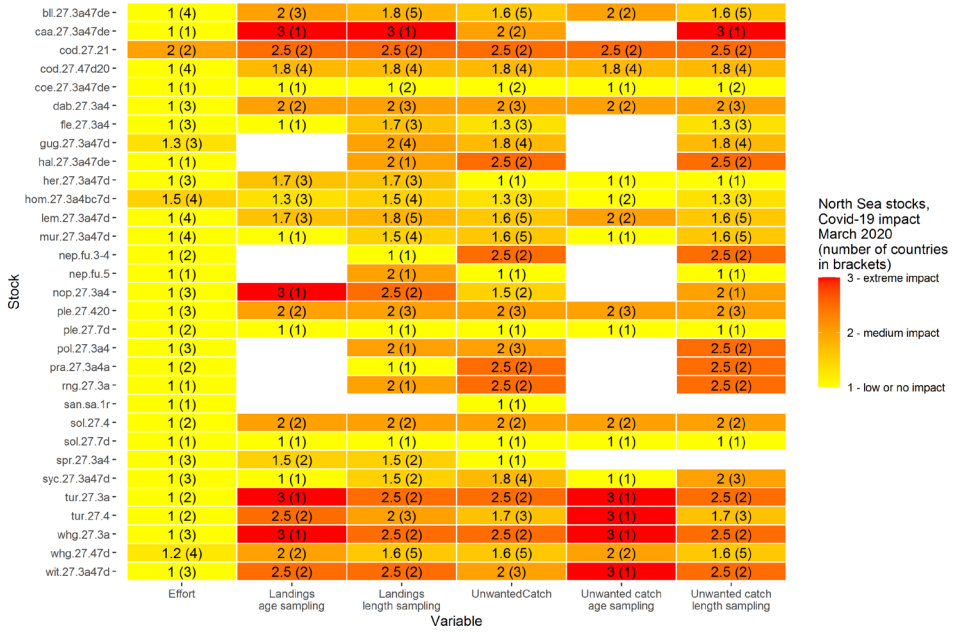
Baltic stocks

Baltic stocks 2021 Q4:



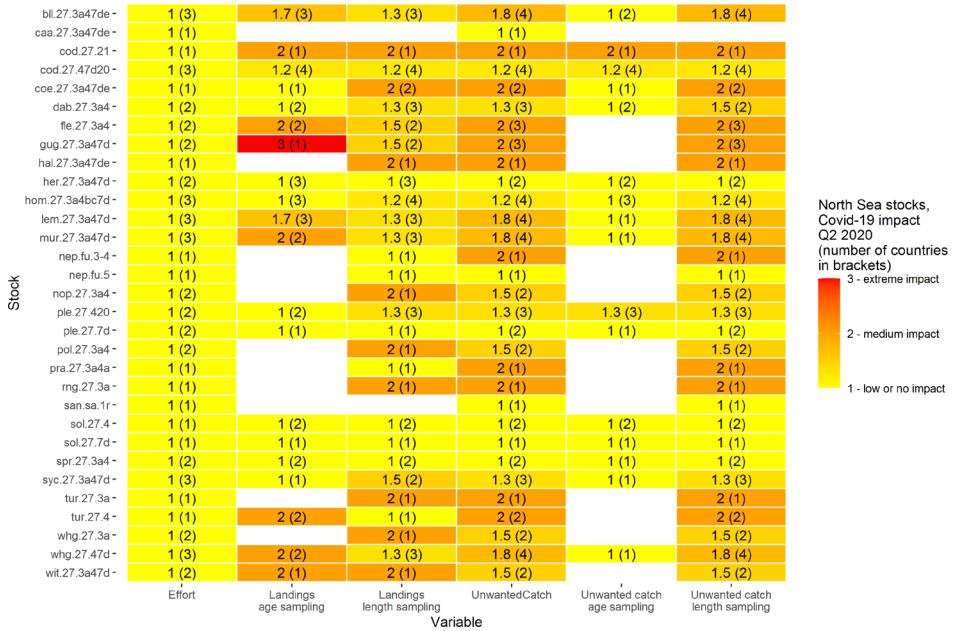
North Sea stocks

North Sea stocks 2020 March:



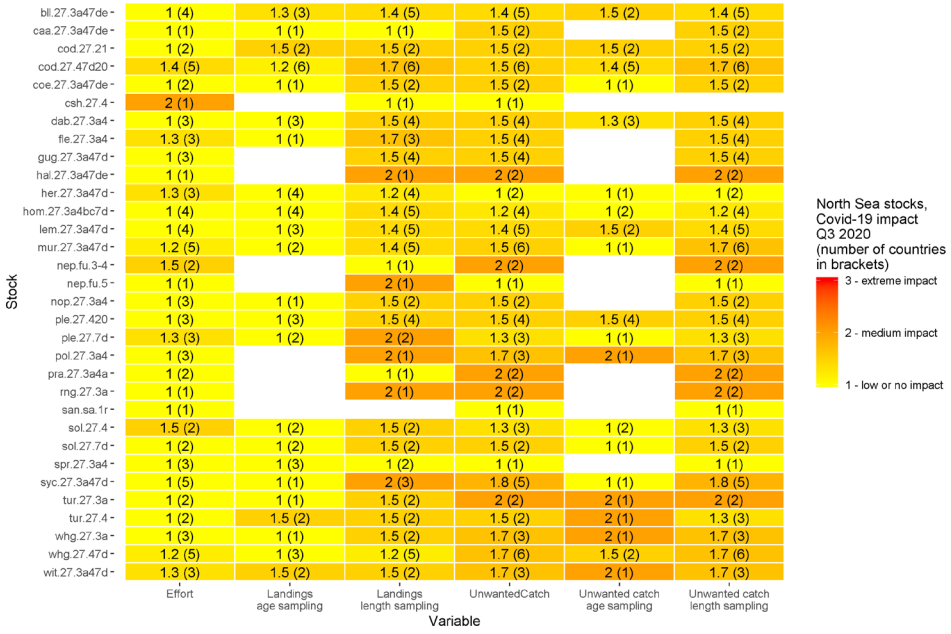
North Sea stocks

North Sea stocks 2020 Q2:



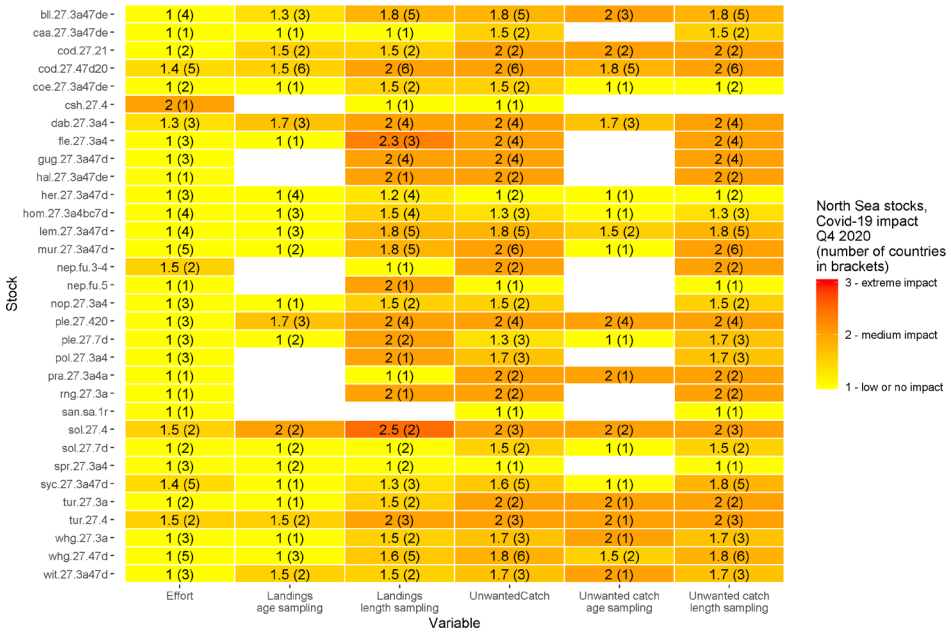
North Sea stocks

North Sea stocks 2020 Q3:



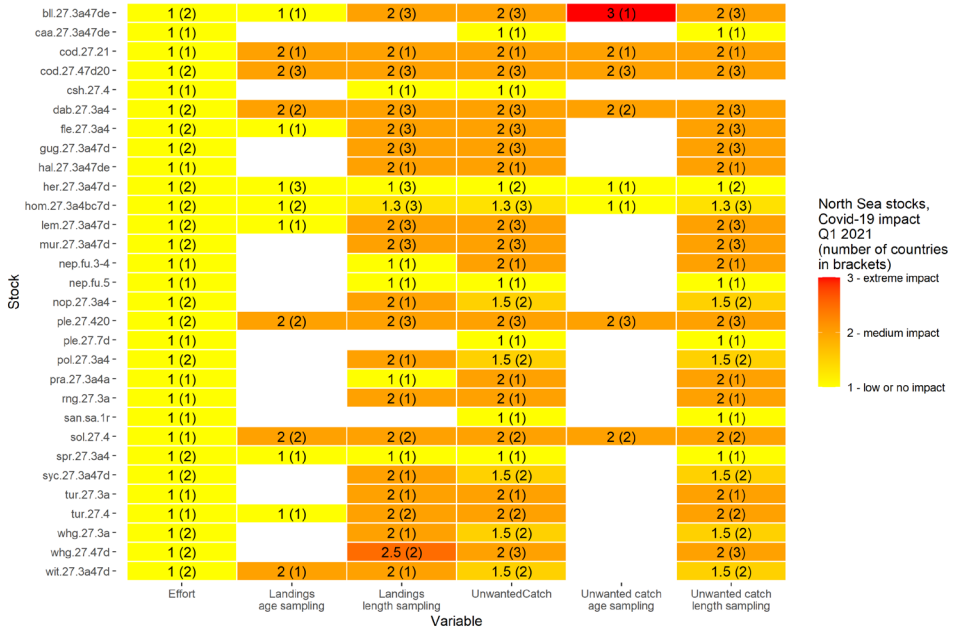
North Sea stocks

North Sea stocks 2020 Q4:



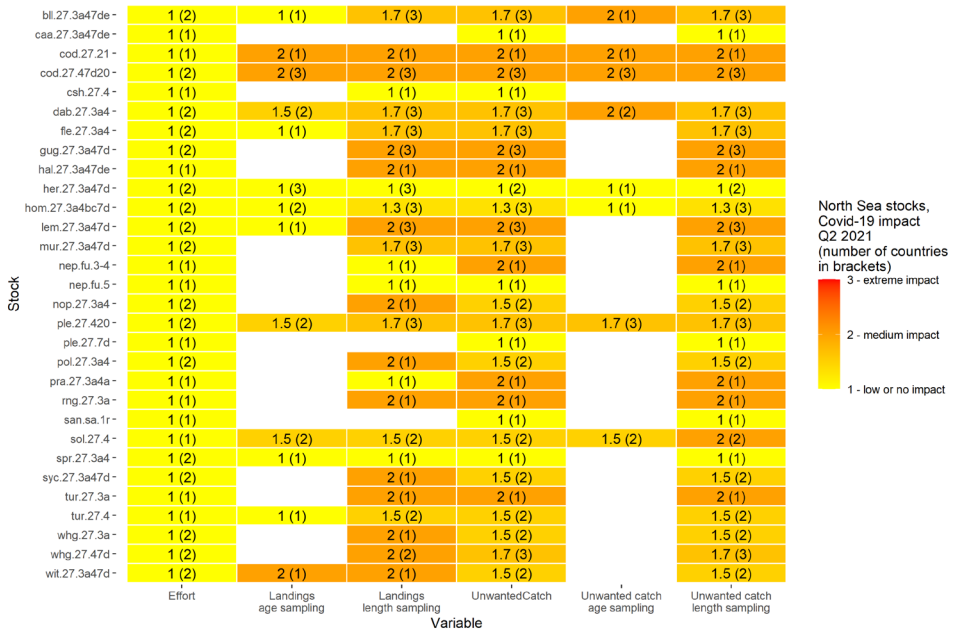
North Sea stocks

North Sea stocks 2021 Q1:



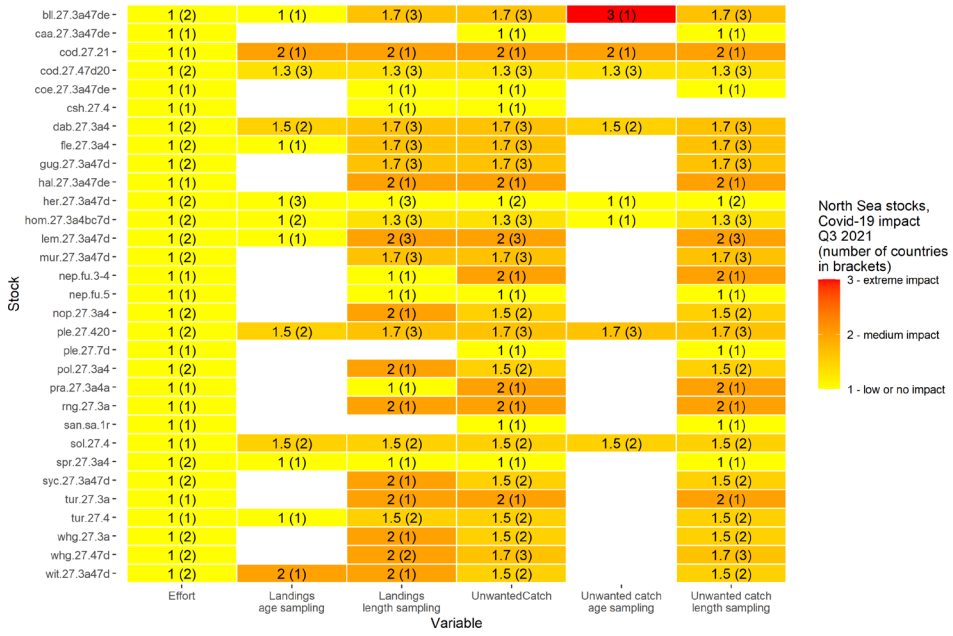
North Sea stocks

North Sea stocks 2021 Q2:



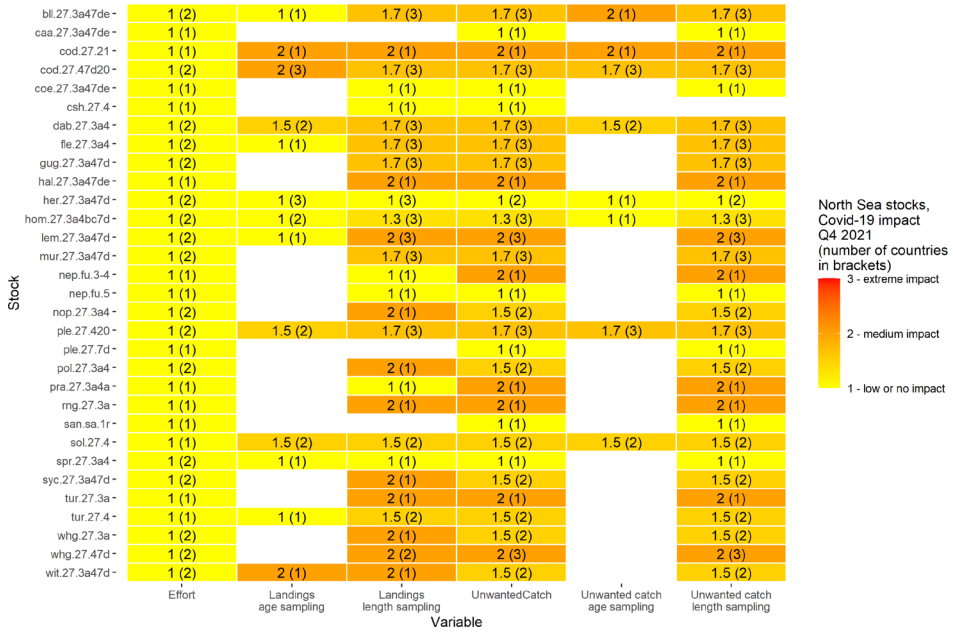
North Sea stocks

North Sea stocks 2021 Q3:



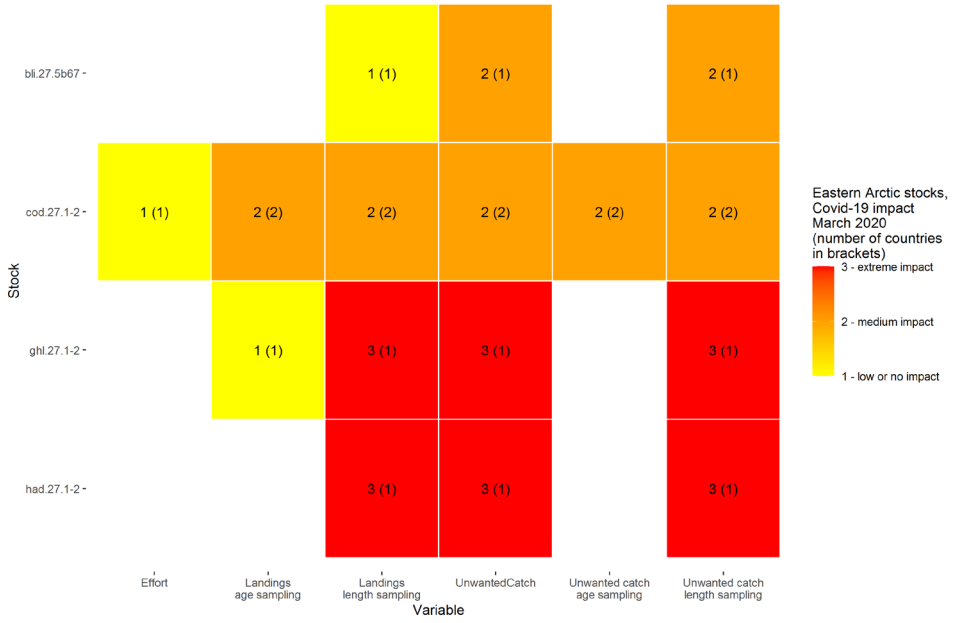
North Sea stocks

North Sea stocks 2021 Q4:



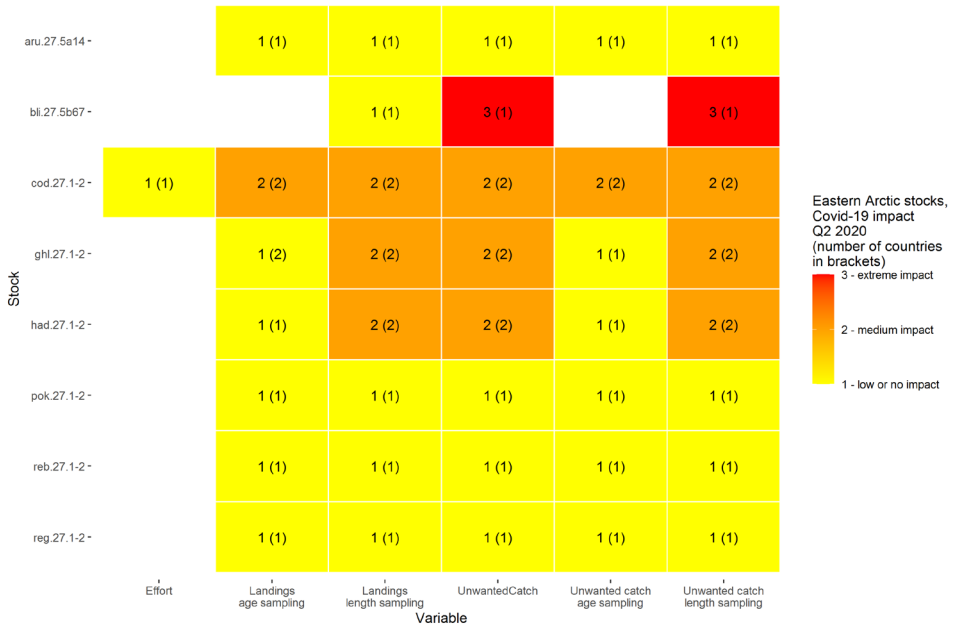
Eastern Arctic stocks

Eastern Arctic stocks 2020 March:



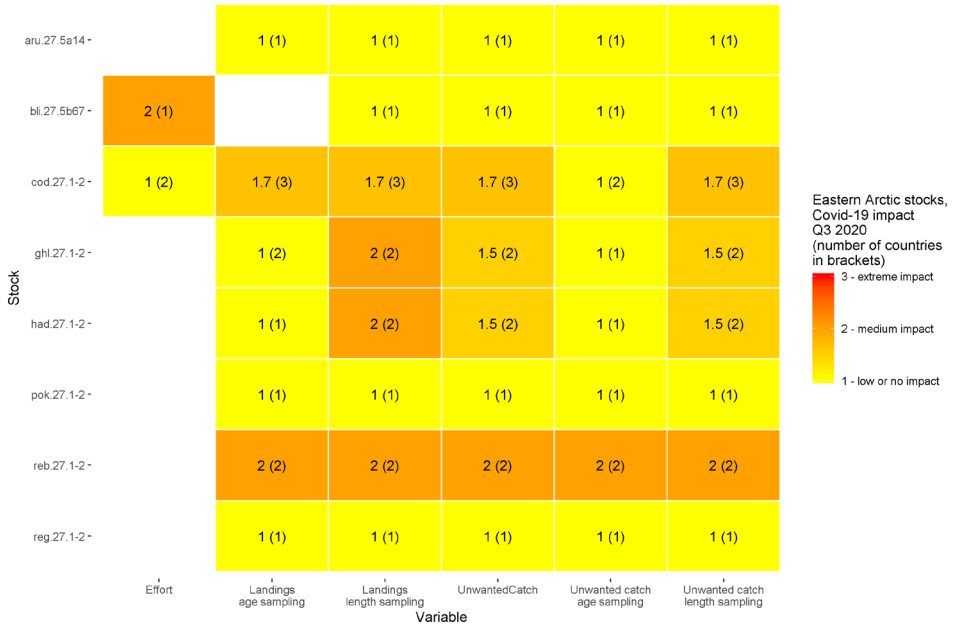
Eastern Arctic stocks

Eastern Arctic stocks 2020 Q2:



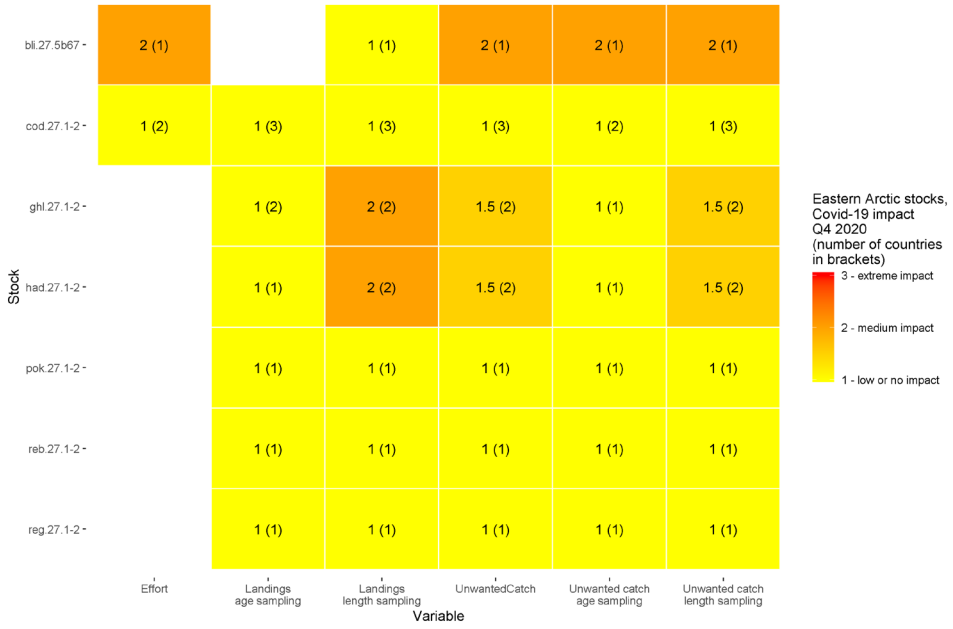
Eastern Arctic stocks

Eastern Arctic stocks 2020 Q3:



Eastern Arctic stocks

Eastern Arctic stocks 2020 Q4:



Eastern Arctic stocks

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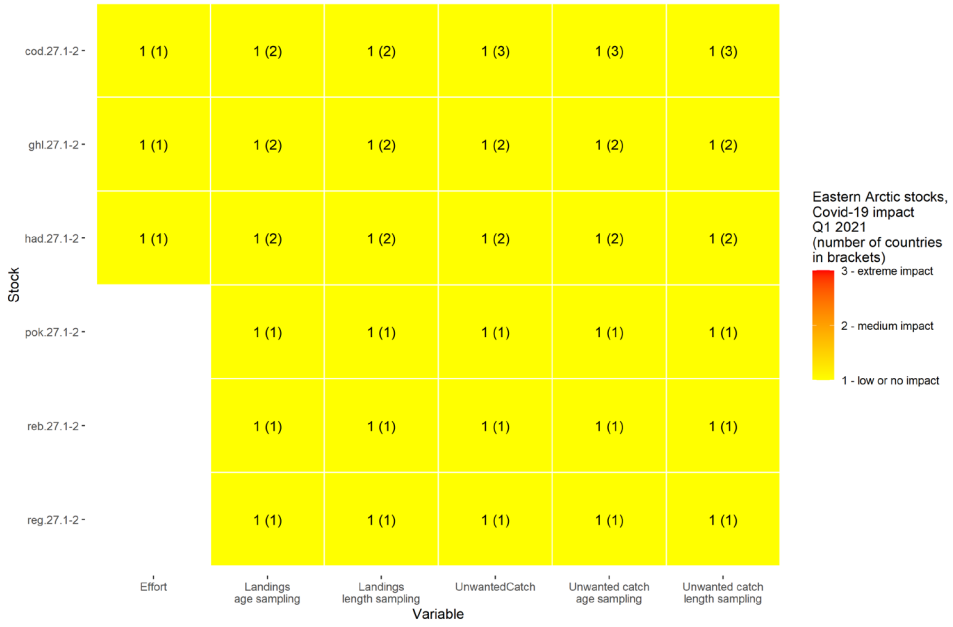

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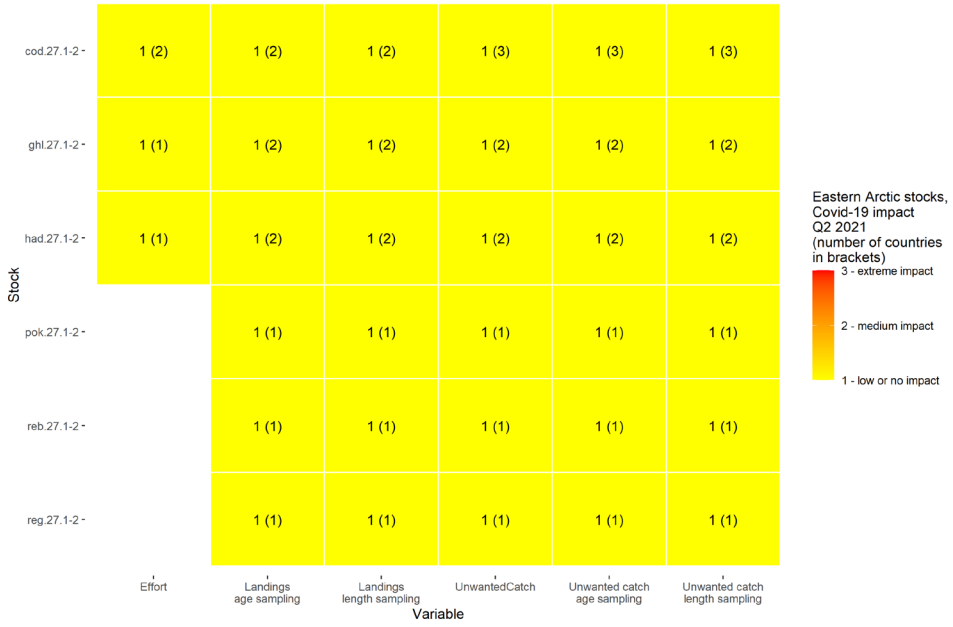

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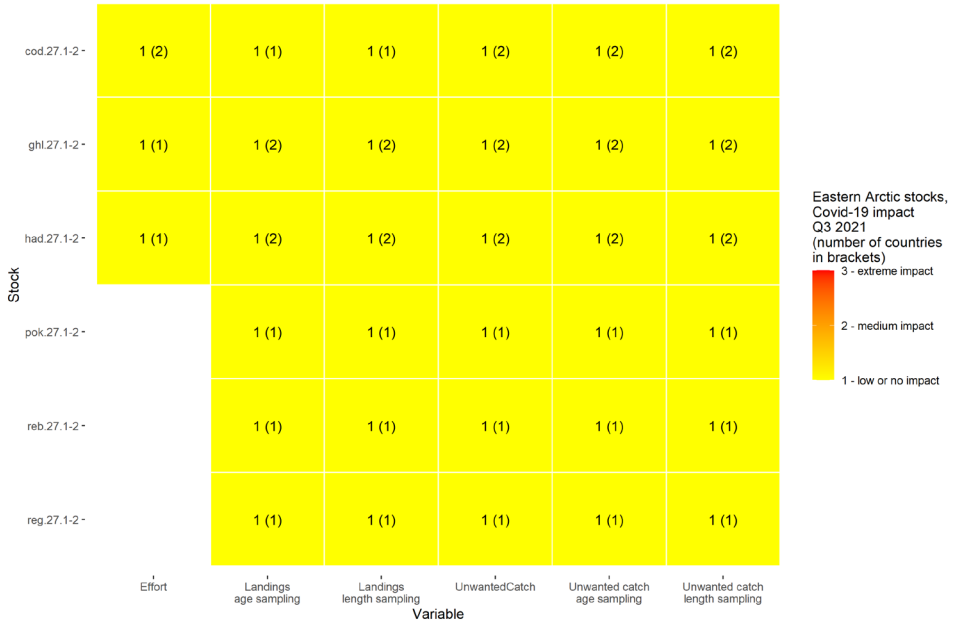

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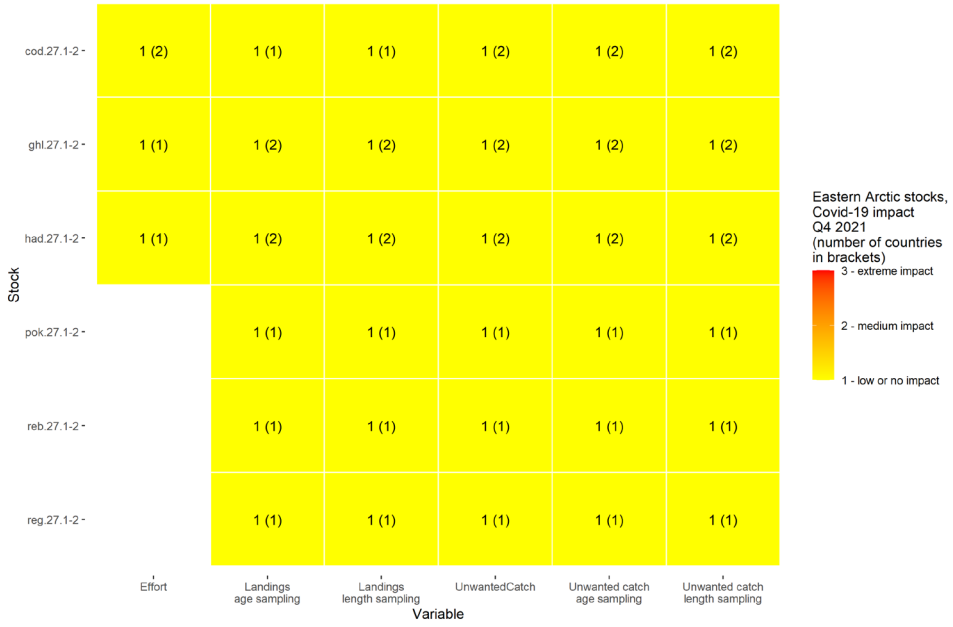
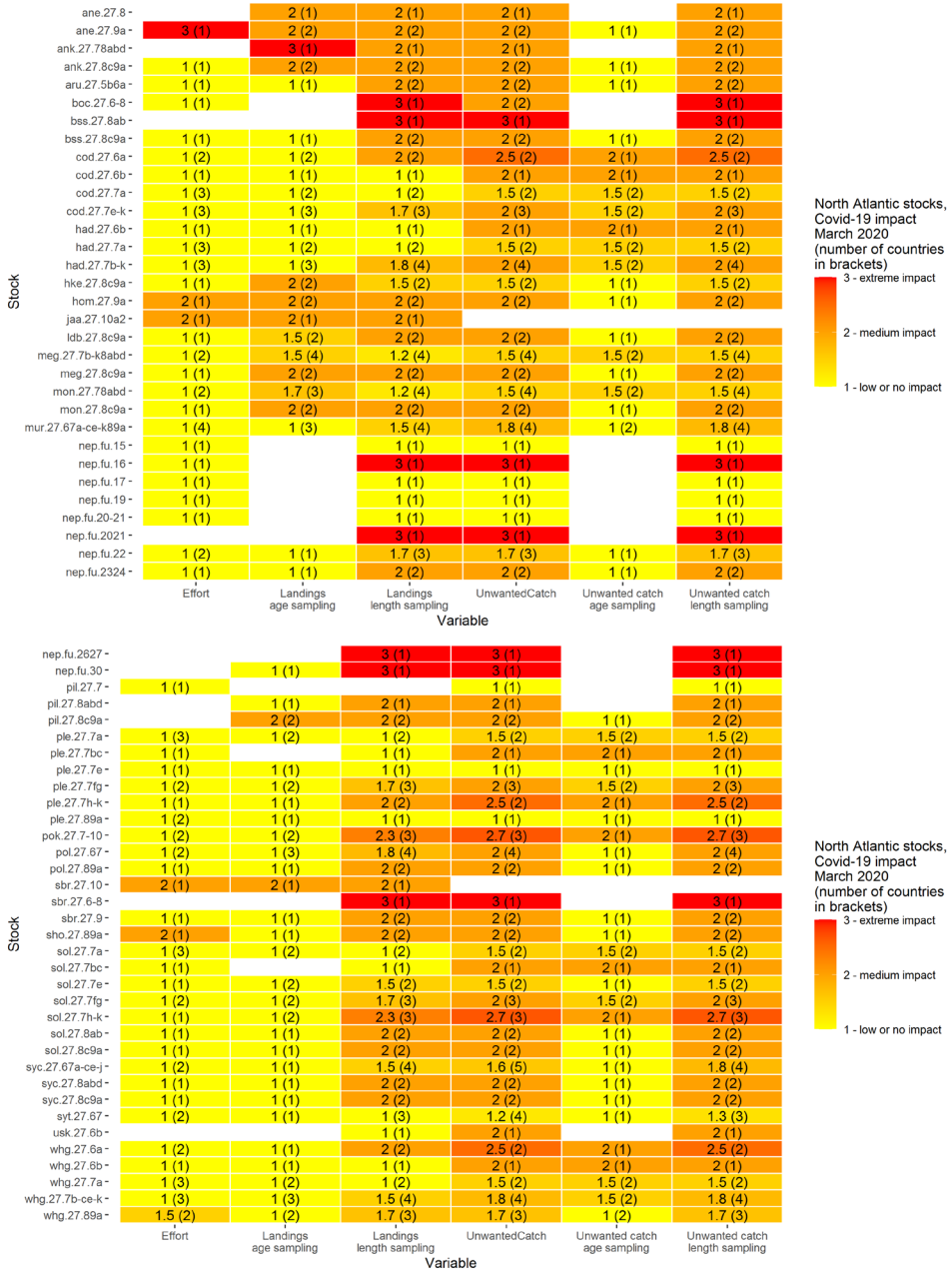


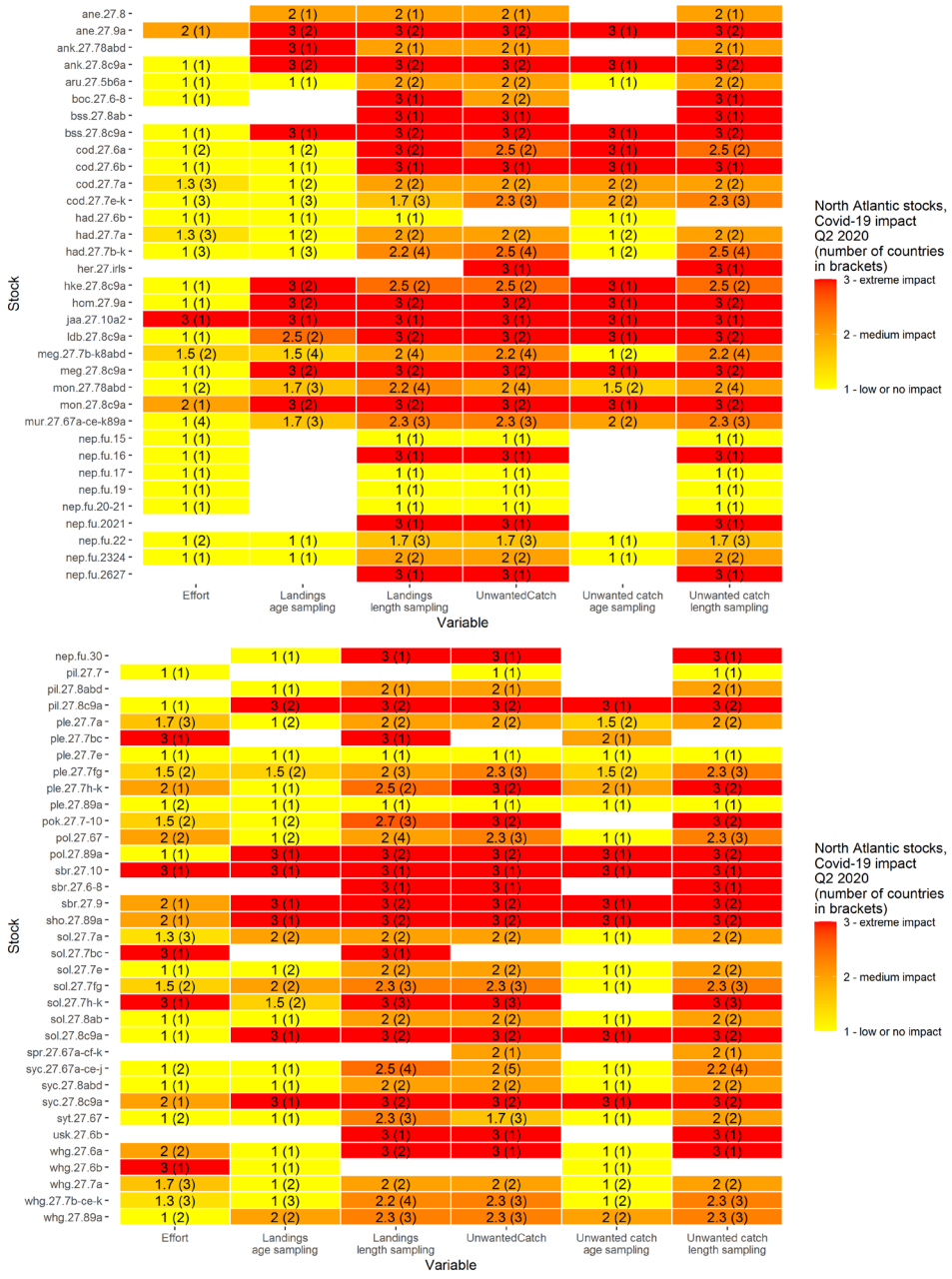
North Atlantic stocks

North Atlantic stocks 2020 March:



North Atlantic stocks

North Atlantic stocks 2020 Q2:



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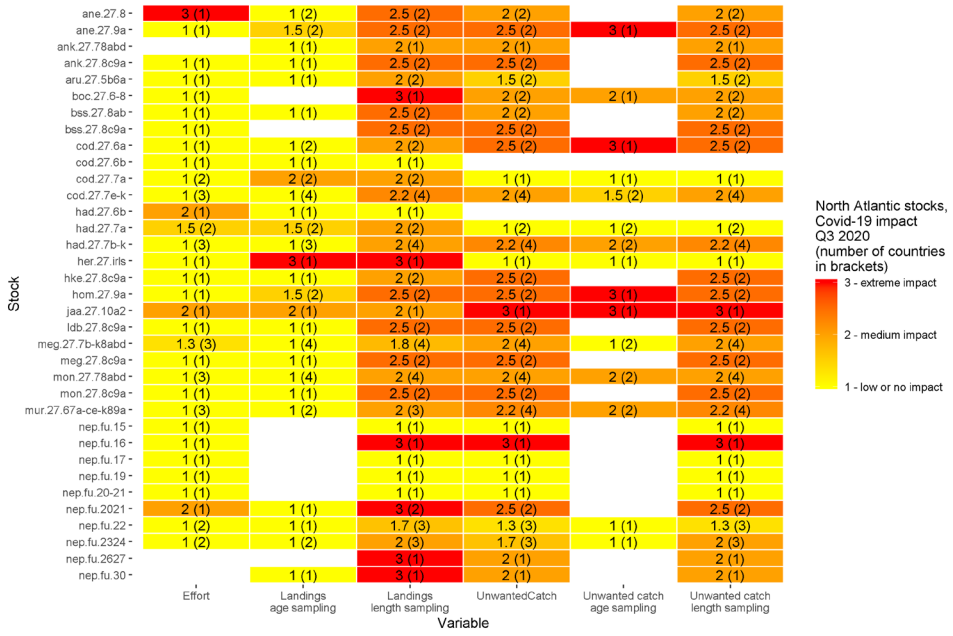

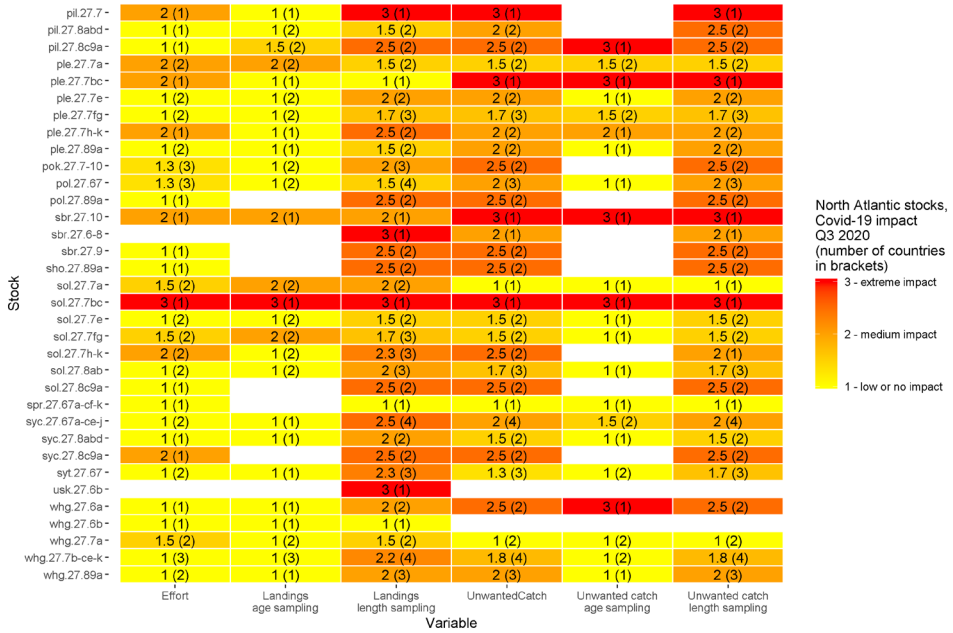

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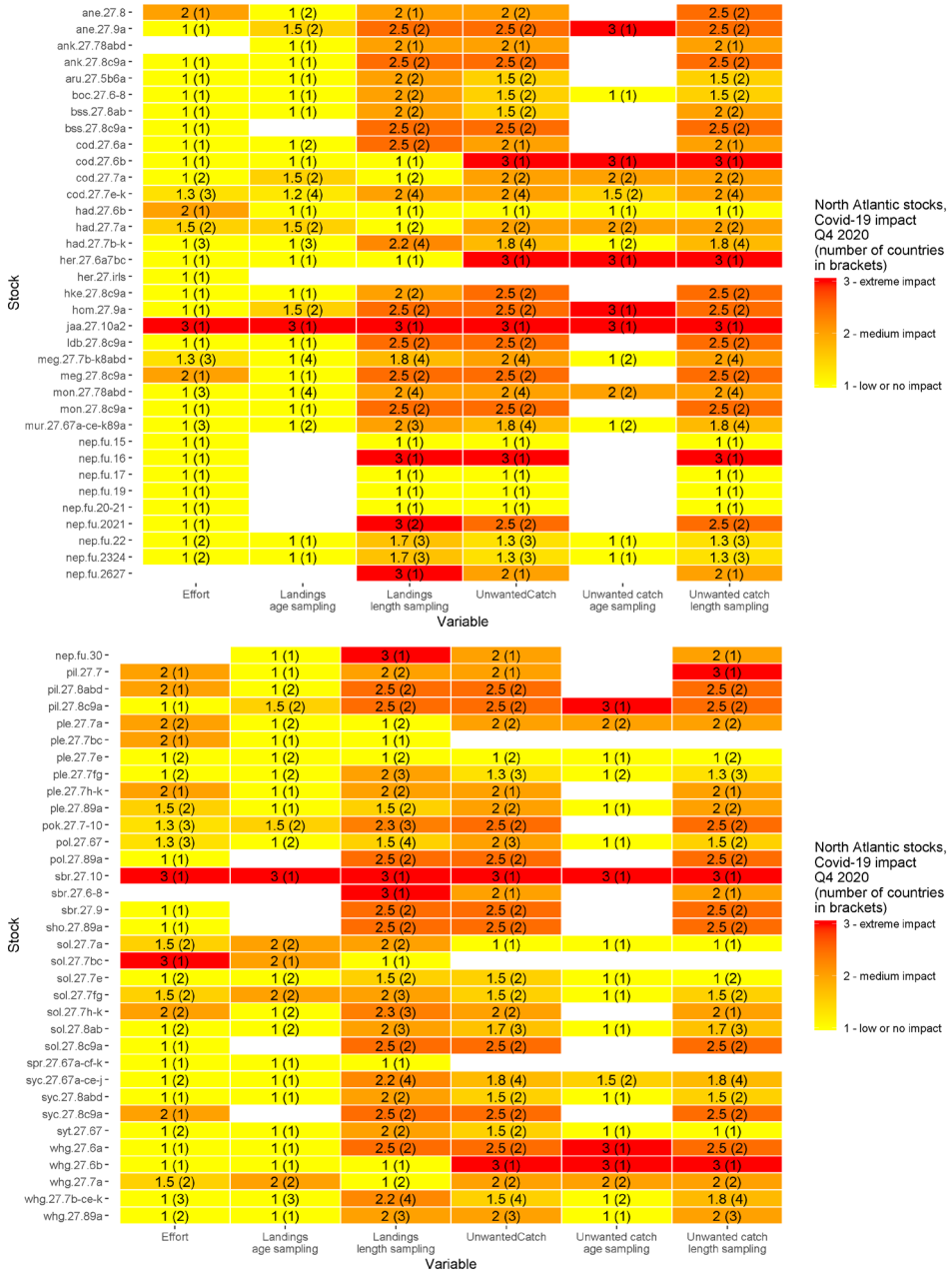

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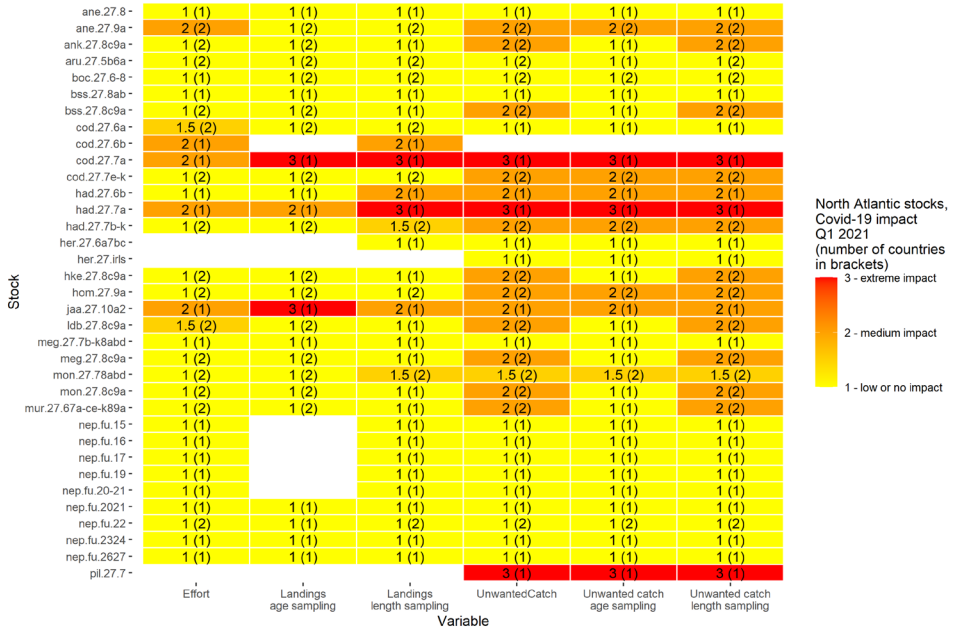

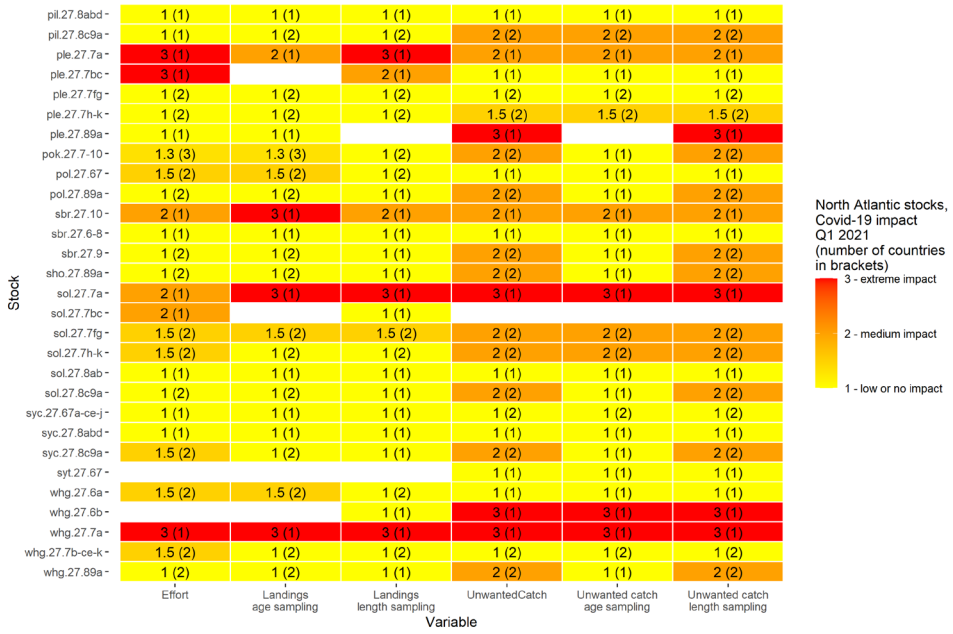

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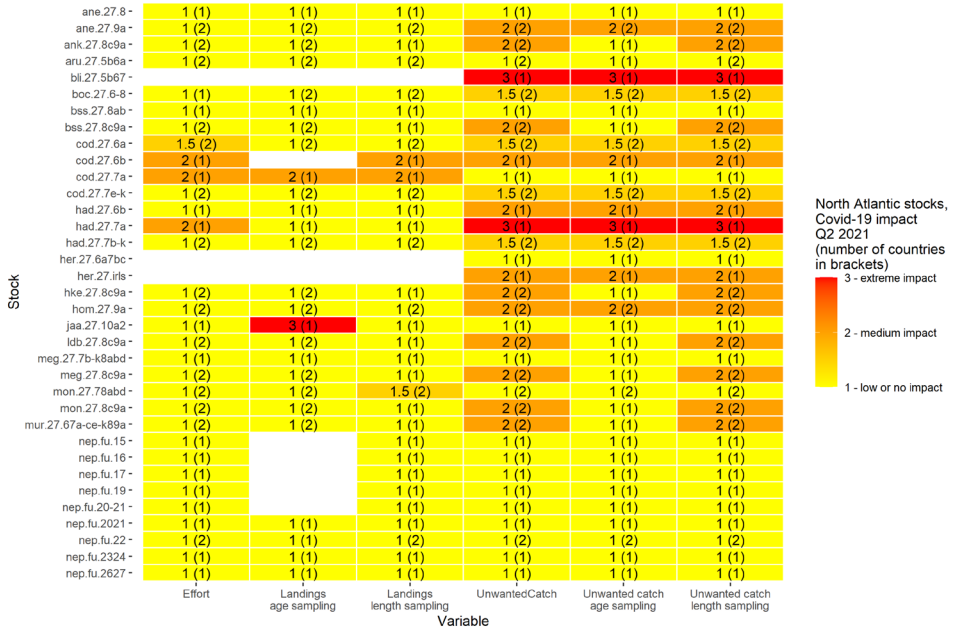

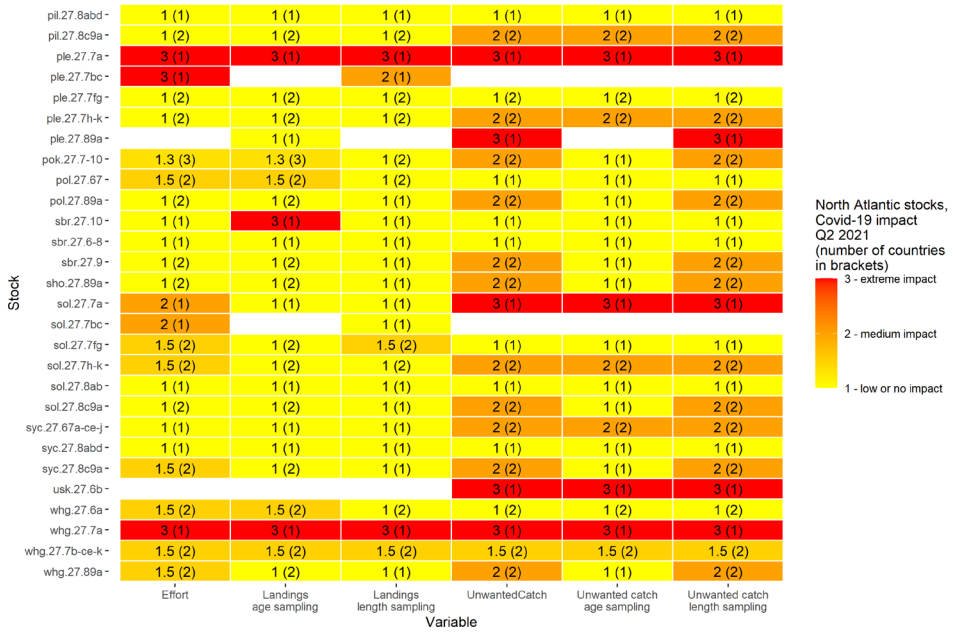

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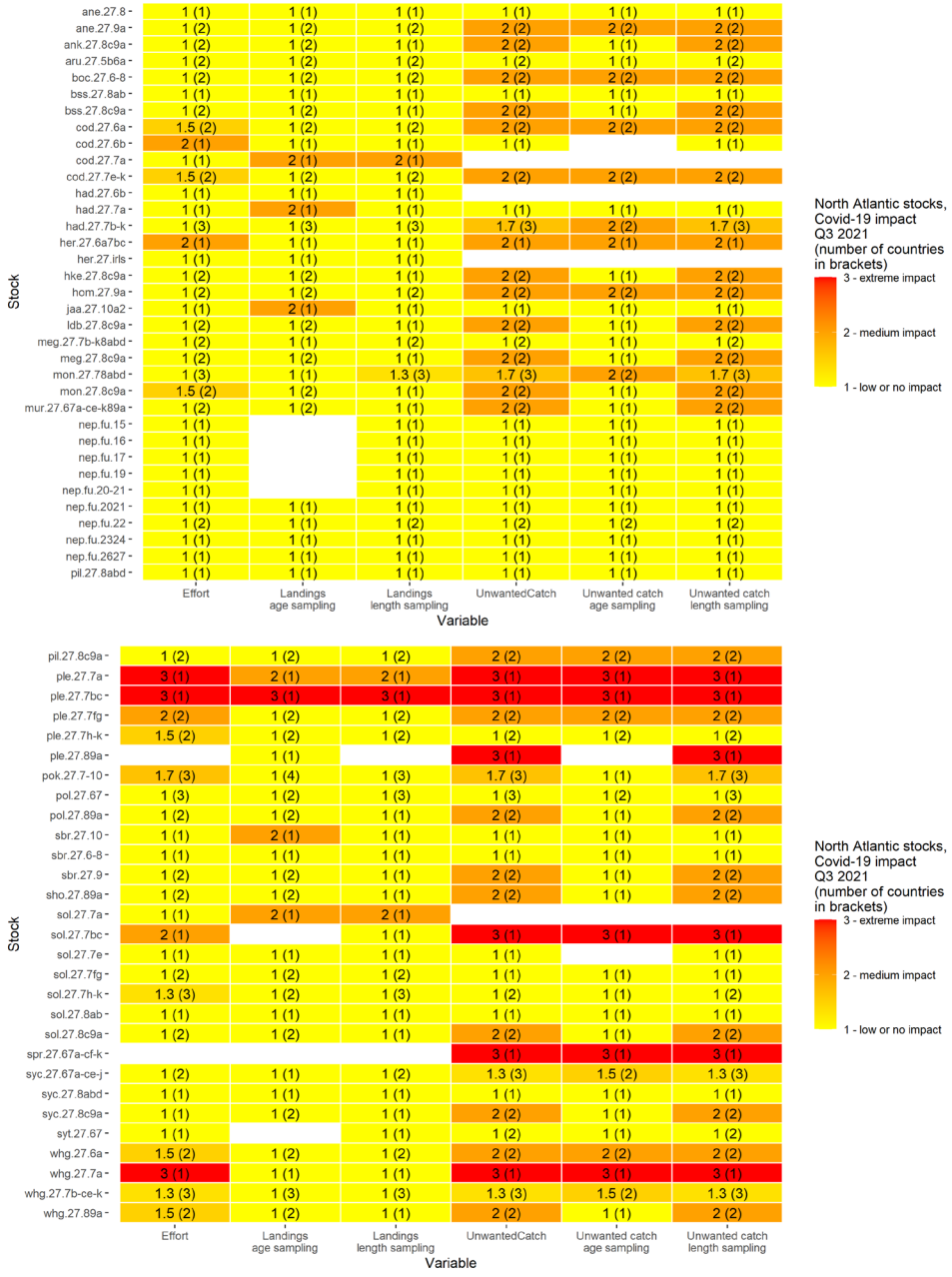

North Atlantic stocks

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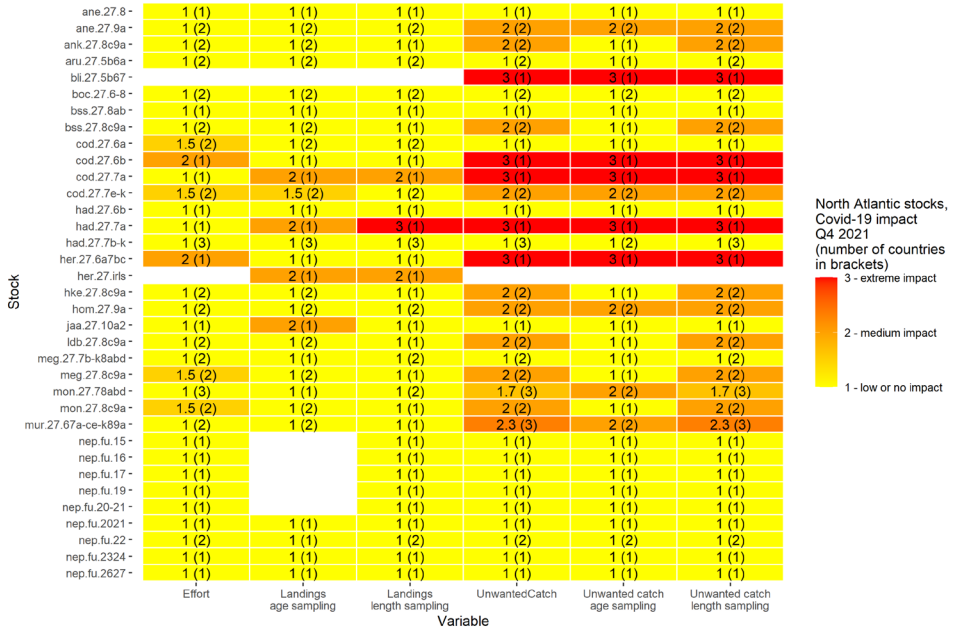

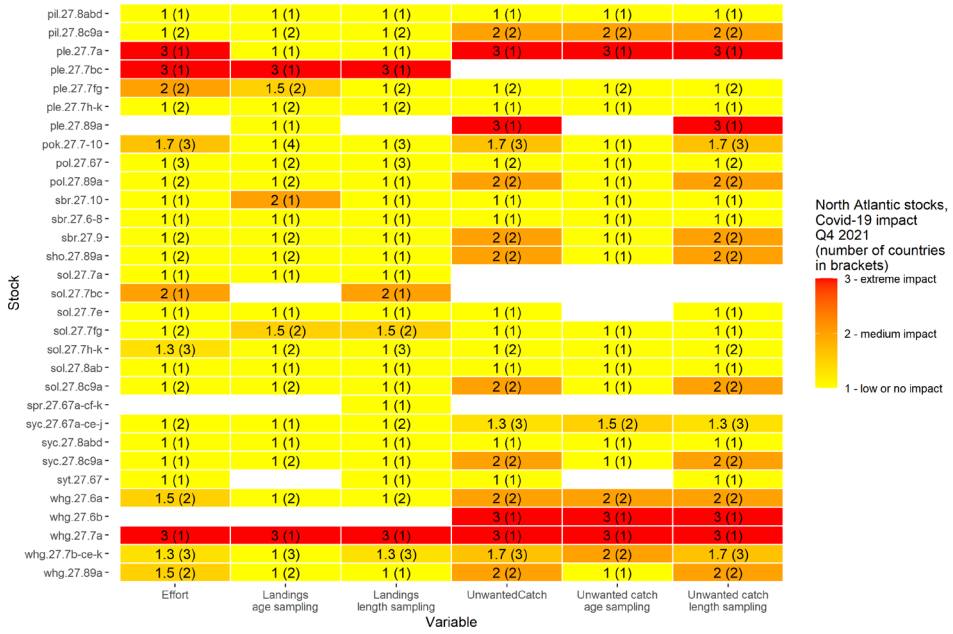

North-west Atlantic stocks

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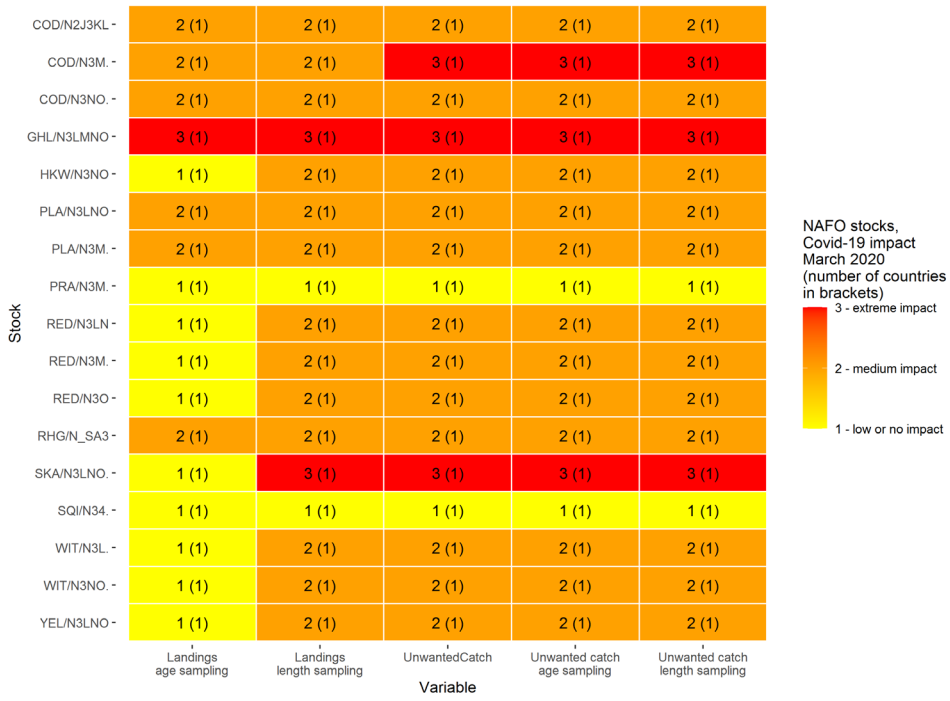

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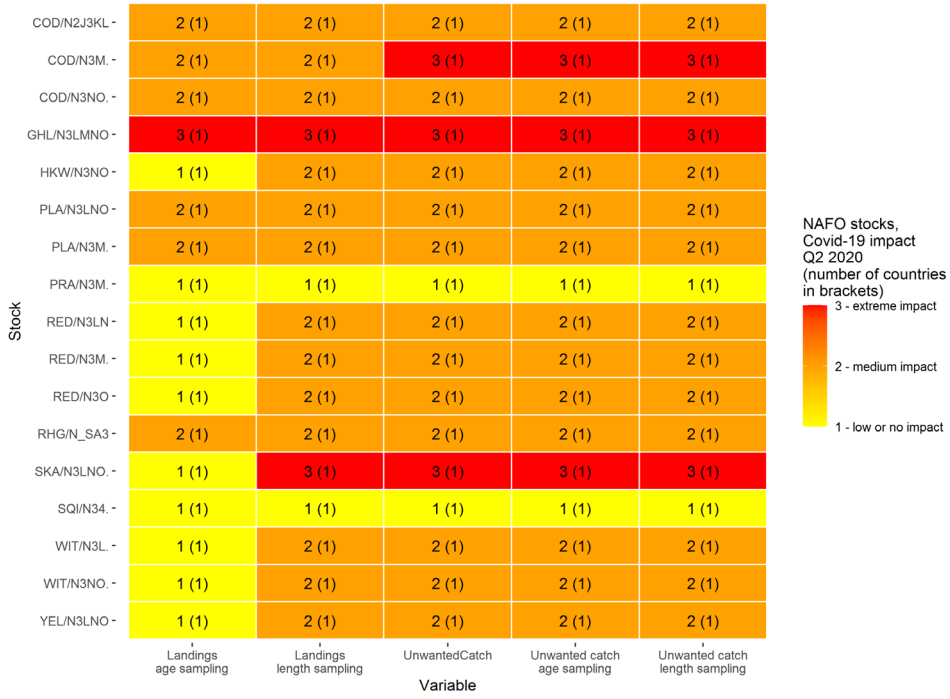

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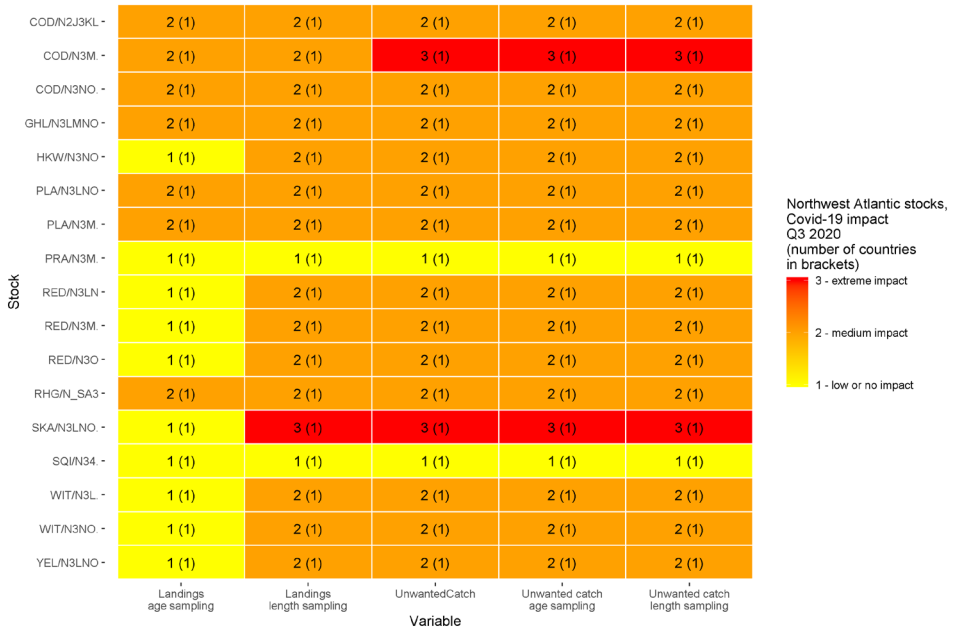

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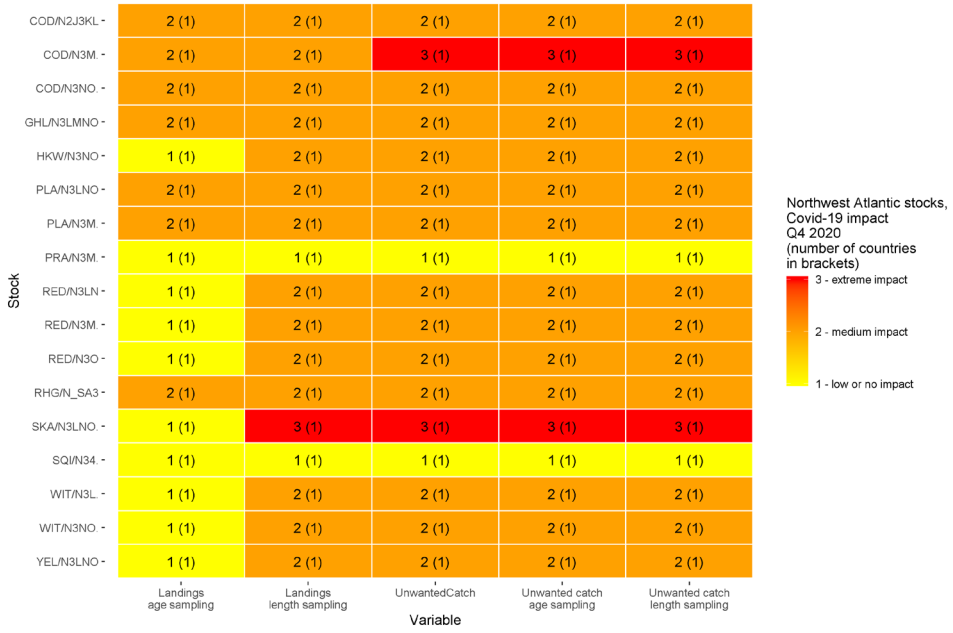
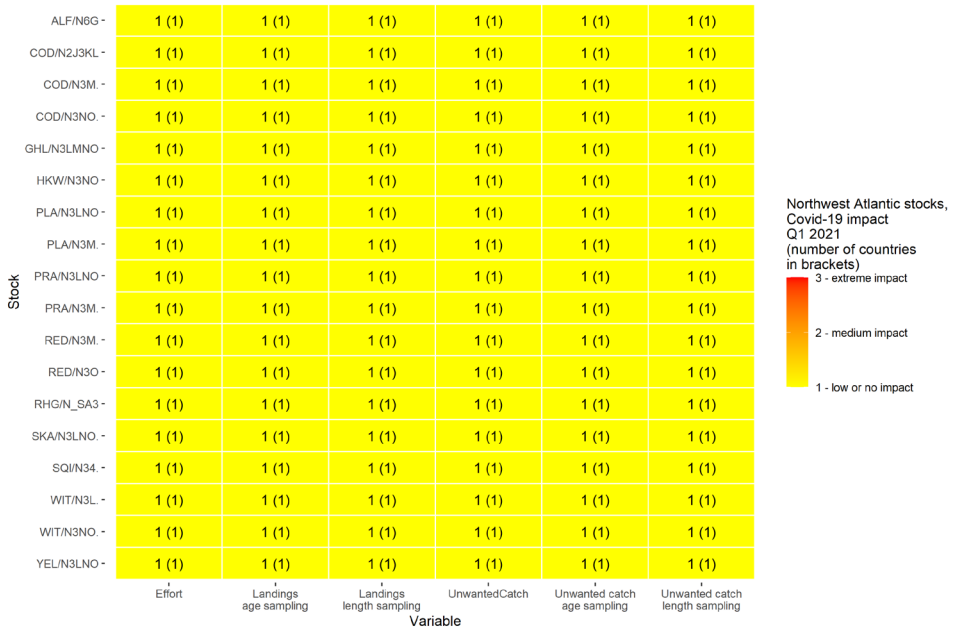


North-west Atlantic stocks

North-west Atlantic stocks 2021 Q1:



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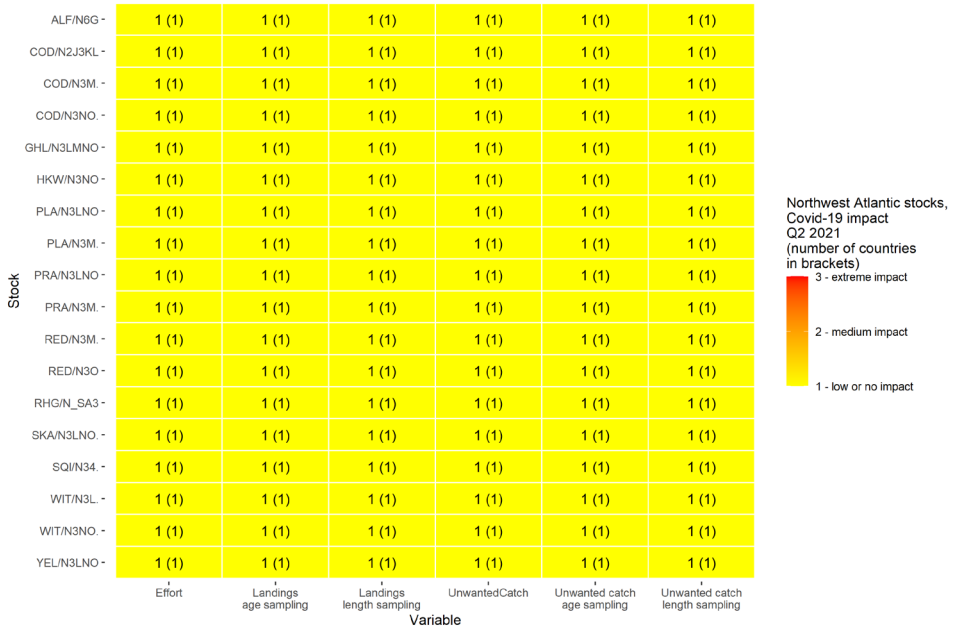

North-west Atlantic stocks

North-west Atlantic stocks 2021 Q3:

No data.

North-west Atlantic stocks

North-west Atlantic stocks 2021 Q4:

No data.

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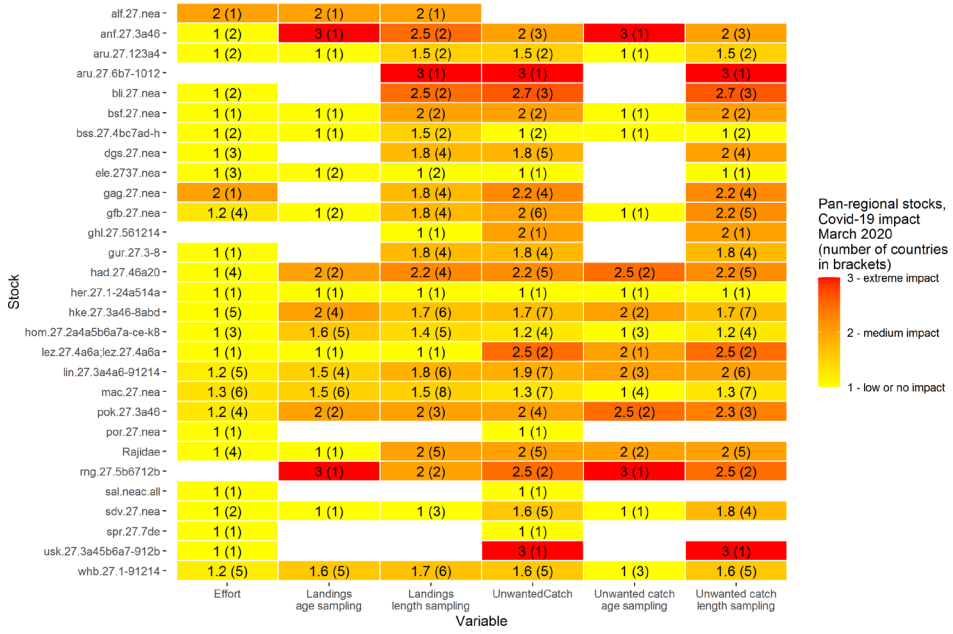
and Fisheries Fund

Pan-regional stocks

Pan-regional stocks 2020 March:



Pan-regional stocks

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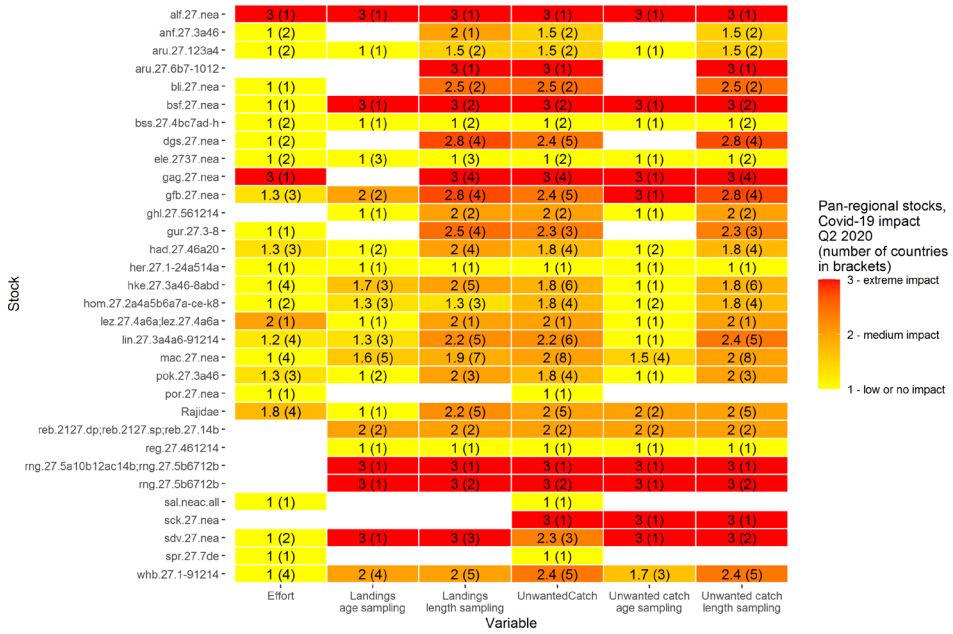

Pan-regional stocks

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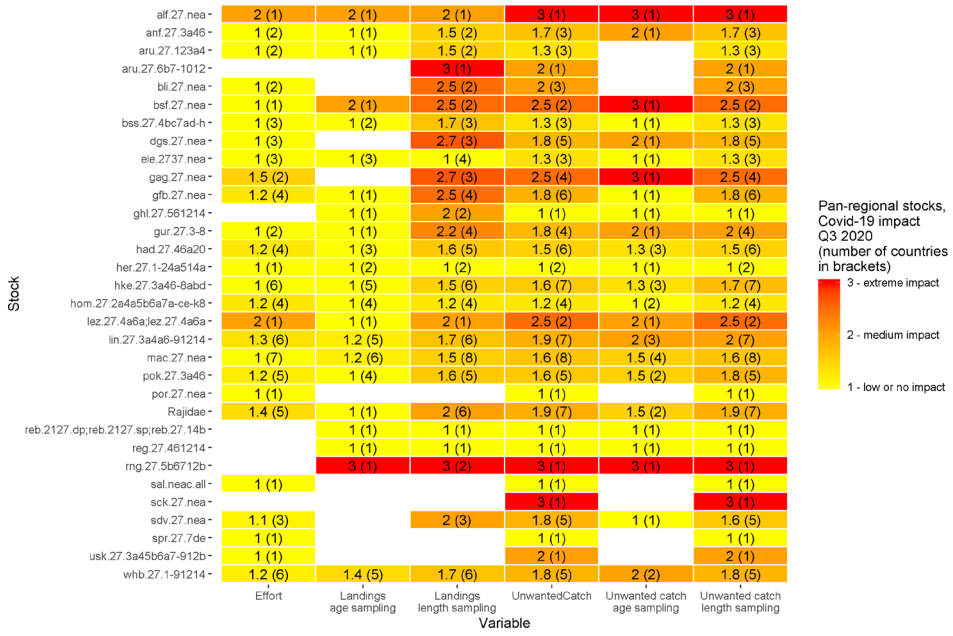
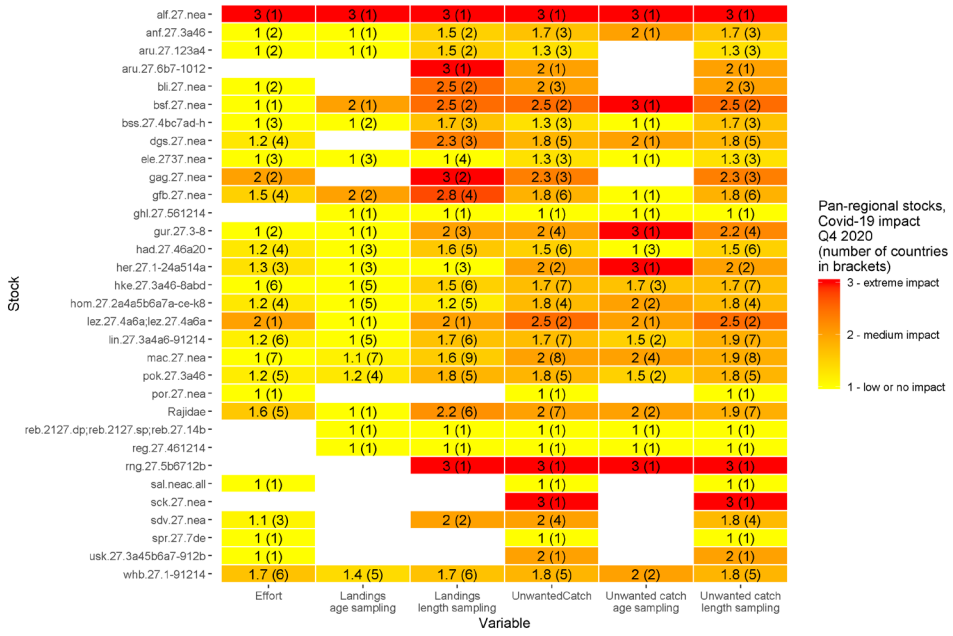


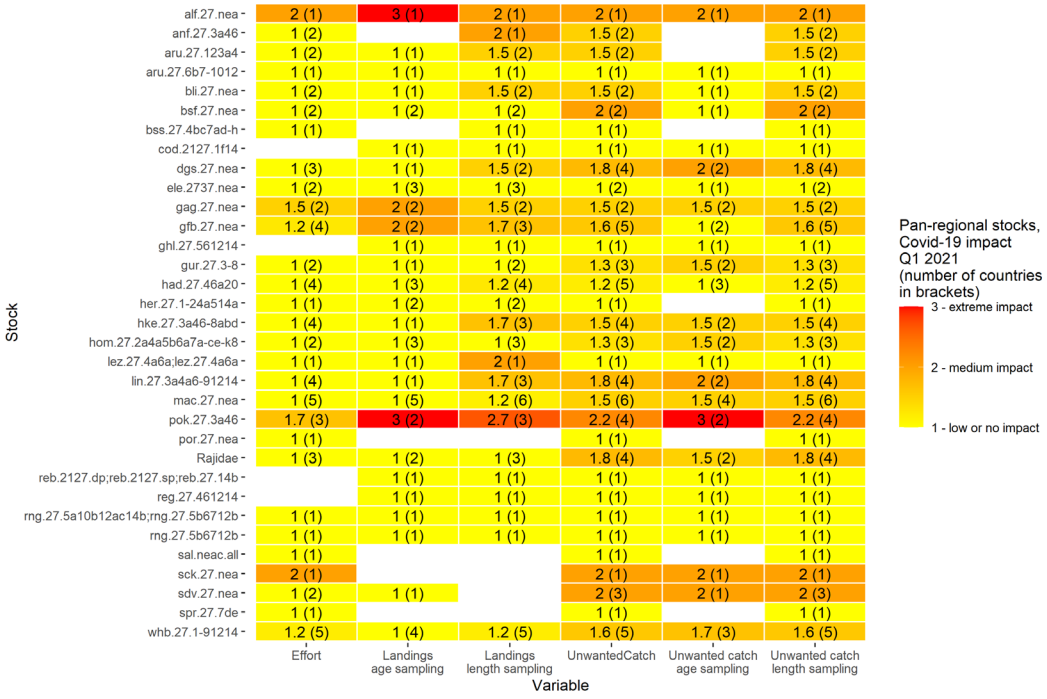
Pan-regional stocks

Pan-regional stocks 2020 Q4:



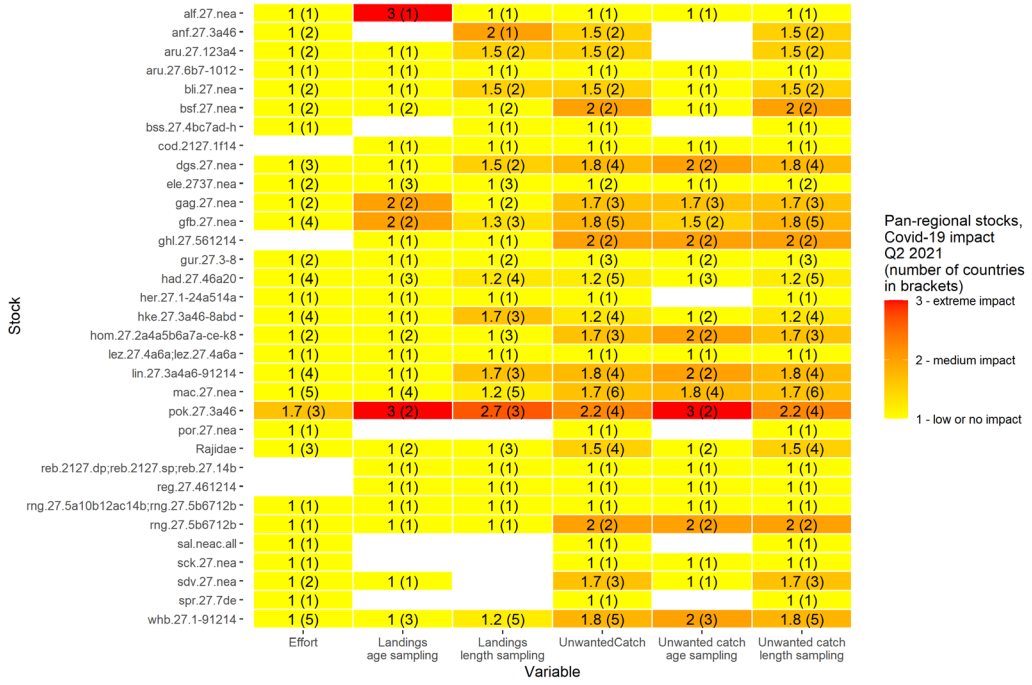
Pan-regional stocks

Pan-regional stocks 2021 Q1:



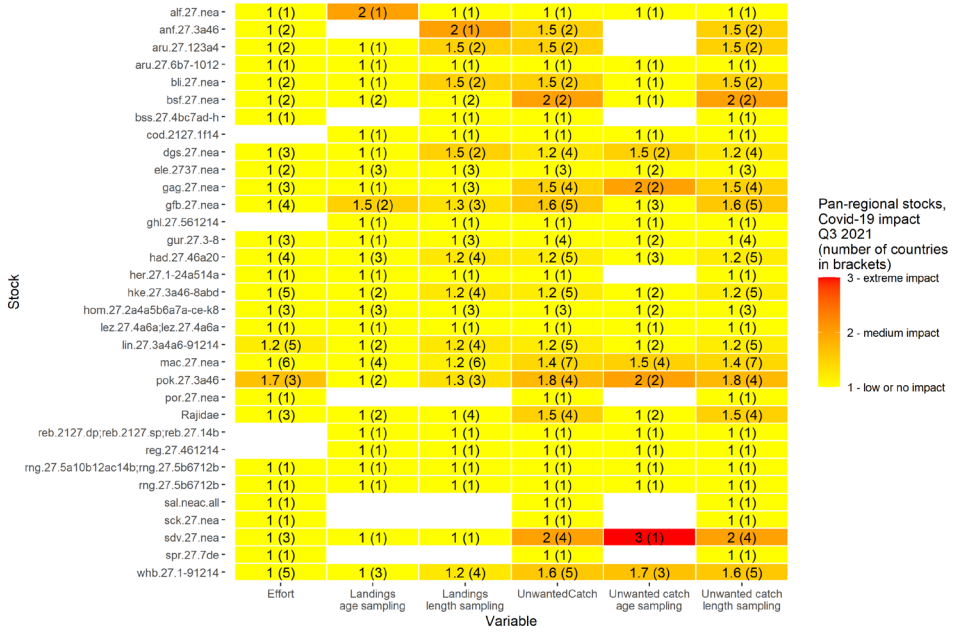
Pan-regional stocks

Pan-regional stocks 2021 Q2:



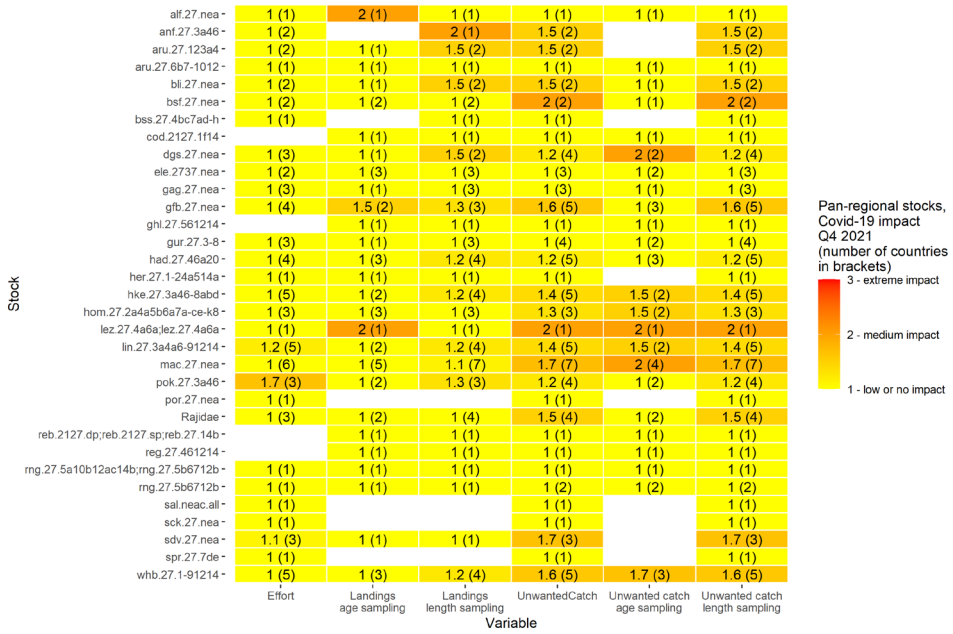
Pan-regional stocks

Pan-regional stocks 2021 Q3:



Pan-regional stocks

Pan-regional stocks 2021 Q4:



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2 ISSG RDB Catch, Effort and Sampling Overviews

2.1 Background

The intersessional subgroup on Catch, Effort and Sampling Overviews was established by LM 2018 to streamline and facilitate the work on the fisheries and sampling data of the MS and prepare data overviews in advance of the RCG meetings. Before the subgroup was set up, the different RCGs conducted data analysis and overviews separately with minimal exchange, resulting in redundancies and efficiency loss. Furthermore, a substantial part of the work was being carried out during the RCG meetings themselves and so not readily available to inform RCG preparation and meeting discussions. The intersessional subgroups are intended to work throughout the year, self-organizing in terms of their work and having an RCG chair as point of contact. The pan regional subgroup on Catch, Effort and Sampling Overviews consists of members of all three RCGs (RCG NS&EA, RCG NA and RCG Baltic) and had Sven Stötera (chair RCG Baltic) as contact point during its activities. It is chaired by Lucía Zaraus (AZTI, Spain) and Ana Cláudia Fernandes (IPMA, Portugal).

The tasks and output from the subgroup fall into 2 main types of work i) To develop tools for internal RCG work and ii) Preparatory work for decision making, including input for regional work plans and working groups.

2.2 Work-plan

ToRs and work plan (specific tasks) for 2021-2022.

1. Prepare table 2.1 (share of EU landings & TACs (?)) by the end of August 2021.
2. Incorporate feedback from the RCG, NC, LM.
3. Prepare the overviews replying to the WGBFAS request.
4. Maintain annual overviews and further development of the multiannual overviews.
5. Further development of the sampling overviews:
   - Add new functionalities.
   - Extend Sampling vs Landings part.
   - Include CL and CE information in the analyses.
   - Include stock overviews.
6. Collect feedback on multiannual overviews and shiny application overviews from the different MSs.

The subgroup chairs decided on a work plan in consultation with the responsible RCG chair. The plan was elaborated in January 2022. The initial work-plan had to be adjusted to the number of participants. In general, the group decided to focus on incorporating the feedback coming from the different RCG groups, the Liaison meeting and the NCs (Task 2). Subgroup work was divided into three main blocks, "development of catch and effort overviews", "development of sampling overviews" and "adaptation to RDBES data format". The group also decided to use the same common format for RDB extraction that was agreed in previous years and is available on the intersessional groups SharePoint.

The first block of work involved the compilation of the feedback on the annual and the multiannual catch and effort overviews, comparison and its organization, by identifying synergies and redundancies and adjusting the documents accordingly. Also updating codes and processes in the repository were performed, integrating new outputs and producing the annual overviews for the last year and multiannual overviews for last six years for all three RCG regions.

The second block of work involved the compilation and revision of the feedback received on the sampling overview and on the inventory of the RDB data, and the development of the shiny app accordingly. It was also performed the update of the codes and processes in the repository, integrating new outputs and producing the final app. The last working step of the "development" was the production of a draft document with exemplary graphs and outputs.

The third block of work consisted in answering the WGRDBESGOV recommendation to adapt reporting routines to the RDBES in 2022, and report back if they discover that complete submission of the new CL, CE and CS tables are not sufficient to generate the reports that have been relied on the RDB format in previous years.

2.3 Progress during 2021-2022

The group met in biweekly online conferences (via Teams) since February 2022 dealing with specific tasks, reviewing progress and adjusting workloads. Minutes were circulated after each meeting to keep a record on progress achieved and tasks ahead. Also, the GitHub Projects facility was found useful in recording the work progress.

The ISSG had the following online meetings during the last year:

21-01-2022	Meeting among ISSG chairs (new and previous)
04-02-2022	ISSG on catch, effort and sampling overviews group meeting
10-02-2022	ISSG on catch, effort and sampling overviews group meeting
24-02-2022	Meeting with WGRDBES to define initial overviews and reports
04-03-2022	ISSG on catch, effort and sampling overviews group meeting
17-03-2022	ISSG on catch, effort and sampling overviews group meeting
31-03-2022	ISSG on catch, effort and sampling overviews group meeting
11-04-2022	ISSG on catch, effort and sampling overviews group meeting
26-04-2022	ISSG on catch, effort and sampling overviews group meeting
05-05-2022	ISSG on catch, effort and sampling overviews group meeting

A restricted SharePoint was used to hold documents, protocols and RDB data extracts. The group also decided to keep and update the RCG GitHub (in the ICES EG section) as the repository for the r-scripts developed. The common extraction and preparation format defined for 2009-2020 RDB data was updated with regards to 2021 data. The data used for the work produced in this year does not include UK countries as a flag country, but they may be present in the cases of landings abroad.

Task 1: Prepare table 2.1 (share of EU landings & TACs (?)) by the end of August 2021

The group contributed to the preparation of the percentage of EU share present in the table 2.1. The work developed is in the GitHub (NWPtools).

Task 2, 4, 5, 6: Incorporate feedback from the RCG, NC, LM and improvements performed in the fisheries and sampling overviews

The group reviewed the feedback of the different RCGs, the Liaison meeting and the NCs, regarding the data analysis for the catch, effort and sampling overviews and compiled all the tasks to accomplish in the 'Projects'

folder from the GitHub. The list of tasks was prioritized and people was assigned to develop each of them according to their availability and "expertise" in the subject.

Concerning **annual reports**, the code was updated to run with current R version. The introduction text was revised together with some text on data sources and information on how to read the data, and data policy links were updated. A summary table for landings abroad by country and area and a glossary for the country codes were added to the reports.

Some difficulties were encountered to improve some graphs and tables due to the "complexity" of the code and the functions utilized, and also to the limited number of people actively involved in the work. The group discussed the need for cleaning and simplifying the code, in order to facilitate its updating and ensure its continuity. The proposal to convert the code into a shiny app was also considered.

As a conclusion, the group agreed that, because it would be very time consuming at this stage, the cleaning and simplification of the code should be performed together with the adaptation to the RDBES format. The conversion to a shiny app needs to be further discussed and pros and cons evaluated.

Regarding the **multiannual overviews**, major part of the elements from the different sources of feedback were incorporated and also new improvements were performed:

- The disclaimer was added, and the texts of the report were revised and improved.
- Some clarifications were made in relation to the data sources.
- The readability of some legends was improved and country colours harmonized.
- Data policy links were updated.
- The structure of the report changed to incorporate a new section with information about the landings per catch group (small pelagic, demersal, crustaceans, etc).
- A table with information on the landings abroad and a table with information on the missing data for days-at-sea by year and country were also included in the report.
- The metiers grouping was redefined so that the graphs fit better in each panel.
- New interactive functionalities were added to the main part of the graphical outputs (e.g. effort and landings). These new functionalities allow for a better exploration of the information presented in the graphs (e.g. zoom parts of the figure, text information pops-up when click over the points/bars).
- Stock allocation used in the overviews represents variable stock which was adjusted by the group accordingly with procedures discussed within ICES community and therefore some of the stocks may not come directly from the RDB.

In what concerns to the **sampling overviews** work, the group reviewed the feedback of the different RCGs, the Liaison meeting and the NCs, and the Shiny app was improved according with the feedback received:

- The disclaimer was improved.
- The data policy link was updated.
- Variable 'Year' was added to the Sampling explorer.
- Some bugs were corrected (e.g. remove 'All' when another item is selected).
- The readability of the legends in some graphs was improved.
- Gradient colors were set to reflect the sampling effort.
- The codes and names of some variables were changed for a better understanding of the parameters used in the graphs and maps presented (e.g. sampling type 'D','M','S','V' replaced by descriptive names; 'NoLengths' replaced by 'NumLengths').

- The name for "Interactive plots" was changed to "Static plots" because they are not interactive yet.

The whole set of code needed for running the app is stored on the subgroup GitHub. Moreover, as last year, the app will be launched on the AZTI shinyapps.io, where all the people with data access can run the app on their own. There is also a download functionality, to allow the usage of these data for e.g. reports and data requests. The document on sampling statistics contains exemplary overviews on sampling intensity and -distribution of the most recent year and it also contains the information on how to set up the shiny R application on personal devices.

The data preparation for producing the new reports was made after the deadline of the RDB datacall and the data extraction (20-24 April). The new prepared data, used in these analyses is in the 'Data' folder from the RCG SharePoint.

The different reports were then produced with the new data and minor changes of the code were still performed to improve the presentation of the results. These reports are available in the SharePoint (Working documents/ISSG Overviews):

- Annual overviews for each region (NSEA, NA and BA) – word documents
- Annual overviews for the Small Scale Fisheries (SSF) for each region (NSEA, NA and BA) – word documents
- Multiannual overviews by region (NSEA, NA and BA) for the period (2016-2021) – html documents
- Sampling overviews document

Task 3: Prepare the overviews replying to the WGBFAS request

The WGBFAS request was to produce overviews for the Baltic TAC stocks (species). The preparation of these reports was performed during the WGBFAS meeting. The code used for producing the reports was the same from the one used in the previous year but some improvements were performed to accommodate the suggestions and new requests made by the group.

At the end, four reports were produced for the species from stocks assessed by the group (sprat, sole, cod and whiting), and they can be found in the RCG SharePoint.

The feedback from the WGBFAS was good, and some more suggestions for improvement of these reports for the next years were proposed:

Landing and effort maps

- Map titles and labels need improvement and better description
- Adding Management area (or Subdiv borders) to the maps
- Monthly (instead of quarterly) overviews for landings and effort for SPF (as they are assessed in month units, the other stocks are quarterly)
- Landings: pie chart per rectangle showing mixing of SPR and HER

Métier overview

- Should be by species/stock

Sampling intensity and location maps

- Map titles and labels need improvement and better description
- Adding Management area (or Subdiv borders) to the maps
- Sampling intensity needs to be shown by species or stock – this is already in the present reports
- Weight unit maps not needed
- Instead of GPS coordinates, maybe sum up sampling by rectangle
    - Or as a unit sampled/landings or effort (to lose one of the variables and make the maps easier to read, esp. the quarterly maps)
- Different maps for landings and discards sampling? Colors are hard to distinguish
    - Also here, aggregate by rectangle, improves evaluation

The implementation of the main part of these improvements is possible but it will be dependent on the workload of the people actively involved in the ISSG work.

Other tasks

Recommendation from RCG to check if RDB fields used in the scripts are included in RDBES data format (ICES request for mid-March)

The group revised the formats from the two databases (RDB and RDBES) and compared them in terms of the presence of the variables needed and of the mandatory/optional status of the fields used. The conclusion is that RDBES covers all the variables the group is working with at this stage. Some of those variables are even more detailed or became mandatory (e.g. days-at-sea) what will allow refining some of the results obtained from future analysis performed by the group.

Adaptation of the code to the new RDBES format

The group reviewed the possibility of adapting the code for producing the overviews using the RDBES data format. It was decided to first focus on the revision of CL & CE tables because of the high complexity of the sampling data (CS tables) in the RDBES format.

The revision of CS format is more complex due to the large number of tables and hierarchies. For that, the input of the core group is needed in order to decide the best way to combine the tables and produce a more workable format.

Meeting with WGRDBES to define initial overviews and reports (24.02.2022)

It was presented the work of the ISSG overviews developed so far, and also the expectations on producing the overviews using the new RDBES format. At the present stage, it will only be possible to implement the new format in the code using the CE and CL tables. Regarding the sampling data, and given the complexity of the data to submit, there will be the need to work together with the WGRDBES in preparing some kind of master table that compiles all the sampling data submitted to the RDBES and needed to produce the overviews reports.

The new format will also give space for further improvements of these reports, because more detailed information on the sampling data is requested in the RDBES.

ISSG Work

The group also had a conversation about the decreasing number of people actively involved in this ISSG work. The list of participants shall be revised and updated in the future because some of the people included in the participant list did not contribute to the work developed in 2021-2022. So, it's important to highlight that because of the limited number of people available, the tasks to perform were prioritized and, even that way, it was not possible to complete all the tasks needed/proposed. To overcome this, and assuming the same limited number of active participants, it was also suggested, for the next year, to start this ISSG work early in the season (Oct/Nov from the previous year).

RCG members are welcome to contribute with ideas and help in specifying which statistics they would like to see included in a later and more advanced version. But apart from improving the reports, a focus shall be put on the use that the RCG will do of the presented reports, to ensure that they fit the purpose and are able to answer RCG needs

2.4 Roadmap/follow-up

The work of the subgroup will be presented during the 2022 RCG. The tasks proposed for the next period are:

- Start to adapt the code of the fisheries and sampling overviews to the RDBES data
- Simplification of the code for producing the annual fisheries overview – clarify the use of the different functions in the main code so it is more user friendly to perform the changes needed (e.g. by documenting the process, or numbering the functions in the code and in the folders)
- Develop and test the template for the benchmarks – use the WGBFAS overviews and their feedback for improvements, as a start point
- Decide on a set of figures to be published in the RCG website
- Continue to improve the overviews by incorporating the end users feedback

The subgroup will continue the work on a regular basis throughout the year to improve their achievements and give feedback to the RCG-chairs in regular intervals.

2.5 SG Participants

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3 ISSG Métier and transversal variable issues

3.1 Background

The group has been ongoing since 2018, starting with a workshop discussing the methods used to assign métier codes to transversal data, issues and best practices, and the following years as an RCG ISSG, reports can be found here. Achievements from the ISSG over the years have been:

- Suggestion on new standardized and harmonized list of métier codes, which was approved by RCG's in 2020 and in the September 2020 Liaison meeting, it was agreed by the NCs that the new codes for métiers and reference lists can be used and implemented by the MS. Work has been done to include relevant selective devices in the codes. A table links between new and old codes (in cases that a mesh size range has been split up, a choice has been taken to link to one of them).
- Reference lists:
  - Reference species list on how to group species
  - Reference area list
  - Reference gear list
- Script that can assign métier codes using a specified data input format. It also has functionalities 1) to propose an estimate of métiers where all needed information are not available and 2) to refine the "rare" métiers firstly assigned by the general algorithm focusing on the year*vessel main métiers, in order to limit the multiplication of métiers calculated
- Manual explaining the background, script, input format and reference lists
- GitHub repository (RCGs/Metiers at master · ices-eg/RCGs (github.com)) where all the material is available (reports, métier list, reference lists, script, manual)

In 2021, the group changed name to 'ISSG on Métier and transversal variable issues', also including a task to look at effort calculations for the small-scale fisheries. The new métier codes were requested for the 2021 RDBES test data call, and it was recommended at the RCG NANSEA BALTIC that the ISSG should evaluate the data submitted and that the new métier codes should be implemented in other data calls: STECF FDI, ICES WGBYC, ICES VMS/Logbook). The ISSG is chaired by Josefine Egekvist, DTU Aqua, Denmark.

3.2 Work-plan

ToRs and work plan (specific tasks) for 2021/2022.

1. Follow up on and support implementation of métier codes and script (it should also be possible to include participants from outside EU). Approve and update métier list if new codes are needed.

2. When data have been submitted for the RDBES test data call, métier descriptions can be made (following up on 2019 work within the ISSG) and, in the future, it may be further developed in collaboration with the ISSG on RDB Catch, Effort and Sampling Overview

3. Continue testing the script on national data and improve the script if needed.

4. Collaborate with ISSG on SSF regarding

a. métier assignment for the small-scale fishery to avoid MIS_MIS_0_0_0
b. effort calculation (harmonize between different data calls if possible)

5. Collaboration with RCG MED&BS on métier codes

3.3 Progress during 2021/2022

3.3.1 The 2022 work

The ISSG had the following online meetings during the last year:

07-10-2021	Meeting with the ICES Data Center about métier codes governance
29-10-2021	ISSG on métier and transversal variables group meeting
14-01-2022	Subgroup meeting for planning data analysis of métiers submitted RBDES
01-02-2022	ISSG on métier and transversal variables group meeting
01-03-2022	ISSG on métier and transversal variables group meeting
01-04-2022	ISSG on métier and transversal variables group meeting
27-04-2022	ISSG on métier and transversal variables group meeting

3.3.2 Main outcomes and communication between the ISSG and other groups

- The ISSG followed up on the submission of métiers for the 2021 **RDBES** test data call using a data extraction from the RDBES by creating overviews, evaluated if the métier codes followed the RCG groupings and the number of MIS_MIS métiers.

- A dialogue was established on implementation of métier codes with other groups that have data calls requesting métier codes (**STECF FDI, ICES VMS/Logbooks, ICES WGBYC**).
- Collaboration with the **ISSG on SSF** was established regarding métier assignment for the SSF to avoid métiers classified as MIS_MIS_0_0_0 and effort calculation for the SSF was evaluated by reviewing existing reports on the subject.
- Collaboration with **RCG MED&BS** was established through a presentation at the RCG MED&BS meeting in September 2021 and a case study from Greece.
- Additionally, a link with the **RCG Econ** was established as they introduced a workshop on fleet segmentation using cluster analysis, based on landings of stocks that took place in March 2022.
- A procedure for managing métier codes was discussed with the **ICES Data Center**.

Task 1: Follow up on and support implementation of métier codes and script

The new métier codes were requested for RDBES 2021 test data call, which was evaluated by the ISSG.

In general, from discussions with groups that request métier codes in data calls, it was agreed that data calls in 2022 will allow both new and old codes. The new codes are recommended to be used in the future and it would be good to harmonize the codes across all data call. They are an improvement, as they are harmonized and don't have the overlapping codes regarding the mesh sizes. The problem is with the time series, and if

new codes can be requested back in time, which is up to those responsible of each data call to decide. It is the intention that the RDBES will replace or feed into most of the current data calls, and in that way, the new codes will come in through this database.

REVIEW OF MÉTIERS SUBMITTED FOR THE RDBES 2021 TEST DATA CALL

In 2021, the new métier codes were requested for the RDBES test data call. RDBES CE data was submitted with the new métier codes by 23 flag country codes, including 14 European Union countries (Belgium, Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, Poland, Portugal, Spain, Sweden, The Netherlands) as well as Great Britain (uploaded as United Kingdom, England, Scotland, Northern Ireland, Wales, Isle of Man, Guernsey and Jersey) and Norway for the period 2018-2020.

The ICES Data Center has provided a data extraction from the test data call from the CE data with the columns 'country', 'year', 'area', 'nationalFishingActivity', 'Metier6', 'vesselLengthCategory' and 'officialFishingDays'. **A major caveat regarding the RDBES data is that it was a test data call, and some countries haven't uploaded data for the total fleet or fixed all the MIS_MIS issues.**

From the uploaded data, an analysis was made to evaluate the correspondence between RCG groupings and métier codes, and it is all correct. In addition, analysis of top 5 métiers used by region was made. The data also showed that there are a number of cases where there is two or less fishing days for a métier code.

A check for 2 or less fishing days within a métier could be added to a RDBES QC script.

The number of MIS_MIS métiers reported in the test data call was not very high in general or for the vessels less than 12 m. This might be related to some countries that didn't submit all effort data in this test data call. The possibility to specify the target group in combination with the MIS gear in the métier code has not been used widely.

OVERVIEWS OF MÉTIERS UPLOADED FOR THE 2021 RDBES TEST DATA CALL

The Figure 3.1 shows the number of métier codes submitted for each country, and by year. The vessel flag countries within UK (Wales, Guernsey, Jersey etc.) have been grouped to UK.

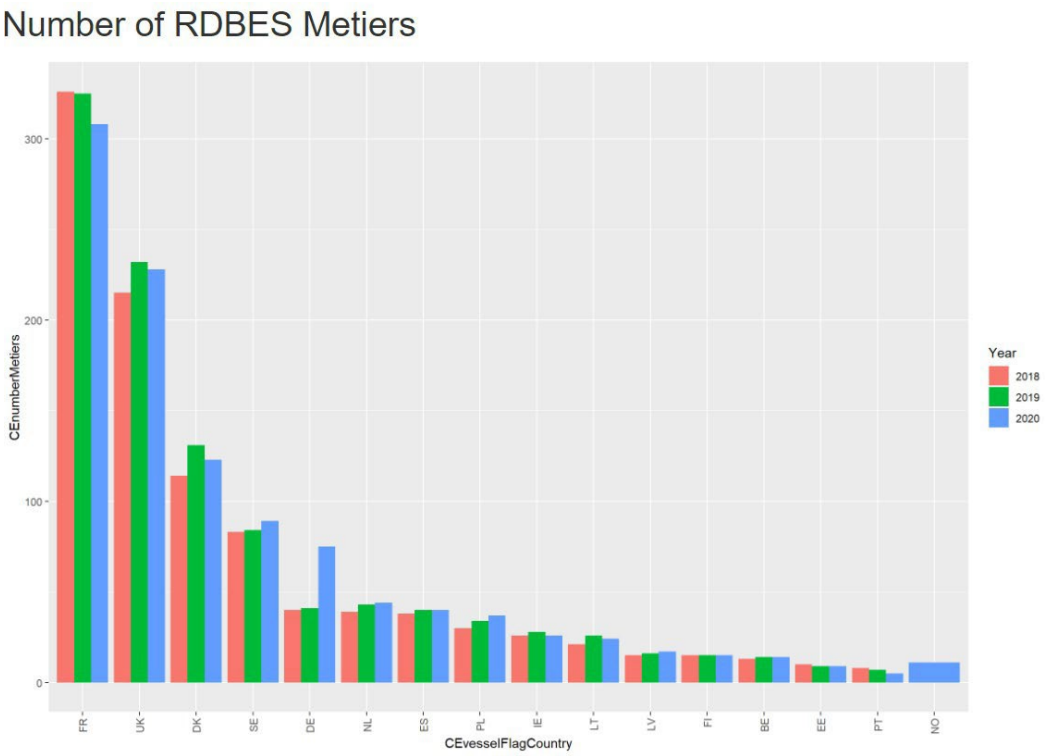

Figure 3.1: Number of métier codes submitted by country for the 2021 RDBES test data call.

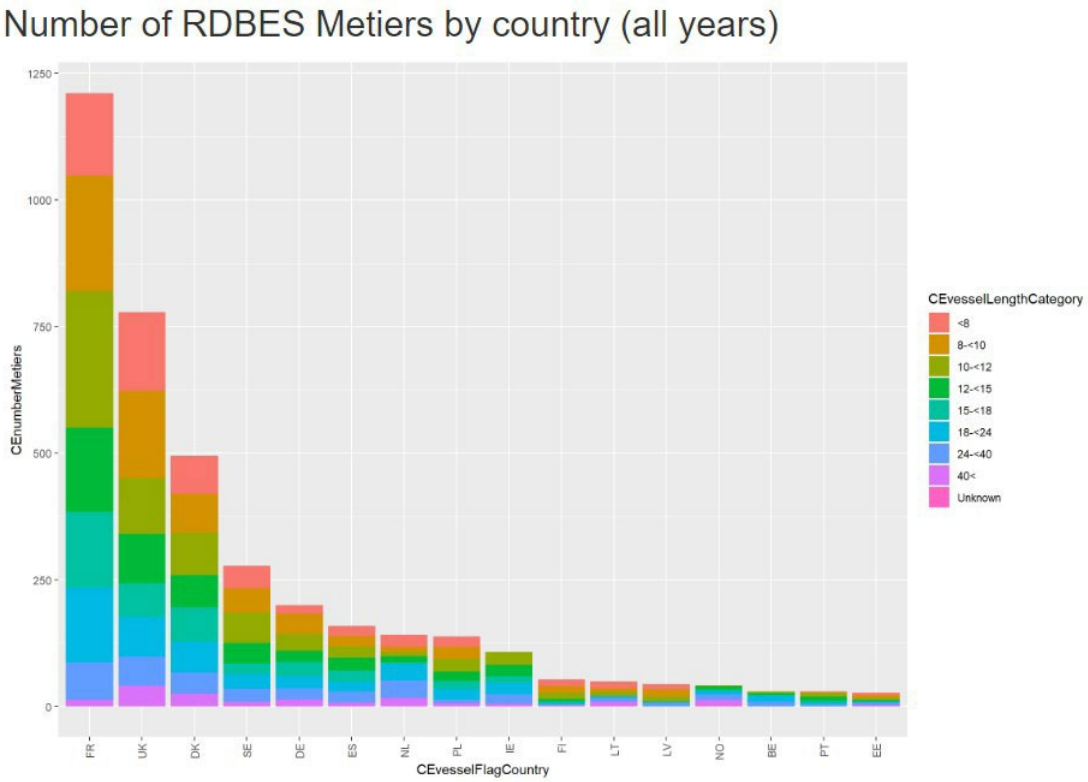

Figure 3.2: Number of métiers by country and vessel length group.

CORRESPONDENCE WITH THE RCG GROUPING

The data submitted was allocated to the respective RCG region based on the FAO area to check if the métier codes submitted correspond with the Regional Coordination Groups in the métier list (as there was not a check for this during the data submission). There is no overview for the Large Pelagic Regional Coordination Group because the available data did not include detailed information on the species. The number of unique métiers and countries per Regional Coordination Group are presented in Table 3.1.

Table 3.1: Number of unique métier codes and number of countries submitting data by RCG and year

Regional Coordination Group	2018		2019		2020	
	Unique métier number	Number of countries	Unique métier number	Number of countries	Unique métier number	Number of countries
Baltic (BALTIC)	117	8	122	8	119	8
Long Distance Fisheries (LDF)	4	1	4	1	4	2
Mediterranean and Black Sea (MED&BS)					1	1
North Atlantic (Natl)	316	12	315	14	297	15
North Sea and Eastern Arctic (NSEA)	268	13	280	13	273	14

It is noticeable, that requested data was only for ICES areas. As such, for LDF and MED&BS data was submitted on a voluntary base. Due to insufficient obtainable data for LDF and MED&BS, no further analyses are made for the Regional Coordination Groups. The figures and tables below illustrate the top 5 metiers regarding the effort data (fishing days).

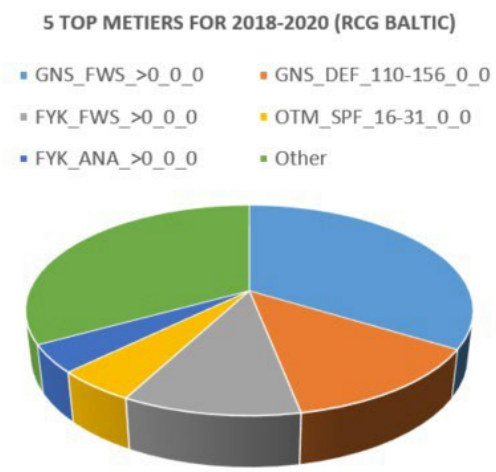

Figure 3.3: The top 5 métiers for the RCG Baltic from the RDBES submitted data in fishing days (total 2018-2020)

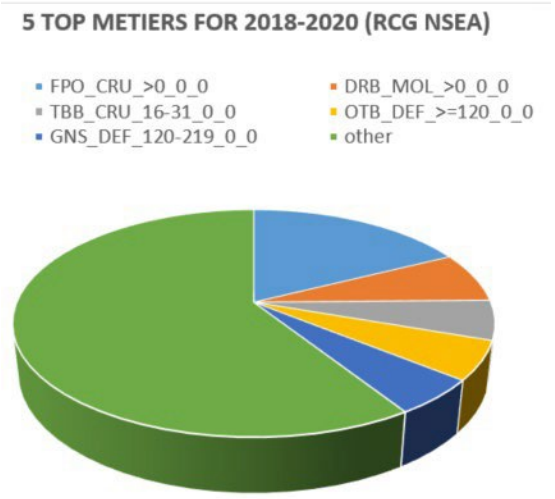

Figure 3.4: The top 5 métiers for the RCG North Sea from the RDBES submitted data in fishing days (total 2018-2020)

Table 3.2: The top 5 métiers for the RCG Baltic from the RDBES submitted data in fishing days (total 2018-2020)

Métier (RCG Baltic)	2018-2020	
	Fishing days	% of total fishing days
GNS_FWS_>0_0_0	317700	34
GNS_DEF_110-156_0_0	123971	13
FYK_FWS_>0_0_0	102077	11
OTM_SPF_16-31_0_0	46399	5
FYK_ANA_>0_0_0	39996	4
Other	311140	33

Table 3.3: The top 5 métiers for the RCG North Sea from the RDBES submitted data in fishing days (total 2018-2020)

Métier (RCG NANSEA)	2018-2020	
	Fishing days	% of total fishing days
FPO_CRU_>0_0_0	241180	18
DRB_MOL_>0_0_0	97394	7
TBB_CRU_16-31_0_0	77059	6
OTB_DEF_>=120_0_0	75332	5
GNS_DEF_120-219_0_0	70208	5
Other	809160	59

Figure 3.5: The top 5 métiers for the RCG North Atlantic from the RDBES submitted data in fishing days (total 2018-2020)

Table 3.4: The top 5 métiers for the RCG North Atlantic from the RDBES submitted data in fishing days (total 2018-2020)

Métier (RCG Baltic)	2018-2020	
	Fishing days	% of total fishing days
DRB_MOL_>0_0_0	635695	21
FPO_CRU_>0_0_0	307210	10
FPO_MOL_>0_0_0	233916	8
LLS_DEF_0_0_0	233511	8
OTB_DEF_70-99_0_0	123118	4
other	1536848	50

In the Baltic region (Figure 3.3 and Table 3.2), the most intensive fishery with regards to effort, is observed for passive gears or pelagic trawlers (top 5 métiers). However, in that fishery most part of the vessels have a length below 15 m. In North Sea and North Atlantic regions, the top 5 métiers are composed by very different gear types (dredgers, pots, longlines and demersal trawls).

Métiers with two and less fishing days account for 7.5 %, 9.6% and 12.3 % of total unique number of métiers for Baltic, North Atlantic and North Sea respectively. It might be questioned if such rare métiers will be used for any analyses. Such cases are observed in Germany, Finland, Sweden and Denmark in the Baltic region and in Germany, Sweden, Denmark, France, Lithuania, Great Britain, the Netherlands and Ireland in the North Atlantic and North Sea regions.

Table 3.5: List of rare métiers with the number of fishing days reported for each region

BALTIC		NAtl		NSEA	
Métier	Fishing days	Métier	Fishing days	Métier	Fishing days
GNS_LPF_>=220_0_0	1	SDN_DEF_16-31_0_0	0.01	TBB_CEP_>0_0_0	0.04
GTR_DEF_90-109_0_0	1	OTT_CRU_65-69_0_0	0.02	TBB_CEP_90-99_0_0	0.22
OTB_DEF_>0_0_0	1	OTB_DWS_16-31_0_0	0.06	GTR_CEP_10-30_0_0	0.25
PS_SPF_>=14_0_0	1	GNS_LPF_70-79_0_0	0.33	OTM_CEP_100-119_0_0	0.48
PTB_DEF_<16_0_0	1	OTM_SPF_>=120_0_0	0.38	GNS_CRU_10-30_0_0	0.5
PTB_SPF_>0_0_0	1	OTB_CRU_65-69_0_0	0.5	MIS_CAT_0_0_0	0.5
SPF_<16_0_0	1	OTB_DEF_32-69_0_0	0.5	GND_DEF_>=220_0_0	1
SSC_DEF_>=120_0_0	1	SB_DEF_>0_0_0	0.5	GND_SPF_>=220_0_0	1
GTR_SPF_>0_0_0	2	TBB_DEF_40-54_0_0	0.5	GNS_SPF_31-39_0_0	1
OTM_SPF_40-54_0_0	2	FYK_DEF_>0_0_0	1	GTR_CRU_71-89_0_0	1
PTM_DEF_>=120_3_120	2	GND_ANA_>0_0_0	1	LHM_CEP_0_0_0	1
		GNS_LPF_90-99_0_0	1	LHP_LPF_0_0_0	1
		GTR_CRU_10-30_0_0	1	MIS_CEP_0_0_0	1
		GTR_CRU_31-39_0_0	1	MIS_LPF_0_0_0	1
		OTB_CEP_70-89_0_0	1	OTB_CRU_90-99_2_35	1
		OTT_CEP_16-31_0_0	1	OTB_DWS_70-89_0_0	1
		OTT_CEP_32-39_0_0	1	OTB_MOL_100-119_0_0	1
		OTT_CEP_55-64_0_0	1	OTM_SPF_32-39_0_0	1
		OTT_CRU_90-99_0_0	1	OTT_DEF_>0_0_0	1
		PS_LPF_>=120_0_0	1	OTT_DEF_100-119_1_120	1
		PTM_SPF_55-64_0_0	1	PS_SPF_>=120_0_0	1
		TBB_CRU_40-54_0_0	1	PTB_SPF_70-89_0_0	1
		TBB_DEF_<16_0_0	1	PTM_SPF_100-119_0_0	1
		TBB_MOL_100-119_0_0	1	SDN_DEF_90-99_0_0	1
		OTT_DEF_<16_0_0	1.02	OTB_SPF_>0_0_0	1.18
		GNS_DWS_120-219_0_0	2	OTM_SPF_>0_0_0	1.5
		MIS_CEP_0_0_0	2	PTB_DEF_32-69_0_0	1.5
		OTB_CRU_90-99_0_0	2	GTR_DEF_10-30_0_0	1.79
		OTT_CEP_>0_0_0	2	OTM_CEP_>0_0_0	1.99
		PTB_CRU_40-54_0_0	2	GND_DEF_70-79_0_0	2
		PTM_SPF_<16_0_0	2	GNS_CRU_80-89_0_0	2

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and Fisheries Fund

BALTIC		NAtl		NSEA	
Métier	Fishing days	Métier	Fishing days	Métier	Fishing days
		TBB_CEP_70-89_0_0	2	OTB_MOL_16-31_0_0	2
		TBB_CRU_>=120_0_0	2	OTM_CEP_<16_0_0	2
		TBB_DEF_55-64_0_0	2	OTM_DEF_40-54_0_0	2
				OTT_MCD_90-99_0_0	2
				PTB_CRU_70-89_0_0	2
				PTB_DEF_16-31_0_0	2
				PTB_SPF_100-119_0_0	2
				PTB_SPF_32-69_0_0	2
				PTM_DEF_>=120_0_0	2
				SDN_SPF_70-99_0_0	2

MEETING WITH ICES DATA CENTER (OCTOBER 2021)

A meeting was arranged with the ICES Data Center to discuss the management of métier codes in October 7th 2021 with the following conclusions:

- ICES can set up a system for managing the métier codes and relations between codes. Codes are managed through an ICES GitHub under DIG.
- Relations between different levels of métier codes and RCG regions can be set up in the system. The codes can be referred to in the ICES vocabularies, which also have a web service API that can be called e.g. from R-scripts.
- The RCG ISSG métier group will still have the expertise knowledge to approve new codes. A list of contact persons from the ISSG have been established to ease the approval process.
- Transition from old to new codes in data calls was discussed, i.e. if time series should be resubmitted or links between old and new codes should be established. This needs to be discussed and agreed by the groups that manage the different data calls (e.g. governance groups). Regarding the link between old and new métier codes: In some cases, there are no changes in the codes, in other cases the mesh size range have been split up. If it is decided to work with mapping between new and old codes in a data call, countries should be involved, as there can be some country specific issues, e.g. in the Baltic.
- The ICES secretariat will set up a GitHub project board for approving codes which can help in the management of codes between the ISSG and the ICES secretariat. Once the decision is made by ISSG, the responsible ISSG contact person will right after contact the requester and inform what decision the ISSG has made. If adding new codes is necessary, the procedure is to write to accessions@ices.dk which will reach the ICES Data Centre.
- The ISSG contact persons are Josefine Egekvist (jsv@aqua.dtu.dk), Sébastien Demanèche (sdemanec@ifremer.fr) and Karolina Molla Gazi (karolina.mollagazi@wur.nl). The general rules used for harmonization and standardization of the métier codes are listed below. When a new code is requested by a MS, it needs to be checked if it follows the set of rules established by the group, and confirmed with the other contact persons, with a short deadline for reply. If it follows the rules, the

new code can be accepted, otherwise the reasoning for such proposal should be discussed within the ISSG group, to agree on a final decision.

Principles for defining métier codes:

- Métier level 5 codes defined by RCG region
- Gear-mesh size combinations follow EU-MAP
- No overlapping mesh size ranges
- Standardized mesh size ranges for active and passive gears
- _0_0_0 for no mesh size (e.g. longlines), _>0_0_0 for unknown mesh size
- Possibility of including relevant selection devices
- Unknown gear MIS_MIS_0_0_0, agreed to allow for e.g. MIS_DEF_0_0_0, MIS_CRU_0_0_0 etc. in case the catch composition is known from e.g. sales notes, but the gear is unknown

STECF Fisheries Dependent Information (FDI) meetings 2021

The FDI meeting in May/June made a questionnaire filled in by country to report on data sources used for large-scale fisheries and small scale fisheries and metrics (weight or value) used for assigning target species assemblage code. The conclusion was that for large-scale fisheries, métier codes are mostly assigned using logbook information, but some countries combine with other data sources, e.g. sales notes, sampling data or scientific survey data. For assigning métiers to the small-scale fishery (vessels <10 m or <8 m in the Baltic where the EU Control Regulation does not require logbooks), there is a variation in the data sources used and, in some cases, strong assumptions are applied due to the lack of relevant data (e.g. small scale fishing fleets where only sales notes are available). The most common data sources available are small scale fleet-specific declarations (e.g. monthly fishing forms, coastal logbooks) collected in a census approach and others have only access to the sales notes or sampling data. Some member states combine different datasets to improve the métier estimation and/or confirm the assumptions applied. The most common metric in assigning the target species assemblage group is weight. Value of landings is used by some countries, and in a few cases, it is recorded directly in logbooks.

The use of the new métier codes for the FDI data call in 2022 was discussed in both FDI meetings. The time of the meeting was before the deadline of the ICES RDBES test data call for 2018-2020 data for all fisheries, so the use of the new métier codes had not been evaluated yet. Therefore, it was agreed that for the FDI data call in 2022, it should be made possible to upload new métier codes as proposed by the RCG ISSG on Métier issues, but also still be possible to upload the old métier codes.

ICES VMS/Logbook data call

For the ICES VMS/Logbook data call, the same approach regarding the use of métier codes as for the FDI was taken: it should be made possible to upload both the new and old métier codes. The GitHub containing the scripts, reference lists and reports has been linked to in the ICES VMS/Logbook workflow description for data preparation and submission.

ICES WGBYC data call

The work of the ISSG on Métier issues was presented to the ICES WGBYC data call subgroup. The métier level 6 is currently not mandatory in the WGBYC data call, only métier level 3, 4 and 5. Work is ongoing for

the RBDES to take over from the WGBYC data call (where the new métier codes are requested) within a few years.

Note: there can be issues assigning the métier level 6 code for non-EU countries.

Task 2: Métier descriptions

For this term, there is a task to make métier descriptions, but as the 2021 data call was a test data call, it is not possible to make meaningful métier descriptions from that.

In 2019, a markdown script was developed to make a word report for each métier. Considering the number of métiers, following this approach could result in 1000 documents. The group found it relevant to create public métier reports, as they could be useful for new data submitters. They could be structured as one report by RCG and by métier level 4, making outputs similar to the examples created by the ISSG in 2019 (see **Annex 3.1**). It is suggested to follow a hierarchical structure, starting from level 4 (by gear group), moving down to level 5 (including target species assemblage groups) and ending in the level 6 including the mesh size ranges and selection devices. The report needs to be in a format that can be publicly available.

This could be done in collaboration with the ISSG on RDB Catch, Effort and Sampling Overviews, or as separate work from this ISSG.

Task 3: Test and improve script

A markdown comparing the new and old métier codes has been made for Danish data, where small-scale fisheries only have sales notes, and therefore initially ending up in MIS_MIS, which is then classified into métiers by the script, by finding dominant métiers in a hierarchy of grouping.

Following tests were made in R-markdown:

- For some species that are fished by specific métiers, do they end up in expected métier codes (including mesh sizes)?
- Tables for each gear group with following columns: new métier code, old métier code, target assemblage group, gear, fleet register gear and ton.
- Bar charts by new métier code, showing the old métier codes and the field indicating at which level the métier was assigned.
- An overview of the métier codes assigned by year for the whole time series to check for consistency.

To improve the results, an additional grouping can be added to the levels where the missing métiers are assigned: the dominant species of the sequence (e.g. haul or trip). Using this grouping improves the assignment to mesh size ranges.

The script developed by this group was also tested by Portugal, for assigning métiers to SSF. The comparison of the results obtained with this script and the ones using national script, indicate that this last one is more efficient in the classification of the national métiers. So, they decided to continue with the national approach.

Task 3: Collaboration with ISSG on SSF

MÉTIER ASSIGNMENT FOR THE SMALL-SCALE FISHERY TO AVOID MIS_MIS_0_0_0

It was discussed that the MIS_MIS did not show up as a major problem in the SSF in the RDBES data extraction. However, it's possible that all data might not have been submitted in the CE data. The ISSG SSF will also meet and discuss this. The métier script has steps to handle cases where the logbooks are missing, but e.g. the sales notes are available to find the dominant métier within a hierarchy of groupings.

Data submitted for the RDBES test data call with missing métier.

When the métier is unknown, it is possible to report a missing métier (MIS), which can be either MIS_MIS_0_0_0 meaning that the gear, target species assemblage, mesh size range and selection device is unknown. If the gear is unknown but the target assemblage group is known (e.g. from sales notes), it is also possible to report as e.g. MIS_DEF_0_0_0 or MIS_CRU_0_0_0 etc.

It has to be emphasized that the 2021 RDBES data call was launched as a TEST data call, and therefore the data that countries have submitted are of varying quality: some MS have submitted as if it was a real data call, others have experimented and tested different codes, etc.

Period	CEmetie	NB_Count	sumCEofficialFishingDa	NBtot_Count	TotsumCEofficialFishingDa	Per_Count	Per_sumCEofficialFishingDa
2018-2020	MIS	16	74 582	23	5 380 951	70	1.4

7 flag countries did not provide any MIS métier: Belgium, Estonia, Germany, Jersey, Latvia, Lithuania and Poland. The 16 other flag countries have at least one row provided with a MIS métier.

In general, for the period 2018-2020, 1.4% of the total fishing days provided is a MIS métier.

CEye	CEmetie	NB_Count	sumCEofficialFishingDa	NBtot_Count	TotsumCEofficialFishingDa	Per_Count	Per_sumCEofficialFishingDa
2018	MIS	14	25 116.0	22	1 863 524	64	1.3
2019	MIS	14	25 567.3	22	1 858 358	64	1.4
2020	MIS	15	23 898.5	23	1 659 069	65	1.4

The percentage of the total fishing days provided with a MIS métier is stable from 2018 to 2020 (1.3% to 1.4%). It represents in total around 25 000 fishing days each year. The number of countries providing MIS métiers is also stable from 2018 to 2020 from 14 to 15 taking into account that Norway only provided data for the year 2020.

Period	CEves	CEvesse	CEr	NB_Country	sumCEofficialFishingDays	NBtot_Country	TotsumCEofficialFishingDays	Per_Country	Per_sumCEofficialFishingDays
2018-2020	VL0008	<8	MIS	12	24 304	19	1 783 030	63	1.4
2018-2020	VL0810	8-<10	MIS	11	20 307	18	869 393	61	2.3
2018-2020	VL1012	10-<12	MIS	9	10 774	20	670 940	45	1.6
2018-2020	VL1215	12-<15	MIS	11	4 659	19	410 373	58	1.1
2018-2020	VL1518	15-<18	MIS	9	3 595	21	382 377	43	0.9
2018-2020	VL1824	18-<24	MIS	10	5 366	20	544 831	50	1.0
2018-2020	VL2440	24-<40	MIS	9	4 637	19	568 571	47	0.8
2018-2020	VL40XX	40<	MIS	8	97	15	150 591	53	0.1
2018-2020	VLXXXX	Unknown	MIS	1	843	1	844	100	99.9

The rows provided without any vessel length information (Unknown) have been almost entirely provided with the MIS métier.

Smaller vessels *(less than 12 meters)* have more data provided with a MIS métier (from 1.4% to 2.3%) than larger vessels *(more than 12 meters)* (from 0.1% to 1.1%) but the difference is minor. The vessel length with the smallest percentage of Fishing days provided with a "MIS métier" is the larger than 40 meters' vessels (0.1%). Additional analysis show that the percentages remain stable over the period.

Much more differences are observed between countries for the 16 flag states with at least one row provided with a MIS métier.

Six countries have provided MIS métiers for less than 0.1% of their total Fishing days. Five countries have provided MIS métiers for more than 0.1% but less than 1% of their total Fishing days. Three countries have provided MIS métiers for more than 1% but less than 5% of their total Fishing days. Two countries provided MIS métiers for more than 5% of their total Fishing days. These percentages are relatively stable from 2018 to 2020.

At this stage, these percentages should be put into perspective considering the fact that some countries provided few or no data for their small scale fisheries *(less than 12 meters length)*, and these are the ones for which it is known that the assignment of the métier is more difficult to perform.

Generally, the group of vessels with less than 12m vessels is the one with the higher number of rows with a MIS métier allocated.

Finally, the possibility given to countries to provide the targeted group of species with a MIS métier has not been widely used. The table below shows the percentage MIS métier with different target species assemblage group assigned.

Period	CEmetie	CEmetier	NB_Ye	NB_Count	sumCEofficialFishingDay	NBtot_Ye	NBtot_Count	TotsumCEofficialFishingDay	Per_Yea	Per_Count	Per_sumCEofficialFishingDay
2018-2020	MIS	MIS_MIS	3	15	50 568	3	16	74 582	100	94	68
2018-2020	MIS	MIS_MOL	3	4	15 191	3	16	74 582	100	25	20
2018-2020	MIS	MIS_SWD	3	1	5 013	3	16	74 582	100	6	7
2018-2020	MIS	MIS_DEF	3	5	1 699	3	16	74 582	100	31	2
2018-2020	MIS	MIS_SPF	3	6	907	3	16	74 582	100	38	1
2018-2020	MIS	MIS_DES	3	2	659	3	16	74 582	100	13	1
2018-2020	MIS	MIS_CRU	3	5	326	3	16	74 582	100	31	0
2018-2020	MIS	MIS_CAT	3	2	178	3	16	74 582	100	13	0
2018-2020	MIS	MIS_ANA	2	2	38	3	16	74 582	67	13	0
2018-2020	MIS	MIS_CEP	3	1	3	3	16	74 582	100	6	0
2018-2020	MIS	MIS_LPF	2	1	1	3	16	74 582	67	6	0

Almost all the countries providing a "MIS métier" use the code "MIS_MIS" *(15/16 countries)*. **MIS_MIS** métier represents **68% of the total Fishing Days provided** with a MIS métier. **MIS_MOL** is used by 4 countries and represent **20%** of the total Fishing Days provided. **MIS_SWD** by one country for **7%** of the total Fishing Days provided. The other combination represents less than 3% of the total Fishing days provided. MIS_SPF is the combination used by more countries (6 countries) after MIS_MIS.

Data submitted for FDI data call 2020 (requesting old métiers)

The table below shows the data submitted for the FDI data call 2020, requesting old métiers, by vessel length group and RCG. It is a sum of 2015-2019 data and is based on the data publicly available from STECF. Overall, the percent of fishing days with métiers assigned to MIS (both MIS_MIS_0_0_0, missing métiers with targetassemblage and métiers assigned as NA) is 0.9% in the Baltic Sea, 13.8% in the North Sea and Eastern Arctic, 17.4% in the North Atlantic, 22.3% in the Mediterranean and Black Sea and 41.6% in the Long distance fisheries. In total, 18.2% of fishing days were classified as MIS métier.

RCG/Vessel length	FD Métier assigned	FD MIS	% MIS
BALT	**15007**	**136**	**0.9**
VL0010	6799	126	1.8
VL1012	3256	7	0.2
VL1218	2263	2	0.1
VL1824	1360		0.0
VL2440	1127	1	0.1
VL40XX	202		0.0
LDF	**6619**	**4711**	**41.6**
VL0006	1	3	75.0
VL0010	2530	1544	37.9
VL0612	22	38	63.3
VL1012	727	645	47.0
VL1218	729	665	47.7
VL1824	275	477	63.4
VL2440	1310	807	38.1
VL40XX	1025	532	34.2
MED&BS	**24006**	**6896**	**22.3**
VL0010	20	9	31.0
VL0612	8753	2374	21.3
VL1012	10	10	50.0
VL1218	6254	1811	22.5
VL1824	3125	995	24.2
VL2440	2264	867	27.7
VL40XX	67	10	13.0
Natl	**69765**	**14668**	**17.4**
VL0010	18458	4903	21.0
VL0612	5	38	88.4
VL1012	13474	2435	15.3
VL1218	14300	2661	15.7
VL1824	11527	2286	16.5
VL2440	10782	2117	16.4
VL40XX	1219	228	15.8
NSEA	**30368**	**4846**	**13.8**
VL0010	9556	2431	20.3
VL1012	5286	779	12.8
VL1218	5366	493	8.4
VL1824	3994	279	6.5
VL2440	3510	451	11.4
VL40XX	2656	413	13.5

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EFFORT CALCULATION IN SSF

For the task on effort calculation for the small-scale fisheries (harmonize between data calls, if possible), a review was made of previous reports that have made tables of data availability and methods (document attached). In general, the conclusion is that methods for reporting vessel fishing days have been discussed and are used for answering data calls for the small-scale part of the fleet (vessels <10 m or <8 m in the Baltic where the EU Control Regulation does not require logbooks): 1 trip = 1 day at sea = 1 fishing day. If the vessel has logbooks, the effort is based on the information reported in the logbooks. The main issue is that relevant effort measures for passive gears, that are often found in the SSF are not available (soaking time, net length, number of hooks etc.) according to what is mandatory in the EU Control Regulation, but should be available according to the EU-MAP. In the new RDBES format there is a possibility to report scientific effort. This effort is not directly obtained from official sources, but is instead estimated using a procedure and possibly other data sources available.

The issue has been evaluated and discussed at various meetings, and relevant conclusions are extracted below. In many of the below mentioned reports, there are tables giving overviews of data availability for the SSF and how fishing effort have been assessed for answering data calls.

2017 PGECON subgroup DCF workshop on small scale fisheries

Workshop reports - European Commission (europa.eu)

Section 3.3 Data needs in relation to peculiarities of small-scale vessels (ToR 3) and Suggested data collection procedures for SSF (ToR 5)

Table 3.3-1 is a summary table of gathered effort variables by country and type of data collection for SSF. It shows that most countries use the assumption that **1 trip = 1 day at sea = 1 fishing day**.

Based on presentation given during workshop 12 of the 15 countries use census type data collection schemes for SSF (sometimes combined with a sampling approach). Mostly completing logbooks, journal or monthly reports under a legal basis based on established national legislation with control purposes. In these cases, effort and landing data are assumed to be accurate and consistent and are assumed to cover the whole of the reference population. Nevertheless, these assumptions need to be validated notably by implementing a complete data quality assurance and quality control procedure (including, among other things, input error detection, reliability of self-reporting data, completeness/coverage of the information collected and other bias issues). The group highlighted that the different data formats of adapted declarative forms (e.g. coastal logbooks, journals, monthly reports, etc. as EU logbooks are not suitable with the specific features of this fleet) existing across Member States and stored in different ways, create challenges to the standardization of calculation of fishing activity variables between MS especially for fishing effort and encouraged MS, for sake of consistency and comparability, to share procedures and principles in used in order to pursue this objective.

The report has a section 3.3.4.2.1 on specifities and difficulties raised using a SSF data collection system based mainly on sales notes. There can be some uncertainty if all landings are reported and information on gear, mesh size, gear dimension and more precise location of the fisheries are missing.

WGCATCH 2017 Annex 14 ToR b.1) Compilation of information on effort calculation

Report of the Working Group on Commercial Catches (WGCATCH) (ices.dk)

For passive gears (gillnets and entangling nets, pots and traps, handlines, longlines, etc.), the WGCATCH subgroup agrees with the main conclusion of the 2nd workshop on Transversal Variables which highlighted

that Fishing Days are not a meaningful effort measure for passive gears. This particularly true for the cases of those gears in the water and fishing after the vessels come back to the harbour. In that case, the fishing effort estimates and CPUE have to be linked with the 'gear soaking time'. However, this is not a mandatory variable in the logbooks and this information might be not asked or available in some ongoing SSF data collection systems. WGCATCH recommends that the need to collect this additional variable is regionally agreed in the Regional Coordination Groups (RCG) system of the new DCMAP but considers the difficulties involved in collecting this type of data and that data collection should be adapted to the specific features of SSF and ongoing data collection systems. Nevertheless, it is advised that "vessel' fishing days" keep being requested as an effort measure, despite their limitations, to ensure comparisons are possible with the other gears (active gears). The WGCATCH subgroup suggests that "vessel' fishing days" are calculated for all trips (as a basic effort measures linked with the "vessel' fishing effort" deployed) even if it is not necessarily fully linked with the gear' fishing effort, in particular for passive gears.

With regards to gear dimension (total length of nets, total number of pots/traps and total number of hooks), WGCATCH 2017 emphasized the WGCATCH 2016 statement that these variables are of high importance, especially concerning passive gears, and encourages countries to collect and improve the quality of such data even in cases where they are optional for less than 10m vessels.

The WGCATCH subgroup agrees with the commonly assumption that less than 10 meters vessels have generally a daily activity and that, for them, it could be assumed that 1 Trip is equivalent to 1 Day at Sea also equivalent to 1 Fishing Day as far as no other data contradicts this hypothesis. Nevertheless, the WGCATCH highlights that this assumption needs to be assessed both regionally and by fishery because significant differences can occur.

WGCATCH 2018 5.2.1 & Annex 14 ToR b.1) Compilation of information on effort calculation

WGCATCH 2018 *§ 5.2.1 & Annex 13* ToR b.1) Compile information on how different labs calculate effort for small scale fleets and passive gears

WGCATCH continue to discuss this issue during the 2018 meeting and a summary of the methodologies used by ICES countries to calculate SSF and passive gears fishing effort could be found in the 2018 WGCATCH report.

Based on that, WGCATCH underline some difficulties remaining to apply the standard methodology *("Nicosia methodology")* to calculate fishing effort for SSF *(detailed in the report)* and conclude that even though methodologies applied in ICES countries are in line as far as possible with standard some difficulties remain which mean that it has to be adapted in order to take into consideration SSF' special features and ongoing data collection systems *(data available and the way to collect them)*:

- **'Vessel fishing days'** have to be calculated on a **'day by day' basis** rather than on a 'trip by trip' basis
- **"24h period definition" for SSF' days at sea is not applied in most of the countries**. Following assumption *(and conversely)* is favoured: *'1 day at sea = 1 fishing day = 1 trip (= 1 sale note)'* as far as no other data contradict this hypothesis
- **Difficulties remain** to obtain **gear information** in particular the gear dimension (especially for multi gear trips and countries using sales note or landings declaration to follow SSF, for them sampling survey could be a way to estimate them)

Finally, it has been also underlined that for **passive gears fishing effort**, **gear-soaking time** and **gear-dimension** should be also **required** to accurately estimate the fishing effort.

Overall, it can also be concluded that MS tried, for SSF fishing effort estimates calculation, to keep in line as far as possible with the "Nicosia" methodology established for vessels carrying logbooks considering also: 1) the specific features of SSF and 2) the data available and the way to collect them.

STECF 21-12 – FDI report 2021

STECF 21-12 - FDI - Fisheries Dependent Information.pdf - Fisheries Dependent Information - European Commission (europa.eu)

Section 5.1.5 on Coverage and methods used to estimate landings and effort data for vessels <10m

In table 3.1.5.1 the sources of data and methodologies applied by Member states in order to estimate SSF' (less than 10m, no logbooks vessels) fishing activity data (landings by species and fishing effort data by vessel, quarter, gear/métier and area) are presented. It also lists the different assumptions and methodologies applied to answer FDI data call and first comments on data quality/coverage.

According to the table, the census approach (exhaustive collection of fishing activity data through declarative forms) is the most common approach used by countries to collect data on SSF (17 countries). Only four countries (France, Greece, Italy and Portugal; some of them for part of their SSF fleet) are using other approaches (sampling approach or combined) to provide SSF fishing activity data as declarative data in these countries are not available (because there is no obligation in the control regulation4) or coverage and precision of this data are insufficient and incomplete and are judged insufficient and unreliable to meet the end-user's data needs (e.g., DCF requirements).

Countries using declarative forms to assess SSF fishing activity data may adopt different approaches. In some countries the same approach (logbooks) for fishing activity data collection as for LSF is used. In other countries, specific declarative forms (monthly fishing forms, coastal logbooks, fishing reports …) adapted to the special features of the national SSF fleet but less precise (daily or monthly declaration) are applied. Finally, some countries have access only to SSF sales notes. The less detailed information on the SSF fishing trips are available, the more assumptions needed to be applied by Member States to estimate/calculate the fishing activity data. In some cases, when limited information exists to estimate the "métier/gear/mesh size" of the small-scale vessels, data are assigned to the "MIS_MIS" métier. **To estimate small scale fleets fishing effort a lot of countries applied the following assumption: "(1 sales note) = 1 fishing day = 1 days at sea"**.

ICES WKSSFGEO 2021

Publication Reports - Workshop on Geo-Spatial Data for Small-Scale... (ices.dk)

The workshop on high-resolution geo-spatial data for the small-scale fisheries looked into how the use of high-resolution spatial data (AIS/GPS etc.) can help informing the effort for the small-scale fisheries, e.g. detailed fishing location, vessel fishing effort, net length (if positions are classified correctly) and soaking time (if setting and hauling can be linked).

EU MAP (2021/1167)

It is specified in the EU-MAP (2021/1167) section 3.1 that all variables listed in table 6 should be reported for all fleet segments. Where there is no obligation under the control regulation (1224/2009) to the record these

data, or where these data do not meet the coverage, resolution and/or quality of the end users, alternative appropriate sampling methods shall be applied.

Effort	
Days at sea	Days
Hours fished (optional)	Hours
Fishing days ([2])	Days
kW * Days at sea ([3])	Number
GT * Days at sea ([4])	Number
kW * Fishing days ([5])	Number
GT * Fishing days ([6])	Number
Number of trips ([7])	Number
Number of fishing operations	Number
Length of nets (m) * soak time (days)	Metres-days
Number of nets/length ([8])	Number/metres
Number of hooks, number of lines ([9])	Number
Numbers of pots, traps ([10])	Number
Number of FADs/buoys	Number
Number of support vessels	Number

Conclusion and recommendations from the ISSG

There has been work done in several meetings to get an overview of the effort calculations for the SSF and the data sources available by different countries. This shows that for the SSF, the data collection is not as standardized as for the LSF, so different approaches are used, mainly monthly journals/coastal journals, sales notes, questionnaires and in some cases sampling. There is a general use and agreement of the assumption **1 trip = 1 day at sea = 1 fishing day** when reporting effort for SSF for data calls.

WGCATCH mentions the difference in vessel effort (days at sea, vessel fishing days or hours) and gear effort (gear soaking time, net length etc.) in relation to passive gears, and that both can be valuable for different purposes.

Another issue is that much of the SSF is using passive gears (e.g. gillnets, pots, traps, longlines) and the relevant effort measures are often not reported/available, e.g. soaking time, total net length, number of traps, number of hooks.

Under the EU-MAP (2021/1167) a number of effort variables are requested, also for small-scale fisheries and passive gears, which is currently not widely reported from the control regulation. This results in a serious gap between effort variables requested under the EU-MAP and what is currently available for the SSF and passive gears.

The WKSSFGEO showed a potential for high-resolution geo-spatial data to help informing the effort variables, if appropriate analysis methods are developed.

Task 5: Collaboration with RCG MED&BS on métier codes

The work of the ISSG was presented at the RCG MED&BS 8th September 2021. The RCG had following recommendations:

RCG MED & BS 2021 Recommendation 2	Updating of the list of regional métiers and collaboration with ISSG on Métier issues.
Justification	Following LM 2020 recommendations, RCG Med&BS agreed to collaborate with ISSG on Métier Issues to update the métier list for Med&BS to be used in DG MARE and RCG Med&BS data calls, and to harmonize codes, which will allow to avoid overlapping and to apply similar methods and criteria on assigning métiers for fishing activities by MS. Furthermore, procedures for the identification of métiers at MS level should be explored with the aim of harmonizing the approach.
Follow-up actions needed	Analyse the results of RCG Med&BS 2021 data call to check if the regional métier list needs to be updated. MS to provide detailed data on the landing, effort and landing value for miscellaneous métiers, if needed. RCG chairs to organize initial meeting with ISSG on Métier Issues. MS should ensure participation of national experts in the meeting and collaborate with the ISSG on Métier Issues.
Responsible persons for follow-up actions	RCG Chairs, MS
Time frame (Deadline)	End of 2021 and 2022
Comments	

GREEK CASE STUDY

An approach for métier allocation in Greek waters, with a case study on longline fisheries and based on data from on on-board samples was presented. It is a method using cluster analysis to find out which métiers are meaningful using DCF observer data.

The case study focus on classifying the fisher behavior within the Greek longline fishery into meaningful métiers. The study is still ongoing and, to date, has identified the main métiers practiced using longlines in three subareas (northern, central, southern) of the Ionian Sea. The data used was gathered from the Greek Data Collection Framework program, during 2013-2020. A three-step procedure was followed in each subarea: the first step involved setting the trip ID, haul number and hook size as key trip variables for distinguishing the fishing operations; the second step created landing profiles and applied Principal Component Analysis to reduce the complexity of the dataset; and the third step implemented a hierarchical cluster analysis to identify potential métiers. In all three subareas, two major métiers were identified, and although in the north and central Ionian most of the species targeted were *Sparidae*, in the south Ionian *Merluccius merluccius* and *Galeus melastomus*

accounted for the biggest part of the landings. Additionally, the catch composition, by-catches and discards showed differences between the métiers, and subareas, reflecting their distinct ecosystem characteristics. Overall, the outcomes suggest the need to analyze the impacts of gears/métiers at aggregation level 6 (hook size) at subregional/local scale, with the aim to shed further light on the fishing practices that may potentially affect the sustainability of the natural resources. The RCG métier subgroup will continue to collaborate with Greek colleges to progress this work.

3.4 Roadmap/follow-up

Suggestions for the next step in intersessional work (future tasks)

1. Continue following and evaluating the implementation of the métier codes and maintaining métier and reference lists and script.
2. Make métier descriptions from the 2022 RDBES data call (which is not a test data call for the CE and CL data).
3. Review the fecR package (calculating fishing effort) in relation to the RDBES data format. The package calculates fishing effort following the DG MARE Ad-Hoc Workshops on Transversal Variables in Zagreb (2015) and Nicosia (2016). This should include a review of scenarios discussed in the workshop report and also taking into account cases where no logbook data are available. It could be relevant to collaborate with ISSG SSF and RCG MED&BS on this. A questionnaire could be sent out to MS to evaluate if the fecR package is used for preparation of RDBES data.
4. Link with the alternative fleet segmentation suggested by RCG Econ to enhance the link between the two approaches, e.g. how the métiers could be used to construct better fleet segmentation. Analysis of the variation in métiers within the fleet segmentation.
5. Evaluate the use of cross-validation methods in MS to combine data coming from different declarative sources (sales notes, logbooks, coastal logbooks, geolocalization data etc.) with the goal to improve data, e.g. improving the value calculation and species composition taking sales notes into account or improve the spatial information (e.g. ICES rectangles) taking geolocalization data (e.g. VMS) into

   account. The first step could be to collect information from all countries on data availability and methods.

3.5 SG Participants

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ANNEX 3.1. Examples of Metier description reports

Métier description report

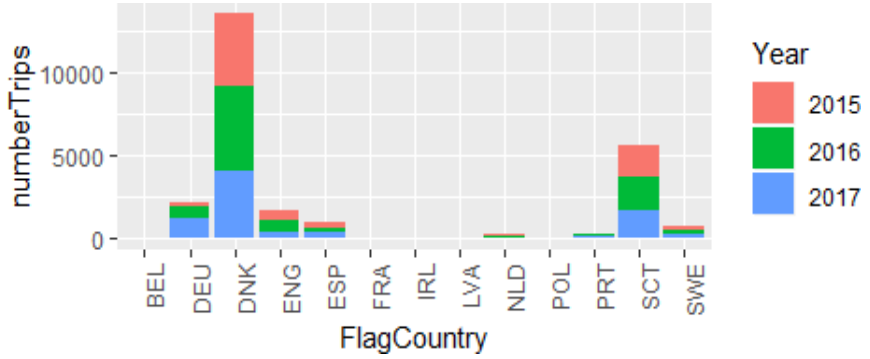
02 maj, 2019

Region: North Sea and Eastern Arctic

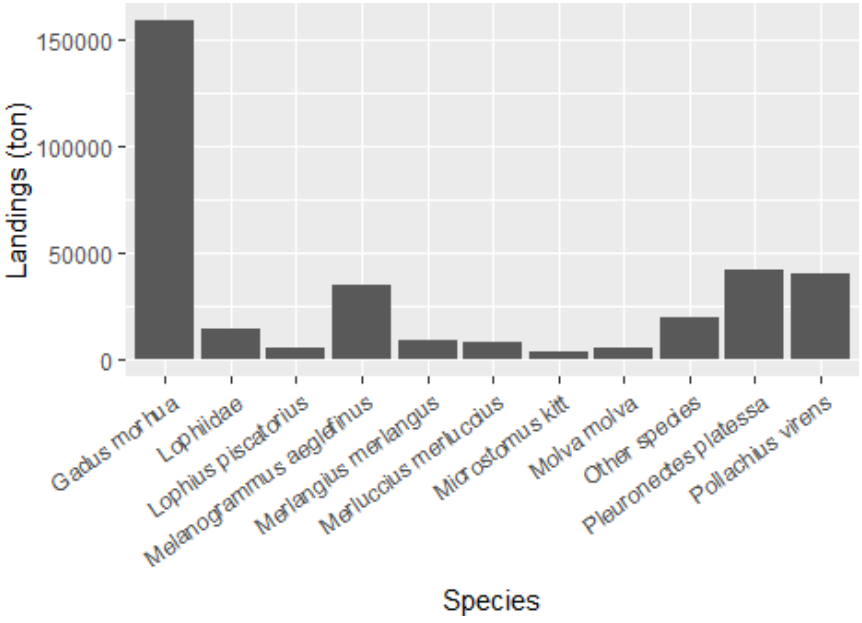
Métier: OTB_DEF_>=120_0_0 , years: 2015,2016,2017

Data source: RDB CE and CL data

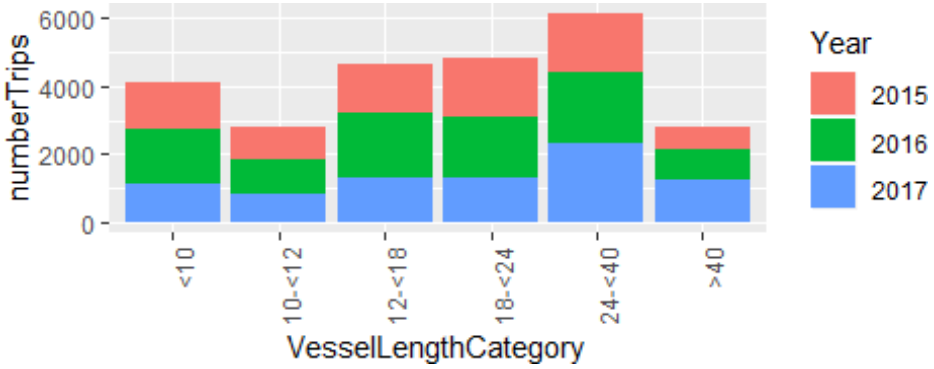
Number of trips by flag countries: BEL, NLD, DEU, ENG, POL, PRT, DNK, SCT, SWE, ESP, IRL, NIR, FRA, LVA, EST



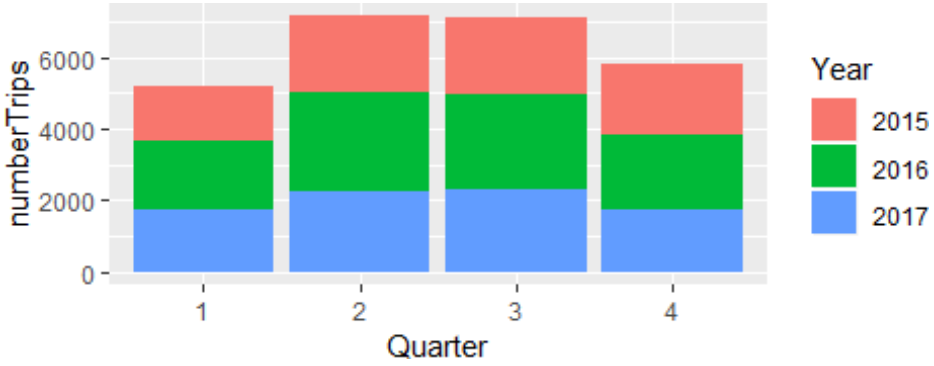
Top 10 species landed by métier. The rest are summarised in "Other species". Average yearly landings during the period 2015,2016,2017



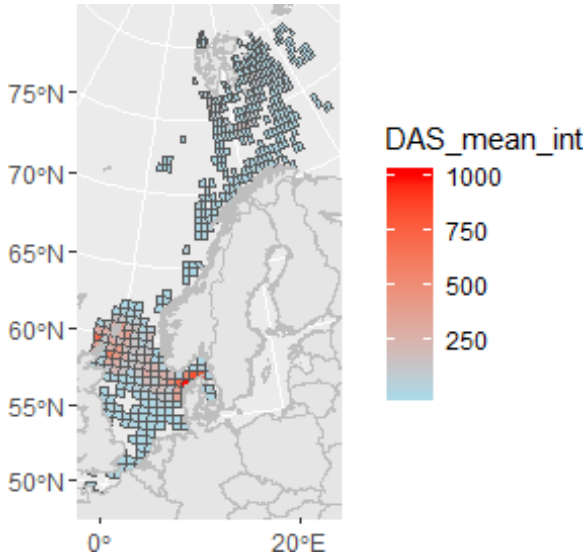
Number of trips by vessel length group:



Seasonal pattern of fishing activity: number of trips by quarter



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



Comments:

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Metier description report

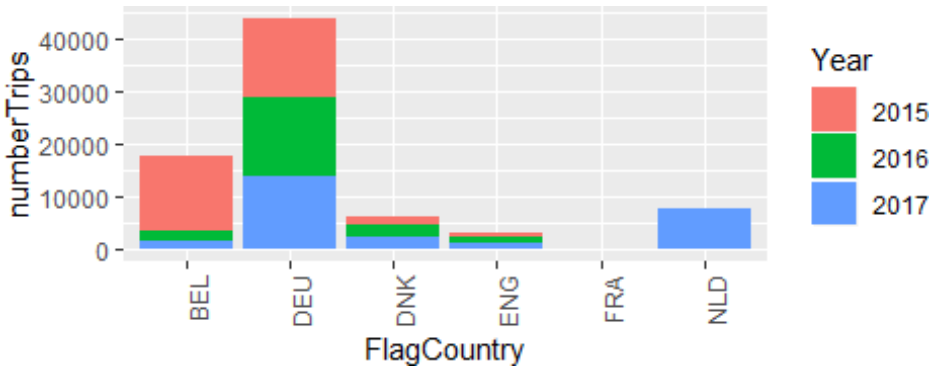
28 april, 2019

Region: North Sea and Eastern Arctic

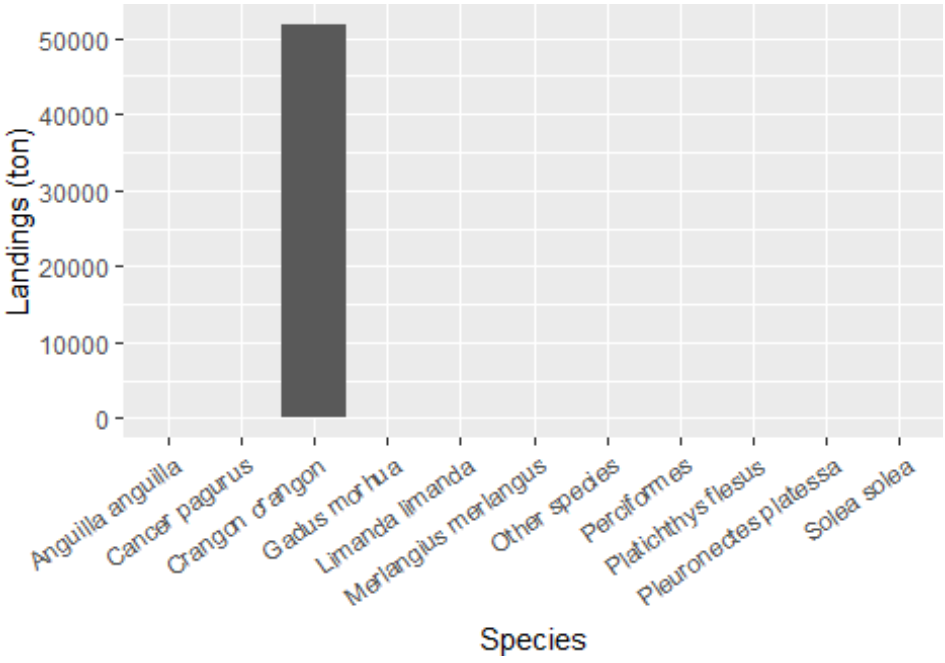
Metier: TBB_CRU_16-31_0_0 , years: 2015,2016,2017

Data source: RDB CE and CL data

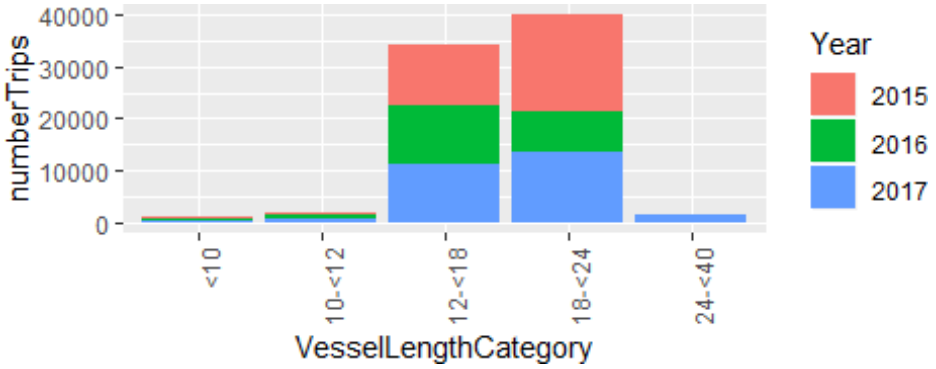
Number of trips by flag countries: BEL, DEU, DNK, ENG, FRA, NLD



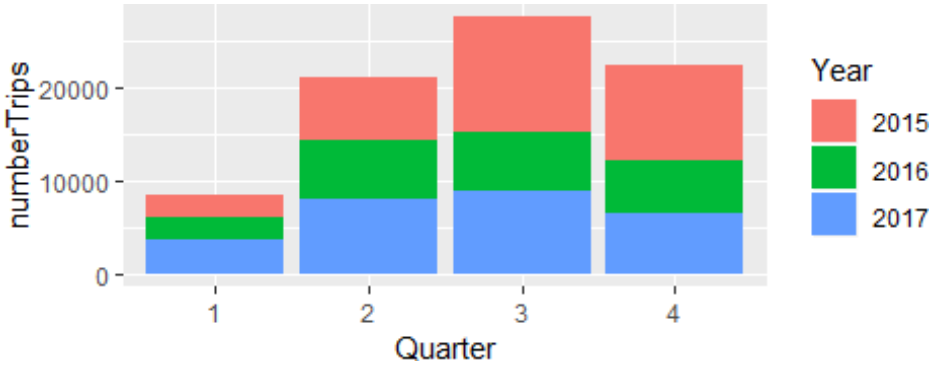
Top 10 species landed by metier. The rest are summarised in "Other species". Average yearly landings during the period 2015,2016,2017



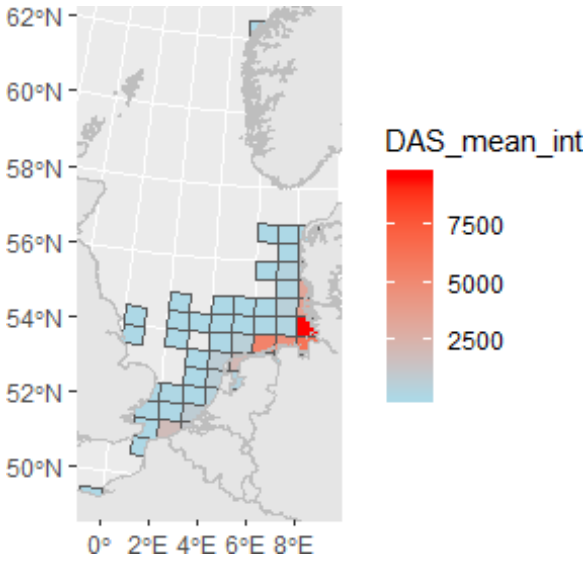
Number of vessels by vessel length group:



Seasonal pattern of fishing activity: Number of trips by quarter



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



Comments:

Metier description report

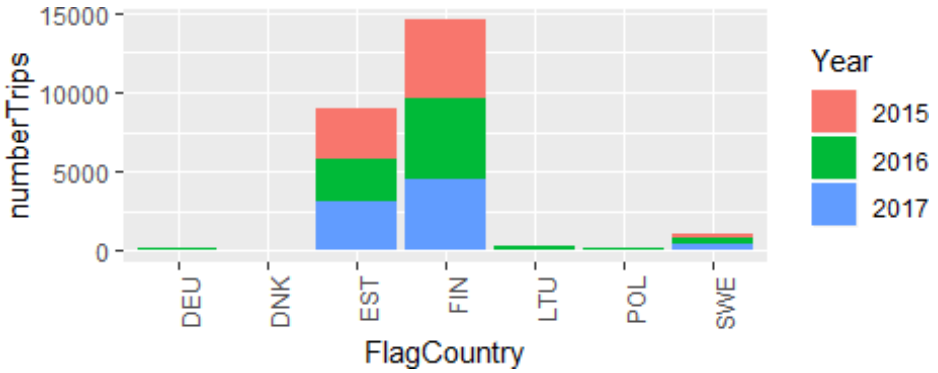
26 april, 2019

Region: Baltic Sea

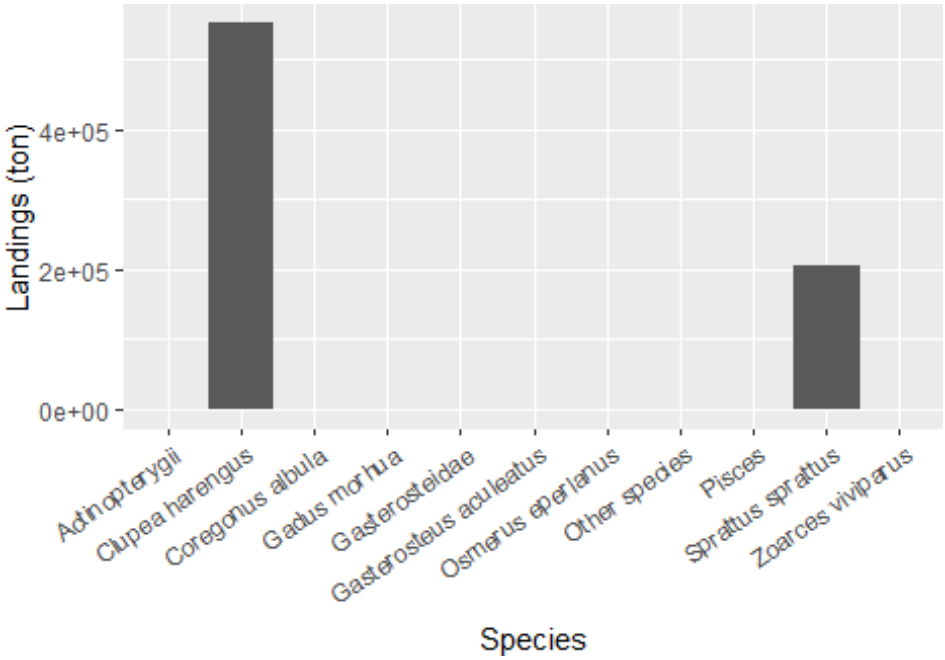
Metier: OTM_SPF_16-104_0_0 , years: 2015,2016,2017

Data source: RDB CE and CL data

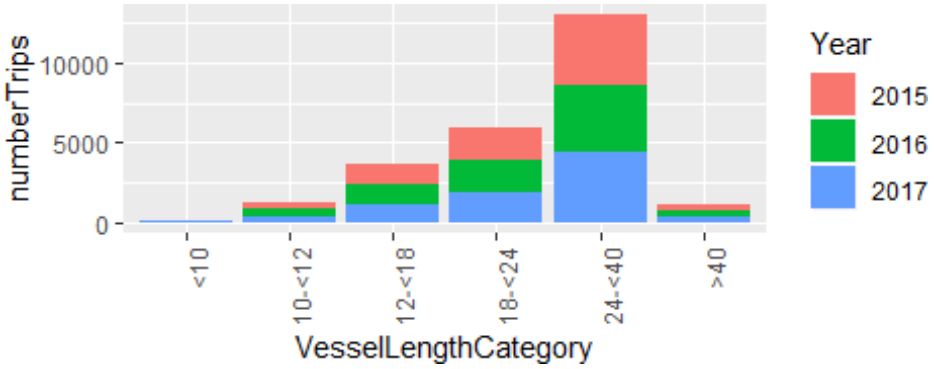
Number of trips by flag countries: DEU, DNK, EST, FIN, POL, SWE



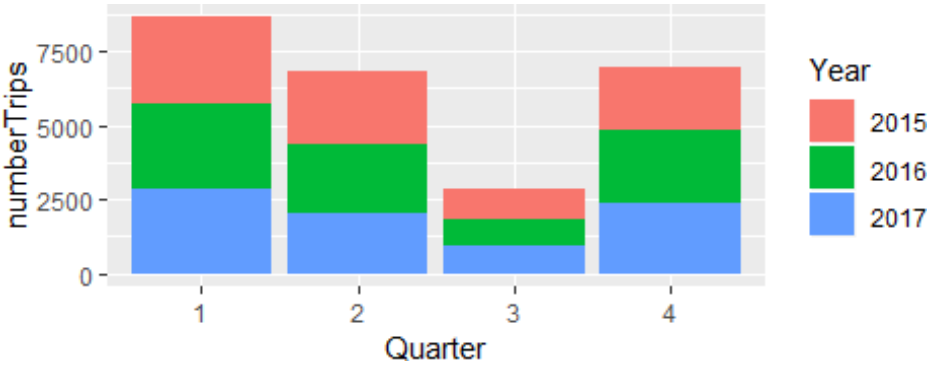
Top 10 species landed by metier. The rest are summarised in "Other species". Average yearly landings during the period 2015,2016,2017



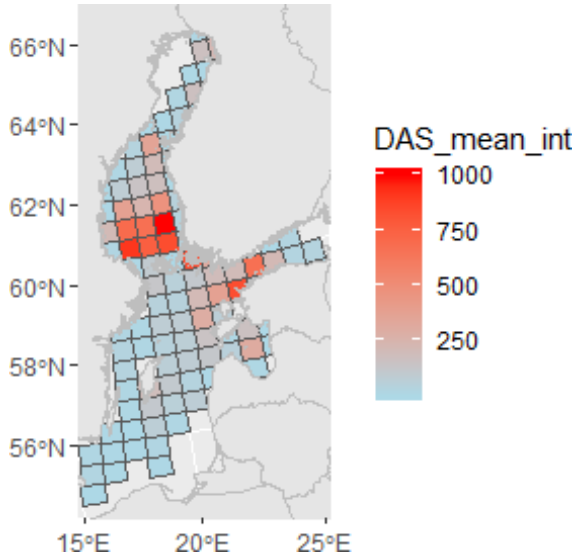
Number of vessels by vessel length group:



Seasonal pattern of fishing activity: Number of trips by quarter



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



Comments:

4 ISSG Electronic Monitoring Technologies

4.1 Background

The RCG NANSEA & Baltic 2020 established an ISSG on Electronic Monitoring Technologies. The RCG has recognised that many initiatives on developing new electronic technologies and methods that can be used and improve fisheries data collection. In order to ensure that initiatives made in the EU MS as well as initiatives from third countries are disseminated the ISSG on Electronic Monitoring Technologies was established.

Current chair of the ISSG on Electronic Monitoring Technologies is Jørgen Dalskov (DNK).

4.2 Work-plan

At the RCG NANSEA & Baltic 2020 the ISSG on Electronic Monitoring Technologies was given the following Terms of Reference:

1. Provide an overview of present REM systems (camera and/or sensor system) in use for monitoring for science or compliance purposes.

2. Provide an overview of the Analysers (software) in use for analyzing REM data and/or video footages.

3. Provide an overview of app's developed for recording monitoring or catch data

4. Provide an overview of app's developed to be used for species identification purposes.

4.3 Progress during 2021/2022

Due to Covid-19 only little progress has been made in 2021/2022. One virtual meeting has been held which took place on 16th May 2022.

The plan for the meeting was to discuss topics to be dealt with by the ISSG in the future such as:

a) Electronic monitoring (EM)
b) Machine learning development, e.g., for automatic species identification and catch weight estimations in real-time
c) Electronic measuring boards
d) eDNA for species identification
e) etc.

This ISSG as an opportunity to share knowledge on what the different MS have developed or are developing and have implemented e.g., Portugal that has a pilot project on automatic species identification of landing arriving in port. Such a project could benefit from/to other MS experiences in this domain. Machine Learning (ML) to classify/identify species from videos (and more) constitutes a high focus for different research groups. Federated learning may be a way to accelerate development and implementation by sharing between contributors the results of ML models without sharing the raw data, limiting problems related to data storage, confidentiality, etc.

In order to speed up knowledge sharing on the use of EM and the present use/development of ML it was suggested for the ISSG 2022/2023 to was suggested as a starting point to create an overview of the ET in the MS by creating an inventory with information at least such as:

- What are the different MS doing now?
- What are the projects/technologies susceptible to future implementation for monitoring?
- Available/corresponding literature (incl. grey literature).
- Description of the different status in all MS.
- Apps for species ID developed and in use.
- Use of eDNA as a stardard technique in fisheries monitoring.

Another topic that should be dealt with and be discussed in detail are ML to automatise species identification from video feeds as many initiatives at present research area are taking place. One of the challenges and need is ceation of a shared databank holding pirtures or videa footage of fish and shell fish between the different participating MS. For common species id might not be a problem as many "local" image/video data are available to train a model giving acceptable accuracy. But for rare species sharing data could considerably improve the reliability of these ML models.

It is suggested that the ISSG are defining the requirements such as:

- which type of picture?
- what type of metadata associated to the pictures?
- etc.

In general, the main focus for the ISSG for the coming year is:

- to collect information on new ways and tools developed to improve and ease collection of fisheries data.
- to collect information that may exist, but is only in technical reports or in unpublished documents in order to share information on what is going on and making information available which only can be benefit to the community.

Another issue to be discussed is the optimal approach concerning participation in the ISSG work. Would the group benefit of at least one participant from each MS? How to ensure all relevant information is disseminated to all MS and to all relevant colleagues.

Jørgen Dalskov, DNK is stepping down as chair of the ISSG. At the meeting Gildas Glemerec, DNK was suggested and elected as the incoming chair and preferably a co-chair could be elected in order for the two to work as co-chairs.

4.4 Roadmap/follow-up

Suggestion for a work plan of the ISSG for the coming years consists of following:

Initiate the development of an intinery of the use of the following data collection technologies:

a) Electronic monitoring (EM)
b) Machine learning development, e.g., for automatic species identification and catch weight estimations in real-time
c) Electronic measuring boards
d) eDNA for species identification
e) etc.

Initiate creation of an overview of the ET in the MS by creating an inventory with information at least such as:

- What are the different MS doing now?
- What are the projects/technologies susceptible to future implementation for monitoring?
- Available/corresponding literature (incl. grey literature).
- Description of the different status in all MS.
- Apps for species ID developed and in use.
- Use of eDNA as a stardard technique in fisheries monitoring.

Examine possibilities for creation of a shared databank holding pictures or video footage of fish and shell fish to be made available for participating MS for development of machine learning algorithm for species identification. The ISSG should define and propose requirements for such a data bank such as:

- Which type of picture?
- What type of metadata associated to the pictures?
- Could an optimal standard camera/video set up for picture/video capture be developed?
- Etc.

4.5 SG Participants

Name	E-mail	MS
Els Torreele	els.torreele@ilvo.vlaanderen.be	BEL
Jørgen Dalskov	jd@aqua.dtu.dk	DNK
Maria Hansson	maria.hansson@slu.se	SWE
Gildas Glemarec	ggle@aqua.dtu.dk	DNK
Rita Vasconcelos	rita.vasconcelos@ipma.pt	PTR
Hans Nielsson	hans.nilsson@slu.se	SWE

5 ISSG Surveys

5.1 Background

The RCG NANSEA & Baltic 2020 specified the scope of the RCGs regarding surveys as follows*: "Given the expectation that survey designs, planning and task-sharing might change in the foreseeable future, RCGs are expected to play a more substantial role in the decision making process when it comes to budget and/or national implications. The scope of the RCG will continue to focus on the budgetary aspects and national obligations in relation to proposed changes to a survey. It may be needed to rubberstamp and approve the current survey effort by MS to act as a baseline to measure and evaluate future modifications against. RCG mandates are described in the respective RoPs and these cover survey subjects as well."*

Following this scope, the ISSG on surveys aimed to underpin the more substantial role of the RCGs in the future.

Current chairs of the ISSG on Surveys are Sieto Verver (NLD) and Christoph Stransky (DEU).

5.2 Work-plan

ToRs and work plan (specific tasks) for 2021/2022:

ISSG surveys plans to continue its work under the same ToRs as set for 2020-2021. However, to ensure continuation of the discussion on proposed survey changes, a fifth ToR is added for 2021-2022. The ISSG will start working on the following ToRs already from July 2021 onwards:

1. Renewal and finalisation of the multilateral agreements on cost-sharing of the two surveys: International Ecosystem Survey in the Nordic Seas (IESNS, also known as ASH under the EU-MAP) and International Blue Whiting Survey.
2. Monitor Covid-19 implications on surveys from a DCF perspective and react when appropriate and requested.
3. Monitor the follow-up of WKREO proposals and act as focal point for RCG contact.
4. Review survey aspects of the renewed EU-MAP in the light of cost-sharing and set up methods to identify candidate surveys for future cost-sharing.
5. Review proposed substantial changes to the design, set-up or other aspects of the survey having an impact on MS's Workplan, effort and/or budget allocation, or obligations. Consider requirements to facilitate future review processes.
6. Main focus on identification of candidate surveys for cost-sharing: Plan dedicated meeting e.g. January once TAC shares 2022 are known. Follow the existing methodology to identify candidates.
7. Add ToR to review proposed changes to surveys (method, timing etc.) having a potential impact on DCF obligations and MS's Workplans.
8. Work on WP/AR Table and Textbox 2.6 (surveys)

5.3 Progress during 2021/2022

The ISSG on Surveys met online 9 December 2021 and 29 March 2022 and had a dedicated meeting on cost-sharing of surveys in Gothenburg/hybrid 17-19 May 2022.

ToR 1 was completed by agreeing on and finalising the multilateral cost-sharing agreements for the ASH and WHB surveys for 2021.

Under **ToR 2**, the ISSG discussed COVID-19 effects on the surveys and noted that only a few (national parts) of the surveys had to be shortened or cancelled without immediate replacement. In some cases, other countries were able to cover the affected areas/tasks; in other cases, gaps in the coverage or/and time series were unavoidable and had to be considered by the end-users (ICES) in terms of input data quality. During the RCG Technical Meeting, we will have an update on the COVID-19 and Ukraine war effects (especially fuel prices) on the surveys. In addition, during the Gothenburg meeting, the ISSG briefly discussed the increase in daily costs for research vessels that will also lead to higher costs to be covered by the MS within the currently cost-shared surveys (ASH and IBWSS).

Re. updates on ICES WKREO proposals (**ToR 3**), the ICES WKPilot NS-FIRMOG will take place Oct/Nov 2022 (chair: Ingeborg de Boois, NLD).

ToR 4 and **ToR 6** are very similar and were dealt with together, mainly in the dedicated ISSG meeting (Gothenburg/hybrid) 17-19 May 2022. There is a separate report in the Annex 5.1.

The ISSG agreed that MS need to inform the RCGs on major changes to the design/set-up etc. of a survey (**ToR 5**). In terms of survey effort reduction, the ICES WKUSER2 could be relevant for future co-ordination of surveys.

ToR 7 is identical to / implemented by ToR 5.

ToR 8 has been completed by drafting Table 2.6 and Text Box 2.6 for the Regional Work Plan draft to be submitted in Oct 2022, in collaboration with the Fish'n'Co project.

5.4 Roadmap/follow-up

After presenting the results of the Gothenburg meeting (May 2022) to the RCG Technical Meeting (June 2022), MS should check the overall outcome ('traffic light tables') and provide feedback if errors are found (e.g. number of survey days, overall distribution between MS for each survey). Then, MS should give feedback on considerations for not participating in surveys where the MS would be expected to participate, based on the quota share, and indicate if the MS is happy to continue conducting the survey with the same effort.

Follow-up work of the ISSG consists of:

- developing a summary for each survey if the survey is OK as is, or if cost-sharing agreements need to be established;
- separate discussions to be held between MS that need to come up with cost-sharing agreements to be signed and reflected in the National Work Plan as well as in the Regional Work Plan;
- considering a new ToR on 'new challenges in fisheries-independent data collection' with regard to e.g. the increasing demand of other uses of marine areas (e.g. offshore wind farms, nature protection sites, etc.).

5.5 SG Participants

Name	E-mail	MS
Ángeles Armesto	angeles.armesto@ieo.es	ESP
Jørgen Dalskov	jd@aqua.dtu.dk	DNK
Maria Hansson	maria.hansson@slu.se	SWE
Angelique Jadaud	angelique.jadaud@ifremer.fr	FRA
Linda O'Hea	linda.o'hea@marine.ie	IRL
Florent Renaud	florent.renaud@ifremer.fr	FRA
Christoph Stransky (Co-chair)	christoph.stransky@thuenen.de	DEU
Sieto Verver (Co-chair)	sieto.verver@wur.nl	NLD

ANNEX 5.I

Regional Coordination Group
North Atlantic
North Sea & Eastern Arctic

Regional Coordination Group
Baltic

Report of the RCG ISSG Surveys 2021-2022

revisit and update the cost-sharing model of DCF research surveys at sea

Gothenburg, Sweden
17-19 May 2022
Hybrid Meeting

Co-funded by the European Maritime and Fisheries Fund

Contents

Co-funded by
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and Fisheries Fund

Background and purpose of the meeting

In 2016, an RCG pan-regional subgroup met to devise a model for cost-sharing of research surveys at sea (named the 'Gothenburg model'), a practical and straightforward model to form the basis of cost-sharing agreements in the RCG. The defined principles in the model ensured the continuation of the current, well-established time series. Since then, the model has been the basis for the agreements applied for cost-sharing of surveys within the three regions; Baltic, North Sea & Eastern Arctic and North Atlantic. The established and signed agreements based on this model are reflected in the MS National Work Plans. From 2022, a new EU-MAP is in place (Decision (EU) 2021/1168), and there is a need to:

1) revisit the cost-sharing model itself to ensure that the model reflects the new legal requirements, e.g. list of mandatory research surveys-at-sea and threshold as well as target species for each survey;

2) update the figures in the model to ensure that future cost-sharing agreements are based on updated data (update on quota shares as an effect of Brexit, additional target species in surveys).

Based on the updated model and data, the aim is to identify which surveys qualify for future cost-sharing and the surveys that do not require cost-sharing agreements.

In parallel to the cost-sharing, the ISSG also discussed new challenges for conducting surveys (e.g. increased fuel costs, new Marine Protected Areas, and the establishment of offshore wind farms, affecting the spatial coverage in surveys). These new challenges need some discussion in various fora and on several levels to develop a strategy on how to deal with these challenges. The ISSG realises that these challenges may influence time series, survey design, and planned survey effort much more than cost-sharing aspects.

Cost-sharing of surveys may come in many forms, based on tailormade survey specific agreements. However, for consistency, 'cost-sharing' is the umbrella term for any form of participation (physically or financially) between MS for a specific survey.

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Participants

The following table provides an overview of the participants of the pan-regional subgroup and their affiliations to the respective RCGs.

Name	Email address	RCG affiliation
Sieto Verver	sieto.verver@wur.nl	North Sea and Eastern Arctic, North Atlantic
Christoph Stransky	christoph.stransky@thuenen.de	Baltic, North Sea and Eastern Arctic, North Atlantic
Maria Hansson	maria.hansson@slu.se	Baltic, North Sea and Eastern Arctic
Jørgen Dalskov	jd@dtu.aqua.dk	Baltic, North Sea and Eastern Arctic
Linda O'Hea	linda.ohea@marine.ie	North Atlantic, North Sea and Eastern Arctic
Florent Renaud	florent.renaud@ifremer.fr	North Sea and Eastern Arctic, North Atlantic

The ISSG thanks the Swedish Agency for Marine and Water Management in Gothenburg for providing excellent meeting facilities.

Revisions to the 2016 cost-sharing model

Basic principles of the cost sharing model defined in 2016 and minor revisions in 2022

In general, the ISSG is relying on the same basic principles that were defined in 2016. The following text is an update of that description. To set up a generic model, fit for most surveys, some basic principles were defined. These principles ensure a uniform approach and line up with the regulations in place. Based on Regulation EU 2017/1004 (DCF re-cast), thresholds are in force as well as the responsibility to maintain current time-series. The generic model should fit both existing as well as new surveys. As applicable for all data collection under the DCF, data collection through surveys should be end-user driven and internationally coordinated. The discussion on data needs, planning and participation in a particular survey remains with the planning group responsible for that specific survey. Table 1 of Decision (EU) 2021/1168 forms the basis for the list of surveys for which cost-sharing might apply. However, the model is expected to fit other surveys not listed and there are no specific restrictions to the model stemming from Table 1.

The responsibility to participate in a survey based on quota shares lies with the MS involved. TAC shares are based on initial shares (before swapping, trading etc.), as these initial shares represent the MSs fishing opportunity of a specific stock. MS are therefore encouraged to be proactive and seek cooperation with other MS involved and preferably make bilateral/multilateral arrangements among MS themselves without RCG interference, thus removing some of the pressure for the RCG. These agreements are part of the MS's National Work Plan and Regional Work Plan. In line with the DCF, a 3% share in TAC for a species is set as threshold unless another threshold of up to 5 % is agreed at marine region level. When no TAC exists, shares in actual landings can be used, based on an agreed reference period of 3 years (in line with the DCF). TAC shares, rather than the financial value of national quotas, form the basis of cost-sharing for the following reasons:

- In general, TAC shares are based on stable relative distributions, while, e.g. national quota values can fluctuate a lot.
- TAC shares have a legal basis, and adding quota values to the equation drastically complicates the estimation of shares due to conversion rates, national markets and interests.

The contribution to a survey can be physical and/or financial. Vessel costs form the bulk of the survey costs in most cases. Physical and/or financial contribution shall focus on vessel costs, although MS can adjust this approach in specific cases when staff costs are exceptional. In those cases, delivering scientific staff can also be seen as a contribution. This may, however, not lead to unbalanced cost distributions. Vessel costs are based on average daily operational costs and days-at-sea for a survey (port-to-port, thus including e.g. steaming, calibrations etc., while excluding weekend breaks etc.) The survey technique (acoustic, ichthyoplankton, trawling etc.) is, in general, of minimal influence on the daily costs, as a result the survey technique doesn't affect the model. Cost-sharing can easily lead to an enormous administrative exercise, so any model should aim to limit the administrative burden as much as possible. Uniformity in the applied models is preferred as this contributes to limiting administration. However, tailormade solutions should always be possible, e.g. for ecosystem surveys where TACs are not the obvious denominator for the costs. Thresholds may be defined at a regional level. Current agreements are still considered applicable, unless MS involved want to reconsider options or when new MS are added to the share. There is no need to fix something if it isn't broken. Also, MS involved in a specific survey can agree 'not to share' costs. This agreement shall then be administered as well, including duration of the agreement, and be included in the Regional Work Plans.

Generic updated model

Based on the basic principles outlined above, a generic and straightforward model for cost sharing based on seven steps was determined in 2016. With some minor updates in 2022, the seven steps could be described as follows:

1. Select a survey from Table 1 (Implementing Decision (EU) 2021/1168)
2. List the target species for each survey. Target species are defined in Table 1 (EU) 2021/1168, reflecting all species used by the end-user.
3. List TAC shares and/or landings share (in %) by target species by TAC area by MS
4. Calculate the relative share over all species and TAC areas
5. Apply 3% threshold: > 3% participation; <3% no participation
6. Normalise contribution to 100 %
7. Agree on cost-sharing based on the normalised contribution amongst MS involved, based on the identification of scientific needs by the relevant planning group.

Methodology and results

To accommodate the process for this ISSG, the accepted and relevant National Work Plans of the MS[3] were downloaded from the DCF website[4]. Based on these Work plans, tables holding all data from the MS were compiled based on Tables 2.1 (TAC and landings shares by MS, stock) and 2.6 (survey information by MS).

Based on Table 1 of Commission Implementing Decision 2021/1168, a basic table holding all mandatory surveys and related target species was created. Next, the basic table was combined with the compiled Table 2.1 for each combination of MS and stock area relevant for the respective survey. The resulting table then contains the respective MS' share of the EU TAC and EU landings for a specific stock covered by a survey. In addition, the number of planned survey days by MS for a specific survey was added (see example below).

Impl. Dec 2021/1168						Table 2.1				Table 2.6
RCG	Survey name	Survey acronym	Survey	scientific name	target s	MS	TAC area	TAC sha	landings share	Planned survey days/year
NSEA	Herring Larvae Survey	IHLS	4, 7d	Clupea harengus	HER	SWE	3a, 4, 7d	0.06	0.11	
NSEA	Herring Larvae Survey	IHLS	4, 7d	Clupea harengus	HER	DNK	3a, 4, 7d	0.29	0.44	
NSEA	Herring Larvae Survey	IHLS	4, 7d	Clupea harengus	HER	LTU	3a, 4, 7d	None	0.063	
NSEA	Herring Larvae Survey	IHLS	4, 7d	Clupea harengus	HER	NLD	3a, 4, 7d	0.18	0.18	15
NSEA	Herring Larvae Survey	IHLS	4, 7d	Clupea harengus	HER	DEU	3a, 4, 7d	0.15	0.16	20
NSEA	Herring Larvae Survey	IHLS	4, 7d	Clupea harengus	HER	FRA	3a, 4, 7d	0.07	0.1	

The data stemming from the compiled Table 2.1 was included 'as-is', as these tables form the basis of the currently accepted WP for each MS. As a result, for some instances, the sum of the EU TAC shares do not reach 100% (see lessons learned).

As TAC shares form the stable basis for potential cost-sharing, the landing shares are not included in the following analysis, despite being listed as main target species in Table 1 of the Implementing Decision. The inclusion of the landing shares of non-TAC species would require e.g. the analysis of reference periods used for the WPs, aligning these reference periods between MS on a stock-by-stock basis etc. The ISSG concluded that the relative stability provided through the inclusion of TAC species only was preferred while acknowledging that non-TAC species may be included once surveys are identified as candidates for cost-sharing. For these surveys, an in-depth analysis can be done, including the relevant shares in non-TAC species, but also landings from specific areas can then be considered when deemed necessary.

Following the model and based on the TAC species only, the relative share to a survey by MS was determined across the stocks relevant for that survey and normalised to 100%. The following example provides the information for the PLATUXA survey.

[3] MS' Workplans included in this analysis: Finland, Estonia, Latvia, Lithuania, Poland, Sweden, Denmark, Germany, the Netherlands, Belgium, France, Ireland, Spain & Portugal.
[4] https://datacollection.jrc.ec.europa.eu/wp-np-ar

Survey acronyı	PLATUXA_ESP		Basic shares across species/area by MS				
Sum of TAC sh		MS					
Main target	TAC area	DEU	LTU	ESP	PRT	EST	Grand Total
GRE	3KLMNO			63%	26%	5%	94%
RED	3LN	19%	27%	0%	0%	27%	73%
THO	3LNOPs			77%			77%
WHI	3NO			43%	0%		43%
WIT	3NO			0%	0%	33%	33%
Grand Total		19%	27%	183%	26%	65%	320%

Survey acronyı	PLATUXA_ESP		Normalised shares for survey				
Sum of TAC sh		MS					
Main target	TAC area	DEU	LTU	ESP	PRT	EST	Grand Total
GRE	3KLMNO	0.00%	0.00%	67.02%	27.66%	5.32%	100.00%
RED	3LN	25.98%	37.09%	0.00%	0.00%	36.93%	100.00%
THO	3LNOPs	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
WHI	3NO	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
WIT	3NO	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Grand Total		5.94%	8.47%	57.17%	8.12%	20.30%	100.00%

Following this approach, the normalised shares reflect MS's interest in a particular survey. For single species surveys, the threshold for participation in the survey is set at 3%. For multi-species surveys, the threshold was set at 3% for this exercise. This threshold may be discussed further when zooming in on the cost-sharing of a particular survey. The normalised shares were calculated for all surveys across the regions covered by RCG Baltic, North Sea & Eastern Arctic and North Atlantic, including NAFO.

The output of the analysis was completed by adding the planned survey days by MS for a specific survey. Based on this combination, a further analysis was done to relate the interest of a MS in a particular survey and the current effort/participation in the survey. Annex 5.1.1 provides the overview of the shares versus planned participation. The ISSG proposes that these tables be reviewed by the MS before further work on identifying potential surveys for cost-sharing is carried out.

Note that ongoing cost-sharing agreements are not reflected in the resulting tables. This is e.g. demonstrated by the ASH survey. Several MS have a substantial share following the colour-coding while not planning any survey participation. In this case, a cost-sharing has already been set up between the responsible MS, sharing the costs for the survey being executed by Denmark.

Next steps

Since the compilation of the different existing information in Tables 2.1 and Table 2.6 showed a lot of errors and mismatch in areas for stocks, management areas and survey areas, the exercise could not be finalised. The ISSG suggests the following steps forward:

Part I

1. Results to be presented at the RCG Technical Meeting in 2022;
2. MS to check the overall outcome (traffic light tables) and feedback if errors are found (e.g. number of survey days, overall distribution between MS for each survey);
3. MS to feedback on considerations for *not* participating in surveys where the MS would be expected to participate, based on the quota share;
4. MS to feedback if the MS is happy to continue conducting the survey with the same effort.

Part II (ISSG surveys 2022-2023)

5. Summarise for each survey if the survey is OK as is, or if cost-sharing agreements need to be established;
6. Separate discussions to be held between MS that need to come up with cost-sharing agreements to be signed and reflected in the National Work Plan and the Regional Work Plan.

Lessons learned

While preparing the data and overviews for the cost-sharing exercise, the ISSG made several observations on inconsistencies, formatting issues, codification etc., leading to suggestions for e.g. amendments of the EU-MAP, agreed methods for allocating stock units and the need of a database for WP/AR entries:

1. Inconsistencies in stock definitions:

The management units from the TAC & Quota regulations in many cases do not match the species-area combinations in the EU-MAP Table 1. In some cases, the species-area entries in the Work Plan Table 2.1 did not match the EU-MAP. This issue would be avoided by having a database containing all the information for the Work Plans and Annual Reports, such as repeatedly suggested by STECF.

2. Inconsistencies between MS with regard to entries of quota share percentages:

In Table 2.1, for example turbot quota shares (from the combined TAC with brill) were entered for some MS, while for others, 'None' was entered and just a landings share is provided. In the end, it is not clear how individual species' quota share have been calculated from combined TACs.

3. Formatting issues:

As the entries for quota/landings shares varied in formatting, e.g. cells with percentages formatted as text or as percentages, a lot of manual data curation had to be applied.

4. Availability of original data sources:

As common ground for the data preparation, the original data sources (such as FIDES) should be available.

5. Agreed method for aligning TAC units and EU-MAP species-area units:

In order to apply consistent rules and gain data transparency, we should have an agreed method for allocating TAC units to EU-MAP species-area units.

6. Amendments of the EU-MAP:

A revised EU-MAP should contain the 3-alpha species codes in the list of species (Table 1), which would enable e.g. direct links to the list of target species of the surveys.

Moreover, the ISSG became aware that in the NAFO area, the 3-alpha codes used for the survey target species in the EU-MAP are not consistent with the standard codes of FAO ASFIS commonly used. This should be considered in the next EU-MAP revision.

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New challenges in fishery-independent data collection

Next to discussing the cost-sharing model, the ISSG discussed challenges in fishery-independent data collection. Over the years, challenges when conducting fishery-independent data collection using research vessels have increased. The competition on using or protecting marine areas has increased rapidly. Nowadays, several marine areas have been closed, e.g. using mobile bottom gears, which is the most common sampling method when carrying out research surveys to provide data for stock assessment and scientific advice purposes. Several Natura 2000 sites, MSFD sites or nature reserves have been established. The establishment of offshore wind farms is fast growing, and it results in significant areas being closed for vessels carrying out surveys where fishing is taking place. Lately, many marine traffic routes have been changed, impacting the choice of stations (positions) that may have been fixed for a longer period. The oil and gas industry is also limiting the choice of positioning the sampling stations.

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Annex 5.I.I

For review by MS: Regional overviews of normalised shares in a particular survey and planned surveys days (based on accepted National Workplans).

Colour-coding:

	MS share >3%, no survey days planned.
	MS share >3%, survey days planned.

Region	NAFO			ESP		EST		LTU		PRT	
	DEU										
SURVEY	Norm.TAC	Planned surveydays		Norm.TAC	Planned surveydays	Norm.TAC	Planned surveydays	Norm.TAC	Planned surveydays	Norm.TAC	Planned surveydays
FCGS	3%			50%	35	11%		2%		33%	35
GGS	100%	47									
PLATUXA_ESP	6%			57%	58	20%		8%		8%	

Region	Baltic																							
	DEU		DNK			EST		FIN		LTU		LVA		POL		SWE								
SURVEY	Norm.TAC share	Planned surveydays	Norm.TAC share	Planned surveydays		Norm.TAC share	Planned surveydays	Norm.TAC share	Planned surveydays	Norm.TAC share	Planned surveydays	Norm.TAC share	Planned surveydays	Norm.TAC share	Planned surveydays	Norm.TAC share	Planned surveydays							
BIAS	26.74%	21	4.32%			11.29%	10	18.12%	14	1.32%		12.47%	10	11.13%	16	14.62%	16							
BITS_Q1	23.22%	45	26.23%	39		1.62%		22.61%		0.99%		1.19%	9	10.51%	44	13.63%	14							
BITS_Q4	29.12%	42	24.21%	18		1.49%	3	20.87%		0.91%		1.10%	11	9.71%	39	12.59%	11							
FEIUCS	11.41%	90	23.98%			0.54%		48.91%						6.52%		8.70%								
GRAHS						44.32%	9					55.68%	5											
RHLS_DEU	55.00%	54	14.00%											13.00%		18.00%								
SPRAS	6.09%	22	10.15%			11.17%	5	5.28%		5.08%		13.50%	8	29.44%	14	19.29%	8							

Region	North Sea & Eastern Arctic																			
	BEL		DEU		DNK		ESP		FRA		IRL		NLD		POL		PRT		SWE	
SURVEY	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days	Norm.TAC share	surv.days
ASH			6.42%		46.04%	29	1.50%		1.07%		11.78%		17.13%		2.14%				13.92%	
BTS	20.71%	10	4.29%	15	13.57%				22.14%				39.29%	35						
CODS_Q4			1.00%		62.00%	12													37.00%	12
DYFS	8.33%	8	7.29%	30	4.17%				2.08%				78.13%	65						
IBTS_Q1	3.89%		5.14%	33	65.56%	19			5.00%	21			16.39%	25					4.03%	14
IBTS_Q3	2.03%		8.26%	20	63.02%	18			10.72%				11.73%				0.04%		4.20%	13
IHLS			20.00%	20	38.67%				9.33%				24.00%	15					8.00%	
NHAS	0.46%		7.34%	21	53.67%	16			3.67%		17.43%		12.84%	20					4.59%	
NSMEGS	1.90%		1.90%		59.05%	12			5.71%				15.24%						16.19%	
NSSS					96.91%	25													3.09%	
SNS_NLD	13.39%				17.86%				1.79%				66.96%	10						
UWTV3-4	2.92%				70.94%	8													26.14%	8
UWTV6	3.95%				96.05%															
UWTV7	3.95%				96.05%															
UWTV8	3.95%				96.05%															
UWTV9	3.95%				96.05%															

Region	North Atlantic																					
	BEL		DEU		DNK		ESP		EST		FRA		IRL		LTU		NLD		POL		PRT		SWE	
SURVEY	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days	Norm.TAC	surv.days
BIOMAN							100.00%	25																
CSHAS_IRL													93.28%	21			6.72%							
ECOCADIZ_ESP							63.38%	12													36.62%			
IAMS_IRL													100.00%	32										
IBTS_Q4	2.29%		1.10%		1.04%		29.12%	80	0.03%		19.20%	75	36.49%	47	0.58%		2.49%				7.63%		0.03%	
IBWSS			5.98%		13.94%		21.31%	7			10.96%		14.94%	21			18.92%	18			9.96%		3.98%	
IESSNS	0.55%		8.27%		31.83%		4.08%				8.13%		14.75%		0.01%		18.05%		2.62%		2.76%		8.96%	
JUVENA_ESP							100.00%	30																
MEGS			4.63%	37	3.31%		11.28%	28			2.65%		26.48%	42	0.02%		15.56%	30	5.63%		30.12%	40	0.33%	
NepS							98.82%														1.18%	20		
ORHAGO_Q4_FRA	1.00%										92.00%	24					7.00%							
PALPRO_ESP							100.00%	8																
SAHMAS					6.45%		42.21%	22			0.03%	29	19.08%								32.24%			
SDEPM							26.17%														73.83%			
SWECOS_GBE	24.45%						30.02%				18.86%		22.39%				3.83%				0.44%			
UWTV11-13							54.16%				1.91%		42.78%								1.15%			
UWTV14							54.16%				1.91%		42.78%								1.15%			
UWTV15							54.16%				1.91%		42.78%								1.15%			
UWTV16-17							54.16%				1.91%		42.78%	12							1.15%			
UWTV19							54.16%				1.91%		42.78%	9							1.15%			
UWTV20-22							54.16%				1.91%		42.78%	11							1.15%			
UWTV30							54.16%	14			1.91%		42.78%								1.15%			
W_IBTS_Q1	0.81%		2.34%		0.81%		10.62%				10.49%	21	68.25%		0.00%		4.60%				2.01%		0.08%	

6 ISSG Optimized and Operational Regional Sampling Plans (Umbrella Group)

6.1 Background

The aim of the ISSG Optimized and Operational Regional Sampling Plans, also referred to as the 'Umbrella Group', is to develop guidance for the development of optimized and operational regional sampling plans (RSPs) and collate 'theoretical gaps' and new developments in simulation tool relevant for the development of RSPs.

6.2 Work-plan

ToRs and work plan (specific tasks) for 2021/2022:

1. Provide guidance on operational Regional Sampling Plans (RSPs)
    - Organize the guidance.
    - Continue the development of guidance based on examples / lessons learned from the RSPs. This work will be based on a questionnaire to the RSPs.
2. Provide guidance on optimized Regional Sampling Plans (RSPs)
    - Keep the overview of existing optimization tools updated, summarise the optimizations done in the RSPs, and summarise the 'theoretical gaps' encountered in the RSPs. This work will be based on a questionnaire to the RSPs.

6.3 Progress during 2021/2022

The overarching Umbrella Group supports the development of RPSs through different case studies. In 2021-2022 the three ISSGs for RSP case studies (concerning NANSEA and Baltic) Iberian trawlers, Freezer trawlers, and Baltic small pelagic were questioned by the Umbrella Group chairs whether any support was needed. As the case studies indicated that they were fully occupied in the process of development and no support from the Umbrella Group was needed, it was therefore decided to put work from the Umbrella Group on hold.

6.4 Roadmap/follow-up

ToRs and work plan (specific tasks) for 2022/2023:

1. Include LP case study on Tropical Tunas in Purse Seine through questionnaire that was sent to the other case studies in 2020-2021.

Tasks from 2021-2022 transferred to 2022-2023, if needed by case studies:

2. Provide guidance on operational Regional Sampling Plans (RSPs)
    - Organize the guidance
    - Continue the development of guidance based on examples / lessons learned from the RSPs. This work will be based on a questionnaire to the RSPs
3. Provide guidance on optimized Regional Sampling Plans (RSPs)
    - Keep the overview of existing optimization tools updated, summarise the optimizations done in the RSPs, and summarise the 'theoretical gaps' encountered in the RSPs. This work will be based on a questionnaire to the RSPs.

6.5 SG Participants

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7 ISSG Case Study of Fisheries for Small Pelagics in the Baltic

7.1 Aim of the sub group

RCG Baltic agreed to use the fisheries for **small pelagic species** as a **case study** for the development of a regional sampling programme in the Baltic Sea. It was agreed to establish a subgroup for in-depth analyses how a regional sampling programme for small pelagics can be established and suggest how it can be implemented. The pelagic fisheries target western Baltic herring, central Baltic herring, herring in Gulf of Bothnia, herring in Gulf of Riga and sprat.

7.2 ToRs

The longterm tasks for the ISSG on small pelagics in the Baltic Sea were agreed in 2017. The ISSG work on a selection of the tasks and/or tasks that have been agreed during the previous year (see year specific workplan).

I) Description of the fisheries.
II) Generate description of present national sampling programmes, including overviews of sampling protocol and sampling intensities. Partly done. An overview was produced in the RCG Baltic 2019 meeting. However needs to be refined. A description on where (at-sea, harbor) and how (self, inspectors, sci-obs) the samples are taken and how easy is it to get access to the samples
III) Generate overview of data that is collected on the regional level. An overview table was conducted during the RCG Baltic
IV) Identify what commercial data ICES AWG need for these stocks. If relevant meet up with relevant stock coordinators and assessors at appropriate meeting
V) Compare data presently collected with data needed by the AWG. Identify gaps and data presently collected but not used
VI) Suggest common sampling protocol (Harbour and self-sampling) – difference between HC and I sampling
VII) Suggest proper sampling sizes for age, weight and length
VIII) Suggest if and when maturity data need to be collected from commercial samples (end-user needs) will be at WGBFAS 2020
IX) Suggest if other types of data (e.g. scales, genetics, parasites) shall be collected (end-user needs) will be at WGBFAS 2020
X) Suggest how data (samples and transversal data) shall be stored and exchanged
XI) How to raise the different sampling programs (work-shop 2019)
XII) Simulations of the sampling plans that demonstrate the efficiency of the new regional programme relative to present programmes.

7.3 Workplan 2021/2022

The workplan for 2021/ 2022 was

1. Continue the pilot / or as a full regional program
   - To have a more overarching sampling program, but less detailed for all MS – not only as a pilot.
   - Larger trawlers.
   - Vessels random selected probabilistic.
   - Refusals -> Non-responses (e.g., refusals).
   - Upload with a common sampling name in RDBES.

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- Use a common sampling protocol (5 kg / 50 fish).
- Participation in reguler age reading WS.

2. Work on WP/AR Table and Textbox 2.5 (biological sampling)
3. Set a deadline for MS to investigate species misreporting between herring and sprat in a historic context. Either by using Danish control data or another data source.
4. Participation in the workshop on estimation and optimal sampling size

Due to time constrains, the ISSG during the 2021/2022 primarily worked on point 1-3.

7.4 Overview of 2021/2022 subgroup work

7.4.1 Background

Implementation of regional schemes frequently gets bogged down by single alternatives, or is stopped because of national interest not being prioritized in the regional context. However, this group sees regionalization is a process that can have several outcomes, and it is not necessary the final goal to have a 100% common approach (same vessel platform etc.) for a regionalization to be fulfilled.

The subgroup considers regionalization as involving 4 general steps located along a gradient that goes from "no coordination" to "common monitoring strategy" and "joint data collection" (Figure 7.4.1). This gradient naturally entails a different capability of sampling to meet the needs of national and regional end-users. To supplement the sampling needs of specific end-users (e.g., specific end-uses), part of the program can be left for planning on a national scale. That part can still be coordinated (e.g., have common protocols) but does not necessarily require the higher level of regional coordination involved in full regional sampling plans (Figure 7.4.1).

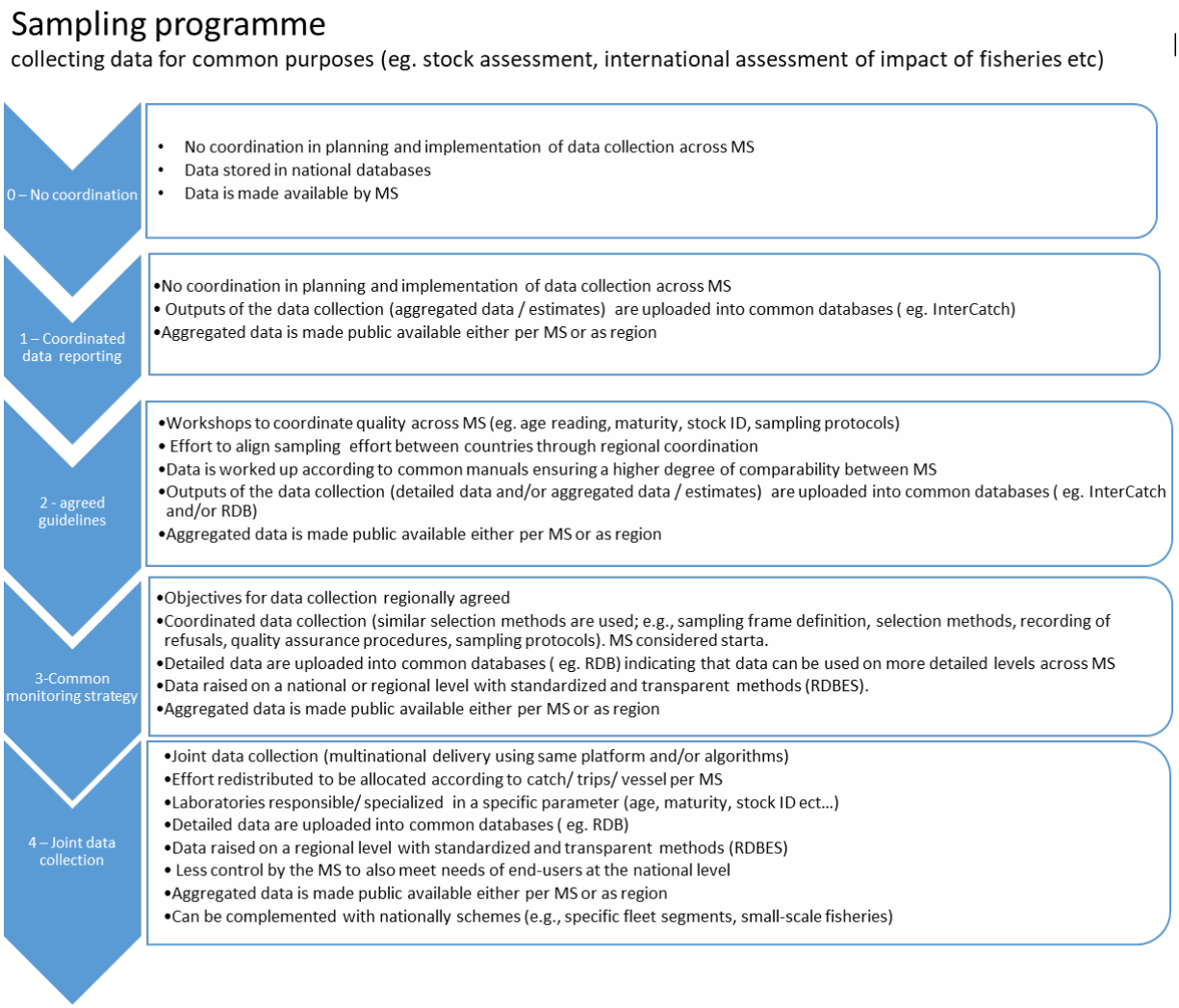

Figure 7.4.1 Flow chart of the steps involved in a regional coordination. The objectives can be different from a regional and national point.

7.4.2 Case study – regional sampling plan of small pelagics in Baltic

In the 2021 decision meeting (**D06)** 5 MS (Germany, Denmark, Poland, Lithuania, Sweden) agreed to participate in the Baltic small pelagic Regional Sampling Plan (RSP) and take part of the non-binding Regional Work Plan for 2022. 3 MS (Finland, Estonia, Latvia) agreed to participate in Baltic small pelagic Regional Sampling Plan (RSP), but would reflect it only in their National Work Plan.

7.4.3 Work on WP/AR Table and Textbox 2.5 (biological sampling)

The ISSG have, following this decision, worked to understand the documentation needed to frame such a RSP into tables. We have tried to use table 2.5 in the WP and simply combine lines from the participating countries workplans. It did however quickly became evident that the information in the different MS lines was not directly comparable as MS design their sampling plans differently (eg. different types of PSUs). How compatible the information from the different MS are depend (besides using different nomenclature for the same thing…)

on the agreed level and status of ambition for different focus areas in the regional sampling plans. These levels of ambitions are expressed in the "level of ambition document" developed by the fish n´co project. A table 2.5 for a regional sampling plan thereby need to be adapted to also encompass "ambitionlevels" to be useful for someone that want to understand the content of the table. The ISSG are thereby working to modify table 2.5 to meet those needs. When doing so we also realize that we also need to expand the "level of ambition document" itself to better match the headings of table 2.5. This is ongoing work for the ISSG RSP Small Pelagic Baltic. The aim was to have a suggestion ready for the RCG meetings in June but due to time constrains this is not completed. The group needs to discuss the documents further and this will be done in 2 meetings (June and September 2022).

Within the national workplans are the details of the sampling schemes expressed in a textfile (annex 1.1). The details of a regional samplingplan do also need to be compiled somewhere. It is also access to those details that will allow the ISSG to work towards to goals for the ambition level (see annex 6). Summarizing the information from the different countries in annex 1.1 into a regional document will result in a substantial document that will be difficult to read (eg. MS write in slightly different ways, include different type of information). All headings in the national annex 1.1 might further not be relevant for the regional samplingplan as the content of the plan will be dependent on which agreements that are made. ISSG Baltic are thereby working on a regional version of table 1,1 aligning the document with the ambition levels and also quality aspects that are agreed within the regional sampling plan. This is also ongoing work for the ISSG RSP Small Pelagic Baltic and will be dealt with in the planned meetings in June and September).

Regarding all the details of the national sampling schemes that will constitute parts of the regional sampling plans will it be better to document those in a table to ensure a similar structure between MS, ICES WGCATCH has developed a table that could (after some revisions) meet this need. The suggestion from ISSG RSP Small Pelagic Baltic will most likely be that this table should be stored in a common sharepoint and not included in the Regional workplan submitted to the commission (the RWP could contain a link).

7.4.4 To analyse species misreporting between herring and sprat in a historic context

In the 2021 decision meeting (**D07)** (8 MS (Germany, Denmark, Finland, Poland, Lithuania, Estonia, Latvia, Sweden) agreed to :
Each MS with trawlers fishing small pelagics in the Baltic need to decide if they can commit to an analysis of potential "historical" misreporting of the proportion of herring and sprat in their national data. The commitment includes to perform an analysis, to present it at the ISSG small pelagics in the Baltic and to decide if historical catch data should be corrected on the basis of the analysis. Deadline for the analysis is October 2022. The aim is to feed in the overall outcome to the benchmark process of central Baltic herring and sprat 2023."

Two meetings have been conducted in 2022 (18-19 January and 10 May)
In the first meeting the stock assessors for the sprat and herring stock were invited to the meeting to get the end-users perspective (Annex 8.1). In annex 8.2 the issue list that will be worked with towards the benchmark is presented. It was decided during the meeting to:

- Document present WGBFAS time series in respect to corrections.
    - Fill in a template about corrections done (or not done) in connection to historic misreporting based on template in annex 8.3.

- Analyze if it is possible for MS's to use some quality indicators to check if there has been inconsistency between official numbers in catch composition and data from alternative sources (national control data, Danish control data, observer trips, scientific surveys)
- Collate quota shares by year and country (Annex 8.4)

The present WGBFAS time series of landings per year and country can be found at the share point and for herring (in annex 3) and for sprat (In annex 8.4).

The subgroup has planned for having an unfollowing meeting in late June were the MS should have started to look into these issues and needs to give a status on the progress and again in September to ensure that the ISSG can deliver a common working document for the data compilation workshop planned to be conducted 14-17 November 2022.

ANNEX 7.1 Minutes from January 2022 meeting

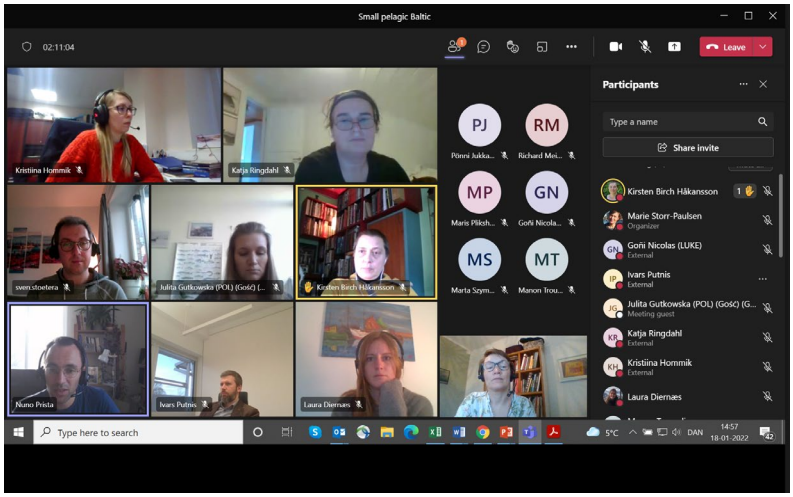

Figure 7.1.A Late in the afternoon at yet another online meeting ☺

Tuesday the 18.1- 2022

Short introduction round. We are 14 participants from 6 countries only Lithuania was missing.

Agenda

1) How are you presently sampling you central herring and sprat.
   - Where are the MS with the pilot project or is this now moving to a regional sampling program in 2022?
   - Have you still you former sampling program in place?
   - Vessels random selected probabilistic?
   - Vessels above a certain length?
   - Record refusals -> Non-responses?
   - Did you manage to / will you upload with a common sampling name in RDB-ES?
   - How many samples are the MS colleting presently (from AWP) ?
2)
   - Use a common sampling lab-protocol (5 kg / 50 fish).
   - Are you sampling the 50 fish per species
   - Random selection / stratified ?
   - Would you agree on using a common sampling protocol?

Day 1.

3) Planning
   - WS/ intersessional work on optimization
   - WS/ intersessional work on estimation

4) How should we move on with investigating the species misreporting
   - Benchmark for sprat and herring in January/ February 2023
   - Data compilation WS in fall 2022

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- How large amount of misreporting is effecting the stock assessment
- Set a plan

https://community.ices.dk/ExternalSites/datacollection/Regional%20coordination%20meetings%202017/RCGIntersessionalWork/_layouts/15/start.aspx#/SitePages/HomePage.aspx?RootFolder=%2FExternalSites%2Fdatacollection%2FRegional%20coordination%20meetings%202017%2FRCGIntersessionalWork%2F2022%20Meeting%20Documents%2F04%2E%20Working%20documents%2FISSG%20CS%20small%20pelagics%20Baltic&FolderCTID=0x012000DF45EFB1C89BA0449D65338137DA465B&View=%7B0C438515%2DDB8A%2D45C7%2DA44A%2D0D9CAFAA04DC%7D&InitialTabId=Ribbon%2ERead&VisibilityContext=WSSTabPersistence

Link to share point with the relevant background documents.

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Jan Horbowy	IMR (Polen)	jhorbowy@mir.gdynia.pl (day 2)

Regional sampling protocol in the lab (when the sample has been selected)

- Denmark. Ok with random selection of 50 fish per species. Presently 100 fish are randomly selected (sprat) then length stratified and every 2. sprat is selected for age, weight. Normally all herring are selected as we seldom get 50. Measured in scm.
- Estonia. Ok with a random sample of 50 fish per species
- Germany. Have presently (much) more than 50 fish and are the sample is length stratified. Would be ok to change method (need to ask)
- Latvia 200 fish (per species ?) / close to 5 kg for age and weight. length stratified
- Poland. 5 kg/ 50 fish/ species for age and weight. Length stratified.

- Sweden. 5 kg. 50 fish/ species random selection length, weight and age for all fish.
- Lithuania about 7kg basket, at least 200 HER for length; SPR variable (Landings in LT vessels targeting HER (mesh size 36), SPR only as by-catch) at least 50 for individual weight, sex, maturity, age
- Finland. Quota sample 10 fish per scm/ quarter. Maximum 2 fish per scm / sample. Can have samples without any ages in the end of the quarter if the quota has been fulfilled.

Presently all country except Finland can agree on trying to make a similar sampling protocol. However, there are still wishes for more scientific evidence for the difference between length stratified and true random sample. It would be beneficial if we could agree on a common sampling/lab protocol.

Age reading

All countries are age reading sprat and herring hole. Except for herring 3031 were both Sweden and Finland reads then sectioned and stained. Finland also read the central herring sectioned for the central herring. Some MS (Poland) has experienced with sectioning sprat however the result were not good due to the very small otoliths, it was difficult to find the centrum

It would be beneficial if we could reach an agreement that for the same stock same method in age reading is used. There will be an age reading workshop this year to be presented at the data compilation workshop in the fall. Julie Davis (DTU Aqua) will be in charge of this.

Vessel selection

Can we use WGCATCH template, updated on an annual basis? Kirsten and Nuno to make examples and upload to sharepoint.

Denmark. Denmark has presently selected all trawlers above 24 meters were 95% of the catches are sprat/ herring. Presently all (8) vessels are asked for a sample for every trip. We have few but very large catches. If we do not receive a self-sample from the vessel it is selected from the port. Denmark will continue the pilot as a full scale and are willing to adopt if needed. Refusal recorded on vessel level

Estonia. All trawlers are included (all sizes) in the selection. It has been problematic to receive samples enough from GoR. Present system is that in a given week the observers are looking a V-track and sees which vessels are active. This information combined with information on the port where the fish are landed are used for vessel selection (not possible to sample from ports far away or place freezers). Presently it is not done probabilistic (this could probably be changed with relatively little effort). Presently refusals are not recorded but could be implemented.

Finland. Lottery system with random selection between all vessels. Probabilistic sampling with non equal probability for selection (based on landing weight). Refusal recorded on vessel level. Fish are sampled on shore due to the low quality if sampled by the vessel (lack of freezer capacity).

Germany. Small fleet of 17 vessels roughly half refuse to cooperate. Random selection from the vessel left. Refusal also recorded by trip on the vessels normally taken samples. Freezers placed in many harbours. The fisherman are taken the samples and store them in the freezers.

Latvia. Vessels selected by stock (species and area). In the middle of the month observers are looking at V-track and are recording all vessels active. A list is made from the active vessels and from them a random

selection is conducted (by area). The fisherman is called and asked if he will conduct a self-sampling, or the observer is taking a sample on shore or (in non-covid times) and observer is going on board. Refusals are recorded on trip level. Only thin non probabilistic is selection of timing to check V. track.

Poland. 2 systems both the case study and a national program. Relatively alike (and maybe no reason to keep both. 56 vessels > 17.5 meters. All trawlers and gillnetters are in the national sampling program. Random selection with replacement. Record refusals. With strong no only calls once a year, with a soft no keep calling. Samples are sampled by observer (option 1) or on shore (option 2)

Sweden. Sampling frame includes the main vessels fishing in all subdivisions of the Central and South Baltic. All vessels selected probabilistic, not only trip is selected but also haul (when samples arrive to the lab). Refusals recorded. 2 different vessels list are in place in the Baltic (one with more mobile vessels that fish in the Baltic but also have catches in North Sea; one with less mobile vessels that fish essentially in the Baltic). The samples are taken as self-sampling. A national programme (for now ad-hoc) is being started to sample Baltic gillnet fisheries targeting herring.

The participants/institutes involved agree on the necessity of regionally coordinating their sampling of small pelagics in the Baltic and jointly consider and introduce changes to their sampling that, where possible, gradually improve the statistical quality of data collection and estimation on small-pelagic stocks

Day 2. Incorrect reporting between sprat and herring

We invited the stock assessor on the central herring stock (Mikaela Bergenius Nord) and the sprat (Jan Horbowy) to help identify the data need for the planned benchmark in 2023 with a data compilation workshop in fall 2022.

We were informed that it is first final settled in March if both the central herring, sprat and GoR herring will all be benchmark in this round. Issue list are to be found in Annex 7.2.

We decided to divide the question in two;

- Has there by MS been an inconsistent way on how data has been uploaded to ICES over time (both in respect to how misreporting being handled before submitting data to ICES but also if different methods have been used over time). The time series uploaded to ICES are present in annex 7.3 (can also be found on the share point in excel). And can the historic data source and method be described? Annex 7.5
- Will it be possible for MS to use some quality indicators to check if there has been inconsistency between official numbers in catch composition and data from alternative sources (national control data, Danish control data, observer trips, scientific surveys)

Further, we had a discussion if it was possible to detect if a control visit could lead to a changed in the logbook registration and if this by any means would be possible for us to detect in the logbook information.

It was decided to have a short meeting every 1.5 month to inform on the progress in this matter.

For the first meeting: everyone to look into template Commercial Catch Sampling Summary and check if it can be filled by their country. The topics to include are the ones below:

1. Proof/Evidence of incorrect reporting? What?
2. Data available to possible correct historical data, accuracy of this data
3. Steps/routines already taken to correct for misreporting (in total catch, the estimation process….), for which years
4. Steps/routines taken to correct for misreporting (in total catch, the estimation process….), for the present data
5. Decision if the dataset or parts of the dataset should be corrected or not
6. Quota share by year and country

Each country presented their take on the incorrect reporting and ability to document historic upload to ICES.

Sweden: SLU would like to clarify how Danish and Swedish control data has been collected back in time before we consider it in correcting the time series. And suggest other countries do the same. This is because we have evidence that, when a reduced number of boxes have been sampled from, e.g., the beginning of the landings there is risk of bias in composition estimates. At present SLU does not yet have access to Swedish control data but is working on it and towards involving fisheries control in this discussion so that it can be clarified what is control information and what is self-reporting information (by fishermen and buyers) on the data presently used (logbooks, sales, etc). SLU is hiring a new person to look specifically into this issue and describe how data has been handled in the past. Could be misreporting has been incorporated in some historic data? SLU will try to make this clear ahead of the benchmark.

Poland: Will use observer trip as data source to investigate misreporting. Poland has for some years and quarters corrected data based on a minimum number of samples (10/ Quarter) for the entire fleet. They will try (based on excel sheet from Olavi) to make an overview of how historic data has been uploaded to ICES.

Estonia: Will try to describe the ICES data set back in time. Have access to Estonian control data from 2021. It is allowed in Estonia to have 10% misrapporting.

Germany: Will look at logbook data and landing data back in time to see if data to ICES can be reproduced back in time.

Latvia: Has indication on misreporting in later years. Have access to Latvian control data.

Lithuania: Will compare logbook data and sale notes

Denmark: Will like to resubmit the data time series to ICES as we are aware of different methods used over time. Further, we have look into misreporting based on the Danish control data. From 1 April 2020 all landings from the Baltic within Denmark are sampled with a minimum of 10 samples per landing (10 kg each), the species composition from these values are then used on the sale notes. This indicates that from 2020 all landings within Denmark are considered very reliable.

ANNEX 7.2 Issue list from the WGBFAS

STOCK	Herring SD 25-27, 28.2, 29, 32 (CENTRAL BALTIC HERR.)		
Stock coordinator	Julita Gutkowska	Last benchmark	IBPBASH 2020 (ICES 2020), 2013 (ICES 2013)
Stock assessor	Mikaela Bergenius Nord	Stock category	1

Issue	Problem/Aim	Work needed / possible direction of solution	Data needed / are these available / where should these come from?	Research/ WG input needed	Time-frame	Priority
Stock identity	Mixing of Western Baltic spring spawners and CBH components in SD 24–26.	Test the of different of methods	Genetic samples, morphometrics, otolith shapes etc.	Project		high
Tuning series	BIAS data. Do we have new bias data from SD 32 that could be used in the assessment?	Compare new indeces with spaly.	Index produced by WGBIFS members	WGBIFS		high
Biological Parameters	Mean weight in the stock. Equals currently mean weight in the catch!	Sensitivity analyses:	Mean weights at age and landings per SD and quarter.			medium
Assessment method	A possible change to the SAM model instead of the currently used XSA.	Configuration and subsequent testing of the SAM model.	CANUM, WECA, maturity, mortality, etc	DTU aqua		medium
Misreporting of herring and sprat.	Misreporting of herring and sprat in the mixed catches.	To be decided	Logbooks data and VMS data. New text: Comparison between controldata, obserdata or scintific survey data and the species composition in the landing degleration.	Project		(high)
Age reading	Quality	Comparison of age readings	Reference otolith collection	Age reading WK		medium

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STOCK	HERRING SD 28.1 (HERRING IN GULF OF RIGA)					
Stock coordinator	MarisPlikshs		**Last benchmark**	2008 (ICES 2008)		
Stock assessor	Tiit Raid		**Stock category**	I		
Issue	**Problem/Aim**	**Work needed / possible direction of solution**	**Data needed /are these available / where should these come from?**	**Research/ WG input needed**	**Time-frame**	**Priority**
Stock ID and Age reading	Taken outside the SD28.1 in SD 28. 2. Additionally CBH fished in the Gulf of Riga (Sd28.1)	Separation of herring stocks based on otolith macrostructure	Data available from Latvia and Estonia	No	Ongoing	High
Tuning series	Trapnet fleet	Estimation of trapnet fleet effort	Data available in national laboratories	No	Ongoing	High
	Commercial trawl cpue	Commercial trawl cpue as new tuning index for the assessment	Data available from Latvia and Estonia (need to see how long back in time is available)	No	Ongoing	Medium
Recruitment	Estimation of recruitment in the forecast basing it on environmental factors	Recruitment modelling	Data available in national laboratories	No	Ongoing	Medium

STOCK	SPRAT SD 22-32 (BALTIC SPRAT)					
Stock coordinator	Olavi Kaljuste		**Last benchmark**	2013 (ICES 2013)		
Stock assessor	Jan Horbowy		**Stock category**	I		
Issue	**Problem/Aim**	**Work needed / possible direction of solution**	**Data needed / are these available / where should these come from?**	**Research/ WG input needed**	**Time-frame**	**Priority**
Natural mortality	Predation mortality is estimated from SMS which is run every several years	Update SMS model and M values every 3-4 years	Data and model available	WGSAM; consider results from recent depth-stratified cod stomach content analyses	Every 3-4 years	
Misreporting of herring and sprat.	Misreporting of herring and sprat in the mixed catches.	To be decided	Logbooks data and VMS data	Project		(high)

ANNEX 7.3 ICES numbers Herring 25-29-32

Year	Denmark	Estonia	Finland	Germany	Latvia	Lithuania	Poland	Russia	Sweden	Total
1977	11.9		33.7				57.2	112.8	48.7	264.3
1978	13.9		38.3	0.1			61.3	113.9	55.4	282.9
1979	19.4		40.4				70.4	101	71.3	302.5
1980	10.6		44				58.3	103	72.5	288.4
1981	14.1		42.5	1			51.2	93.4	72.9	275.1
1982	15.3		47.5	1.3			63	86.4	83.8	297.3
1983	10.5		59.1	1			67.1	69.1	78.6	285.4
1984	6.5		54.1				65.8	89.8	56.9	273.1
1985	7.6		54.2				72.8	95.2	42.5	272.3
1986	3.9		49.4				67.8	98.8	29.7	249.6
1987	4.2		50.4				55.5	100.9	25.4	236.4
1988	10.8		58.1				57.2	106	33.4	265.5
1989	7.3		50				51.8	105	55.4	269.5
1990	4.6		26.9				52.3	101.3	44.2	229.3
1991	6.8	27	18.1		20.7	6.5	47.1	31.9	36.5	194.6
1992	8.1	22.3	30		12.5	4.6	39.2	29.5	43	189.2
1993	8.9	25.4	32.3		9.6	3	41.1	21.6	66.4	208.3
1994	11.3	26.3	38.2	3.7	9.8	4.9	46.1	16.7	61.6	218.6
1995	11.4	30.7	31.4	0	9.3	3.6	38.7	17	47.2	189.3
1996	12.1	35.9	31.5	0	11.6	4.2	30.7	14.6	25.9	166.7
1997	9.4	42.6	23.7	0	10.1	3.3	26.2	12.5	44.1	172
1998	13.9	34	24.8	0	10	2.4	19.3	10.5	71	185.9
1999	6.2	35.4	17.9	0	8.3	1.3	18.1	12.7	48.9	148.7
2000	15.8	30.1	23.3	0	6.7	1.1	23.1	14.8	60.2	175.1
2001	15.8	27.4	26.1	0	5.2	1.6	28.4	15.8	29.8	150.2
2002	4.6	21	25.7	0.3	3.9	1.5	28.5	14.2	29.4	129.1
2003	5.3	13.3	14.7	3.9	3.1	2.1	26.3	13.4	31.8	113.8
2004	0.2	10.9	14.5	4.3	2.7	1.8	22.8	6.5	29.3	93
2005	3.1	10.8	6.4	3.7	2	0.7	18.5	7	39.4	91.6
2006	0.1	13.4	9.6	3.2	3	1.2	16.8	7.6	55.3	110.4
2007	1.4	14	13.9	1.7	3.2	3.5	19.8	8.8	49.9	116
2008	1.2	21.6	19.1	3.4	3.5	1.7	13.3	8.6	53.7	126.2
2009	1.5	19.9	23.3	1.3	4.1	3.6	18.4	11.8	50.2	134.1
2010	5.4	17.9	21.6	2.2	3.9	1.5	25	9.1	50	136.7
2011	1.8	14.9	19.2	2.7	3.4	2	28	8.5	36.2	116.8
2012	1.4	11.4	18	0.9	2.6	1.8	25.5	13	26.2	101
2013	3.4	12.6	18.2	1.4	3.5	1.7	20.6	10	29.5	101
2014	2.7	15.3	27.9	1.7	4.9	2.1	27.3	15.9	34.9	132.7
2015	0.3	18.8	31.6	2.9	5.7	4.7	39	20.9	50.6	174.4
2016	4	20.1	28.9	4.3	8.4	5.2	41	24.2	56	192.1
2017	9.3	23.3	40.7	3.6	7.9	4	40.1	22.3	51.2	202.5
2018	11.4	24.3	45.4	4	11.2	6.6	49.3	25.4	66.9	244.4
2019	8.9	21.5	37	1.8	7.6	6.1	40.3	25.8	55.6	204.4
2020	9.3	17.1	31.9	0.8	5.2	5.6	35.9	26	45.3	177.1

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ANNEX 7.4 ICES numbers sprat 22-32

Year	Denmark	Estonia	Finland	German, D	Germany,	Germany	Latvia	Lithuania	Poland	Russia	Sweden	USSR	Total
1977	7.2		6.7	17.2	0.8				38.8		0.4	109.7	180.8
1978	10.8		6.1	13.7	0.8				24.7		0.8	75.5	132.4
1979	5.5		7.1	4	0.7				12.4		2.2	45.1	77.1
1980	4.7		6.2	0.1	0.5				12.7		2.8	31.4	58.1
1981	8.4		6	0.1	0.6				8.9		1.6	23.9	49.3
1982	6.7		4.5	1	0.6				14.2		2.8	18.9	48.7
1983	6.2		3.4	2.7	0.6				7.1		3.6	13.7	37.3
1984	3.2		2.4	2.8	0.7				9.3		8.4	25.9	52.5
1985	4.1		3	2	0.9				18.5		7.1	34	69.5
1986	6		3.2	2.5	0.5				23.7		3.5	36.5	75.8
1987	2.6		2.8	1.3	1.1				32		3.5	44.9	88.2
1988	2		3	1.2	0.3				22.2		7.3	44.2	80.3
1989	5.2		2.8	1.2	0.6				18.6		3.5	54	85.8
1990	0.8		2.7	0.5	0.8				13.3		7.5	60	85.6
1991	10		1.6		0.7				22.5		8.7	59.7	103.2
1992	24.3	4.1	1.8			0.6	17.4	3.3	28.3	8.1	54.2		142.1
1993	18.4	5.8	1.7			0.6	12.6	3.3	31.8	11.2	92.7		178.1
1994	60.6	9.6	1.9			0.3	20.1	2.3	41.2	17.6	135.2		288.8
1995	64.1	13.1	5.2			0.2	24.4	2.9	44.2	14.8	143.7		312.6
1996	109.1	21.1	17.4			0.2	34.2	10.2	72.4	18.2	158.2		441
1997	137.4	38.9	24.4			0.4	49.3	4.8	99.9	22.4	151.9		529.4
1998	91.8	32.3	25.7			4.6	44.9	4.5	55.1	20.9	191.1		470.8
1999	90.2	33.2	18.9			0.2	42.8	2.3	66.3	31.5	137.3		422.6
2000	51.5	39.4	20.2			0	46.2	1.7	79.2	30.4	120.6		389.1
2001	39.7	37.5	15.4			0.8	42.8	3	85.8	32	85.4		342.2
2002	42	41.3	17.2			1	47.5	2.8	81.2	32.9	77.3		343.2
2003	32	29.2	9			18	41.7	2.2	84.1	28.7	63.4		308.3
2004	44.3	30.2	16.6			28.5	52.4	1.6	96.7	25.1	78.3		373.7
2005	46.5	49.8	17.9			29	64.7	8.6	71.4	29.7	87.8		405.2
2006	42.1	46.8	19			30.8	54.6	7.5	54.3	28.2	68.7		352.1
2007	37.6	51	24.6			30.8	60.5	20.3	58.7	24.8	80.7		388.9
2008	45.9	48.6	24.3			30.4	57.2	18.7	53.3	21	81.1		380.5
2009	59.7	47.3	23.1			26.3	49.5	18.8	81.9	25.2	75.3		407.1
2010	43.6	47.9	24.4			17.8	45.9	9.2	56.7	25.6	70.4		341.5
2011	31.4	35	15.8			11.4	33.4	9.9	55.3	19.5	56.2		267.9
2012	11.4	27.7	9			11.3	30.7	11.3	62.1	25	46.5		235
2013	25.6	29.8	11.1			10.3	33.3	10.4	79.7	22.6	49.7		272.4
2014	26.6	28.5	11.7			10.2	30.8	9.6	56.9	23.4	46		243.8
2015	22.5	24	12			10.3	30.5	11	62.2	30.7	44.1		247.2
2016	19.1	23.7	16.9			10.9	28.1	11.6	59.3	34.6	42.4		246.5
2017	27.1	25.3	16.1			13.6	35.7	12.5	68.4	38.7	48.3		285.7
2018	24.6	29.3	16.4			15.2	37.1	16.2	79.4	41.4	49.1		308.8
2019	30.9	29.2	16.1			14.6	38.9	16.2	82.4	40.7	45.1		314.1
2020	26.4	24.3	12.5			8.9	28.9	11.2	72.5	45.7	41.1		271.5

ANNEX 7.5 Template. Overview of historic data submitted to ICES

<table>
<tr><th colspan="4">Overview of data sources used when submitting data from the Baltic to WGBFAS</th></tr>
<tr><th>MS</th><th>Landing category</th><th>Time period</th><th>Data source</th></tr>
<tr><td rowspan="5">Denmark</td><td rowspan="5">IND</td><td>2020-present</td><td>Sale slips

(In 2020, Denmark introduced a new system for estimating the species composition in the landings for reduction. The Danish 1st buyers of these landings now oblige to sub-sample every landing and use these to estimate the species composition in that landing. The estimated figures are reported in the sale slips. The number of sub-samples depends on species, area and total amount landed e.g. in 2020 landings of sprat from the Baltic was sub-sampled in the following way;
<table>
<tr><th>Tons</th><th>Number of sub-samples</th></tr>
<tr><td>0-25</td><td>5</td></tr>
<tr><td>25-200</td><td>10</td></tr>
<tr><td>> 200</td><td>15</td></tr>
</table>
(The two biggest 1st buyers of landings for reduction use 3rd party companies to sample the landing))</td></tr>
<tr><td>2017- 2019</td><td>Sale slip figures. No correction with control samples

(All vessels had the 1205 license in the period)</td></tr>
<tr><td>2016</td><td>55% sale slips (1205 license) 45% Sale slips figures corrected with the 9-square method.

(A new license, 1205, was introduced in the Baltic fishery for reduction. Vessel fishing with that license is oblige to report the species composition caught and the sale slip figures was not corrected with the 9-square method for these vessels. Sale slip figures from vessel fishing without was still corrected with the 9-square method)</td></tr>
<tr><td>2012-2015</td><td>Sale slip figures corrected with the 9-square method.

(In 2012, The Danish Fisheries Agency took over calculation of by-catch with the 9-square method and it became a routine to use the method in the Baltic)</td></tr>
<tr><td>1991-2012</td><td>Sale slips figures has been corrected with the 9-square method some years, others not.

(The so-called 9-square method was introduced in 1991. The method use the Danish control samples to estimate the species composition in the fisheries for reduction. A species composition is calculated per square and month based on samples from the square and the 8 surrounding squares within</td></tr>
</table>

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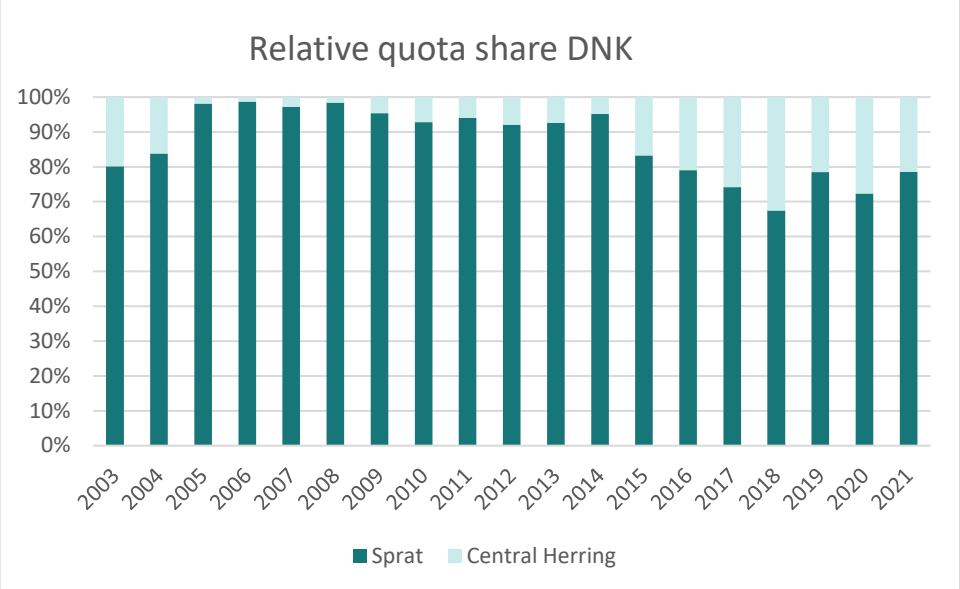
Overview of data sources used when submitting data from the Baltic to WGBFAS			
MS	Landing category	Time period	Data source
			month. The estimate is then applied to the figures from the sale slips per square and month (Logbooks are used to get information about ICES square). The method was routine for the North Sea, Kattegat and Skagerrak, but not for the Baltic, but some years it has been used, when submitting data to WGBFAS DTU Aqua was responsible for the calculations, but the results for North Sea, Kattegat and Skagerrak was used by the Danish Fisheries Agency)
		Before 1991	No clue
	HUC	All years	Sale slips
Estonia			
Finland			
Germany			
Sweden			
Latvia			
Lithuania			
Poland			

ANNEX 7.6 Template Quota share by MS

Quota Share DNK				
year	Sprat	% fished	Central Herring	% fished
2003	33947000		8427000	
2004	44454000		8579000	
2005	59741000		1138000	
2006	43056000		555000	
2007	43788000		1270000	
2008	54012000		858000	
2009	64753000		3159000	
2010	57157000	84	4414000	55
2011	37292000	90	2363000	91
2012	20787000	98	1780000	83
2013	27569000	100	2204000	87
2014	30041920	95	1516970	92
2015	24702420	95	4965770	14
2016	19193519	96	5090803	90
2017	30088000	90	10459541	89
2018	27309558	90	13158086	90
2019	34465779	90	9427865	93
2020	29578524	93	11314564	86
2021	25827000	95	7040000	93



ANNEX 7.7 Small Pelagic in the Baltic

The tables below summarises the points made by the ISSG on small pelagics in the Baltic as a contribution to the fishn'Co project and their level of ambition (🎯) for the thematic focus area concerned.

	#	Level of ambition	Counts of Current positions	Counts of goals 🎯	Progress vs goal*
Small pelagics in the Baltic	0	No coordination or not relevant	3	0	30%
	1	Coordinated data reporting	4	0	
	2	Agreed guidelines	3	0	
	3	Common monitoring strategy	0	7	
	4	Joint data collection	0	3	

*Progress vs goal calculation is the ratio of the sum of product between the numbers in each column and the level of ambition (0-4).

	Level of ambition					Comments
	0	1	2	3	4	
Common sampling protocol/method				🎯		It is the intention to have a common protocol defining the minimum amount (kg) per sample, species selection, numbers of ages and length measured, the units used.
				🎯		Common protocols on vessel selection, agreement on which part of the fleet to cover (large trawlers) and which part is covered by a national sampling program.
					🎯	Common sampling description (WGCATCH) for all MS to describe for benchmark. Using the same template and the same way to identifying the sampling
					🎯	Common estimation description (WGCATCH) for all MS to describe for benchmark
Common regional Database					🎯	Data will be uploaded in the RDBES as a common sampling program. Presently data is uploaded in a common database (RDB) but not as a common sampling program.
Comparability of results				🎯		When a common vessel selection protocol and common sampling protocol is adopted, data across MS will be more comparable. Further, the ISSG will develop common estimation tools, which will enable comparison of estimates (point estimates and variances) across national strata and against present national estimates.

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Harmonisation of data collection/Standardization				🎯		Annual meeting between those responsible for data collection. Evaluations of the impacts of different sampling designs, sampling protocols and sampling efforts are also ongoing. The last 2 years meetings have been conducted as part of the pilot. However not all MS has participated.
Improving knowledge about similarity/difference between countries					🎯	As part of the case study, we have now gathered information on all MS national programs and have started to evaluate how we can align sampling designs and estimation between MS and where it makes sense to keep the national exemptions.
						Further, we also would like to have annual coordination meetings to ensure alignment.
Data quality and control data				🎯		Try to ensure a common way to identify mis-reporting. Make control data available for other nations.
					🎯	Common documentation on relevant national data checks. (RCG/ FishnCo/ ICES)
					🎯	Agreement on relevant national data checks (based on RDB-ES format).
End users needs					🎯	As part of the case study we will conduct analysis on the level of misreporting back in time to be used by the Benchmark process for herring and sprat in 2023. Presently, it has been discussed how to archive reliable information on the misreporting back in time (Scientific observers/ control data / other).
Developing pilot study				🎯		A pilot study, where most of the MS participate, has been running for 2 years.
Data collection of other variables						
Other, specific to thematic focus area				🎯		Systematic age reading workshops. Workshop is already conducted within the ICES system, but not on a regular basis for the sprat and herring in the Baltic Sea.

8 ISSG Case Study Freezer Trawler Fleet Exploiting Pelagic Fisheries in the Northeast Atlantic

8.1 Background

In 2018, the EU freezer trawler fleet targeting small pelagic species (mackerel, herring, horse mackerel, blue whiting, sprat and argentine) in the North Atlantic and North Sea was first identified by the RCG as a potential candidate for the development of a regionally coordinated sampling plan. The fishPi2 project also identified the wider NEA Mackerel fishery as a candidate for a coordinated sampling approach.

Initial investigations focussed on the collation of relevant data including identifying national fleets and compiling a list of freezer trawler vessels. Following an investigation of the historic landings dataset compiled by the FishPi2 project, it was determined that a dedicated data call was required to support the work of the ISSG, primarily because it was not possible to assign individual landings to freezer trawler vessels in the FishPi2 dataset. A data call requesting information on landings of appropriate species by freezer vessels for the period 2014-2018 was issued to NLD, DEU, UKE and FR under which flags the EU freezer trawler fleet operates.

Analysis of the data received indicated that the freezer trawler fleet follows a traditional fishing pattern with little annual variation. Moreover, individual national fleets often target the same fisheries in space and time, indicating that coordinated sampling between national institutes could be considered. The analysis also indicated that, despite a degree of informal cooperation between national sampling programmes and relatively good coverage with all major division/quarter combinations covered, some duplication occurred and occasional gaps indicating closer coordination in future may improve coverage.

Simulations were carried out to investigate potential sampling coverage under a number of scenarios based on both an observer scheme and market sampling of a reference fleet. Trip and vessel selection was explored under various sampling frames (e.g. individual and groups of national fleets) weighting schemes (selection weighted by historic landings or species diversity), overall effort and stratification of effort by quarter. Coverage of each of the main fisheries was calculated with indications of the levels of sampling required to cover the smaller fisheries. Improved coverage can be achieved for the same effort when national sampling programmes are combined. The reference fleet approach was associated with higher levels of coverage.

8.2 Work-plan

When planning the work to be carried out from 2021-2022, the following tasks were identified during the RCG meeting in 2021.

1. Design and circulate a questionnaire for stock assessment end-users
2. Investigate the pooling of resources assigned to the NLD and DEU at-sea sampling (observer) programmes
3. Follow up on the availability of French data (under the 2019 data call)
4. Work on WP/AR Tables and textbox 2.5

Following the 2020 RCG meeting, the case study was presented to and discussed by the ISSG on Optimised and Operational Regional Sampling Plans (the "umbrella group"). Following discussions, the ISSG carried out an exercise to design a pilot study based on the NLD observer programme. This programme was selected (rather than the market sampling scheme) as it likely represents the most efficient approach to implementing a coordinated sampling programme with the other sampling nation DEU. The Dutch observer programme is currently designed to meet the requirement for bycatch monitoring but extensive sampling of the catch of all

species is also undertaken with over 90% of hauls typically monitored. In contrast, the German observer programme is designed to fulfil the national stock assessment requirements plus the monitoring of bycatch and catch composition.

8.3 Progress during 2021/2022

8.3.1 End user questionnaire

In January 2022, a questionnaire was circulated by email to appropriate end users (ICES coordinators and assessors for each of the stocks) requesting feedback in relation to:

1. Current stock assessment data requirements e.g. is age based information required at present or likely the near future
2. The relative contribution of the catch from the freezer fleet to the total
3. Identifying any obvious or recurring gaps/duplicates in sampling coverage
4. General comments on the adequacy of sampling (e.g. is the number of fish measured, aged considered to be appropriate?)

A limited number of responses were received (and the ISSG remains open to requesting and considering future responses). In general, the majority of assessments for pelagic fisheries are age based assessments with the freezer trawler fleet often representing a significant proportion of the total catch. It is noted that on occasion national sampling programmes result in duplicate coverage of the fleet, usually for the most heavily fished ICES divisions and quarters while some (usually more minor catches) are missed and require allocation of sampling information from neighbouring quarters and divisions. Where the number of samples secured is low (e.g. 1-2), resultant ALKs can be sparse such that the utility of the sample for raising unsampled catch is limited.

8.3.2 Pooling/Documentation of NLD/DEU observer scheme resources

The pelagic freezer trawler fishery is monitored at sea by both the Netherlands and Germany, conducting their own monitoring programmes and sampling protocols. The two sampling programmes together correspond with a sampling coverage of approximately 15% of the total Dutch- and German-flagged pelagic freezer trawler fleet effort (expressed in number of trips) in European waters in 2015-2020. In order to work towards harmonised regional sampling of commercial fisheries, the results for the German and Dutch observer programmes of pelagic freezer trawlers operating in European waters are presented together since 2011 (van Overzee et al., 2013; Ulleweit et al., 2016; van Overzee et al., 2017; van Overzee et al., 2020; Ulleweit et al., 2022).

Ultimately, under a regional sampling plan the two sampling programmes are merged or at least completely harmonised and thus interchangeable. In order to do so, methodology must be similar (e.g. sample selection, sample size, sample processing etc.) and vessel selection needs to be coordinated regionally rather than nationally.

8.3.3 Development of a pilot study based on the NLD observer programme

To investigate the potential for a pilot study, historic data on the NLD observer programme was supplied for the period 2015-2021. Haul level, species length frequency information was provided for each of the pelagic species of interest. The dataset consists of 82 separate observer trips (with a range of 14-72 hauls per trip, average 36) covering all of the target fisheries (although not in all years). The intensity of length sampling is high – the total number of measurements by year for each stock is shown below

Year	NEA Mackerel	North Sea Herring	Atlanto Scandian Herring	Blue Whiting	Western Horse Mackerel
2015	11,460	24,381	101	23,518	12,982
2016	13,231	42,292		19,977	6,850
2017	5,285	44,914		21,264	12,493
2018	10,972	43,293		47,399	10,070
2019	22,360	21,820		24,647	21,702
2020	11,194	30,678	9	22,131	15,740
2021	6,382	27,087	10,085	26,571	7,961

Table 8.3.1 indicates the number of fish in each length frequency for each stock, all years combined.

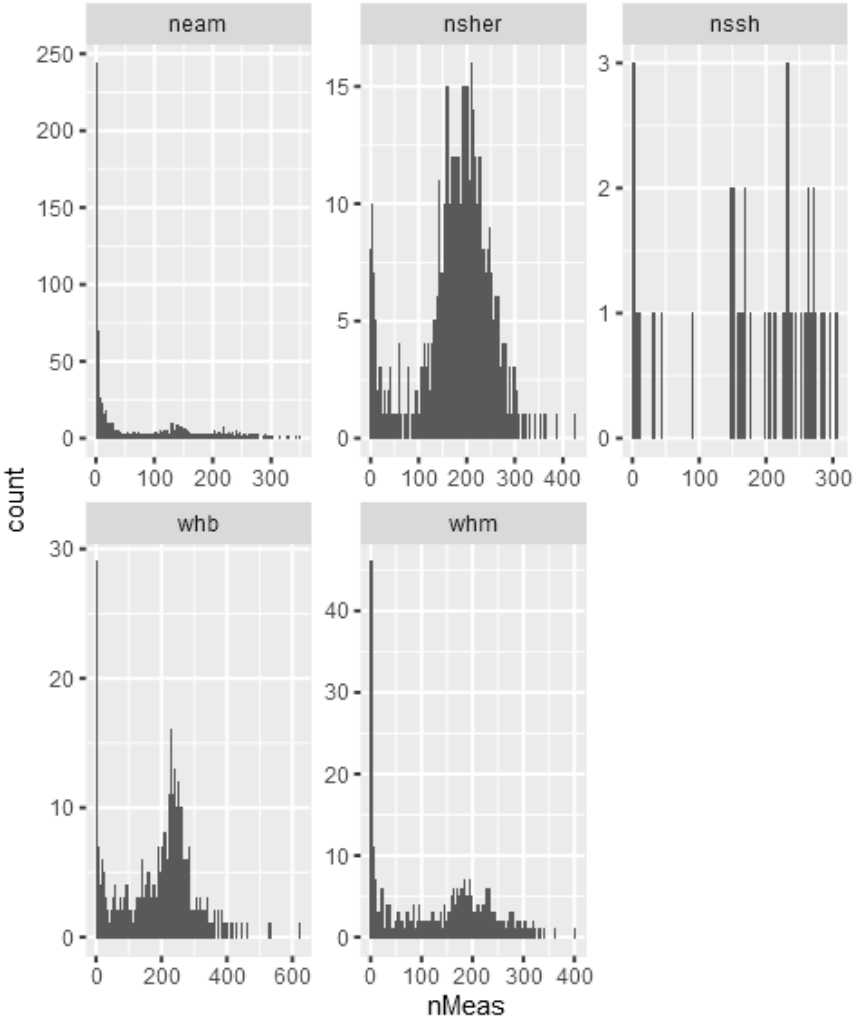


Figure 8.3.1: Number of fish measured by sample by stock from NLD observer programme (2015-2021)

As the sampling protocol dictates that all species are sampled, there are a number of hauls with relatively low numbers of some species. For example, many hauls contain relatively few mackerel, likely when it is not the target species but reflecting the very wide distribution of this species. For the purposes of this analysis, length frequency profiles with fewer than 50 fish are not included. The geographic distribution of sampled hauls is similar in each year, The positions of the hauls sampled during the 12 observer trips undertaken in 2015 are shown in figure 8.3.2.

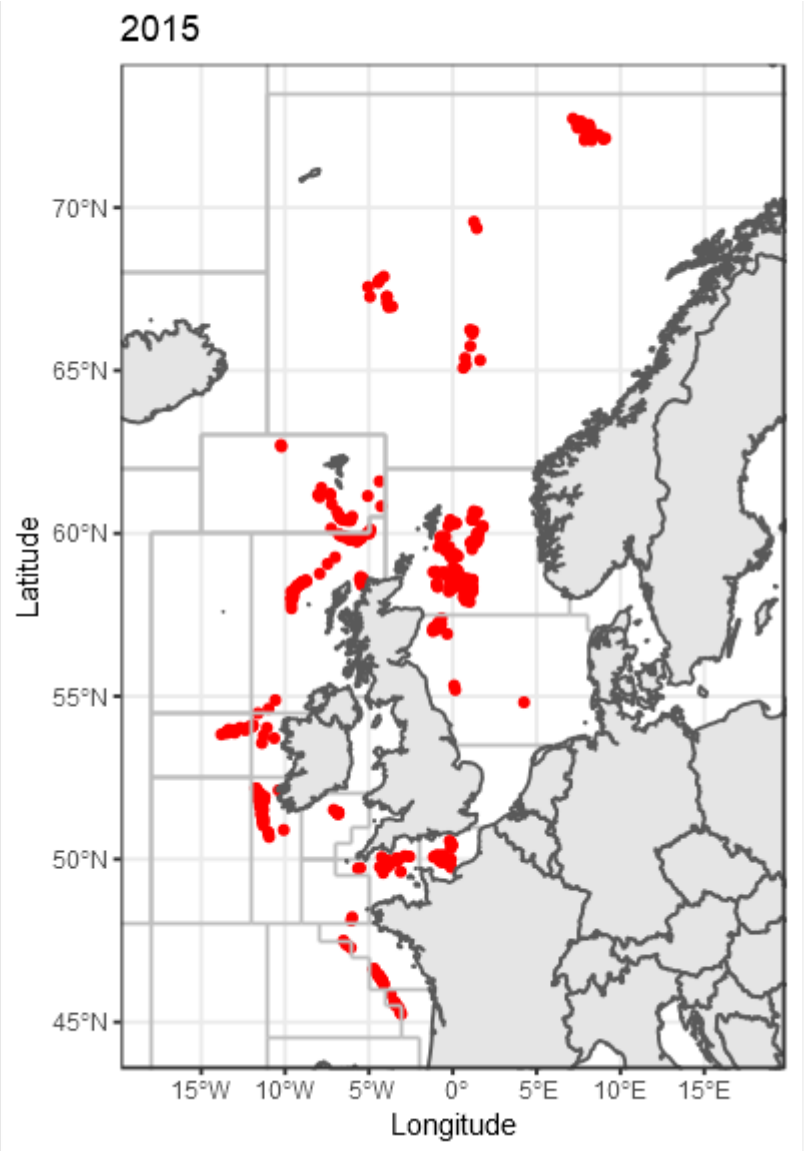


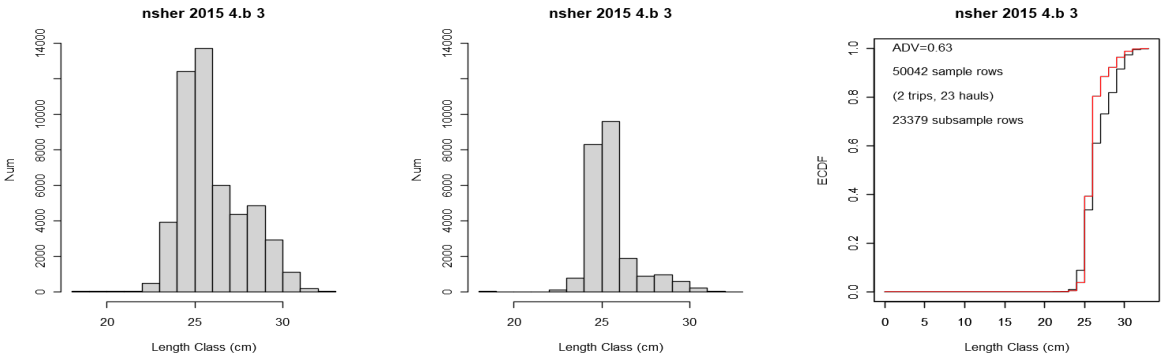
Figure 8.3.2: NLD observer programme hauls in 2015 covering the main fisheries exploited by the freezer trawler fleet of the Netherlands.

The aim of the pilot study is to modify the observer programme sampling protocol such that sufficient additional sampling is carried out to support the assessment end user needs without compromising other survey objectives (e.g. bycatch monitoring). The additional sampling relates to the adequate collection of biological information such that estimates of appropriate age base quantities can be available for comparison with information from the concurrent market sampling carried out by NLD and also any appropriate DEU observer trips.

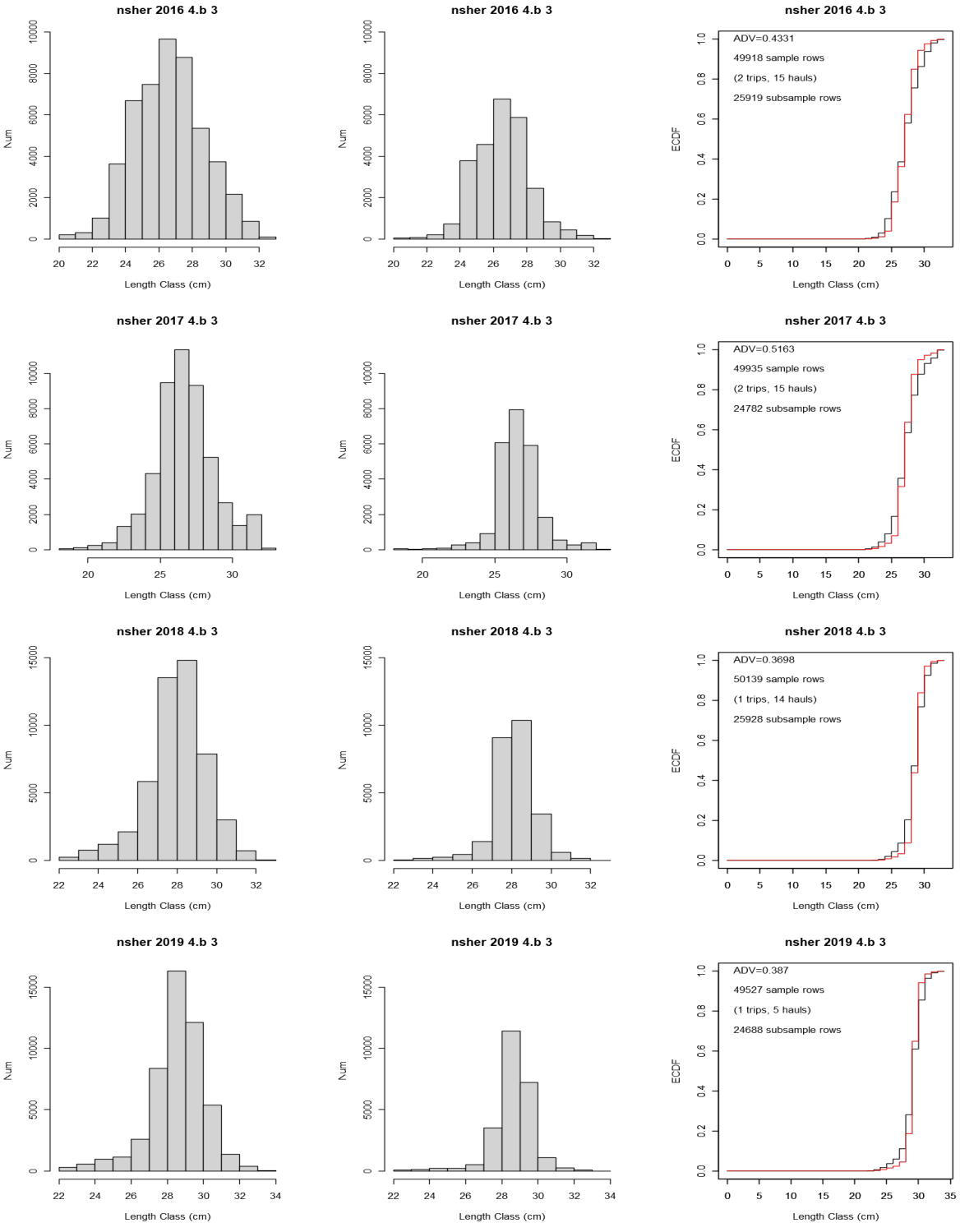
The current observer sampling protocol involves securing an unsorted random sample of between 30 and 150kg (dependent on the species composition) for each haul. The sample is sorted by species and sampled for length (subsampling if necessary). Currently, no sampling is carried out for weight, sex, maturity or age determination. In general, there is a single observer on each trip. As a result, only a subset of all hauls can be sampled although rates of over 90% are routinely achieved.

An analysis was conducted to examine the optimal level of length sampling (number of hauls). If the current high sampling levels (>90%) can be reduced, then the associated effort can potentially be made available to secure the biological sampling required of the pilot study whilst maintaining the other objectives of the survey (e.g. bycatch monitoring). The ISSG adopted an approach developed by the ICES workshop on the Optimization of Biological Sampling (WKBIOPTIM) which aims to develop R-based tools to evaluate if sampling effort for biological parameters can be optimized without compromising the quality of estimates. The approach adopted investigates the optimal number of length samples based on identification and selection of an "information sufficient" subsample which retains the important characteristics of the full length frequency distribution under a lower sampling level (see Wischnewski et al 2020). Associated with this subsample is an admissible dissimilarity value (ADV) which can be used as an upper bound when evaluating the difference between alternative (sub) sampling approaches and the full sample. The calculation of the ADV is based on a comparison of the cumulative distribution of the full and sub samples, recognising the importance of the overall shape of the length frequency distribution including the number, position and relative size of the distribution modes (peaks) and anti-modes (troughs). The calculation can be based on a subset of the most important length classes, avoiding the influence of relatively rare size classes.

The observer dataset contains samples from 140 separate combinations of stock/year/ices division and quarter (the reporting level requested for input to stock assessment) and an ADV was calculated for each of these combinations. In the case of herring, length classes between 20 and 40cm were considered the most appropriate. The ADV results for North Sea Herring in ICES division 4.b, quarter 3 for each of 2015-2020 are shown in figure 8.3.3.



8. ISSG Case Study Freezer Trawler Fleet Exploiting Pelagic Fisheries in the Northeast Atlantic



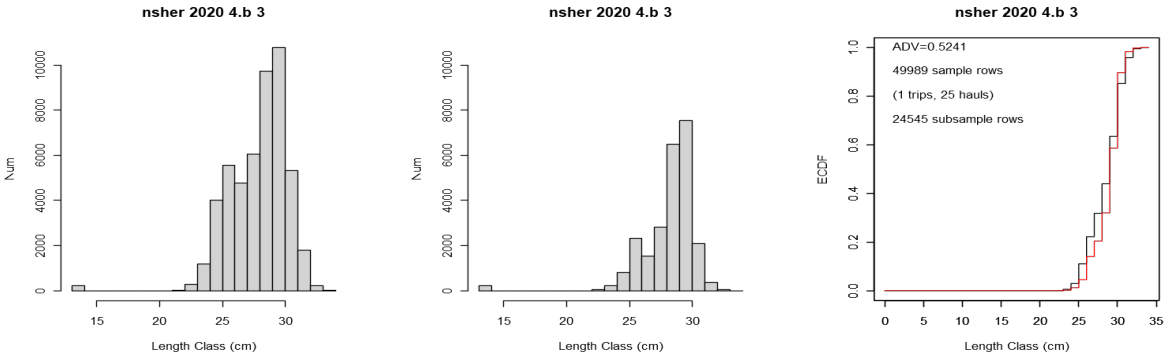


Figure 8.3.3: ADV results for North Sea Herring samples from ICES division 4.b in Quarter 3. The leftmost column is the length frequency for the full sample. The middle column is the reduced sample – further iterations (reductions) were rejected on the basis that the number of modes or anti-modes was altered or their position shifted (i.e. to a different length class) or (more commonly) the change in the relative size of adjacent modes and anti-modes exceeded the predefined level of 70% of the original sample. The rightmost column depicts compares the CDFs of the original sample (in black) and the reduced sample (in red). The ADV value in each case is shown alongside the CDF.

Following calculation of the ADV associated with the reference subsample, the following potential subsampling scenarios were investigated:

1. Random selection of ¼, ½, or ¾ of all available samples (100 iterations)
2. Sampling of every 2nd, 3rd, 4th or 5th haul from each trip
3. Sampling of the first 5 or 10 hauls from each trip
4. Sampling of the first 5 or 10 hauls followed by every second haul from each trip

For each scenario (and each iteration for those scenarios involving random selection of hauls), the distance (difference between the subsample LF and the full sample LF) was calculated and compared to the appropriate ADV value. Distances greater than the ADV are not considered to be appropriate sampling schemes are they lead to a length frequency distribution significantly different to that of the full sample. The results for herring in 4b Q3 are shown in figure 8.3.4. For clarity, dissimilarity distances greater than 2 are not displayed - these would be scenarios where the LFD is significantly altered under subsampling. Of most relevance is the position of the median distance, indicated by the black horizontal line within the boxplot. The red line on each panel shows the associated ADV. There is only a single result associated with each of the remaining scenarios and this is shown as a black horizontal line.

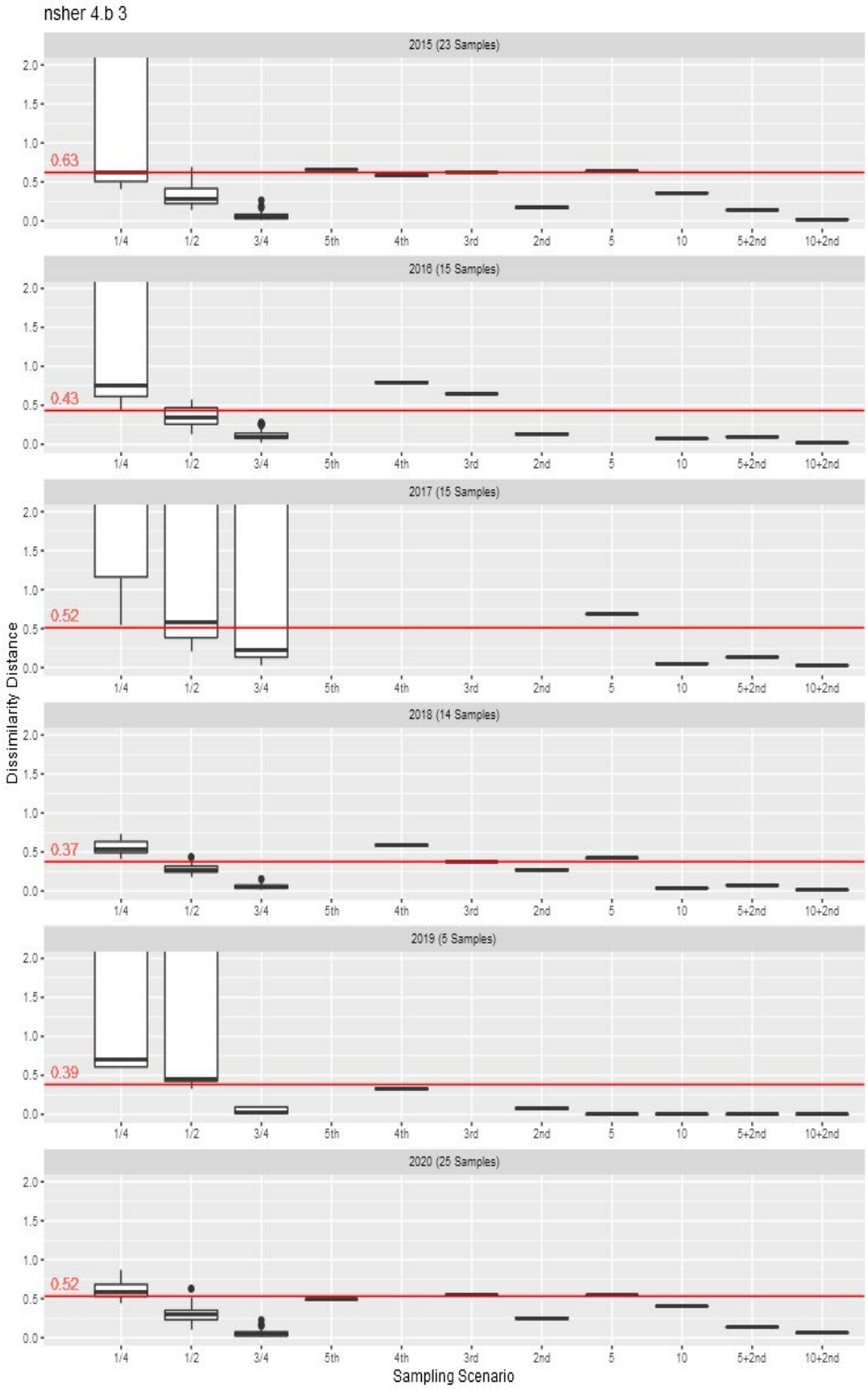


Figure 8.3.4: Dissimilarity distance for a range of subsampling scenarios for North Sea Herring in ICES division 4.b, Quarter 3. The 3 leftmost boxplots in each annual panel represent the random approaches (scenario 1) with 100 iterations of a random selection of a proportion of the full sample. Scenarios 2nd, 3rd, 4th and 5th represent systematic

subsampling at regular intervals. Scenarios 5 & 10 are subsamples based on the first 5 or 10 hauls only and 5 + 2nd, 10 + 2nd include every second haul following the initial sampling of 5 or 10 hauls.

Although results vary by year, primarily due to variations in sampling levels (5-25 hauls), it is clear that, for example, only sampling every 4th haul is unlikely to provide a subsample that can be considered closely representative of the full data set in any year. The dissimilarity distance associated with sampling every second haul is often lower than that associated with the minimum representative sample (the ADV), particularly when a significant number of samples are available. For years with few samples or where the samples are from multiple trips, this is less likely. From the scenarios considered the optimal approach would appear to be sampling each of the first 5/10 hauls followed by every second haul. It is important to maintain regular sampling throughout the trip, albeit at a reduced sampling frequency to ensure changes in the length profile of the exploited population are captured. For longer trips e.g. those with 30+ hauls, the sampling effort could be reduced by over 30% (assuming first 10 and 50% of remainder are sampled). An approach that samples all hauls initially ensures good coverage in the event the fishing trip moves to a different area shifts target to another species or stock.

The results considered are for the North Sea Herring fishery in Q3. As a large and important fishery, it has traditionally received a significant allocation of observer effort. For other fisheries, including those trips which target mixed species (e.g. mackerel and horse mackerel), the optimal sampling levels will likely differ from those for herring. In addition, species for which a multimodal length frequency is often evident (e.g. horse mackerel, occasionally mackerel), the reference sample (and associated ADV) is likely to place a more stringent threshold on any potential sub sampling scheme.

Ulleweit, J., H.M.J. van Overzee, E. van Helmond & K. Panten, 2016. Discard sampling of the Dutch and German pelagic freezer fishery operating in European waters in 2013-2014. – Joint report of the Dutch and German national sampling programmes. CVO Report 15.014, 62 p.

Ulleweit, J., H.M.J. van Overzee & T. Bangma, 2022. Catch sampling of the pelagic freezer fishery operating in European waters in 2019-2020. – Joint report of the Dutch and German national on-board sampling programmes. CVO Report 22.008, 49 p.

Van Overzee, H.M.J., A.T.M. van Helmond, J. Ulleweit & K. Panten, 2013. Discard sampling of the Dutch and German pelagic freezer trawler fishery operating in European waters in 2011 and 2012. CVO Report 13.013, 68 p.

Van Overzee, H.M.J., J. Ulleweit & E. van Helmond, 2017. Catch sampling of the pelagic freezer trawler fishery operating in European waters in 2015-2016. – Joint report of the Dutch and German national sampling programmes. CVO Report 17.021, 55 p.

Van Overzee, H.M.J., J. Ulleweit, A.T.M. van Helmond & T. Bangma, 2020. Catch sampling of the pelagic freezer trawler fishery operating in European waters in 2017-2018. Joint report of the Dutch and German national sampling programmes. CVO Report 20.004, 53 p.

Wischnewski J, Bernreuther M, Kempf A. Admissible dissimilarity value (ADV) as a measure of subsampling reliability: case study North Sea cod (Gadus morhua). Environ Monit Assess. 2020 Nov 12;192(12):756. doi: 10.1007/s10661-020-08668-6. PMID: 33180197; PMCID: PMC7661427.

8.4 Roadmap/follow-up

The following tasks have been identified for the attention of the ISSG in 2022/23:

1. Finalize specifications of pilot study
2. Identify pilot trip (NS Herring Q3/4 2022)
3. Perform pilot study
4. Review, analysis and comparison with NL market sampling/DE observer sampling
5. Investigate possibility of extending to all NS Herring trips in 2023
6. Develop appropriate protocols for other fisheries

8.5 SG Participants

Name	E-mail	MS
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Harriet Van Overzee	harriet.vanoverzee@wur.nl	NLD

9 ISSG Case Study of the Trawl Fishery in Iberian Waters

9.1 Background

RCG 2020 report had defined the following tasks for this ISSG for the intersessional period 2020-2021:

"Define and implement pilot study, which includes analysing in detail alternative scenarios of RSP and define needed adjustments to agree on a pilot for implementation/testing.

Tasks to be developed if human resource is hired full-time by the project within the MARE/2020/08 annex I grant: Analyse effects of alternative RSPs on length composition and incorporate these results into the definition of the RSP.

(Alternatively, if a project is not submitted/secured then a workplan for this task needs to be revised and discussed in RCG 2021)."

RCG 2021 report had presented the following work of this ISSG during the intersessional period 2020-2021:

"During 2020-2021, team members of this ISSG had limited time to dedicate to the work plan proposed. For this reason, the ISSG decided to dedicate in 2020-2021 on the topics from the work plan that would provide the best relationship between time invested and progress achieved, namely:

i) Revise in detail what was done in FishPi2, specifically in relation to the selection of scenarios and the feasibility/suitability issues.

The ISSG highlights that the approach of the simulation study (assessing bias and precision) was welcomed as a means to obtain a robust / balanced sampling design. The regional sampling plan to be selected can be based on the best scenarios from project FishPi2, but with modifications to avoid suitability issues identified in the project. The selected scenarios (S35 – Major ports 90 mix; S55 – major ports 90 mix own; equivalent but with and without sampling of foreign landings) included ports with 90% of landed weight and covered most important trawl fleets in ICES divisions 8c and 9a (1-4 below) but left out one fleet and stocks targeted by it, because it is important in landed value but not as much in landed weight (5 below):

1. Otter bottom trawl in Gulf of Cadiz;
2. Otter bottom trawl in 27.8.c and 27.9.a.n;
3. Pair bottom trawl in 27.8.c and 27.9.a.n;
4. Otter bottom trawl for demersal species in 27.9.a.c.n, 27.9.a.c.s, 27.9.a.s.a;
5. Otter bottom trawl for crustacean species in 27.9.a.c.s and 27.9.a.s.a).

ISSG finds that the regional sampling plan should increase ports covered (add two specific ports to cover the fifth fleet not covered) and that the stratification / allocation of sampling effort between institutions / countries needs to consider port (considered in Fishpi2) but also fleet and quarter.

ii) Define a common sampling protocol for the regional sampling plan (topic 3a).

A preliminary version (1.0) of the common sampling protocol was developed based on the template for commercial sampling programs from ISSG data quality. The common sampling protocol developed by the ISSG Iberia represents an important new element needed for the future implementation of a regional sampling protocol of trawl fisheries in Iberian waters."

"This development allowed to identify similarities/differences in current sampling protocols of this fishery by institutions/countries (AZTI, IEO, IPMA) and assess if differences can be changed aiming at similar procedures. The ISSG expects that revised versions of the common sampling protocol may be needed as the work of the ISSG develops.

Additionally, aiming at the definition of the pilot study, the ISSG identified elements that will receive no further development (simulations) and on the other hand, elements that will receive development (feasibility / suitability issues - in 2021-2022 - 2023; how / when to implement, joint quality framework, policy for data sharing and use - in 2022-2023). "

Fishn'Co project application had proposed the following tasks for 2020 and 2021-2022:

"An ISSG was set up in RCG NANS&EA 2019 and will work in 2020-2021 to continue the previous work by FishPi and FishPi2 towards developing a RSP for trawl fishery in Iberian waters. In articulation with the work of the RCG ISSG, the support tasks of the Fishn'Co project will be to evaluate aspects that need to be addressed for a RSP, such as: the need to reevaluate the feasibility, suitability and cost issues of alternative RSPs; and/or the need to analyse effects of alternative RSPs on length composition; and/or the need to implement a pilot study; and/or other relevant needs."

9.2 RCG report 2021 had proposed the following tasks for this ISSG

9.2.1 -for the intersessional period 2021-2022:

"Team members of this ISSG expect to have (during 2021-2022) limited time to dedicate to the work plan of the ISSG. The ISSG proposes to dedicate in 2021-2022 to the topic:

Define regional sampling plan to be implemented in a pilot study and allocation of sampling effort between institutions/countries.

This will imply: Define scenarios for sampling design of the Regional Sampling Plan. In the simulation study of project FishPi2 several scenarios were defined and preferential scenarios were identified based on bias, precision, feasibility and suitability. The selected scenario to be implemented in a pilot study needs to be identified especially taking into account the output from FishPi2 and the sampling protocol. Allocation of sampling effort needs to be defined taking into account the final scenario selected.

In 2021-2022 this work plan will be developed under the scope of Project Fishn'Co."

9.2.2 -for the intersessional period 2022-2023:

"Team members of this ISSG expect to have (during 2022-2023) limited time to dedicate to the work plan of the ISSG. The ISSG proposes to dedicate in 2022-2023 to the topic:

Design, implement and assess results of pilot study of the regional sampling plan.

This will imply: Define aspects for the implementation of the pilot study (timing, costs, additional adjustments); Implement pilot study during one year; Compare results of the pilot study with results of the national sampling plans

In 2022-2023 this work plan will be developed under the scope of ISSG Iberia / Project Fishn'Co. "

9.3 Progress of Fishn'Co and of ISSG during the intersessional period 2021-2022 and Fishn'Co:

The ISSG focused on the definition of a pilot study based on the outcomes of project FishPi2, especially in terms of the allocation of sampling effort to fishing ports. Among the different scenarios simulated in FishPi2, scenarios S35 and S55 were selected in project FishPi2 for further work based on criteria of bias, precision, feasibility and suitability.

Scenarios S35 and S55 include sampling of major ports in terms of landed weight and number of trips. These two scenarios differ only in whether they include foreign landings (S55) or not (S35 - as is the case with the current national sampling plans) and in the proportional allocation of effort among ports because of including (or not) foreign landings.

For the definition of a pilot study based on these scenarios, the ISSG first focused on two aspects of feasibility, namely: a) a detailed assessment of the possibility of sampling national landings in scenario S35 in a pilot study; b) a detailed assessment of the possibility of sampling foreign landings in scenario S55 in a pilot study. And subsequently c) focused on the suitability of the Regional Sampling Plan pilot that could be implemented given the feasibility assessed (in and b).

a) Feasibility - Sampling of national landings

The ISSG assessed the feasibility of implementing a sampling plan as proposed in scenario S35. For each port to which this scenario has allocated sampling effort (Table 9.3.1), the ISSG assessed:

i) If the port **has sampling effort in the current National Sampling Plans** and:

-if this effort is **higher in than in the Regional Sampling Plan**.

-or if this effort is **lower than in the Regional Sampling Plan**; and in this case if it is **possible to implement the additional effort** proposed in the Regional Sampling Plan (or if it is not possible, the reasons for this were also assessed).

ii) if the port **does not have sampling effort in the current National Sampling Plans** (and the reasons for this were also assessed).

Table 9.3.1 - Feasibility of implementing sampling in each port according to the scenario of the Regional Sampling Plan considered (SP – Sampling Plan; NSP – National Sampling Plan; green – sampling for RSP is feasible; blue – sampling for RSP is conditional to additional funding; red – sampling for RSP is not feasible)

ICES division	Country	Port name	Port Locode	Metier	Primary Sampling Unit (PSU)		Description of national versus regional Sampling Plan (SP)
					S35	S55	
27.8.c	ESP	Ondarroa	ESOND	PTB (in NSP)	12	14	Port in Regional SP and in National SP;
27.8.c	ESP	Gijón	ESGIJ	OTB (in NSP),	16	16	

ICES division	Country	Port name	Port Locode	Metier	Primary Sampling Unit (PSU)		Description of national versus regional Sampling Plan (SP)
					S35	S55	
				PTB (not in NSP)			Sampling effort National SP > Regional SP
27.8.c	ESP	Aviles	ESAVS	OTB (not in NSP), PTB (in NSP)	15	17	
27.8.c	ESP	Burela	ESBRL	OTB (in NSP), PTB (in NSP)	15	17	
27.8.c	ESP	A Coruña	ESLCG	OTB (in NSP), PTB (in NSP)	16	18	
27.9.a.n	ESP	Ribeira	ESSNI	OTB (in NSP), PTB (in NSP)	16	17	
27.9.a.n	ESP	Marin	ESMPG	OTB (in NSP)	14	16	
27.9.c.n	PRT	Matosinhos	PTMAT	OTB (in NSP)	13	13	
27.9.c.n	PRT	Aveiro	PTAVE	OTB (in NSP)	18	18	Port in Regional SP and in National SP; Sampling effort National SP > Regional SP; Currently there are difficulties in achieving the sampling effort planned in the National Sampling Plan, but this is expected to be solved in the future
27.9.c.n	PRT	Figueira da Foz	PTFDF	OTB (in NSP)	13	13	
27.9.c.s	PRT	Peniche	PTPEN	OTB (in NSP)	15	15	
27.9.a.s (Portugal)	PRT	Portimao	PTPRM	OTB (in NSP)	17	17	Port in Regional SP and National SP; Sampling effort National SP < Regional SP; In theory, with more funding, in the future it could be sampled
27.9.a.n	ESP	Vigo	ESVGO	OTB (in NSP)	15	13	Port in Regional SP and in National SP; Sampling effort National SP > Regional SP; But there is an operational limitation for sampling in this port even in National Sampling Plan, so it is not possible to sample it even with more funding
27.9.c.n	PRT	Nazaré	PTNZR	OTB (in NSP)	14	14	
27.9.c.s	PRT	Sesimbra	PTSSB	OTB (in NSP)	14	14	
27.8.c	ESP	Santander	ESSDR	OTB (not in NSP)	10	11	Port in Regional SP but not in National SP; Sampling effort National SP < Regional SP; There is an operational limitation for sampling in this
27.8.c	ESP	Celeiro	ESCIO	OTB (not in NSP), PTB (not in NSP)	10	9	

ICES division	Country	Port name	Port Locode	Metier	Primary Sampling Unit (PSU)		Description of national versus regional Sampling Plan (SP)
					S35	S55	
27.8.c	ESP	Corme	ESCOX	OTB (not in NSP), PTB (not in NSP)	10	12	port, so it is not possible to sample it even with more funding
27.8.c	ESP	Camariñas	ESIAS	OTB (not in NSP), PTB (not in NSP)	12	14	
27.9.a.n	ESP	Muros	ESMRS	OTB (not in NSP)	16	16	
27.9.a.s (Spain)	ESP	Isla Cristina	ESZGA	OTB (not in NSP)	12	0	

Operational limitations to sampling of a given port for the National Sampling Plans generally refer to the following situations: scientific observers have no access to landings for sampling or have access to incomplete landings of trips (since landings of whole trips or part of trips are sold by contract directly to the buyer and are not available in the port, or are transported for sale in another port), scientific observers have access to landings but have insufficient time for sampling (since in many ports trawl fisheries are sold before other landings already in the port even if they are landed after them); or trips are not landed frequently.

In summary:

- **Ports highlighted in green as "Sampling for RSP is feasible"**

For 8 of the ports included in the Regional Sampling Plan scenario considered, the Regional Sampling Plan proposes a sampling effort lower than in the current National Sampling Plans.

In addition, there are 3 other ports for which currently there are difficulties in achieving the sampling effort planned in the National Sampling Plans, but this is expected to be solved in the future.

- **Ports highlighted in blue as "Sampling for RSP is conditional to additional funding"**

For 1 of the ports included in the Regional Sampling Plan scenario considered, the Regional Sampling Plan proposes a sampling effort higher that in the current National Sampling Plans, but, in theory, with additional funding, a pilot study could be designed to sample national landings in this port in the future. However, while in theory it would be possible to sample national landings in this Portuguese port in a pilot RSP, this possibility is hindered by the difficulty in increasing the human resources to conduct onshore sampling in the portuguese National Sampling Plan.

- **Ports highlighted in red as "Sampling for RSP is not feasible"**

For 9 of the ports included in the Regional Sampling Plan scenario considered, the Regional Sampling Plan proposes a sampling effort higher than in in the current National Sampling Plans (6 of the 9 ports are not currently in the national sampling plans). However, there are operational limitations for sampling in these ports, so it is not possible to sample them even with more funding.

b) Feasibility - Sampling of foreign landings:

The ISSG assessed the feasibility of sampling foreign landings as proposed in scenario S55, namely through a pilot in 2023 or 2024. The ISSG identified the ports included for sampling in scenario S55 where there are foreign landings. This is the case of the following Spanish ports where there are landings of Portuguese vessels operating with bottom otter trawl (OTB): Ondarroa (ESOND), Gijón (ESGIJ), Aviles (ESAVS), A Coruña (ESLCG), Muros (ESMRS), Ribeira (ESSNI), Marin (ESMPG), Vigo (ESVGO).

From this set of ports, two are not included in the current National Sampling Plans (Aviles and Muros) since in these ports there is, respectively, no access to landings of OTB because of direct sales (Aviles) and small landings (Muros), even though PTB (pair bottom trawl) is sampled in Aviles. For the other ports (Ondarroa – Basque Spanish port; Gijón, A Coruña, Ribeira, Marin and Vigo – non-Basque Spanish ports) in theory, with additional funding, a pilot could be designed aiming at sampling foreign landings in these ports in the future. However, in the short-medium term (2022-2025) the possibility of a pilot study including the sampling of foreign landings in these ports is hindered by the current subcontract of an external company that performs the onshore sampling in the non-Basque Spanish National Sampling Plan and that is valid until the end of 2025. This subcontract explicitly refers to sampling national landings in national ports of Spain. It is therefore not feasible until the end of 2025 to conduct a pilot for sampling foreign landings of Portuguese vessels in Spanish ports of division 8c.

c) Suitability

From what was assessed in topics a) and b) above, scenarios S35 and S55 from project FishPi2 could not be implemented in all the ports planned. In summary, for 8 of the ports it is feasible to implement the sampling effort proposed in the RSP; but for the other 13 ports there are limitations to the implementation of the sampling effort proposed in the RSP. Limitations from current issues in NSP are expected to be solved in the near future (3 ports); limitations from funding/contracting cannot be solved in the short term (1 port); and operational limitations in the ports cannot be solved regardless of funding/contracting (9 ports).

This results in a RSP that, in the short to medium term, would differ only slightly from the current NSP. Since national landings are sampled in the same ports, the difference would be in the effort allocated in the 8 sampled ports.

9.4 Conclusions and Work plan for 2022-2023, 2023-2024, 2024-2025:

In the context of developing Regional Work Plans, a Regional Sampling Plan can represent the highest level of ambition, as not only it is based on a common sampling protocol, but also because the allocation of sampling effort aims at an adequate coverage and at better estimations of the desired variables. Additionally, a Regional Sampling Plan should also allow for achieving national needs, or such needs need to be complementarily considered in the National Sampling Plan.

The ISSG assessed the feasibility and suitability of a Regional Sampling Plan to be tested through a pilot study. Overall, considering aspects in a), b) and c) above: in the short-term (2022-2025) a pilot study for regional sampling of Iberian trawl fisheries based on the scenarios from project FishPi2 could only be implemented in the ports that are currently already included in the National Sampling Plans, and would differ from the current National Sampling Plans only in terms of the proportional allocation of samples in the ports, whereas it would not allow sampling foreign landings, sampling new ports or increasing sampling effort in ports.

The view of the ISSG is that the implementation of a pilot study should be programmed for after the end of 2025, i.e. 2026, since it is expected that it will be feasible to change the conditions of the contract (of the non-Basque Spanish National Work Plan) from that time onwards and not before. The definition of such a pilot

study should aim at sampling foreign landings (landings of Portuguese vessels in Spanish ports, and vice-versa landings of Spanish vessels in Portuguese ports), sampling new needed ports and adjusting sampling effort per port and fleet as needed, since these seem to be the aspects representing more differences from the National Sampling Plans. In contrast, the pilot study to be implemented should be based on the premise of excluding ports where it is demonstrated that there are operational limitations to sampling since these limitations apply to both National and Regional Sampling Plans.

Comparison of current National Sampling Plans to Regional Sampling Plan done in FishPi2 indicate that in NSP: relevant ports are sampled, and that sampling in those ports covers relevant trawl fleets (OTB and PTB) and with adequate sampling effort. In what concerns the ports that cannot be sampled for operational reasons (i.e. ports where sampling is not possible even when adequate funding/contracting is in place), this limitation occurs in National Sampling Plans as well as in Regional Sampling Plan. Moreover, the document on sampling protocols prepared by the ISSG for the RCG 2021 documents the procedures currently implemented in National Sampling Plans and shows mostly similarities between the three institutes involved.

For these reasons, the ISSG considers that current National Sampling Plans allow maintaining the provision of adequate estimates for stocks assessed in the North-Atlantic Iberian waters.

To that aim, the ISSG proposes the following work plan:

June 2022–May 2023	no progress
June 2023–May 2024 and June 2024-May 2025 (starting in April 2024):	update the allocation of sampling effort to ports based on recent data on landings from trawl fisheries in the Atlantic Iberian waters (data for 2 years 2022 and 2023, available in Q2 2024).
	define the sampling plan to be implemented in the pilot study and prepare changes/additions to contracts to allow for the implementation of the pilot study.
June 2025-May 2026 and June 2026-May 2027 (calendar year of 2026):	implementation of the pilot study
June 2026-May 2027 and June 2027-May 2028 (starting in April 2027):	analysis of the results of the pilot study (data for 2026, available in April 2027).
	define future steps

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Annex 9.1 - Participants and meetings

Participants

Participant	Institution
Rita Vasconcelos (chair)	IPMA, Portugal
Ana Cláudia Fernandes	IPMA, Portugal
José Castro	IEO, Spain
José Cebrian	IEO Spain
José Rodriguez	IEO, Spain
Eneko Bachiller	AZTI, Spain – Basque Country

Meetings

ISSG work in 2022: February 16, March 3, March 31, May 6.

Others:

Related to Project Fishn'Co "Strengthening Regional cooperation in the area of fisheries data collection"

Several dates – Participation of chair of ISSG Iberia in meetings of Project Fishn'Co

10 ISSG Evaluation of the Data Collected for SSF at EU level

10.1 Background

Small Scale Fisheries (SSF) are an important economic and social activity in many European inshore coastal areas. These fisheries have reduced mobility, which makes them dependent on local and regional ecosystems, and focus their impact on coastal fish resources and habitats. Unlike large scale fisheries (LSF), official statistics are often limited for SSF. Data on catches and effort are therefore dependent on sampling if there are no census data, which has traditionally hampered the understanding of these fisheries, and underestimated their impacts.

2020 was the first year of work for this ISSG where the main objective is to move forwards a better coordination on the data collection for these fisheries under the umbrella of the RCGs.

10.2 Work-plan

ToRs and work plan (specific tasks) for 2021/2022 were:

- In collaboration with ISSG Metiers, assignment for the SSF to avoid MIS_MIS codification.
- In collaboration with ISSG Metiers, effort estimate calculation and harmonization.
- Continue providing catch and effort overviews.
- RCG ECON share the data collection methods and estimation and the analysis among SSF based on their activity.
- Sampling coverage of the SSF and estimation methodologies in collaboration with WGCATCH.
- Revise the RDBES data model from a SSF perspective.

10.3 Progress during 2021/2022

This year's work has mainly focused on collaboration with the subgroup of metiers. Many of the members of this ISSG also participate in the metiers ISSG and in order to avoid duplication of work, it was decided to collaborate between the two ISSG. The results of the two tasks, the allocation of the metiers and the harmonisation of the effort estimates, can be seen in the report of the metiers ISSG.

The report of catch and effort overviews are also provided for the SSF in the three regions. In addition, the information provided in these reports will be reviewed. In addition to CL and CE data uploaded into the RDB, the CS or sampling data will be analysed to check what is sampled for the SSF compared to the main species landed, metiers etc. and discuss if some improvements are needed in the sampling programmes based on different end users needs. This exercise will be also used to improve the current fields included in the RDBES, that are considered by this ISSG as essential for any further analysis.

10.4 Roadmap/follow-up

The plan for the period 2022/2023 is to be able to work on those tasks that were planned for the previous period, but which it has not been possible to cover. These tasks will also be worked on in parallel especially with ICES WGCATCH, such as the SSF sampling coverage and methodologies to perform different types of estimates etc.

In addition, and as mentioned in the previous section, the ISSG will also discuss how the information uploaded in the RDB and the specific fisheries overviews reports, can improve the regional coordination in the data collection of the SSF.

10.5 SG Participants

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11 ISSG Identification of Case Studies for PETS Bycatch Monitoring

11.1 Background

Interactions between fisheries and non-target species such as protected, endangered and threatened species (PETS), including cetaceans, seabirds, turtles, some elasmobranchs, and rare fish species, can be frequent and widespread. These interactions may lead to levels of incidental mortality which, in some cases, could pose a threat to species or population viability. Such interactions can also have an adverse effect on fishing productivity, profitability and crew safety.

Under the previous Data Collection Framework (Council regulation (EC) No. 199/2008), there were no binding obligations for Member States (MS) to collect data on species other than commercial fish species and certain invertebrate species. When the current DCF (Regulation (EU) 2017/1004) came into force in 2017, collection of data on PETS bycatch when observers are onboard became mandatory. As a consequence, MS have begun to implement new data collection protocols in their at-sea observer programmes following guidelines developed by ICES expert Working Groups (WGBYC, WGCATCH) to improve the collection and quality of data on PETS bycatch. However, sampling designs remain focused primarily on active gears. In addition, under several EU instruments (Regulation 2019/1241 on technical measures, Habitats Directive 92/43/EEC, and Birds Directive 2009/147/EC) MS are required to monitor and report on bycatch of protected species, including cetaceans, seabirds and marine turtles.

The overall aim for RCG NA NS&EA and the RCG Baltic is to review the status of current issues, achievements and developments of regional coordination and identify future needs in line with DCF requirements and the wider European environmental monitoring and management. With this aim in mind several ISSG were created trying to cover different topics related to different needs in line with the DCF requirements, including PETS bycatch issues.

11.2 Work-plan

ToRs and work plan (specific tasks) for 2021/2022 were:

- How much effort is needed? And Data quality issues (WGCATCH & WGBYC)
- Improve and update the Risk assessment based on WGBYC outputs
- Logbook requirements for bycatch purposes
    - Identify mandatory fields
    - Differences among regions, fleet segments
- Other end-users needs (e.g. COM, ASCOBANS, HELCOM)

11.3 Progress during 2021/2022

All tasks that were planned for the period 2021-2022 have been considered as work in progress. The reason for this is that both in the past year and in the following years, a lot of work is being done on issues related to the PETS bycatch. This work is being carried out both by the different ICES groups such as WGBYC, WGCATCH, but also through specific European projects on this topic (e.g. CetAMBITion). In addition,

DGENV has also made a special request to ICES, and because of this, different WKs etc. are planned in line with the tasks identified by this ISSG for next year. From this special request from DGENV to ICES, there is already an output where issues relevant to this ISSG are addressed (https://doi.org/10.17895/ices.pub.10075).

In this report there are sections where the different approaches to perform and improve risk assessment, the issue of how much sampling effort is needed to have robust data to provide bycatch ratios with acceptable uncertainties etc. are discussed.

In addition, there are institutes that are working on possible statistical approximations based on different simulations, in order to answer the question of the necessary sampling effort. Other institutes for example are using a multiannual data approach trying to provide reliable bycatch estimates.

Although the discussion is mainly focussing on the sampling effort required, just as important is the quality of the data collected, the importance of providing some quality indicators about the bycatch data provided to main end users etc.

In addition to the tasks mentioned above, a template is prepared, where the objective is to identify the differences in the information that is collected through the logbooks, taking into account especially the variables that are essential for bycatch estimates. There is a minimum that must be completed by all EU countries within the Control Regulation, but additionally and due to the requirements that may exist in the different national regulations, there may be differences in the information that is collected in these logbooks. This template will allow to identify on the one hand the differences that exist between the different countries and at the same time identify what the main gaps are and thus provide some recommendations on how to collect the necessary information.

Another important task for this ISSG is to keep in touch with the main endusers and see what their needs are. Last year's RCG meeting was attended by colleagues from HELCOM and ASCOBANS. It was considered essential to continue to maintain this contact between these endusers and the members of this ISSG. Therefore, these endusers have been contacted this year to ask for their input for this year's meeting. Below is the input from these endusers for discussion at this year's meeting, and how the RCGs can respond to these needs.

HELCOM and **ASCOBANS** input to Regional Coordination Group annual meeting June 2022

Preface

The EU Marine Strategy Framework Directive (MSFD) requires Member States amongst others to assess the status of protected species (birds, mammals and fish). Bycatch is a specific criterion which needs to be assessed at species level. Article 12 of the EU Habitats Directive (HD) further obliges Member States to establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV of that Directive.

EU Delegated Decision 2021/1167 connects nature conservation and fisheries legislation and specifically defines for which species fisheries bycatch is to be monitored. According to its Table 2 among these species are all marine mammals, including the Eurasian otter (with reference to Annexes II, IV and V HD) and all waterbirds and seabirds, including migratory species (with reference to the Birds Directive (BD)).

A standard method to calculate bycatch numbers (which then can be assessed against a threshold) is determining a *bycatch rate* per observed fishing effort (currently set as Days at Sea, but for nets ideally it should also be net area/net length per soak time, and for trawls it should be area swept), and then to extrapolate this rate to the total effort in a particular metier. However, reliable data on bycatch rates and on total effort are lacking for most areas and metiers.

Data collection under the DCF currently focuses on trawl fisheries with the consequence that static gears, which are often used on small vessels, are under-sampled (ICES WKPETSAMP Report 2018). A majority of marine mammal bycatch occurs in static gears. Another problem identified by ICES WGBYC 2018 is that on-board observers may not be able to observe the entire hauling process, and bycaught animals can drop out of the net and thus be overlooked. As a consequence, available data do not allow the end users of data (such as HELCOM and ASCOBANS) to conduct adequate bycatch assessments which meet the legal requirements under e.g., MSFD and HD.

Specific tasks and needs from the perspective of HELCOM and ASCOBANS as end users of fisheries data

In accordance with MSFD art 6, regional conventions such as HELCOM should serve as a forum for coordination of marine strategies to improve the environmental status of European seas, including determination of Good Environmental Status (GES) for a particular marine region. Since the implementation of the Marine Strategy Framework Directive has begun, HELCOM takes every effort to coordinate preparation of the marine strategy for the Baltic Sea, including periodic preparation of the holistic assessments of the Baltic Sea environment (currently the work is ongoing on HELCOM HOLAS 3). Bycatch of protected species is one of the important primary criteria which should contribute to the assessment of GES[5].

Due to the lack of relevant data on bycatch numbers and fishing effort, the HELCOM bycatch indicator *Number of drowned mammals and water birds in fishing gear* cannot be made operational, and hence cannot contribute to the overall assessment of the marine environment of the Baltic Sea.

In addition, recognising that bycatch of marine mammals is a major threat to small cetaceans, without having the access to the relevant data (bycatch numbers, fishing effort), the impact of fisheries on the population status of all small cetaceans remains unknown. As a result, ASCOBANS cannot perform any assessments of the major human pressure to small cetaceans and thus predict any future population developments.

A way forward would be for monitoring effort in certain metiers that are currently under-sampled to be considerably increased. This would entail additional costs, and thus a cost-efficient bycatch monitoring is needed. Besides on-board observers, Remote Electronic Monitoring (REM) including geo-positioning systems, sensors and CCTV cameras plays an increasing role in fisheries data collection. It has been shown that REM is a very cost-effective way of producing good bycatch estimates, even at the species level (DTU Aqua 2021, Course 2021). Fishers may equip their fishing vessels with CCTV systems on a voluntary basis. To encourage voluntary monitoring, the competent authority could provide incentives such as, for example, additional allocation of quotas or deletion of points.

There is a need for co-ordinating monitoring effort and use of innovative methods (REM) between regions to safeguard that sufficient data are collected using scientifically sound methods and that data between and across sub-regions are comparable. Further, the collection of total fishing effort including small vessels needs to be harmonised between member states in order to calculate bycatch numbers from bycatch rates. Data requirements go beyond the obligations in the control regulation which requires that further collection of such data is co-ordinated between Member States in order to allow assessments for each Marine Reporting Unit.

In the Baltic Sea, it is especially important to increase monitoring of static net fisheries (GNS, GTR), set longlines (LLS), pots/traps (FPO) and fyke net (FYK) fisheries to enable reliable estimates of bird, seal and

[5] COMMISSION DECISION (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU

harbour porpoise bycatch numbers. Since these fishing methods are most often carried out from small vessels, REM would be a good alternative to on-board observers. Due to the fact that by far the most vessels using passive gears are small vessels, every effort must be made to collect total fishing effort data in a co-ordinated and comparable manner.

In the North Sea, most concern has been expressed for continuing high rates of bycatch of harbour porpoises, with some sectors of the North Sea experiencing declines in local porpoise populations. As elsewhere, static nets (GNS, GTR) are believed to be the fishing gear most responsible for bycatch, not only of porpoises but also seals and birds. In coastal regions of the northern North Sea, entanglement in the lines attached to pots and traps are known to affect larger cetacean species such as minke and humpback whales. For the most part, the monitoring of bycatch of PET species has been inadequate, and often targeted on the wrong fisheries and regions. Risk mapping comparing seasonal variation in densities of different vulnerable species with high fishing effort of the more damaging gears, can help to focus monitoring efforts more appropriately. This could also be better addressed by use of REM, which furthermore can be more easily deployed on small vessels. Studies particularly in Danish and Swedish waters have investigated cost-effective ways to use REM, including the development of a portable system that can be moved from vessel to vessel so that a larger proportion of the fleet can be sampled. REM is not only proving cheaper than human observers, it is also more accurate and better able to cover a wide range of PET species (cetaceans, seals, birds, sea turtles and large fish).

In the Celtic Sea and Bay of Biscay, many of the same issues and solutions apply as in other regions, although additional species become more important. In addition to static gear, trawls and seines are known to cause significant levels of bycatch of common dolphins in the Bay of Biscay, the Celtic Sea particularly the southwest approaches to the English Channel, and around the Iberian Peninsula. This has led to a call for emergency measures in the region. West of Scotland and Ireland, the lines attached to pots and traps are known to cause bycatch of baleen whale species such as minke and humpback whales. Around the Iberian Peninsula, there is a genetically distinct population of porpoises which occurs in low numbers. This is vulnerable to entanglement in static gears as well as seine netting that occurs in the region. Fishing fleets of coastal states in the region have a substantial number of small vessels limiting bycatch monitoring by observers. The use of REM would go a long way to overcoming the lack of sampling here.

Finally, there are the potential case studies of common dolphin in the BoB and harbour porpoise in the Baltic as possible candidates for regional sampling plans. Initial coordination actions have already started for the two case studies.

In the case of the common dolphin, the CetAMBITion project is being used for this purpose, as the main bycatch experts from France, Spain and Portugal are participating in this project. Some information is given below.

Case study - Bay of Biscay and Common Dolphin *Delphinus delphis*

The currently ongoing project "CetAMBICion" is highly relevant in this context. This international project is dedicated to "Coordinated Cetacean Assessment, Monitoring and Management Strategy in the Bay of Biscay and Iberian Coast sub-region". The project is funded by the call "DG ENV/MSFD 2020" and is developed between 2021-2023 (1st quarter - 1st quarter).

This project involves relevant partners from the countries in this Bay of Biscay ecoregion aiming at a coordinated monitoring, assessment and management of cetaceans. And it is expected that to provide much

needed advancement and coordination in this topic. After the end of the project, results will be presented to the RCG (expectedly RCG 2023), as well as in other relevant fora.

A summary of the project proposal is presented below.

"This proposal addresses the urgent need to reduce cetacean bycatch in EU fisheries, probably the most severe threat facing these protected species, consistent with the objectives of the Marine Strategy Framework Directive, Habitats Directive and the Common Fisheries Policy (Technical Measures Regulation). The proposal is timely given the request in 2019 by several NGOs for the European Commission introduce Fishery Emergency Measures to reduce bycatch of common dolphins in the Bay of Biscay. The Commission has subsequently requested that France and Spain take action to reduce cetacean in the Bay of Biscay. An additional driver is the request by the USA that nations exporting fishery products to the USA should adequately manage cetacean bycatch. Consistent with the MSFD 2020 call, CetAMBICion will address criteria for bycatch mortality (D1C1), abundance (D1C2), demographic characteristics (D1C3), distribution pattern and range (D1C4) and habitat (D1C5) of cetaceans, aiming to improve monitoring and assessment, especially in relation to bycatch mortality, and investigate the efficacy of various mitigation measures in the Bay of Biscay and Iberian coast subregion, thus helping to achieve Good Environmental Status (GES).

The proposal involves 15 partners from Member States (MS) France, Spain and Portugal, including government departments and public research and conservation bodies, in collaboration with industry and NGOs. The project will run for 2 years and includes 6 work packages (WP). WP1 (Review of 2018 MSFD report for D1 (cetaceans) of the 3 MS) reviews the assessment, GES determination and targets based on the 2018 MSFD report and the reported monitoring programmes and programmes of measures of the 3 MS, also considering work by OSPAR, ICES groups, ASCOBANS and the IWC. WP2 (Proposal for coordinated sub-regional assessment, GES determination and monitoring strategy for cetaceans (D1C2, D1C3, D1C4, D1C5)) comprises: (i) data gathering and gap analysis including information on relevant pressures; (ii) establishing the sub-regional list of species, indicators and scale of assessment; (iii) common approach to GES determination, threshold values and integration rules; (iv) sub-regional assessment and definition of coordinated monitoring strategy and programmes. WP3 (Proposal for coordinated sub-regional assessment, GES determination and monitoring strategy for Bycatch (cetaceans)) comprises: (i) compilation of available information on bycatch, highlighting knowledge gaps; (ii) common approach for Risk Assessment; (iii) common approach to GES determination and threshold values; (iv) defining coordinated monitoring programmes for by-catch, including improved observer programs and other methods (e.g. video monitoring, stranding networks, logbooks, etc.) to improve estimates of bycatch rate. WP4 (Proposal of coordinated measures to address cetacean bycatch) oversees several Pilot Projects to assess the efficacy of bycatch reduction devices and procedures, including the use of pingers and excluder devices. It will also collect information and share experience from previous pilot projects and relevant projects and propose common measures including space-time management measures. WP5 concerns communication, capacity-building and legacy while WP 6 provides coordination, guided by the project's Steering Committee and an external Advisory Board including representatives from industry, ICES, ASCOBANS, and the IWC, as well as overseeing the participation of stakeholders in the co-creation of solutions."

Case study - Baltic and Harbour porpoise "*Phocoena phocoena*"

A first meeting was held by experts from the different institutes involved in this case study. Although the objective was to discuss all issues related to bycatch in the Baltic, the main focus is on the harbour porpoise. Some MS have received comments in their Work Plans by the Commission on the by catch program and that it needs to be regional coordinated.

In this meeting, first actions and decision were taken to improve this coordination and work will continue over the coming months in the Baltic sub-group set up for this purpose.

11.4 Roadmap/follow-up

The plan for the period 2022/2023 is to continue to follow all the work being done and identify those tasks where the RCGs have responsibility to improve coordination in sampling and data collection. It should be noted that if not all, most of the members of this ISSG are participating in these actions, being members of the relevant ICES groups in terms of bycatch or participating in the mentioned projects.

11.5 SG Participants

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12 ISSG Diadromous Species

12.1 Background

Given the geographical span as well as the regional need to organise and coordinate data collection of diadromous species, the Liaison Meeting of 2016 discussed the need for a pan-regional subgroup on these species (eel, salmon, sea trout) and initiated a specialised subgroup DCF -relevant diadromous fishes. The diadromous subgroup (first named DSG later ISSG for Diadromous species, ISSG Diad) understood itself as a specialised, over regional subgroup in order to focus on advice on what needs to be done for regional workplans for diadromous species in in line with DCF data collection, including listing end-user needs (variables required, frequency, intensity), possible needs for regional agreements and time frame for implementations.

ISSG Diadromous focuses on coordination of data collection of Med (eel), NANSEA and Baltic regions (eel, salmon, sea trout). Data needs of end users include both, commercial and recreational fisheries in marine and inland waters.

The last meeting of the group has been attended by experts from 13 countries.

The group is chaired by Marko Freese (GER) and Tapani Pakarinen (FIN).

12.2 Work-plan

ToRs and work plan (specific tasks) for 2021/2022:

- Strengthening of communication with end-users (to get and provide direct input on issued connected to data availability for assessment).
- Promotion of data workshops (to collect best data for assessment).
- Work that potentially will come from Fishn'Co (consideration of the potential for a transition from national to regional work plans in the suitable parts of data collection for diadromous fishes under DCF).

12.3 Progress during 2021/2022

The last meeting of the group took place in April 2021, the annual meeting for 2022 was initially planned to take place in February 2022 and had to be postponed to a later date this year.

Annual meetings of the most important end users of salmonid data collected under DCF, WGNAS and WGBAST, were cancelled due to the war in Ukraine. This prevented the respective EGs to further discuss and handle questions and issues connected to DCF data collection in their meetings and consequently, the ISSG Diadromous did not receive the necessary feedback from these groups. In addition, the group was missing the final input from the GFCM eel project, since the project was just recently finished and the report was not finally published, even though in an already existing draft report, the working group proposed several management measures, including **a revision of the GFCM Data Collection Reference Framework** for collecting the biological data on the European eel. Various contracting parties, including the European Union, expressed the need to assess the impact this proposal would have on already existing data collection frameworks.

Additionally, also the report of the WKEMP workshop on the eel regulation and output from the fourth workshop on designing an eel data call (WKEELDATA4), which is will explicitly call for DCF-collected Data,

was not yet published and thus its results cannot be assessed and discussed just at this time. Consequently, the ISSG Diadromous could not promote the communication on data collection issues with the end uses during the last term and it appeared to be for the best, to postpone this year's annual meeting to later in the year, when all these relevant information are available for the group to discuss.

In Fishn'Co, none of the candidate data collection of diadromous species (e.g. electrofishing surveys) were included as a test case in the NC consultation. This because there is no regionally coordinated data collection in NANSEA and Baltic regions on diadromous species yet.

12.4 Roadmap/follow-up

Currently the main focus of the ISSG diadromous still is to improve assessment-driven data collection under DCF and to strengthen the interaction of end users and the ISSG / data collection itself. This is intended to be done by encouraging end-users for direct input on data needs for improvement of assessment and comparability in used methodologies as well as by considering regional differences and difficulties in data collection. Our goal is to let end users and ICES EGs further specify the data needs meant for stock assessment and policy advice and thus influence data collection. This is of importance, since ISSG Diadromous has a wide scope including multiple species with different life cycles and the ISSG cannot determine and specify the respective data needs on its own.

12.5 SG Participants*

Name	E-mail	MS
Marko Freese (Co-Chair)	Marko.Freese@thuenen.de	GER

** One of the two Co-Chairs of the group participated in and presented during the one-day virtual part of the 2022 RCG NANSEA and Baltic meeting. This year's ISSG DIAD meeting was postponed to later this year. More than 26 members from 13 countries will be invited to the group's meeting)*

13 ISSG Marine Recreational Fisheries

13.1 Background

Recreational fisheries data is collected by individual Member States (MS) according to the Basic Regulation (EU) No 1380/2013 and the multiannual data collection framework (EU) 2016/1251. However, there is no standardization between countries, and in general, there are no one-size fits all approach due to the diverse nature of the sector and cultural differences. Challenges in recreational fisheries data collection are i) data gaps (no data collected), ii) periodicity of surveys (no time series), iii) and single instead of multispecies surveys. Also, iv) often lacks economic and social data to evaluate the sectoral contribution.

ISSG Recreational Fisheries was established in 2021 because the RCG NANSEA and RCG Baltic needed progress with regional sampling plans for Marine Recreational Fisheries (MRF). The EU-MAP states the relevance of the regional approach for these fisheries, including evaluating end users' needs for biological data collection, coordinating national surveys of recreational fishing, and defining potential thresholds. As the new regulation does not have a pre-defined list of species, it will be determined by region based on end-user needs. ISSG Recreational Fisheries aims to harmonize recreational fisheries data collection, particularly on a regional level. For this subgroup to work properly, it is needed to ensure that the right people are involved, including experts from WGRFS, DCF, and PGECON. National Correspondents (NC) need to be approached to ensure that relevant bodies are contacted to ensure expert participation.

This ISSG aims to fit on preparatory work for decision making, including input for RWPs. The ISSG on Recreational Fisheries work coordinates with the relevant ICES EG (WGRFS) and the Fishn'Co consortium. ISSG Recreational Fisheries focuses on defining a species list at a regional level, working on regional sampling plans for shared stocks, and incorporating MRF data in the RDBES.

Eighteen experts from 11 countries attended the group's last meeting (in 2021).

The group is chaired by Harry V. Strehlow (GER).

13.2 Work-plan

ToRs and work plan (specific tasks) for 2021/2022.

1. Develop Regional Work Plans
2. Identify end-user needs
    a. Liaise with RCG LP, RCG ECON, RCG Med & BS, ICCAT
    b. Define generic criteria for data collection requirements (examples: cod, salmon, bass)
3. Pan regional collaboration, see also 2.
4. Incorporate recreational data into RDBES
    - Initiate test data call

Work that potentially will come from Fishn'Co (consideration of the potential for a transition from national to regional work plans in the suitable parts of data collection for recreational fisheries under DCF).

13.3 Progress during 2021/2022

Most of the work plan objectives of this work season could not be finished, as the group strongly relies on the data output and exchange with ICES WGRFS. At the time of the TM, the annual meeting of WGRFS was not yet possible, which consequently did not allow for coordination and feedback with the ISSG. The ISSG reviewed and updated their work progress that could be done without the WGRFS input.

The main outcomes were:

1. Candidate regional work plan identified:
    a. Western Baltic Sea
    b. Western Baltic cod
    c. Countries: DE, DK, SE
2. Data collection requirements:
    a. EP Peche Committee Hearing "Data collection and recreational fisheries" (30.11.2021) – Presentation on MRF data collection and CFP requirements
    b. EP Recreational Fisheries Forum Webinar "Exploring the inclusion of MRF in the CFP" (23.03.2022) – Presentation on recreational fisheries in the CFP
    c. Contact made with RCG LP; however, the spring meeting only touched on recreational RDBES issues
3. Submeeting with WGRFS
    a. Discussed test data call
    b. Prepare guidelines on MRF data collection requirements for use in assessments
4. Test data call for recreational data will be launched during the WGRFS meeting in June 2022
5. EP Peche Committee Hearing "Data collection and recreational fisheries" (30.11.2021) – Presentation on MRF data collection and CFP requirements
    a. Status report from DG MARE concerning new EUMAP
    b. Mandatory collection of annual data from MRF, considering all species (multispecies surveys)
    c. Voluntary collection of social and economic data of MRF is welcomed but not part of future EUMAP
    d. EFFTA proposed a Pan-European survey every five years (participation & effort data)
    e. ISSG Recreational Fisheries emphasized:
        i. Conduct MRF surveys, BUT no one-size fits all approach due to the diverse nature of the sector & cultural differences
        ii. Multispecies surveys for all countries needed
        iii. Combination of on- and off-site approaches – triangulation: get to know your fisheries!
        iv. Licensing would help to develop surveys
        v. Include economic value and social benefits
        vi. Need for a regulatory framework to base allocation decisions on balancing societal benefits (cf. Art 17)

13.4 Roadmap/follow-up

ISSG Recreational Fisheries annual meeting was postponed to November 2022 – as relevant developments are starting with the WGRFS meeting in June. However, some discussion themes will be launched during TM:

1. Development of Regional Work Plan relies on individual volunteer work and is not necessarily binding Example: HAD situation this year, where no data was collected on MS and missing data needed to be imputed
2. MS shall conduct multispecies MRF surveys
3. MS shall collect economic value and social benefit data in their MRF surveys

ISSG Recreational Fisheries annual meeting was postponed to November 2022. More than 18 members from (at least) 11 countries will be invited to the subgroup's meeting.

14 ISSG Regionally Coordinated Stomach Sampling

14.1 Background

Fundamental changes in the importance of natural versus fishing induced mortality have been observed in the North Atlantic while moving towards maximum sustainable yield (MSY) management targets. The reduction of fishing mortality in combination with successive recovery of fish stocks, especially of some larger predatory species, led to an increasing natural mortality as opposed to fishing mortality. Consequently, estimates of natural mortality have become more important for stock assessments and forecasts. In general, information on prey availability, competition and predation processes in fish stomachs are needed to support several policies (e.g., Common Fisheries Policy (CFP), EU Marine Strategy Framework Directive (MSFD)) that envisage an Ecosystem Approach to Fisheries (EAF) and an Ecosystem Based Fisheries Management (EBFM). Assessing trophic relations with detailed stomach contents analysis increases knowledge on suitable stock-recruit models (e.g., density dependent effects like cannibalism), assessment of fish species (e.g., estimates of Natural Mortality), reliable Biological Reference Points (BRP) considering species interactions, all aiming at providing a more appropriate framework for the implementation of multi-annual management plans. New data on predation is also important for providing both tactical and strategic advice for management of marine ecosystems (FAO 2008), since they positively contribute to the quality of the tools used to quantitatively assess their dynamics (i.e. multispecies assessment models, ecosystem models, etc.). A DG MARE tender (Contract No MARE/2012/02-SI2.632887) pilot study on stomach sampling in the North and Baltic Seas was able to demonstrate, in cooperation with the ICES Working Group on Multi Species Stock Assessment Methods (WGSAM), that cost-effective sampling of stomachs is possible during existing surveys. It was possible to analyse stomachs in a cost-effective manner with the help of national labs and/or external contractors. Results of the FishPi project (EU MARE/2014/19) conclude that opportunistic stomach sampling on existing DCF surveys is a promising way forward. However, missing regional coordination was identified a challenge. The lack of coordination leads to unbalanced sampling effort resulting in a lack of statistically sound sampling of all key species needed for food web characterisation and finally to a barrier for moving towards an Ecosystem Approach to Fisheries (EAF).

The main objective of the ISSG Regionally Coordinated Stomach Sampling is to establish a regionally coordinated stomach sampling program – potentially covering on-board sampling, stomachs analyses in laboratory, data storage and report – in European waters, starting with the North Sea, Skagerrak and Kattegat as a case study.

Chairs: Pierre Cresson (France), Matthias Bernreuther (Germany).

14.2 Work-plan

Terms of Reference

1. Specifying the IBTS North Sea case study on the coordinated stomach sampling:
    a. Decide on the sampling design and options to choose.
    b. Specify the expected costs for on-board sampling
    c. Propose different options for coordinating the regionally coordinated stomach sampling.
    d. Funding
2. Participation in the Fishn'Co workshop on end-user-needs and presentation of results from ToR 2.
3. Participation in the Fishn'Co workshop on end-user-needs and presentation of results from ToR 2.
4. Work on WP/AR Table and Textbox 4.1 (stomach sampling)

14.3 Progress during 2021/2022

The work on the terms of reference began after the Summer break in 2021 and was presented and discussed at an ISSG Regionally Coordinated Stomach Sampling online meeting (Webex) on 28 April 2022.

During the 2021/2022 term, the ISSG part of the work on the term of reference 1 was presented and discussed at the International Bottom Trawl Survey Working Group (IBTSWG) on 5 April 2022. Valuable feedback was provided by the IBTSWG and was incorporated in the work of the ISSG Regionally Coordinated Stomach Sampling and is presented in the following sections.

Work on the Terms of Reference 2021/2022

1. Specifying the IBTS North Sea case study on the coordinated stomach sampling
a. Decide on the sampling design and options to choose

Background

A first proposal for a sampling plan in the North Sea, Skagerrak and Kattegat was developed during the ISSG Stomach sampling work 2020/2021 and was presented during the technical online meeting of RCG NANS&EA and RCG Baltic in June 2021 (RCG NA NS&EA RCG Baltic 2021). The sampling plan and design was mainly based on the results of the fishPi2 Project (EU MARE/2016/22). This plan and the sampling design (Table 14.3.1) were presented to the ICES IBTSWG in 2021, which is coordinating and conducting the International Bottom Trawl Survey (IBTS) in the North Sea, Skagerrak and Kattegat in the first and third quarter each year, with the IBTS being the platform for the collection of the stomachs. The IBTSWG commented on the sampling plan, pointed out some shortcomings and proposed various improvements of the design and plan.

***Table 14.3.1**: "Originally" proposed rolling 5-year sampling plan for the North Sea, Skagerrak and Kattegat from 2021 as presented to the IBTSWG (RCG NA NS&EA RCG Baltic (2021)).*

Year	Quarter	Species sampled for biology	expected no. of stomachs	Species not sampled for biology	expected no. of stomachs	Sum of stomachs to analyse	Sum of all stomachs per year
1	1	Whiting	1727			3077	3547
	3		1350				
	1			Anglerfish*	75	142	
	3				67		
	1			Megrim	148	328	
	3				180		
2	1	Horse mackerel	306			881	3848
	3		575				
	1	Plaice	1206			2417	
	3		1211				
	1			Rays	331	550	
	3				219		
3	1	Saithe	534			1354	4112

Year	Quarter	Species sampled for biology	expected no. of stomachs	Species not sampled for biology	expected no. of stomachs	Sum of stomachs to analyse	Sum of all stomachs per year
4	3		820				3911
	1			Grey gurnard	1373	2541	
	3				1168		
	1			Red gurnard	159	217	
	3				58		
	1	Cod	1257			2465	
	3		1208				
		Mackerel				1082	
	3		1082				
	1			Turbot	178	364	
	3				186		
5	1	Haddock	1362			2583	4088
	3		1221				
	1	Hake	505			1439	
	3		934				
	1			Halibut	29	66	
	3				37		

* Anglerfish = *Lophius piscatorius* and *L.. budegassa*

Updated sampling plan

The proposed rolling 5-year sampling plan/programme was supported, but the allocation of the species was discussed and improvements of the presented plan and an alternative plan were presented (Table 14.3.2). Seven comments were made and can be found in the group report (ICES 2021). One major concern was the killing of certain species, primarily elasmobranchs, that are "*often released alive during some surveys, and some species are included in on-going tag-and-release programmes. It may be more appropriate to stipulate that only dead specimens of these species should be used for stomach contents, but that data be collected each year. This would maximise the data collected from any dead specimens without requiring the euthanasia of such species for an 'annual' study of stomach contents*." (ICES 2021) These concerns were addressed and consequently integrated into the updated sampling plan proposal.

Another concern was directed towards piscivorous species of interest (e.g. halibut, pollock and turbot) that are usually found in low numbers and may have high levels of regurgitation. The proposal by IBTSWG was to sample these species each year to enhance the sample size. This concern was also addressed and consequently integrated into the updated sampling plan proposal.

Table 14.3.2: *Proposed rolling 5-year sampling by the IBTSWG for the North Sea, Skagerrak and Kattegat*

Year	Quarter	Common species	expected no. of stomachs	Sum of all stomachs per year	"Minor" species sampled each year	Species to be sampled opportunistically each year (dead specimens; live specimens are generally released)
1	1	Cod	1257	2607	Turbot Brill Halibut Pollack Tusk Ling Tub gurnard	Starry ray Cuckoo ray Thornback ray Spotted ray Common skate-complex Spurdog Tope
	3		1208			
	1	Anglerfish*	75			
	3		67			
2	1	Whiting	1727	4286		
	3		1350			
	1	Megrim	148			
	3		180			
	1	Horse Mackerel	306			
	3		575			
3	1	Saithe	534	3875		
	3		820			
	1	Hake	505			
	3		934			
		Mackerel (Q3 only)				
	3		1082			
4	1	Haddock	1362	5000		
	3		1221			
	1	Plaice	1206			
	3		1211			
5	1	Grey gurnard	1373	2758		
	3		1168			
	1	Red gurnard	159			
	3		58			

* Anglerfish = *Lophius piscatorius* and *L. budegassa*

Since the stomach sampling was started during the 1st Quarter IBTS in 2022 with the originally proposed three species Whiting (*Merlangius merlangus*), Megrim (*Lepidorhombus whiffiagonis*) and Anglerfish (*Lophius piscatorius* and *L. budegassa*) for the first year of the 5-year sampling programme and because a certain disbalance was observed in the expected number of stomach samples (Table 14.3.2; year 1: 2607 stomach samples and year 4: 5000 stomach samples) both proposals (Tables 14.3.1 and 14.3.2) were merged into an updated sampling plan proposal. In this proposal, we additionally tried to take the different distributions of the species to be sampled in parallel into account in order to spread the sampling work across the survey area and participating countries (Table 14.3.3).

Table 14.3.3: Proposed updated rolling 5-year stomach sampling plan for the North Sea, Skagerrak and Kattegat

Year	Quarter	Species	expected no. of stomachs	Sum of all stomachs per year	"Minor" species sampled each year	Species to be sampled opportunistically each year (dead specimens; live specimens are generally released)
1	1	Whiting	1727	3547		
	3		1350			
	1	Anglerfish*	75			
	3		67			
	1	Megrim	148			
	3		180			
2	1	Cod	1257	3346	Turbot	Starry ray
	3		1208			
	1	Horse Mackerel	306		Brill	Cuckoo ray
	3		575			
3	1	Hake	505	3856	Halibut	Thornback ray
	3		934			
	1	Plaice	1206		Pollack	Spotted ray
	3		1211			
4	1	Haddock	1362	3665	Tusk	Common skate-complex
	3		1221			
	1	Mackerel (Q3 only)			Ling	Spurdog
	3		1082			
5	1	Saithe	534	4112	Tub gurnard	Tope
	3		820			
	1	Red gurnard	159			
	3		58			
	1	Grey gurnard	1373			
	3		1168			

* Anglerfish = *Lophius piscatorius* and *L. budegassa*

The numbers of expected stomach samples for the main species in this new proposal are ranging from 3547 to 4112 per year with an additional number of samples from "minor" species and the opportunistically sampled rays, skates and sharks (Table 14.3.3). With an estimate of approximately 500 stomachs per annum from the minor species and the elasmobranchs, the total amount of stomachs to be analysed would sum up to 4000 to 4600.

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b. Specify the expected costs for on-board sampling

No further information on the costs of on-board sampling was collected during the intersessional subgroup work. However, as the probability of underestimating the costs was considered high, the total cost estimates used in last year's report (RCG NA NS&EA RCG Baltic 2021) were updated (Table 14.3.4).

Table 14.3.4: Total minimum and maximum annual costs for the regionally coordinated stomach sampling program in the North Sea, Skagerrak and Kattegat.

	Average annual minimum costs (€)	Average annual maximum costs (€)
Stomach analyses + data entry	37 006	92 514
Transport of samples	10 000	10 000
Additional staff costs on-board	75 000	75 000
Data storage, processing and management	7 000	7 000
Miscellaneous expenses	5 000	5 000
SUM	134 006	189 514

The additional on-board staff costs were tripled and the resulting average annual costs range between approximately 134 000 and 190 000 €. This question was discussed during the participation of Pierre Cresson to the IBTSWG 2022 meeting, and further exchanges on this topic are needed between ISSG Stomach content and IBTSWG to provide the most relevant cost estimates.

c. Propose different options for coordinating the regionally coordinated stomach sampling.

Discussion about this topic occurred during the IBTSWG 2022. Three non-mutually excluding options were considered: (1) Dedicating a time slot to stomach sampling during annual IBTSWG meeting, (2) Including colleagues actually involved in all aspects of stomach-sampling related work (at sea sampling, stomach analysis in the lab and data processing) to become members of the ISSG Stomach Content and/or (3) create a dedicated ICES working group.

Members of the IBTSWG expressed the will to maintain the coordination of the work performed at sea within their group. They are also in favour of the organisation of a workshop dedicated to the "technical" aspects of the work (e.g. taxonomical level of prey identification, prey length measurement etc.), where all potential end users (including WGSAM members) would be invited.

During the ISSG Stomach content meeting on 28 April 2022, the different options for coordinating the stomach sampling program were discussed. On the one hand, establishing a new ICES coordinating/planning group was supported with the aims of (1) starting out as a coordination group for the presented North Sea stomach sampling case study and (2) incorporating members working on stomach sampling programs in other sea regions like *e.g.* Baltic Sea, Celtic Sea, Bay of Biscay, Mediterranean etc. with time.

On the other hand, it was recognised that keeping the coordination of the North Sea sampling within the RCG ISSG Stomach content would be preferable at this part of the development of the sampling program. Opinions and discussions on the most appropriate coordination group were to be gathered at the Technical meeting of RCG NANS&EA in June 2022. The opinion of the group was that it is of great importance to

gather experts from the IBTSWG, WGSAM, national correspondents and principal investigators from countries participating in the IBTS within the coordination group.

d. Funding

The funding of the analyses of the stomach samples is still not solved. The obligation for sampling stomachs has been incorporated into the EU member states work plans so that the funding of the sampling must be secured by the member states. However, non-EU countries such as Norway and the UK are an essential part of this regionally coordinated stomach sampling program. As non-EU members of course, they have no obligation of sampling stomachs for content analyses. A possible solution for this situation is proposed by the fishPi2 project (Anon. 2019). According to this project, the "cost associated with the analysis could follow the Total Allowable Catch (TAC) distribution of the particular species/stock. After entering all data in the common format into the ICES stomach data base, the cost of the analyses of data can be shared in the same way."

2. Identification and collation of the specific end-user needs with regards to stomach sampling in the different areas covered by RCG NANSEA and Baltic.

As the question of end-users needs and expectation is also covered by the FishN'Co project, Manon Troucelier (FishN'Co project engineer) developed an online questionnaire, dedicated to collate the expectations of all potential end-users involved in stomach sampling. The link to contribute to the questionnaire was sent, mostly to the persons already involved in the ISSG and ICES WKBECOSS. The link was also sent to the IBTSWG chairs. Twenty-three persons answered it, covering 13 countries from all European areas, including areas not covered by the RCG NANSEA (Mediterranean). Spain was the most represented country (7 contributions), while others had no more than three (UK, Germany), two (Belgium, France and Poland) or one contribution. As expected, respondents were mostly researchers (17). Unfortunately, the questionnaire missed other target groups, like survey leaders (4 answers only), NC (1) or potential data-users like modellers (0 answers).

Outcomes of this questionnaire should thus be taken with caution as perceptions (*i*) of end-users in countries involved in the IBTS case study and (*ii*) of end-users involved in the final use of this data for monitoring purposes may have been largely missed. As some difference between protocols used in different countries were observed, and as the final use of the stomach data was poorly considered, further discussions should occur on this topic, to ensure the feasibility of the part(s) of the protocol covered by regional coordination in all survey, and the usability of the data produced. Nonetheless, major outcomes are summarized here; the detailed results of this consultation will be presented in deliverables of FishN'Co (cf. ToR 3).

Survey was the principal collection mode (20/23 contributions), but some mentioned other modes, like collaboration with fishermen. Stranded specimens were also mentioned without further precision, but it may be assumed that this could be used for mammals, *i.e.* for species not included in the regionally coordinated Stomach Content workplan.

Stomach sampling collection and analyses was mostly driven so far by research projects (2/3 of the contribution) and only 1/3 for management questions. Consequently, stomachs are collected whether through "one shot" single sampling (to answer specific research questions) or regularly (i.e. within routine monitoring program), and with the exact same importance for both modes in the answer. This may be an important point

to consider in the future definition of the protocol, and of its aspects covered by the regional coordination. Even if contributors are mostly in favour of the regional coordination of most aspect of stomach sampling (95% of positive opinion), it should be ensured that DCMAP monitoring program do not generate conflicts with research programs, or ongoing monitoring programs, as this would prevent the monitoring program to be accepted and implemented.

The question of the size-resolution of the sampling is by example a crucial question to be answered (Fig.14.3.1). Species-specific size classes appear optimal for most contributors, but this may be related to the importance of "one shot" research project, where the sampling is dedicated to answering a question. Monitoring program should remain consistent over long period of time, several species and several countries/areas, if this aspect of the sampling is included in the regional coordination. Having species-specific size classes may thus be hard to apply under these conditions.

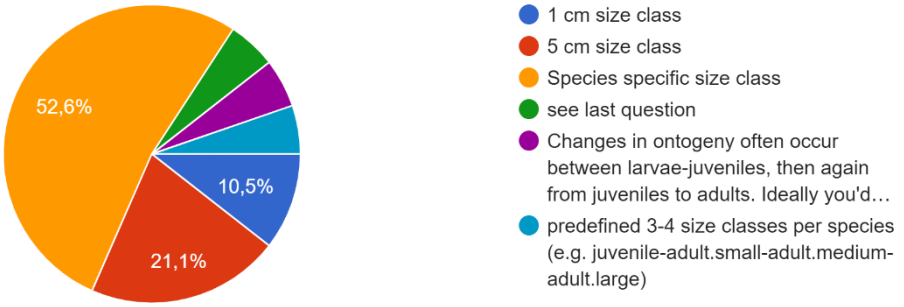

Figure 14.3.1: Perceptions of contributors about the question "what is the optimal size class resolution for sampling?"

Another technical question of importance is about the level of taxonomic identification for the preys (Fig.14.3.2). Most contributions mentioned their will to see an identification of all preys at the lower possible level. This has key implication: such a protocol would require longer time for each stomach, as well as an important taxonomic expertise.

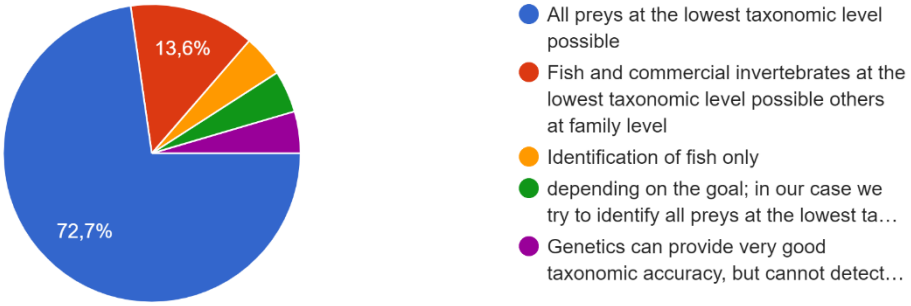

Figure 14.3.2: Perceptions of contributors about the question "what is the most optimal level of prey identification?"

Finally, contributors mentioned that number and mass of preys are the mostly used indicators. Presence/absence is also mentioned but with less occurrence. Length of prey is also mentioned, as this should be a key information requested for the calibration of the models. Nevertheless, these two final

methodological questions, are crucial, and should be further discussed with actual end-users (e.g. WGSAM) to ensure that the data produced with the selected protocol would fit their expectations.

3. Participation in the Fishn'Co workshop on end-user-needs and presentation of results from ToR 2.

Pierre Cresson leads the FishN'Co tasks about stomach content sampling. He thus regularly participates to the meeting detailing the progress of the works. He will present the results of the questionnaire (cf. summary in previous section) during the dedicated FishN`Co workshop, and include it in the final report of the project.

4. Work on WP/AR Table and Textbox 4.1 (stomach sampling)

As the collection and analyses of stomachs is not actually included in a regionally coordinated protocol, responsibility of the content and format of table and textbox remain of the responsibility of each country. But some countries included the recommendation of the ISSG in their national workplans.

Further information about the aspect of the protocol actually covered by a regionally coordinated work plan are needed before being able to produce regionally coordinated table and textboxes for stomach content.

References

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RCG NA NS&EA RCG Baltic (2021). Regional Coordination Group North Atlantic, North Sea & Eastern Arctic and Regional Coordination Group Baltic. 2021. Part I Report, 78 pgs. Part II Decisions and Recommendations, 16 pgs. Part III, Intersessional Subgroup (ISSG) 2020-2021 Reports, 331 pgs. (https://datacollection.jrc.ec.europa.eu/docs/rcg)

14.4 Roadmap/follow-up

Decisions

1. Decide on the most appropriate coordination group set-up for the regionally coordinated stomach sampling in European waters.
2. Decide on the funding of the stomach content collection and analyses, taking involved non-EU countries into account.
3. Decide on the list of species to be sampled

Future tasks for the ISSG 2022-2023

- Establishment of the chosen coordination group (Proposals for participants, recruitment of members, potential chairs, Discussion with ICES, ToRs, etc.)
- Organisation of a workshop for the finalisation of the stomach sampling plan and protocol
- Cooperation with ICES Data Centre regarding the "re-launch" of the ICES stomach data base

Recommendations

- Recommend IBTSWG members to participate in the ISSG Stomach sampling working group

14.5 SG Participants

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ANNEX 14.1 - Minutes of the ISSG "Stomach sampling" virtual meeting

Members of the ISSG Stomach sampling met virtually on 28 April 2022 between 9:00 and 12:00 CET. The Agenda included a discussion of the work done since the Technical RCG meeting in June 2021 on the four TORs, and already presented in the dedicated sections of the following report. General discussions were also held after addressing specific discussions about TORs outcome.

The meeting gathered 11 participants from eight countries.

Participants:

- Germany: Uwe Krumme, Matthias Bernreuther
- Spain: Isabel Bruno, Izaskun Preciado, Naiara Rodriguez-Ezpeleta
- France: Pierre Cresson
- Greece: Paraskevi Karachle
- Poland: Joanna Pawlak, Marzenna Pachur
- Portugal: Susana Garrido
- Sweden: Karolina Wikström

Matthias Bernreuther presented the work on ToR 1.a-d, mainly the update of the rolling stomach sampling scheme for the IBTS. The Discussion points are presented below:

ToR 1a – Rolling sampling scheme

Naiara: Are fish/Stomach sampled frozen onboard? Where are the stomachs now?

Following this question, a short discussion was held on how to combine DNA and visual methods to cope for the limits of both methods - Naiara is leading a pilot study on DNA stomach analysis. Possible to share samples.

Karolina: Sweden did the sampling during IBTS Q1 - Stomachs were frozen, but the smaller fish (12-13 cm TL) were frozen as whole

ToR 1b- costs

No comments

ToR 1c- coordination

Karolina: Swedish samples are generally sent to Poland

Uwe: The stomach samples from the Baltic are usually analysed by master students, not paid

Pierre: student not adapted to a routine survey

Naiara: EU MAP provide instrument to fund student for pilot studies, but should be regular for monitoring

Voula: data needs from end users, that is the key question

Student is cheap/free but you have to pay the person to train him/her. It can be cheaper over long time to train someone once rather than several person every year.

Matthias: having the end users needs won't help getting the funding

In the end of the presentation of ToR 1a-d was the question discussed wether a subgroup meeting in Ostende during the RCG plenary is needed?

Pierre Cresson presented the work on ToRs 2-4.

First comment on ToR 4 was that the group was not sure where this ToR comes from and what to do with it.

There was a short discussion on the size classes for the samples.

Comment from Karolina: We took only stomachs from specimens where otoliths and sex and maturity sampled anyhow -> To have the full information of that fish

Naiara: what does new ICES group means?

Matthias: nothing decided yet, we wanted to check all potential options.

Do ICES coordination group already exist? Yes they do as e.g. survey planning groups.

Start with a workshop first before having a regular working group - Build on BECOSS held in Santander?

How to include Mediterranean in this coordination group, even if not included in the RCG NANSEA

Uwe: do not split the group, keep it in the RCG, add new TORs

How to keep the motivation of people involved in collection (WGIBTS) to collect samples in 2023 and on if they see that the samples collected in year 2022 are discarded without doing nothing on it?

General Discussion

During the general discussion, the group came to the conlclusion that the ISSG stomach content work needs to be presented at the technical meeting to get input on the proper coordination group, to get help solving the funding issue and to emphasize the urge of solving the cost/funding matter. The group sees a risk of ”losing” the IBTSWG for the sampling if stomach samples are collected and the stomach content analyses are not conducted.

The group will work on planning a workshop dedicated to the defintion of the rolling scheme, species, labelling, content analyses, etc.

15 ISSG National correspondents

No progress was made by the ISSG NCs

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