WORKSHOP ON FISHERIES OVERVIEWS (WKFO)

VOLUME 3 | ISSUE 45

ICES SCIENTIFIC REPORTS

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ISSN number: 2618-1371

ICES Scientific Reports

Volume 3 | Issue 45

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Recommended format for purpose of citation:

ICES. 2021. Workshop on Fisheries Overviews (WKFO).
ICES Scientific Reports. 3:45. 98 pp. https://doi.org/10.17895/ices.pub.8077

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Contents

i Executive summary

Fisheries overviews summarize fishing activities in ICES ecoregions, including describing which countries are catching what species, the various fishing methods being used, the distribution and intensity of fishing, the status of fished stocks, how stocks are managed, and what are the impacts of fisheries on the ecosystem. Fisheries overviews are now published for most ICES ecoregions. The Workshop on Fisheries Overviews (WKFO) met to i) propose a long-term strategy for fisheries overviews, ii) suggest revisions in the content/arrangement of those, based on the long-term strategy and feedback from advice requesters and stake-holders, and iii) discuss issues related to data used in fisheries overviews.

The workshop suggested some restructuring and rearrangements in the content of fisheries overviews, and removing the short term tactical mixed fisheries advice.

A quality/consistency check was considered essential to ensure the quality of the fisheries overviews. The diversity of data used in a single fisheries overview or between fisheries overviews might create inconsistencies and it was considered essential to harmonise the datasets used in the different figures of a fisheries overview as much as possible.

During the workshop, participants went through each fisheries overview and identified data sources used to produce the figures, possible problems or inconsistencies (linked with the data themselves or in term of data availability and data flow to reach the FAIR data principle in a near future). Inclusion of other data sources or other action to take to improve the quality of the fisheries overviews was also considered.

Mechanisms for better linking/integrating and communicating fisheries status and impact information within the enhanced/interactive web interface envisaged for fisheries overviews (integration and communication mechanisms) should be established.

In order to secure long-term viability in the development and production of fisheries over-views, establishing a small coordination group (7-10 people) consisting of representatives from the ICES Secretariat (Science Support, Advice Support, and Data and Information) was recommended. The purpose of this group will be to ensure operational information flow be-tween all key players in the ICES system and strategic planning of fisheries overviews. Further, technical guidelines for fisheries overviews should be established. WKFO recommends that the coordination group continues working on the draft guidelines for submission to ACOM for approval.

ii Expert group information

Expert group name	Workshop on Fisheries Overviews (WKFO)
Expert group cycle	Annual
Year cycle started	2021
Reporting year in cycle	1/1
Chairs	Bjarte Bogstad, Norway
	Youen Vermard, France
Meeting venues and dates	29-31 March 2021, by correspondence (20 participants)

1 Introduction

The Terms of Reference were:

WKFO - Workshop on Fisheries Overviews

2020/2/FRSG55 Workshop on Fisheries Overviews (WKFO) chaired by Bjarte Bogstad, Norway, and Youen Vermard, France, will be established and will meet via online meeting 29-31 March 2021 to:

a) Discuss and analyse feedback obtained on ICES Fisheries Overviews (FOs) during MIR-IA and MIACO 2021 meetings to further develop FOs to meet the current and emerging management needs.
b) Propose a long-term strategy for FOs by focusing on purpose, links with other advisory products and management needs. Propose a plan for the main steps (potentially incl. future of WKFO or establishment of permanent EG), and allocate responsibilities to secure long-term viability of the production process.
c) Suggest revisions in the content/arrangement of FOs, based on the long-term strategy and input from advice requesters and stakeholders. Identify new items to be incorpo-rated to FOs and relevant Expert Groups responsible for these items.
d) In collaboration with the ICES Data Centre, identify data to be used in FOs to be se-cured and to conform to the FAIR principles.

WKFO will report by end of April for the attention of ACOM.

Supporting information

Priority	High priority. Fisheries Overviews (FOs) are part of the recurrent advice in the Administrative Agreement signed between the EU and ICES, and key mechanism for ICES to deliver its advice on ecosystem based management.
Scientific justification	By the end 2020, FOs will be available for most ecoregions. Arranging a dedicated workshop to discuss future of FOs is therefore very timely, including: i) suggesting revisions in the content/arrangement, ii) identifying new products with proposing a process on how to include them to FOs, iii) securing long-term viability of the production process, and iv) securing that the data used will conform to the FAIR principles.
Resource requirements	The national monitoring and research programmes, and ICES EGs which provide the main input to this group are already underway, and resources are already committed.
Participants	The WK will be attended by experts contributing to FOs, include on mixed fisheries, as well as ACOM members responsible for delivery of FOS for particular ecoregions. Input from stakeholders and recipients of advice will be seeked for during MIRIA and MIACO 2021 meetings.
Secretariat facilities	Setting up webex calls.
Financial	No financial implications.

Linkages to advisory committees	Direct link to ACOM.
Linkages to other committees or groups	AFWG, HAWG, NWWG, NIPAG, WGWIDE, WGBAST, WGBFAS, WGNSSK, WGCSE, WGDEEP, WGBIE, WGEEL, WGEF, WGHANSA, WGNAS, WGMIXFISH, WGBYC
Linkages to other organizations	OSPAR, HELCOM, NEAFC, RAC's etc.

The meeting had a broad attendance, as most ecoregions were represented, as well as ACOM, ICES secretariat and ICES Data Centre.

2 ToR a) Discuss and analyse feedback obtained on ICES Fisheries Overviews (FOs) during MIRIA and MIACO 2021 meetings to further develop FOs to meet the current and emerging management needs.

Participants of the annual meeting between ICES and Requesters of ICES Advice (MIRIA) and Advisory Councils and other Observers (MIACO), both held in January 2021, were invited to respond to the short online survey on fisheries overviews. The survey questions were also agreed by WKFO chairs. ICES received nine responses from MIRIA and 21 from MIACO. The responses are given below.

1. **Which section(s) in fisheries overviews you find most useful?**

Section in fisheries overviews	MIRIA (% of responses)	MIACO (% of responses)
Executive summary	56	57
Definition of the ecoregion	33	33
Mixed-fisheries considerations	56	62
Who is fishing	78	62
Catches over time	78	57
Description of the fisheries	56	57
Fisheries management measures	33	62
Status of the resource	89	67
Mixed fisheries	44	57
Species interaction	78	48
Effects of fisheries on the ecosystem	67	62

2. **Are there additional topics or narratives which should be added, or information which should be given in lesser detail or removed? If yes, please describe.**

i) MIRIA

No changes are needed was indicated by 67% of respondents. One respondent suggesting that changes are needed did not indicate what those should be. The following suggestions for changes were proposed:

- ✓ Continue to update the overviews. What are the consequences of these overviews for the catch advice for the relevant species?
- ✓ More detail in the mixed fisheries considerations would be helpful, particularly how the scenarios could be expressed in management

units. Would also be helpful to link this section better with the other sections on mixed fisheries and multispecies considerations. As the mixed fisheries considerations section is slightly different in terms of its purpose to the rest of the overview, may benefit from being separated.

ii) MIACO

No changes are needed was indicated by 62% of respondents. The following suggestions for changes were proposed:

- ✓ Can anecdotal information from fishers be incorporated into the ICES stock assessments.
- ✓ Mixed fisheries are not of sufficient quality. It is listen has been - not will be. (unclear meaning of comment)
- ✓ The section on mixed fisheries considerations is a bit controversial in my opinion. Unless a way of considering the effective interaction amongst species and the environment and a real ecosystem approach to fisheries consideration is adopted, the conclusions in the paragraph are a bit unrealistic. Assumptions are already made when modelling single species assessments (hence a level of approximation is already there) and, if the approach is just to consider those single assessments combined, the risk is to propagate too much uncertainty. Also, there are no considerations around the behaviour and the adaptability of the fleets on the changes in the environment and/or of the catching opportunities available.
- ✓ Impact of Climate Change on particular fisheries when known. Use of ecosystem approach modelling as in WKIrish for all fisheries.
- ✓ Juvenile percentage, bycatch/discard composition.
- ✓ We understand that it is difficult to merge, yet the considerations laid out here is relevant to the "normal" ICES advice. Also, the ecosystem overviews hold more information but that is partly overlapping. Could there be one overview only? Adding some section of current fisheries overview as an annex/wiki (i.e. fleets, gears used, who fishes what).
- ✓ Expansion of the multi-species considerations into a more quantitative assessment and advice? Should/could ICES be defining multi-species MSY (mMSY) ref points to aid supplement single-species MSY approach and associated decision-making?
- ✓ It would be useful to have easy access to the data behind the Figures. E.g. for the Greater North Sea FO Figure 7-10 these figures are not easy to use and the data in Appendix Tables would be helpful in order to be able make figures yourself.

3. **What would you like to change in the overall structure of fisheries overviews (as an example, please see Table of contents list in Norwegian Sea ecoregion fisheries overview). Please describe.**

   i) MIRIA

   No changes are needed was indicated by 89% of respondents. The following suggestion for a change was proposed:

   - ✓ In addition to response in previous question about mixed fisheries considerations. The 'who is fishing' section could benefit from more diagrams etc. to illustrate the info and make it more accessible. This may be helpful in general as well.

   ii) MIACO

   No changes are needed was indicated by 81% of respondents. One respondent suggesting that changes are needed did not indicate what those should be. The following suggestions for changes were proposed:

   - ✓ Labels are difficult to read.
   - ✓ As noted, several sections could be made into an annex with fleets etc. and get directly to more interesting bits on impacts, mixed fisheries and ecosystem impacts and foodwebs.
   - ✓ In my view it would be better to move "Mixed fisheries considerations" to after "Description of the fishery". Also I think you should consider who you expect to read and understand these fisheries overviews. Is it ICES scientists only or also fisheries managers and the general public? If the latter is also the target reader I would suggest you make an easier readable nice looking "popular version" of the fisheries overviews.

4. **What would you like to change in the format or content of display material (figures and tables) in order to make fisheries overviews more readable?**

   i) MIRIA

   No changes are needed was indicated by 67% of respondents. The following suggestions for changes were proposed:

   - ✓ Better visibility for mixed fisheries scenario.
   - ✓ As in previous questions.
   - ✓ Perhaps clearer labelling etc.

   ii) MIACO

   No changes are needed was indicated by 86% of respondents. The following suggestions for changes were proposed:

   - ✓ would like to have a link to the data behind the figures.
   - ✓ text in graph labels are too small to read.
   - ✓ I have partly answered that already. Some inspiration at https://www.fisheries.noaa.gov/region/new-england-mid-atlantic#fisheries.

5. **Please propose ideas on how to make fisheries overviews more operational and useful?**

   i) MIRIA

   No changes are needed was indicated by 56% of respondents. The following suggestions for changes were proposed:

   - ✓ Concerning mixed fisheries considerations, develop so that all ICES within the region are covered (to the extent possible). It is valuable information informing management decisions. Also the timing of the mixed fisheries advice.
   - ✓ What are the consequences of these overviews for the catch advice for the relevant species?
   - ✓ Mostly described in previous answers but in general would help being clear on the purpose of the overview. Most of the sections seems to sit well within this such as summary of catches and who is fishing etc. But the mixed fisheries considerations are more advice than an overview and does affect the flow slightly. Might benefit from being a distinct separate section or publication.
   - ✓ Greater incorporation of recreational fisheries data (including catches & landings) within assessments for a wider range of stocks.

   ii) MIACO

   No changes are needed was indicated by 71% of respondents. The following suggestions for changes were proposed:

   - ✓ The mixed-fisheries section figures are complex and difficult to follow, although I don't have a suggestion on how to change it.
   - ✓ A more interactive presentation would be helpful instead of a pdf file.
   - ✓ Include more scientific data about fishing stocks
   - ✓ Again, merging with regular species advice and ecosystem overviews.
   - ✓ Expansion of the multi-species considerations section into more tactical advice that can supplement single-species catch advice.
   - ✓ Inspiration at https://www.fisheries.noaa.gov/region/new-england-mid-atlantic#fisheries

In addition, the following comments were received after the meeting by MIACO participants:

i. Status on each stock is a bit hidden when grouping on pelagic, demersal etc. In the Baltic case it could be spelled out on the top 6-8 species since there are not that many of them.

   Salmon is not well covered as per risk to individual stocks and reflecting ICES clear understanding of current management regime and its effects (not reaching MSY and even losing some stocks under present approach of TAC) ALSO, salmon are not discussed regarding the "mixed fisheries" in the same way as the special advice on the salmon management plan draft, May 2020. Meaning that in that text, ICES actually did give advice on "mixed fisheries" that the open sea salmon fishery does represent.

   On recreational fishing, eel is not mentioned while ICES WGEEL very clearly states that it is likely a significant fishery, similar size as commercial. Actually, regarding values and users, recreational fishing is in many ways the "industry" and the commercial taking of some species is the "hobby" and this should be made clear in the fisheries overviews,

perhaps attempting also to add figures on the knowledge we have of amount of recreational fishers in resp country as well as their landings AND effects of catch and release.

ii. It would be useful if the Figure 18 plot (see Greater North Sea FO) or equivalent in other Fisheries Overviews, allowed differentiation between stocks where MSYBtrigger values = Bpa (or equivalent ref. pt) and the MSYBtrigger = 5th percentile of BFMSY. Maybe this could be done easily with shape/outline type on the plotted points with a key in the figure description?
It would be useful if the Figure 15 plot (see Greater North Sea FO) or equivalent in other Fisheries Overviews, allowed for differentiation within the grey category (unknown ref. pts) between those with an MSYproxy and those with no estimated ref. pts at all. Maybe the associated Annex (Table A1) could also differentiate in "Advice Category" or "Reference Point" column (e.g. PA[MSY proxy])?
One other thing – it would be helpful if ICES published in the WG assessment reports or single-species advice the "value" for BFMSY that forms the basis of the estimated MSY Btrigger ref point (when calculated as the 5th Percentile of BFMSY).

2.1 Discussion held during the workshop:

Based on the feedback from respondents, and ToRs of the workshop, WKFO decided to have a more detailed discussion on the following two issues: 1) Section on 'Status of the resource', and 2) Mixed fisheries.

2.1.1 Status of the resource

The discussion started by mentioning the following items of potential discussion interest: i) EU and non-EU context; ii) short-lived species can be of challenge (even category 1 stocks); iii) need to describe the situation relevant to the management plan for the area, and iv) layout of the diagrams – do they convene the message needed?

It was concluded that delivery of the single snapshot information on the stock status summary is not particularly useful. Rather trends/progress would be more important to show. Graphically, time-series proportion plots could be an option to consider.

It was noted that as the traffic light plots were taken out from single stock advice, fisheries overviews is the place where these are to be shown. It should be highlighted.

Figures displaying SSB/MSY Btrigger, F/F_{MSY} ratio averages have received critique previously. Also, temporal dynamics of individual stocks is often hard to follow. Options should be sought for finding another graphic, incl. better to show divergence (of extremes).

Question was raised as to why elasmobranchs are a separate category, especially in the perspective of the total tons taken.

Suggestion was made to consider modifying the last plot under status of the resource (Figure 18 in the Greater North Sea fisheries overview) taking into account landings in the ecoregion, in addition to the landings of the total stock. Incorporation of highly migratory stocks hides the status/dynamics of more regional stocks; and this is an issue for several ecoregions.

Suggestion was made to establish comparison of information by different fisheries, and not by resource categories (i.e. pelagic, demersal, crustaceans).

The MSFD plots for Icelandic Waters and Greenland Sea ecoregions were discussed and agreed that no changes are needed.

Question was posed on how to include information about the status stocks and total catch estimates into fisheries overview, for which ICES assessments are unavailable. Several of those stocks are regionally important and of interest to regional managers. Integration of data from other sources would be needed. Currently, landings for those stocks are often included in plots showing total catches in the ecoregion.

There was a suggestion removing reference to MSFD and if so, consider rephrasing. However, it should be kept in mind that there is a difference between MSFD and ICES rule: while ICES is using MSY as a target, MSFD is using MSY as a limit.

A broader point was made about reference points and its relevance/importance globally. Globally, different indicators are developed (e.g. for overfished stocks, and those suffering from overfishing). Need to think on how information in fisheries overviews feeds into the global picture.

It was stated that information on conservation status of stocks (e.g. 0-TAC advice, stocks below Blim, those at low stock levels) is currently missing.

2.1.2 Mixed fisheries issues

Information on mixed fisheries currently appear in two formats within the fisheries overview: quantitative short term tactical advice in the form of mixed fisheries considerations; and descriptions of mixed fisheries technical interactions. Both of these products provide valuable information on the ecoregions however they do not both fit comfortably within the fisheries overview.

It is the suggestion of this group to remove the short term tactical advice sheet from the fisheries overview, and incorporate a standardised contribution (to be developed) of this into fisheries overview. Retaining the full mixed fisheries advice sheet with the advice presents a number of challenges:

- **Length of the fisheries overview:** The length of the fisheries overview has been criticized, and has been described as too long and difficult to navigate. This is particularly evident in the Bay of Biscay and Iberian Waters ecoregion fisheries overview, where there are now two separate mixed fisheries advice sheets (Iberian coast and Bay of Biscay). Despite request from end-users to provide more scenario's and detail on technical interactions WKMIXFISH has felt constrained in how to develop the mixed fisheries advice sheet, in case it increased the length of fisheries overview. Conversely, there is potential that the size of the mixed fisheries advice sheet could restrict the development of the fisheries overview which may require space for more important summary narratives.

- **Visibility of mixed fisheries advice:** Concerns have been voiced about the visibility of mixed fisheries advice being reduced when merged with the fisheries overview.

- **Technical interactions:** Removal of the mixed fisheries advice from the fisheries overview would provide more room to improve and expand the valuable descriptions of technical interactions. The process of producing these descriptions could become a formal part of WGMIXFISH-Advice. This would allow the product to be quality controlled and for a robust description and narrative of these interactions to be drafted by the experts who attended the working group. With the support of WGBYC these descriptions of technical interactions could incorporate information on bycatch of protected, endangered and threatened species (PETS).

- **Data inconsistencies:** Combining the mixed fisheries advice with the fisheries overview introduces perceived inconsistencies in the final product. Fisher behaviour (métiers) is aggregated, defined and described in different ways depending on the required output and the mixed fisheries advice product being produced. Therefore, within a fisheries overview there can be major inconsistencies in métiers presented within the quantitative mixed fisheries advice and the descriptions of technical interactions. This is difficult to explain effectively within the fisheries overview and the inconsistency may be confusing/misleading for end users.

3 ToR b) Propose a long-term strategy for FOs by focusing on purpose, links with other advisory products and management needs. Propose a plan for the main steps (potentially incl. future of WKFO or establishment of permanent EG), and allocate responsibilities to secure long-term viability of the production process.

The initial purpose of fisheries overviews was descriptive i.e. to provide a synthesis of information on fisheries status and impacts (for now, this includes impact information on individual stocks and other ecosystem components under single-stock vs mixed fisheries assumptions).

A goal for the longer term could be to provide the broader, ecoregion-level context required to inform/facilitate ecosystem-based fisheries management. This requires taking into account additional elements of fisheries systems not presently included in the fisheries overviews and to consider benefits, impacts and objectives in a risk-related context.

Also, it is necessary to identify mechanisms for better linking, integrating and communicating fisheries status and impact information within the enhanced/interactive web interface envisaged for these overviews (integration and communication mechanisms). This relates to the internal linking within fisheries overviews as well as with other advice products.

The development of fisheries overviews has evolved to a stage where a more coordinated internal approach both for overseeing, coordinating and prioritizing further strategic developments, content optimizations as well as discussing and solving general operational issues would be needed. In addition, it would be very important to ensuring operational information flow between all key players in the ICES system, i.e. science, advice, secretariat and data center. To meet these objectives, establishment of a small coordination group (7-10 people) consisting of representatives of all these four key players is suggested. This is in line with the situation for ecosystem and aquaculture overviews, where such coordination groups have been established. While for ecosystem overviews it is a very recent development, such a group has been very effectively operating for establishing aquaculture overviews and also developing ICES viewpoint in the field of aquaculture. The group should meet remotely once per month/two months, depending on the issues to be discussed/solved. This group should recommend workshops on specific issues whenever needed. The group will report to ACOM (as part of overviews reporting).

4 ToR c) Suggest revisions in the content/arrangement of FOs, based on the long-term strategy and input from advice requesters and stakeholders. Identify new items to be incorporated to FOs and relevant Expert Groups responsible for these items.

For the short term, the following changes in the existing list of content (given at the end of this section) were suggested:

1. Replace Executive summary with key signals/key trends section – this is similar to how the ecosystem overview is structured. This is needed, as key messages are currently difficult to extract. Some suggestions:
    - A figure including key fishery trends and impacts at the ecoregion scale
    - Focus on statements relating to benefits, drivers, impacts and conservation issues
2. Move the Mixed fisheries considerations (only some overviews have this at present) to a separate document but keep the mixed fisheries section.
3. The following tentative new structure was proposed:
    i) **Key signals**
    ii) **Introduction**
    iii) **Catches over time** (incl. technical interactions)
    iv) **Description of fisheries**
    v) **Fisheries management** (incl. information on management plans)
    vi) **Status of the fishery resources**
    vii) **Interactions between fisheries and the ecosystem** (incl. key top-down and bottom-up food-web interactions and associated impacts relative to fishing; species interactions taken into account in stock assessment
    viii) **Effects of fisheries on the ecosystem**
    ix) **Sources of references**
    x) **Annexes**

In general, harmonization of the section headings and section content of fisheries overviews is needed. Some links with existing ICES expert groups need to be built or strengthened in order to achieve this. In particular, it was noted that contact should be made with the Working Group on Recreational Fisheries Surveys and Working Group on Bycatch of Protected Species.

The WKFO also concluded that Technical Guidelines for Fisheries Overviews should be established. A first draft of such guidelines based on the Guidelines for Ecosystem Overviews was presented to the group. WKFO recommends that the coordination group (see ToR b) continue working on the guidelines for submission to ACOM for approval.

Potential elements to be included in fisheries overviews as part of a long-term strategy:

- Social and economic dimension (e.g. local and regional benefits from fisheries)
- Recreational fishing (relevant to distinguish subsistence and food fisheries as well?)

- Impacts on aggregated ecosystem components (e.g. ecosystem-level overfishing indices and indices of community-level impacts from fisheries using composite indices such as functional guilds)
- Key drivers of fishing activities (e.g. economics, climate), identification and prioritization
- Conservation status of stocks (e.g. 0-TAC advice, stocks below Blim, those at low stock levels)
- Information of stock identity obtained from genetic studies.

A potential mechanism for linking/connecting information components of fisheries overviews would be a risk-based assessment approach.

For reference, the current structure of the fisheries overviews is as follows:

1. Executive summary
2. Introduction
3. Mixed fisheries considerations (only for some ecoregions)
4. Who is fishing
5. Catches over time
6. Description of the fisheries
7. Fisheries management
8. Status of the fishery resources
9. Mixed fisheries
10. Species interactions
11. Effects of fisheries on the ecosystem
12. Sources of references
13. Annexes

5 ToR d) In collaboration with the ICES Data Centre, identify data to be used in FOs to be secured and to conform to the FAIR principles.

5.1 Description of the data sources

A quality/consistency check was considered essential to ensure the quality of the Fisheries Overviews as they stand at the moment. The diversity of data used in a single FO or between FOs might create inconsistencies, therefore it is considered essential to harmonise the datasets used in the different figures of a FO as much as possible.

During the workshop, participant were asked to go through each of the fisheries overviews and identify data sources used to produce the figures, possible problems or inconsistencies (linked with the data themselves or in term of data availability and data flow to reach the FAIR principle in a near future) and propose other data sources or action to take to improve the quality of the Fisheries Overviews

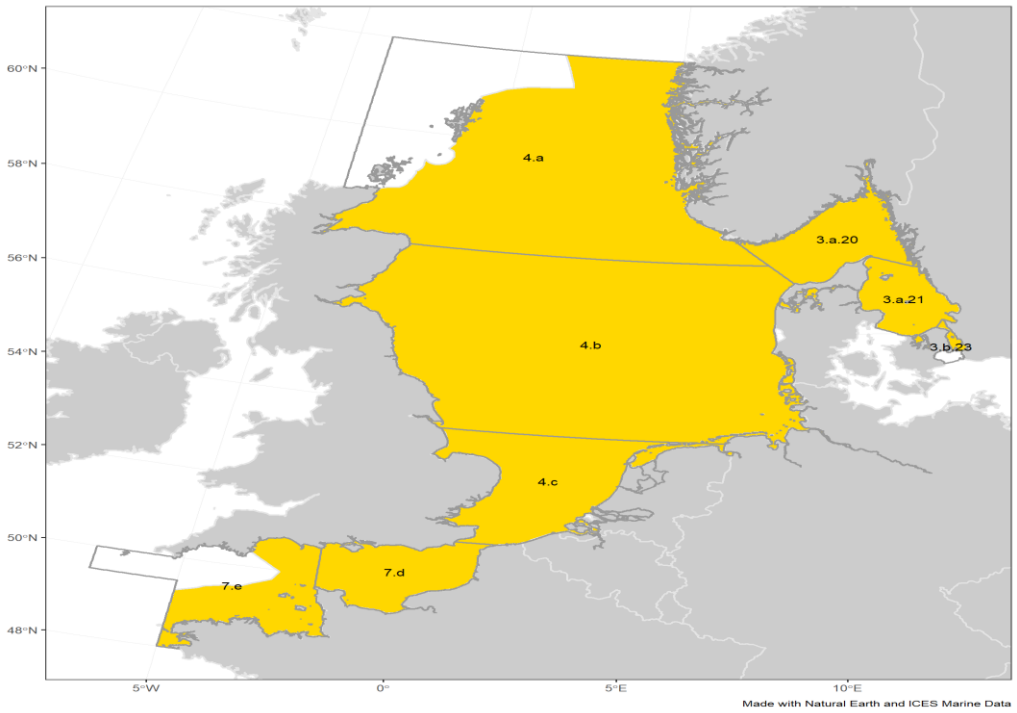
5.1.1 Figures available in most Fisheries Overviews

Some figures are consistent in terms of information displayed and layer over Fisheries Overviews even if the data sources might differ.

These figures, with the data sources used, potential problems identified and proposed actions are presented below.

5.1.1.1 Map of the ecoregion

All Fisheries Overviews start with a map of the ecoregion using ICES marine data

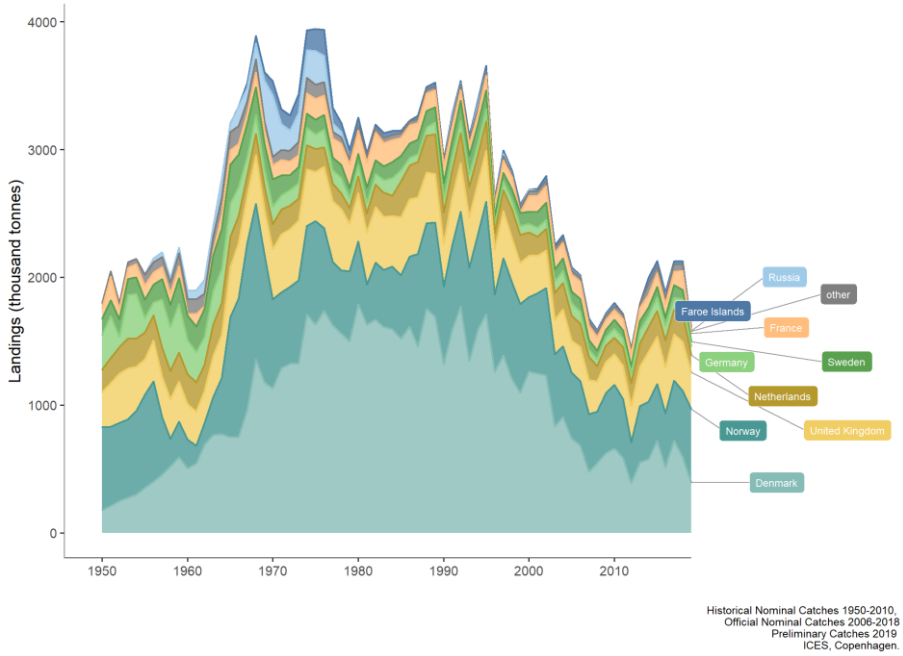


The need of harmonization with the Ecosystem Overviews was mentioned as well as some harmonization within Fisheries Overviews [Azores map and Celtic Seas do not have the same colour/information]. . Defining region is always a difficult task and need compromise but any boundary not following ICES statistical square will be problematic later on while assigning stocks and landings/catches to ecoregions.

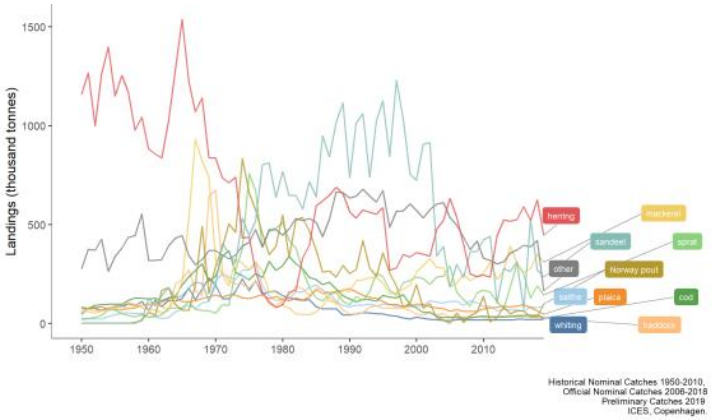
5.1.1.2 Landings

In the Fisheries Overviews Landings can be displayed by:

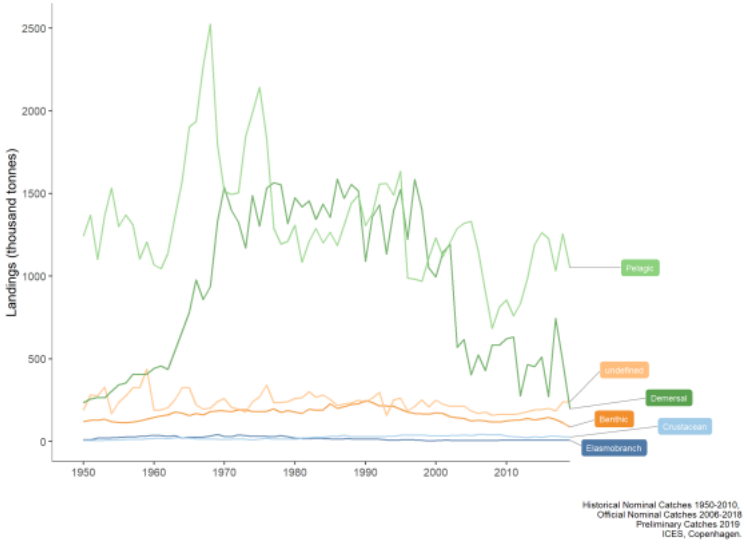
Country



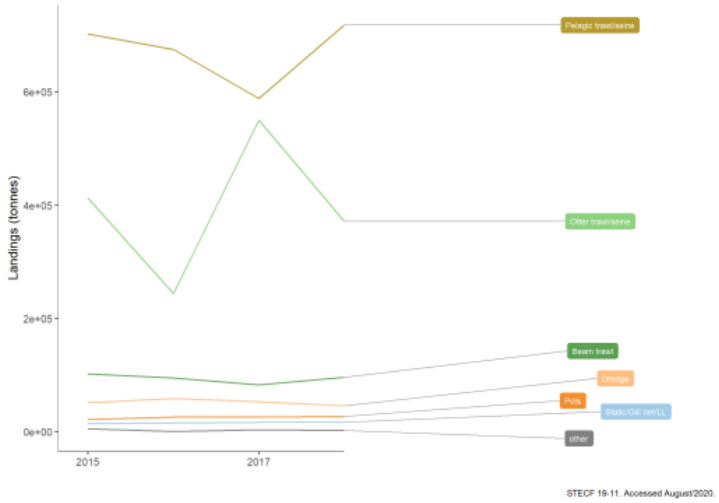
Species



Fish category



Gear type



As shown in Table 5.1 these figures are in most of the Fisheries Overviews and most of them use EUROSTAT historical catch series 1950-2010, 2006-2018 and preliminary catches as input for landings by country, species and fish category and the STECF FDI data for the landings by gear

type. Greenland Sea and Icelandic Waters Fisheries Overviews use national databases to plot landings by gear as no information is available in the STECF FDI database.

Table 5.1. Landings plots. Black crosses corresponds to EUROSTAT database, red crosses corresponds to STECF FDI database

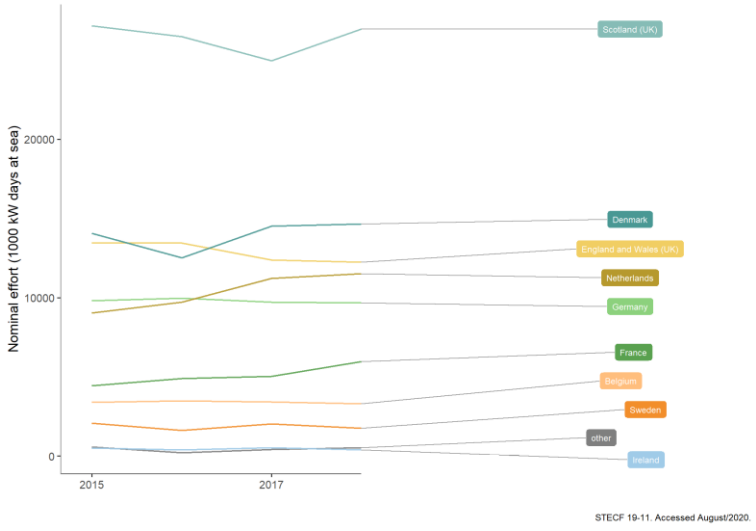
	Greater North Sea	Celtic Seas	ONAE	Greenland Sea	Azores	Icelandic Waters	BoB Iberian	Baltic	Norvegian Sea	Barent sea
Landings by country	x	x	x	x	x	x	x	x	x	x
landings by species (top 10)	x	x	x	x	x	x	x	x	x	x
Landings by fish category	x	x	x	x	x	x	x	x	x	x
landings by gear type	x	x		x		x	x	x		

If figures by country, species and fish category are coming from the same database they should then be consistent. Landings by gears are coming from another database using a different set of species, countries, due to differences in the data calls this will create inconsistencies in term of volumes of landings.

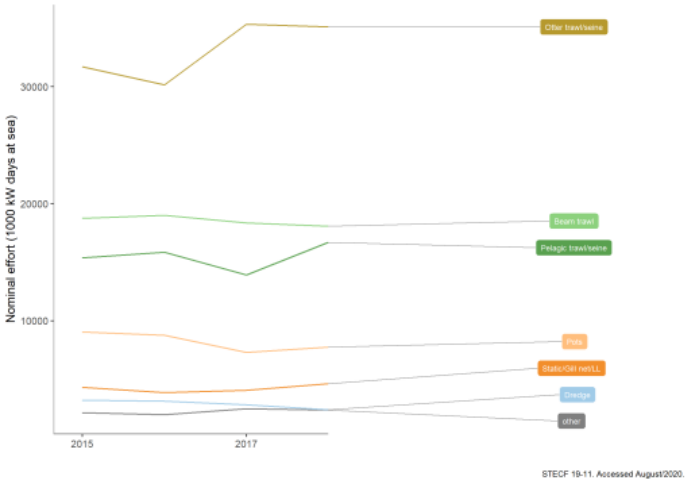
5.1.1.3 Nominal effort

In the Fisheries Overviews, nominal effort time-series can be plotted by

Country



Gear type



As shown in Table 5.2, about half of the current Fisheries Overviews are displaying effort time-series plots. When provided, these time series are mostly created using the STECF FDI database. When not available, ICES VMS database or national database are used.

Table 5.2. Effort plots. Black crosses correspond to STECF FDI database, red cross are national database and green crosses ICES VMS database.

	Greater North Sea	Celtic Seas	ONAE	Greenland Sea	Azores	Icelandic Waters	BoB Iberian	Baltic	Norvegian Sea	Barent sea
fishing effort by nation	x	x					x	x	x	x
fishing effort by gear type	x	x				x	x	x	x	x

5.1.1.4 Discard rate

In the Fisheries Overviews, discard rates are presented by fish categories using the ICES assessment database.

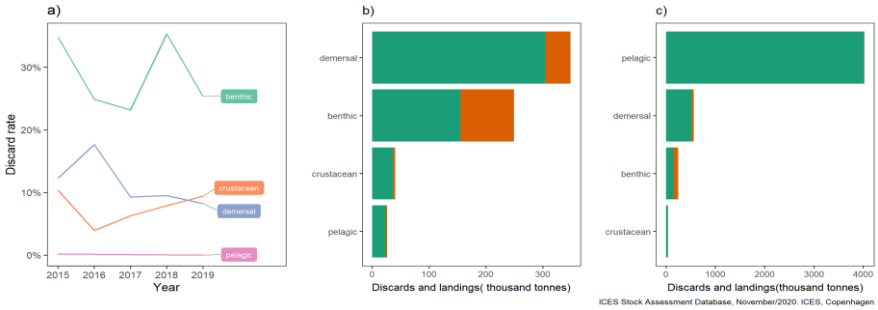


Table 5.3. Discard rate plots.

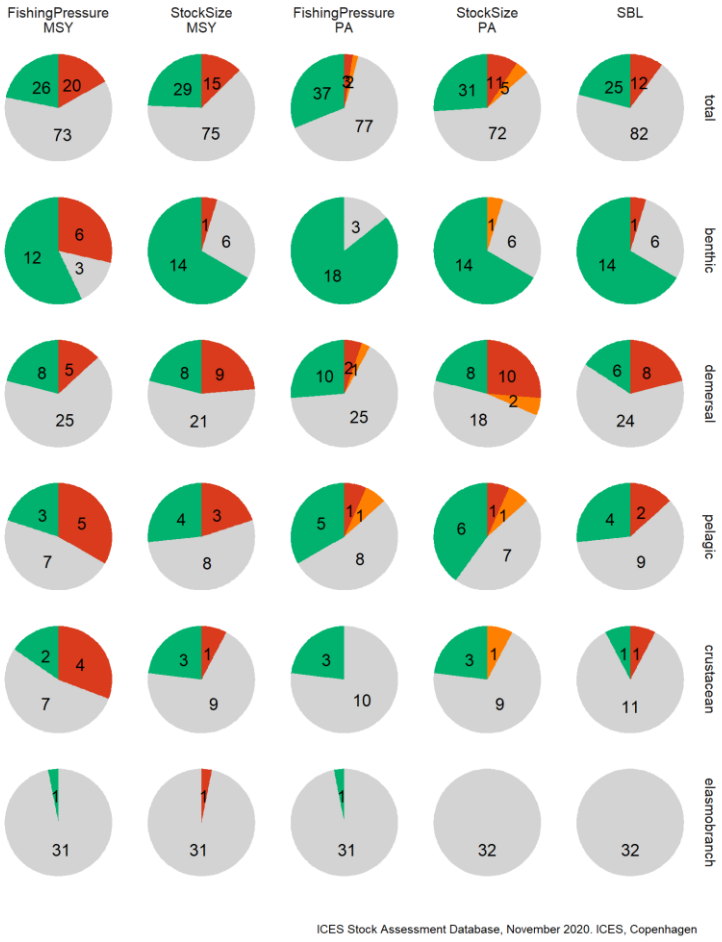
	Greater North Sea	Celtic Seas	ONAE	Greenland Sea	Azores	Icelandic Waters	BoB Iberian	Baltic	Norvegian Sea	Barent sea
dicards rates by fish category	x	x	x				x	x		

The main concerns about this figure were the list of stocks included in the different fish groups and its consistency in time. Some questions were also raised about the time-series and the possibility of increasing it.

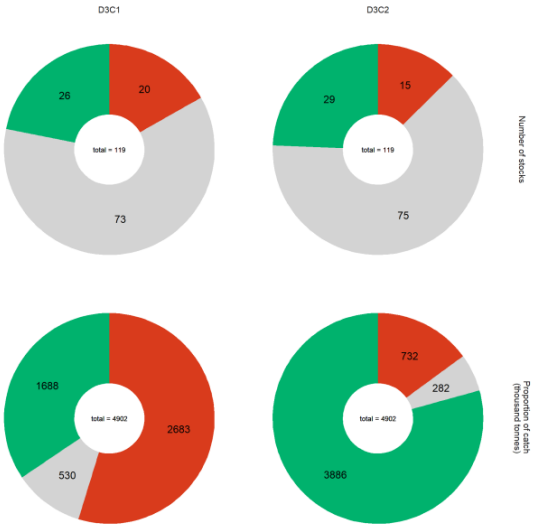
5.1.1.5 Stock status summary

In the Fisheries Overviews, stock status is plotted relative to:

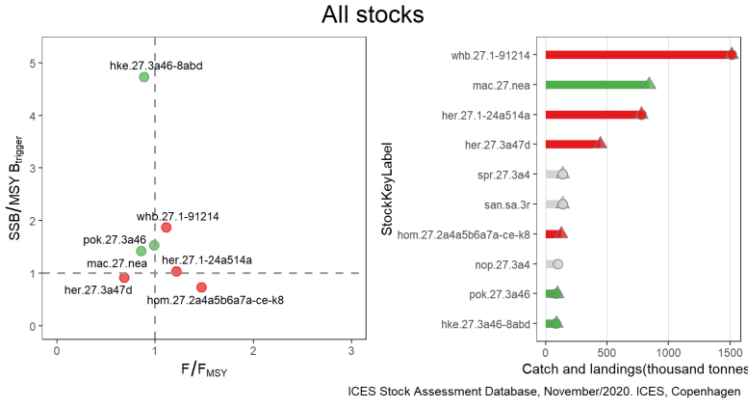
ICES MSY/PA approach



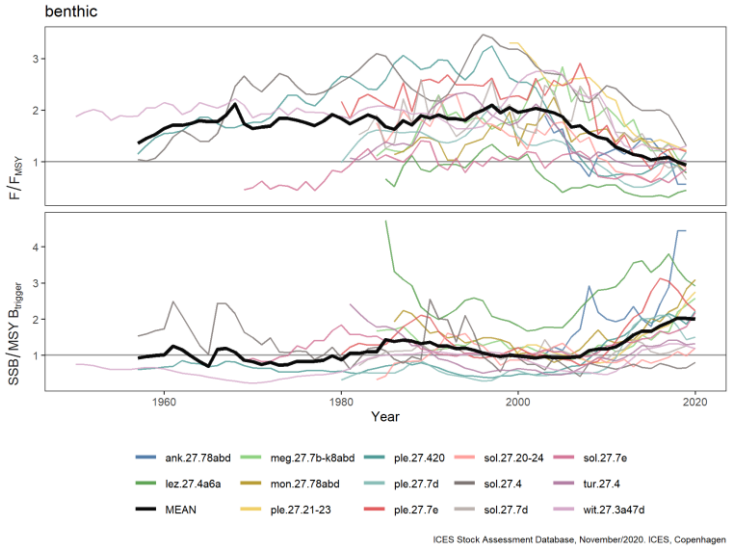
MSFD assessment criteria



Joint distribution of F/F_{MSY} and SSB/MSY Btrigger



Temporal trends in F/Fmsy and SSB/MSY Btrigger



These plots are produced using the ICES Stock Assessment Database for most Fisheries Overviews.

Table 5.4. Stock status summary.

	Greater North Sea	Celtic Seas	ONAE	Greenland Sea	Azores	Icelandic Waters	BoB Iberian	Baltic	Norwegian Sea	Barent's sea
stock status relative to ref points	x	x	x	x		x	x	x	x	x
stock status relative to MSFD	x	x	x	x		x	x	x	x	x
temporal trends F, SSB	x	x	x	x		x	x	x	x	x
stock status relative F and SSB	x	x	x	x		x	x	x	x	x

It was noted that as the traffic light plots were taken out from single stock advice, Fisheries Overviews are the place where these are to be shown. A special attention should then be paid of these graphs to present reliable information.

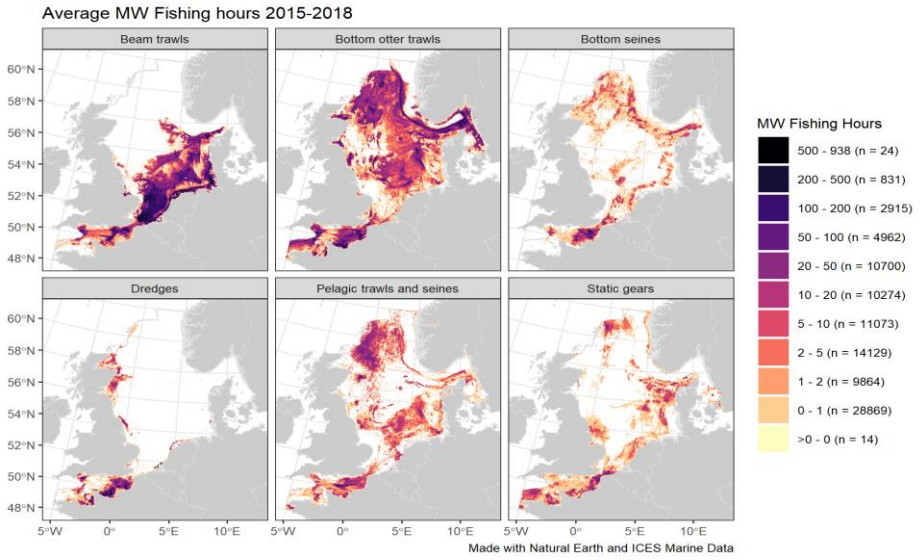
Main concerns about this section were expressed concerning the temporal trends for which the ratio seem to bias the reader to the values above 1. Some suggestions are proposed in the following section describing the stock assessment database.

On top of this, it was noticed that when there are too many stocks plotted in the trends figures, it is hard to distinguish anything.

Finally, it was mentioned that incorporation of widely distributed stocks might bias the interpretation and some (stocks) are not relevant in several ecoregions.

5.1.1.6 Spatial effort distribution/impact

The Fisheries Overviews



These plots, using VMS to get fine scale effort allocation only display information for vessels above 12 metres.

5.1.2 Description of the databases, identified problems and proposition

5.1.2.1 EUROSTAT historical catch series 1950-2010, 2006-2018 and preliminary catches

5.1.2.1.1 Description

A description of the databases used to produce the historical landing plots can be found here:

https://www.ices.dk/data/dataset-collections/Pages/Fish-catch-and-stock-assessment.aspx

Three different databases with different level of aggregation [species and areas] and reporting levels are used.

5.1.2.1.2 Identified problems

Used to plot time series of landings by country/gear/species, it mixes three different databases with different level of definition of the areas/species.

It is sometime not possible to precisely identify landings from one ecoregion based on the spatial information available in these databases.

As shown in the example below the mix of historical catch series 1950-2010 and 2006-2018 for the Greater North Sea might create misinterpretation. In fact, the number of countries and species with data varies every year, making the interpretation of the trends impossible.

Given the heterogeneity in reported species names, it is complicated to match reported species with fish groups. Some Fisheries Overviews then end up having a very big group of "undefined" category.

Proposed actions

Even if plotting long times series can be relevant to get an overview of the fisheries development over time, the nature and differences in the databases makes it hard to derive any conclusion about trends due to the evolution of number of countries and species reported.

A solution might be to break the time series at the beginning of a new time-series or only plotting the most recent data.

It might also be possible to filter the data on species/countries present over the whole time series. Filtering countries will not change the overviews in most cases as the main players should have reported data every year. Same for the main species caught that might have been reported since the beginning. For other species, without an expert analysis of the data, it is hard/impossible to say it the increase in number is due to the emergence of new species/fishing practices or an increase in the reported species.

5.1.2.2 STECF FDI

Description

The STECF FDI database is available here: https://stecf.jrc.ec.europa.eu/dd/fdi. These data are issued after a DGMARE data call where all member states have to produce transversal data [capacity, effort, landings and discards] at the requested aggregation level.

Identified problems

This database is restricted to EU countries and can sometimes been subject to confidentiality problems (countries can classify some strata as confidential and the information on landings/effort… are not publicly available). This data call is focused on logbook fisheries dependant information and is designed very differently to ICES data calls, which focus on scientific estimates. Therefore, STECF FDI data products will never match the ICES data and that might create inconsistencies within the Fisheries Overviews.

The current effort plots are limited to 5 years. Consider extending the time series if information available.

Proposed actions

The WGMIXFISH accession database was proposed in the medium term as a possible data source to provide effort and landing data at the relevant scale to be presented in the FO. This data sources however only covers the Celtic Seas, North Sea, Bay of Biscay and Iberian waters ecoregions.

5.1.2.3 ICES VMS database

Description

The ICES Working Group on Spatial Fisheries Data (WGSFDS) uses data provided to ICES through an ICES VMS data call to ensure data quality and produce maps of effort allocation and bottom impact of fishing.

Identified problems

At present these data only include vessels above 12 metres and there have been an incremental change in this length limit over time. Effort time series will then be limited to the latest period.

Proposed actions

There is a need to identify metrics to display information about small scale fisheries even if such fine scale spatial information is not available.

There is definitely a scope for using VMS information to plot spatial effort distribution at finer scale than produced at the moment using "métier" information and VLM/Logbook information if available. This information will increase the quality of description of the spatial effort allocation in the ecoregions.

5.1.2.4 ICES Stock assessment database SAG

Description

The SAG database is described here:

https://www.ices.dk/data/assessment-tools/Pages/stock-assessment-graphs.aspx

It compiles information for all analytical stock assessed from 2014 onwards.

Identified problems

1. The main concerns concerning the use of the Stock Assessment database was that many stocks are only partly if not hardly distributed in the ecoregion. It might then give a biased view of the landings in the ecoregion if widely distributed stock catches are plotted without weighting them based on the contribution of the ecoregion
2. For some ecoregions the reference points used in management can be different to MSY and the MSFD reference might not be relevant
3. The concerns concerning the temporal trends were a question of readability when too many stocks are displayed. On top of this, the scale of the Y-axis is clearly biased by the fact that stocks over the reference points are between 0 and 1 and stocks below the reference point above 1

Proposed actions

1. Only use the total landings/catches of the stock coming from the ecoregion using information using the Stock Assessment Database when possible or a proportion of the landings made in the ecoregion and maybe RDBES when populated. The list of stocks to be included in these graphs might need to be checked again by expert to remove some of the widely distributed stocks not relevant to the ecoregion.
2. Some formulation of the text/figure have already proposed for some ecoregion not to refer to the MSFD. Should be applied everywhere.
3. Change the Y-axis such as distance to reference points `{F-Fmsy} over {Fmsy}`

5.1.2.5 National databases

Description

In general, national databases were used to overcome problems and gaps in other available databases. These data sources do not always follow the FAIR principles and are reliant on the participation of individuals.

Identified problems concern the incapacity of extracting relevant information from the other databases due to spatial definition (the ecoregion could not be identified in the available databases), the absence of data for the ecoregion in the STECF database.

Identified problems

The data quality is in general of higher quality than for the other databases as the consistency in time is insured by people providing data. However, it can only be done in areas with very few countries fishing and necessitate a clear and secure pipeline to ensure data availability when updating the Fisheries Overviews.

5.1.3 Figures available in some Fisheries Overviews

Some figures are not consistent in terms of information displayed and layer over Fisheries Overviews.

These figures are however very relevant and bring a lot of information to the reader and should be adapted to the other ecoregions.

5.1.3.1 Technical interactions

Technical interactions are addressed differently in the Greater North Sea and Baltic where a matrix showing the linkages between species is presented (Figure 5.1) and the Celtic seas and Iberian-Bay of Biscay ecoregions where the landings profiles are presented (Figure 5.2).

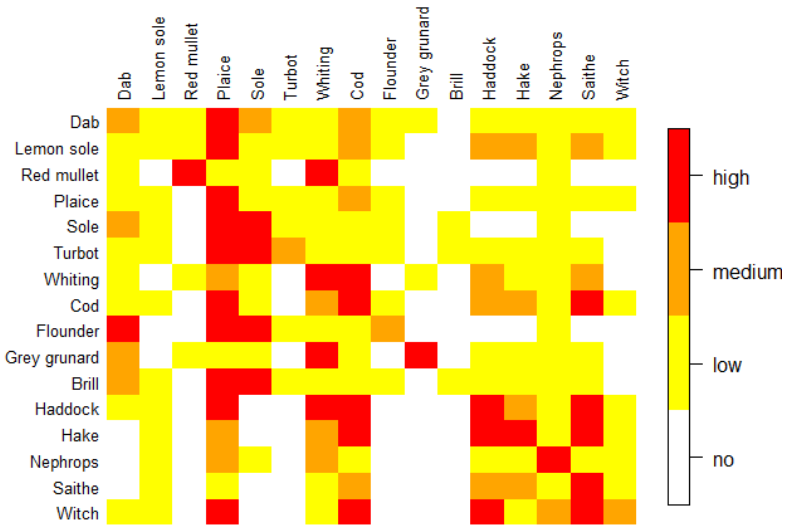


Figure 5.1. Technical interaction as presented in the Greater North Sea ecoregions

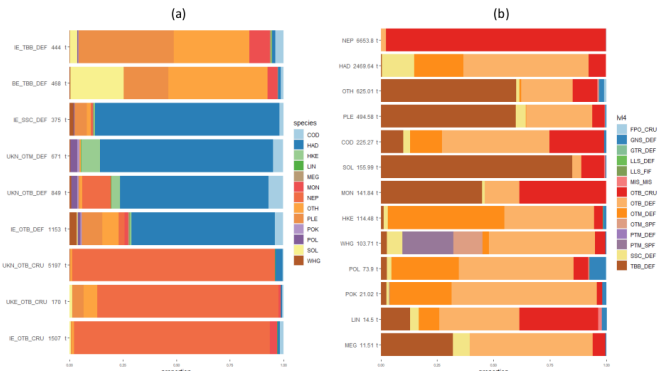


Figure 5.2. Technical interactions as presented in the Celtic Seas and Iberian-Bay of Biscay ecoregions

The data used to produce these plots are either STECF FDI or MIXFISH data.

Table 5.5. Ecoregions presenting technical interaction plots

	Greater North Sea	Celtic Seas	ONAE	Greenland Sea	Azores	Icelandic Waters	BoB Iberian	Baltic	Norvegian Sea	Barent sea
technical interactions	x	x			x	x	x			

Proposed actions

Technical interactions are relevant to understand mixed fisheries problematic. As presented in the Greater North Sea and the Baltic, these interactions are presented at the species [stock] level. However, these matrices might be hard to understand and it is not possible to know which gear/métier are responsible for these interactions.

As presented in the Celtic seas and Iberian-Bay of Biscay ecoregions, these technical interactions are presented at the métier level. However, it might be hard to understand these interactions at the species level from these representations.

Some work has to be done to find the most comprehensive representation and it should be applied to all fisheries overviews.

5.1.3.2 Spatial landing information

Spatial landing information are only presented for the Celtic Seas and the Greenland Sea fisheries overviews (Table 5.6)

Table 5.6. Ecoregions presenting spatial landings plots

	Greater North Sea	Celtic Seas	ONAE	Greenland Sea	Azores	Icelandic Waters	BoB Iberian	Baltic	Norvegian Sea	Barent sea
spatial distrib of landings		x		x [data source ?]						

However, these plots are very relevant to understand mixed fisheries problematic and spatial effort allocations

Proposed actions

Scripts should be developed to produce these plots to most of the fisheries overviews.

5.1.3.3 Time-series of number of vessels by country

Such time series are only available for the Greenland Sea ecoregion. However, it was noticed that such time series are very relevant to understand the development of the fisheries in the ecoregion and would facilitate the description of the section "Who is Fishing". In fact, at the moment the section "Who is fishing" relies on national correspondents and the information is hard to collect and might not be up to date.

Proposed actions

Issue a data call including the number of vessels. WGMIXFISH has the intention to collect such information but it will not cover all ecoregions.

Annex 1: List of participants

Member	Institute	Country	Email
Bjarte Bogstad	Institute of Marine Research	Norway	bjarte.bogstad@hi.no
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Daniel Howell	Institute of Marine Research	Norway	daniel.howell@hi.no
Ewen D. Bell	Cefas Lowestoft Laboratory	United Kingdom	ewen.bell@cefas.co.uk
Harry Vincent Strehlow	Thünen-Institute of Baltic Sea Fisheries	Germany	harry.strehlow@thuenen.de
Henn Ojaveer	International Council for the Exploration of the Sea	Denmark	henn.ojaveer@ices.dk
Jesper Boje	DTU Aqua, National Institute of Aquatic Resources	Denmark	jbo@aqua.dtu.dk
Johanna Fall	Institute of Marine Research	Norway	johanna.fall@hi.no
Kristin Windsland	Institute of Marine Research	Norway	kristin.windsland@hi.no
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Lisa Readdy	Cefas Lowestoft Laboratory	United Kingdom	lisa.readdy@cefas.co.uk
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Annex 2: Technical guidelines for ICES fisheries overviews (Draft)

Introduction

Fisheries overviews are central products in the ICES approach to support ecosystem-based management, the primary way of managing human activities affecting marine ecosystems. Fisheries overviews have been established by ICES, taking into account feedback from clients. The overviews are synthetic products to provide the 'fisheries narrative' for each ecoregion and thereby together with ecosystem and aquaculture overviews setting the broader ecosystem context for other, and usually more focused ICES advice products. The fisheries overviews are based on information provided by expert groups and using automated data products and GIS layers from accepted legitimate sources. The overviews are finalised at an advice drafting group and approved by the ICES Advisory Committee.

The fisheries overviews are included in a number of cooperative agreements that ICES has with national agencies and international organizations and commissions; they also reach a broader audience of the scientific community, including ICES network. Given this broad audience, the overviews evolve through both top-down processes (advisory requests and decisions about strategic direction) and bottom-up processes (information streams highlighting "new" science products from ICES network).

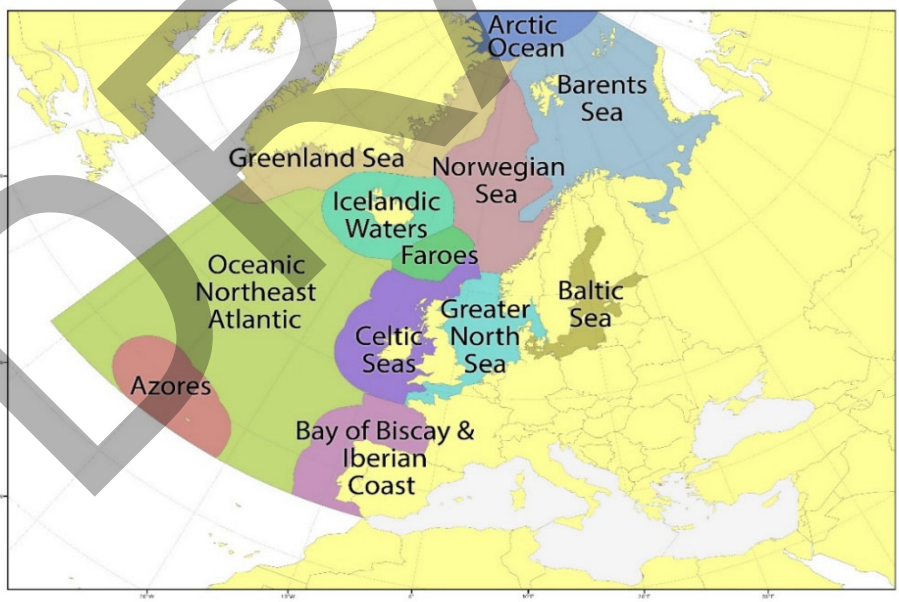

Figure 1. Map of ICES ecoregions.

Purpose and structure

The purpose of the fisheries overviews for each ecoregion is to describe:

1. the catches taken in the ecoregion
2. the fisheries operating in the ecoregion, including their fishing gears and spatio-temporal patterns
3. the status of the fisheries resources and the level of exploitation relative to the agreed objectives and reference points
4. fisheries management frameworks/agreements/measures
5. mixed-fisheries considerations of relevance to the management of the fisheries
6. the impacts of fisheries on the ecosystem in terms of the seabed and the bycatch of endangered, protected and threatened species.

The overviews are structured around the following sections with their content and guidance as follows:

1. **Key signals**
2. **Introduction** – definition of the ecoregion and briefly describing the content of the overview.
3. **Catches over time** – Describe spatio-temporal patterns of fisheries by species, fleets and gears. Text and standard figures describing the size of landings by fish category, species, country and gear types. Information about discards, together with standard figures on landings and discards, and discard rates by fish category.
4. **Description of fisheries** – Standard figures showing nominal effort by different countries and gear types over time and spatial distribution of average annual fishing effort and landings for the main fisheries within the ecoregion. Text describing the size (number/kW) of national fishing fleets in the ecoregion, including their fishing gears. Include information about recreational and small-scale fisheries. Describe technical interactions occurring in different fisheries by distinct areas and species, together with appropriate mixed fisheries figures.
5. **Fisheries management** – Short concise information about international and national management frameworks/agreements, management tools, technical measures and spatial management considerations. Give information on management plans. Provide species/species group level information as much as needed.
6. **Status of the fishery resources** – Evaluation of fishing mortality and spawning stock size against MSY and PA reference points as well as other reference points used in harvest control rules, and assessment of the status of fish stocks relative to safe biological limits and MSFD D3 assessment criteria. Provide standardised figures on the summary status and temporal trends of stocks by fish categories.
7. **Interactions between fisheries and the ecosystem** - Identify key top-down and bottom-up food-web interactions and associated impacts relative to fishing. Describe species interactions taken into account in stock assessment. Consider both species-level information as well as modelling outputs. Figure(s) are optional. Refer to ecosystem overviews for details on foodweb, those details should not be here.
8. **Effects of fisheries on the ecosystem** – Provide concise text on the abrasion of the seabed by mobile bottom-contacting fishing gear, together with standardised spatial maps on average annual surface and subsurface disturbance expressed as average swept-area ratio. Provide summaries on bycatch of protected, endangered and threatened species, including in relation to regulations/restrictions and scientific management advice.
9. **Sources of references**

10. Annexes

Technical guidelines

The following guidance needs to be followed during the production of the fisheries overview:

- Provide only essential information about the ecoregion, including on a subdivisions/area level.
- Provide as much numerical and species-level information as possible when describing fisheries and catches.
- Fisheries overviews are specific to ICES ecoregions and written for each region as a whole; any important differences within a region should be reflected in a few brief sub-region bullets.
- The text should be assertive and use specific language, without too many qualifications, stating what are facts and what are not (i.e. where information is uncertain or data is lacking).
- Visual tools should be used where possible, simplified to a degree that results are intelligible and useful.
- Information/details on the spatial scale, uncertainty/confidence, any aggregation of time-series, and time series length should be provided.
- Where data from an area is partial – e.g. if data for a region has been provided by three out of four countries – a pragmatic approach assessing whether the available data may be considered to give a reliable impression of trends/pressures, etc., across that region will be taken.
- Data and knowledge sources must be fully cited. Unpublished or unvalidated sources should not be used.
- Production should, where possible, be automated using GIS methods, open databases, and methodologies.
- Where data from an area is partial, e.g. if three out of four countries are providing data for a region, use a pragmatic approach by assessing whether the available data may be considered to give a reliable impression of trends across that region as a whole.
- Follow FAIR (findable, accessible, interoperable, and reusable) data principles.
- Follow the Transparent Assessment Framework (TAF).
- Production of figures and tables should be automated using the FisheryO package (https://github.com/ices-tools-prod/fisheryO) and GIS methods where applicable.
- For sections on 'species interactions' and 'effects of fisheries on the ecosystem', avoid duplication with relevant sections in ecosystem overviews. Make a cross-reference to ecosystem overview where more detailed info can be found.

Defining areas

The areas included in a particular ecoregion are all those areas in the current ICES ecoregion definition. In addition, the historical areas corresponding to full or partial ICES areas are included. The detailed information for all ICES ecoregions can be found in Annex 1.

Defining species/stocks

The list of stocks assessed by ICES for all ICES ecoregions can be found in Annex 2.

Update, revision, and expansion

This involves the three following categories:

- **Update**. Particular information such as figures should be updated and mistakes should be corrected annually. The updates are coordinated by ICES Secretariat.
- **Revision**. This includes review and revision of the fisheries overviews for all ecoregions, taking also into account feedback from recipients of advice and stakeholders.
- **Expansion**. Any new items resulting from the pipeline process (details below) can be added. This process requires intersessional work with input from one or more EGs as well as the involvement of ACOM and the Secretariat.

Incorporation of new topics

The incorporation of new topics into the fisheries overviews takes place through the pipeline process. The purpose of the pipeline is to secure the further development of the overviews through:

- encouraging more EGs to engage in thinking about the potential contribution of their work to the overviews;
- providing a more formalized development and testing ground for topics that may become part of the overviews;
- familiarizing scientists in ICES network with good practice and quality criteria for the inclusion of topics in the advisory evidence base;
- providing EGs with regular feedback, review, and guidance to assist them in developing topics for the overviews.

The pipeline process consists of five steps:

Step 1 – Initial scoping and defining of a new topic.

The proposed new topic should ideally meet all seven criteria (see bullet points below). The new topic should generally be proposed either by ICES community or stakeholders, and it should address a specific management objective.

Step 2 – Knowledge development and quality-assured data.

This step mostly involves EG development of the new topic, including knowledge development and synthesis and assurance of data quality and transparency. These activities may take place either in existing working group meetings or dedicated workshops.

Step 3 – Peer review.

This step involves peer review of the output (from Step 2) by both independent external reviewers and ACOM. This step should strictly follow ICES advice guidelines. Feedback is then provided to the experts, which may include a request to clarify issues and/or revisions to the topic.

Step 4 –Drafting the advice and transfer to TAF.

This step involves the drafting of the advice by an ADG and the transfer of the topic methods, data, and outputs to the Transparent Assessment Framework (TAF). This stage should strictly follow ICES guidelines of advice. During the drafting step, the ADG may ask experts to clarify certain issues.

Step 5 – Approval of the advice and publishing.

Approval of the advice by ACOM and inclusion of the topic in the fisheries overviews.

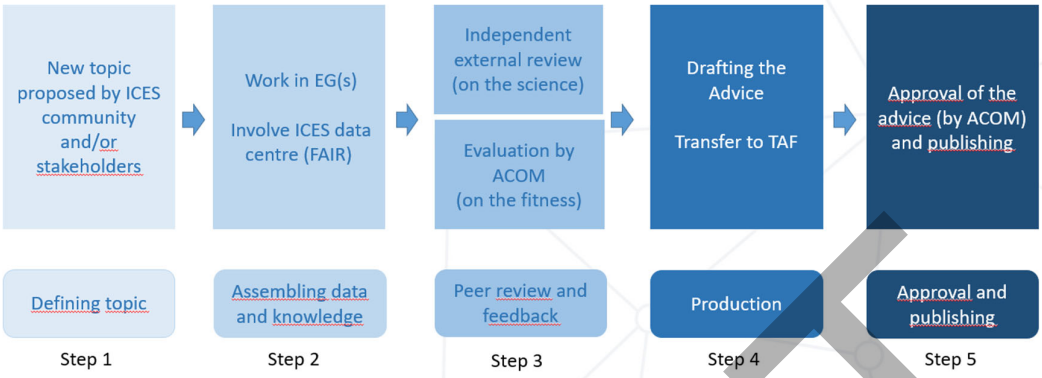

Figure 2. The five-step process for the inclusion of new topics in ecosystem overviews.

Criteria for inclusion of a new topic in fisheries overviews

Ideally, the proposed new topic should:

- support the role of fisheries overviews
- be of interest to a requesters of ICES advice and/or stakeholder(s);
- be based on mature and peer-reviewed science;
- be supported by the capacity of experts to deliver periodical updates; i.e. the availability of experts with the required skills, resources, and time for providing and analysing data and delivering text/contributions;
- be applicable for all (if not then most) ICES ecoregions;
- be based on quality-assured data which follow the FAIR (findable, accessible, interoperable, and reusable;) data principles;
- follow the Transparent Assessment Framework (TAF).

To initiate the process for the inclusion of a new topic

Please provide one-page proposal defining your topic (with a brief title) and addressing the inclusion criteria outlined above (for proposal template see Annex 3). Please send your proposal to Sarah Millar (sarah-louise.millar@ices.dk). It will be reviewed by ACOM Leadership and ACOM.

Feedback

Feedback from stock experts
Feedback from the experts is in order to correct factual errors in the fisheries overview and provide a review of the text with appropriate justification.

1. Identify the problem;
2. Provide suggested text (and display material, if needed);
3. Provide references (unpublished material or unvalidated sources should not be used);

Feedback from the ADG to the experts
This is to ensure a feedback loop from the advisory process.

1. Provide a list of the changes made in the substance of the draft text, together with justification;

2. Provide reasoning and necessity for the technical changes made;
3. Provide information on any key discussions held during the advisory process relevant for further improvement of the fisheries overview.

Feedback from the recipients of advice and stakeholders
An opportunity for feedback from recipients of advice and stakeholders should also be included as part of the agenda for the annual MIRIA and MIACO meetings.

Annexes

Annex 1: List of (sub)areas

CELTIC SEAS

Full ICES areas: 6.a; 6.b.2; 7.a; 7.b; 7.c.2; 7.f; 7.g; 7.h; 7.j.2; 7.k.2;

ICES areas partially in the ecoregion: 7.e; 4.a, 2.a.2

Historical data

Corresponding to current full ICES areas: VI a; VI b2; VII a; VII b; VII c2; VII f; VII g; VII h; VII j2; VII k2.

With partial correspondence to current ICES areas: VI b; VII; VII a-f; VII b+c; VII c; VII d+e; VII d-k; VII f-k; VII g-k; VII j; VII k.

NORWEGIAN SEA

Full ICES areas: 2.a.1; 2.b.1.

ICES areas partially in the ecoregion: 2.a.2; 2.b.2; 14.a

Historical data

Corresponding to current full ICES areas: II a1; II b1.

With partial correspondence to current ICES areas: I + II a; II; II a; II a2; II b; II b2, XIV, XIVa.

BARENTS SEAS

Full ICES areas: 1.a

ICES areas partially in the ecoregion: 2.a.2; 2.b.2; 1.b

Historical data

Corresponding to current full ICES areas: I a

With partial correspondence to current ICES areas: I + II a; I; I b; II; II a; II a2; II b; II b2.

BAY OF BISCAY AND THE IBERIAN COAST

Full ICES areas: 8.a; 8.b; 8.c; 8.e.2; 9.a; 9.b

Historical data

Corresponding to current full ICES areas: VIII a; VIII b; VIII c; VIII d2; VIII e2; IX a; IX b2.

With partial correspondence to current ICES areas: VIII d, VIII e; IX; IX b.

BALTIC SEA

Full ICES areas: 3.b; 3.c, 3.d

Historical data

Corresponding to current full ICES areas: III b-d (not specified), III d (not specified), III b+c (not specified), III b Baltic 23,III c Baltic 22,III d Baltic 24, III d Baltic 25,III d Baltic 26,III d Baltic 27, III d Baltic 28-1, III d Baltic 28-2,III d Baltic 28 (not specified), III d Baltic 29, III d Baltic 30,III d Baltic 31, III d Baltic 32

With partial correspondence to current ICES areas: III (not specified)

GREATER NORTH SEA

Full ICES areas: 3.a; 4.b; 4.c; 7.d;

ICES areas partially in the ecoregion: 4.a; 7.e

Historical data

Corresponding to current full ICES areas: III a, IV b, IV b+c (not specified), IV c, VII d

With partial correspondence to current ICES areas: IIIa and IV (not specified), IIIa and IVa+b (not specified), IV (not specified), IV a, IV a+b (not specified)

ICELANDIC WATERS

Full ICES areas: 5.a.1; 12.a.4

ICES areas partially in the ecoregion: 5.a.2; 14.b.2; 14.a; 2.a.2; 5.b.1.b

Historical data

Corresponding to current full ICES areas: V a (North-East), V a (South-West), V a1

With partial correspondence to current ICES areas: V (not specified), V a (not specified), V a+b1 (not specified), V a2, V b (not specified), V b1 (not specified), V b1B, I and IIa (not specified), II (not specified), II a2, XII (not specified), XII a (not specified), XIV (not specified), XIV a, XIV b (not specified), XIV b2

GREENLAND

Full ICES areas: 12.a.3

ICES areas partially in the ecoregion:14.b.2; 14.a

Historical data

Corresponding to current full ICES areas: XII a3

With partial correspondence to current ICES areas: XII a (not specified), XII (not specified), XIV (not specified), XIV a, XIV b (not specified), XIV b2, I and IIa (not specified), II (not specified), II b (not specified), II b2

AZORES

Full ICES areas: 10.a.2

Historical data

Corresponding to current full ICES areas: -

ICES areas partially in the ecoregion: X (not specified), X a (not specified)

OCEANIC NORTHEAST ATLANTIC

Full ICES areas: 10.a.1; 10.b; 12.c; 12.a.1; 12.a.2; 14.b.1; 12.b; 5.b.1.a; 6.b.1; 7.c.1; 7.k.1; 7.j.1; 8.d.1; 8.e.1; 9.b.1

Historical data

Corresponding to current full ICES areas: X b, XII a1, XII b, XIV b1, VI b1, VII c1, VII k1, VIII e1, VIII d1, IX b1

ICES areas partially in the ecoregion: X (not specified), X a (not specified), XII (not specified), XII a (not specified), XIV (not specified), XIV b (not specified), VI (not specified), VI b (not specified), VII (not specified), VII a-f (not specified), VII b+c (not specified), VII c (not specified), VII d-k (not specified), VII f-k (not specified), VII g-k (not specified), VII k (not specified), VIII (not specified), VIII e (not specified), VIII d (not specified), IX (not specified), IX b (not specified)

Annex 2: List of species/stocks

Greater North Sea ecoregion

stock name	List of species
alf.27.nea	Alfonsinos in subareas 1–10, 12, and 14
anf.27.3a46	Anglerfish in subareas 4 and, and Division 3.a
ank.27.78abd	Black-bellied anglerfish in Subarea 7 and divisions 8.a–b and 8.d
aru.27.123a4	Greater silver smelt in subareas 1, 2, and 4, and in Division 3.a
aru.27.6b7-1012	Greater silver smelt in subareas 7–10 and 12, and Division 6.b
bli.27.5b67	Blue ling in subareas 6–7 and Division 5.b

stock name	List of species
bli.27.nea	Blue ling in subareas 1, 2, 8, 9, and 12, and divisions 3.a and 4.a
bll.27.3a47de	Brill in Subarea 4 and divisions 3.a and 7.d-e
boc.27.6-8	Boarfish in subareas 6–8
bsf.27.nea	Black scabbardfish in subareas 1, 2, 4–8, 10, and 14, and divisions 3.a, 9.a, and 12.b
bsk.27.nea	Basking shark in subareas 1–10, 12, and 14
bss.27.4bc7ad-h	Seabass in divisions 4.b–c, 7.a, and 7.d-h
cod.27.21	Cod in Subdivision 21
cod.27.47d20	Cod in Subarea 4, Division 7.d, and Subdivision 20
cod.27.7e-k	Cod in divisions 7.e–k
cyo.27.nea	Portuguese dogfish in subareas 1–10, 12, and 14
dab.27.3a4	Dab in Subarea 4 and Division 3.a
dgs.27.nea	Spurdog in subareas 1–10, 12, and 14
ele.2737.nea	European eel throughout its natural range
fle.27.3a4	Flounder in Subarea 4 and Division 3.a
gag.27.nea	Tope in subareas 1–10, 12, and 14
gfb.27.nea	Greater forkbeard in subareas 1–10, 12, and 14
gug.27.3a47d	Grey gurnard in Subarea 4 and divisions 7.d and 3.a
guq.27.nea	Leafscale gulper shark in subareas 1–10, 12, and 14
gur.27.3-8	Red gurnard in subareas 3–8
had.27.46a20	Haddock in Subarea 4, Division 6.a, and Subdivision 20
had.27.7b-k	Haddock in divisions 7.b–k
her.27.1-24a514a	Herring in subareas 1, 2, 5 and divisions 4.a and 14.a, Norwegian spring-spawning herring
her.27.20-24	Herring in subdivisions 20–24, spring spawners
her.27.3a47d	Herring in Subarea 4 and divisions 3.a and 7.d, autumn spawners
hke.27.3a46-8abd	Hake in subareas 4, 6, and 7, and divisions 3.a, 8.a–b, and 8.d, Northern stock
hom.27.2a4a5b6a7a-ce-k8	Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k
hom.27.3a4bc7d	Horse mackerel in divisions 3.a, 4.b–c, and 7.d
ldb.27.7b-k8abd	Four-spot megrim in divisions 7.b–k, 8.a–b, and 8.d
lem.27.3a47d	Lemon sole in Subarea 4 and divisions 3.a and 7.d

stock name	List of species
lez.27.4a6a	Megrim in divisions 4.a and 6.a
lin.27.3a4a6-91214	Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a
mac.27.nea	Mackerel in subareas 1–8 and 14, and in Division 9.a
meg.27.7b-k8abd	Megrim in divisions 7.b–k, 8.a–b, and 8.d
mon.27.78abd	White anglerfish in Subarea 7 and divisions 8.a–b and 8.d
mur.27.3a47d	Striped red mullet in Subarea 4 and divisions 7.d and 3.a
mur.27.67a-ce-k89a	Striped red mullet in subareas 6 and 8, and divisions 7.a–c, 7.e–k, and 9.a
nep.fu.10	Norway lobster in Division 4.a, Functional Unit 10
nep.fu.32	Norway lobster in Division 4.a, Functional Unit 32
nep.fu.33	Norway lobster in Division 4.b, Functional Unit 33
nep.fu.34	Norway lobster in Division 4.b, Functional Unit 34
nep.fu.3-4	Norway lobster in Division 3.a, Functional units 3 and 4
nep.fu.5	Norway lobster in divisions 4.b and 4.c, Functional Unit 5
nep.fu.6	Norway lobster in Division 4.b, Functional Unit 6
nep.fu.7	Norway lobster in Division 4.a, Functional Unit 7
nep.fu.8	Norway lobster in Division 4.b, Functional Unit 8
nep.fu.9	Norway lobster in Division 4.a, Functional Unit 9
nop.27.3a4	Norway pout in Subarea 4 and Division 3.a
ory.27.nea	Orange roughy in subareas 1–10, 12, and 14
ple.27.21-23	Plaice in subdivisions 21–23
ple.27.420	Plaice in Subarea 4 and Subdivision 20
ple.27.7d	Plaice in Division 7.d
ple.27.7e	Plaice in Division 7.e
pok.27.3a46	Saithe in subareas 4 and 6, and in Division 3.a
pol.27.3a4	Pollack in Subarea 4 and Division 3.a
pol.27.67	Pollack in subareas 6–7
por.27.nea	Porbeagle in subareas 1–10, 12, and 14
pra.27.3a4a	Northern shrimp in divisions 3.a and 4.a East
pra.27.4a	Northern shrimp in Division 4.a West

stock name	List of species
raj.27.3a47d	Rays and skates in Subarea 4 and in divisions 3.a and 7.d
raj.27.67a-ce-h	Rays and skates in Subarea 6 and divisions 7.a–c and 7.e–h
rja.27.nea	White skate in subareas 1–10, 12, and 14
rjb.27.3a4	Common skate complex and flapper skate in Subarea 4 and Division 3.a
rjb.27.67a-ce-k	Common skate complex and flapper skate in Subarea 6 and in divisions 7.a–c and 7.e–k
rjc.27.3a47d	Thornback ray in Subarea 4 and in divisions 3.a and 7.d
rjc.27.7e	Thornback ray in Division 7.e
rje.27.7de	Small-eyed ray in divisions 7.d and 7.e
rjf.27.67	Shagreen ray in subareas 6–7
rjh.27.4a6	Blonde ray in Subarea 6 and Division 4.a
rjh.27.4c7d	Blonde ray in divisions 4.c and 7.d
rjh.27.7e	Blonde ray in Division 7.e
rji.27.67	Sandy ray in subareas 6–7
rjm.27.3a47d	Spotted ray in Subarea 4 and in divisions 3.a and 7.d
rjm.27.7ae-h	Spotted ray in divisions 7.a and 7.e–h
rjn.27.3a4	Cuckoo ray in Subarea 4 and Division 3.a
rjn.27.678abd	Cuckoo ray in subareas 6–7 and in divisions 8.a–b and 8.d
rjr.27.23a4	Starry ray in subareas 2 and 4, and in Division 3.a
rju.27.7de	Undulate ray in divisions 7.d and 7.e
rng.27.1245a8914ab	Roundnose grenadier in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2
rng.27.3a	Roundnose grenadier in Division 3.a
rng.27.5b6712b	Roundnose grenadier in subareas 6–7 and divisions 5.b and 12.b
san.27.6a	Sandeel in Division 6.a
san.sa.1r	Sandeel in divisions 4.b and 4.c, Sandeel Area 1r
san.sa.2r	Sandeel in divisions 4.b and 4.c, and Subdivision 20, Sandeel Area 2r
san.sa.3r	Sandeel in divisions 4.a and 4.b, and Subdivision 20, Sandeel Area 3r
san.sa.4	Sandeel in divisions 4.a and 4.b, Sandeel Area 4
san.sa.5r	Sandeel in Division 4.a, Sandeel Area 5r
san.sa.6	Sandeel in subdivisions 20–22, Sandeel Area 6

stock name	List of species
san.sa.7r	Sandeel in Division 4.a, Sandeel Area 7r
sbr.27.6-8	Blackspot seabream in subareas 6–8
sck.27.nea	Kitefin shark in subareas 1–10, 12, and 14
sdv.27.nea	Smooth-hound in subareas 1–10, 12, and 14
sho.27.67	Black-mouth dogfish in subareas 6 and 7
sol.27.20-24	Sole in subdivisions 20–24
sol.27.4	Sole in Subarea 4
sol.27.7d	Sole in Division 7.d
sol.27.7e	Sole in Division 7.e
spr.27.3a4	Sprat in Division 3.a and Subarea 4
spr.27.7de	Sprat in divisions 7.d and 7.e
syc.27.3a47d	Lesser spotted dogfish in Subarea 4 and in divisions 3.a and 7.d
syc.27.67a-ce-j	Lesser spotted dogfish in Subarea 6 and in divisions 7.a–c and 7.e–j
syt.27.67	Greater-spotted dogfish in subareas 6 and 7
tur.27.3a	Turbot in Division 3.a
tur.27.4	Turbot in Subarea 4
usk.27.3a45b6a7-912b	Tusk in subareas 4 and 7–9, and in divisions 3.a, 5.b, 6.a, and 12.b
whb.27.1-91214	Blue whiting in subareas 1–9, 12, and 14
whg.27.3a	Whiting in Division 3.a
whg.27.47d	Whiting in Subarea 4 and Division 7.d
whg.27.7b-ce-k	Whiting in divisions 7.b–c and 7.e–k
wit.27.3a47d	Witch in Subarea 4 and divisions 3.a and 7.d

Celtic Seas ecoregion

Stock name	List of species
agn.27.nea	Angel shark in subareas 1–10, 12, and 14
alf.27.nea	Alfonsinos in subareas 1–10, 12, and 14
anf.27.3a46	Anglerfish in Subareas 4 and 6, and Division 3.a
ank.27.78abd	Black-bellied anglerfish in Subarea 7 and divisions 8.a–b and 8.d
ank.27.78abd	Black-bellied anglerfish in Subarea 7 and in divisions 8.a–b and 8.d

Stock name	List of species
aru.27.5b6a	Greater silver smelt in divisions 5.b and 6.a
aru.27.6b7-1012	Greater silver smelt in subareas 7–10 and 12, and Division 6.b
bli.27.5b67	Blue ling in subareas 6–7 and Division 5.b
boc.27.6-8	Boarfish in subareas 6–8
bsf.27.nea	Black scabbardfish in subareas 1, 2, 4– 8, 10, and 14, and divisions 3.a, 9.a, and 12.b
bsk.27.nea	Basking shark in subareas 1–10, 12, and 14
bss.27.4bc7ad-h	Sea bass in divisions 4.b–c, 7.a, and 7.d–h
bss.27.6a7bj	Seabass in divisions 6.a, 7.b, and 7.j
cod.27.6a	Cod in Division 6.a
cod.27.6b	Cod in Division 6.b
cod.27.7a	Cod in Division 7.a
cod.27.7e-k	Cod in divisions 7.e–k
cyo.27.nea	Portuguese dogfish in subareas 1–10, 12, and 14
dgs.27.nea	Spurdog in Subareas 1–10, 12, and 14
ele.2737.nea	European eel throughout its natural range
gag.27.nea	Tope in subareas 1–10, 12, and 14
gfb.27.nea	Greater forkbeard in subareas 1–10, 12, and 14
ghl.27.561214	Greenland halibut in subareas 5, 6, 12, and 14
guq.27.nea	Leafscale gulper shark in subareas 1 –10, 12, and 14
gur.27.3-8	Red gurnard in subareas 3–8
had.27.46a20	Haddock in Subarea 4, Division 6.a, and Subdivision 20
had.27.6b	Haddock in Division 6.b
had.27.7a	Haddock in Division 7.a
had.27.7b-k	Haddock in Divisions 7.b–k
her.27.6a7bc	Herring in divisions 6.a and 7.b–c
her.27.irls	Herring in divisions 7.a South of 52°30’N, 7.g–h, and 7.j–k
her.27.nirs	Herring in Division 7.a North of 52°30’N
hke.27.3a46-8abd	Hake in subareas 4, 6, and 7, and divisions 3.a, 8.a–b, and 8.d, Northern stock
hom.27.2a4a5b6a7a-ce-k8	Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k

Stock name	List of species
ldb.27.7b-k8abd	Four-spot megrim in divisions 7.b–k, 8.a–b, and 8.d
lez.27.4a6a	Megrim in divisions 4.a and 6.a
lez.27.6b	Megrim in Division 6.b
lin.27.3a4a6-91214	Ling in subareas 6–9, 12, and 14, and divisions 3.a and 4.a
mac.27.nea	Mackerel in subareas 1–8 and 14 and division 9.a
meg.27.7b-k8abd	Megrim in divisions 7.b–k, 8.a–b, and 8.d
mon.27.78abd	White anglerfish in Subarea 7 and divisions 8.a–b and 8.d
mur.27.67a-ce-k89a	Striped red mullet in subareas 6 and 8, and divisions 7.a–c, 7.e–k, and 9.a
Nep.27.6aoutFU	Norway lobster in Division 6.a, outside the functional units
Nep.27.7outFU	Norway lobster in Division 7, outside the functional units
nep.fu.11	Norway lobster in Division 6.a, Functional Unit 11
nep.fu.12	Norway lobster in Division 6.a, Functional Unit 12
nep.fu.13	Norway lobster in Division 6.a, Functional Unit 13
nep.fu.14	Norway lobster in Division 7.a, Functional Unit 14
nep.fu.15	Norway lobster in Division 7.a, Functional Unit 15
nep.fu.16	Norway lobster in divisions 7.b–c and 7.j–k, Functional Unit 16
nep.fu.17	Norway lobster in Division 7.b, Functional Unit 17
nep.fu.19	Norway lobster in divisions 7.a, 7.g, and 7.j, Functional Unit 19
nep.fu.2021	Norway lobster in divisions 7.g and 7.h, functional units 20 and 21
nep.fu.22	Norway lobster in divisions 7.f and 7.g, Functional Unit 22
nop.27.6a	Norway pout in Division 6.a
ory.27.nea	Orange roughy in subareas 1–10, 12, and 14
ple.27.7a	Plaice in Division 7.a
ple.27.7bc	Plaice in divisions 7.b–c
ple.27.7e	Plaice in Division 7.e
ple.27.7fg	Plaice in divisions 7.f and 7.g
ple.27.7h-k	Plaice in divisions 7.h–k
pok.27.3a46	Saithe in subareas 4 and 6 and in Division 3.a
pol.27.67	Pollack in subareas 6–7

Stock name	List of species
por.27.nea	Porbeagle in subareas 1–10, 12, and 14
raj.27.67a-ce-h	Rays and skates in Subarea 6 and divisions 7.a–c and 7.e–h
reb.2127.sp	Beaked redfish in ICES subareas 5, 12, and 14 and NAFO subareas 1 and 2
rja.27.nea	White skate in subareas 1–10, 12, and 14
rjb.27.67a-ce-k	Common skate complex and flapper skate in Subarea 6 and divisions 7.a–c and 7.e–k
rjc.27.6	Thornback ray in Subarea 6
rjc.27.7afg	Thornback ray in divisions 7.a and 7.f–g
rjc.27.7e	Thornback ray in Division 7.e
rje.27.7de	Small-eyed ray in divisions 7.d and 7.e
rje.27.7fg	Small-eyed ray in divisions 7.f and 7.g
rjf.27.67	Shagreen ray in subareas 6–7
rjh.27.4a6	Blonde ray in Subarea 6 and Division 4.a
rjh.27.7afg	Blonde ray in divisions 7.a and 7.f–g
rjh.27.7e	Blonde ray in Division 7.e
rji.27.67	Sandy ray in subareas 6–7
rjm.27.67bj	Spotted ray in Subarea 6 and divisions 7.b and 7.j
rjm.27.7ae-h	Spotted ray in divisions 7.a and 7.e–h
rjn.27.678abd	Cuckoo ray in subareas 6–7 and divisions 8.a–b and 8.d
rjr.27.23a4	Starry ray in subareas 2 and 4, and in Division 3.a
rju.27.7bj	Undulate ray in divisions 7.b and 7.j
rju.27.7de	Undulate ray in divisions 7.d and 7.e
rng.27.5b6712b	Roundnose grenadier in subareas 6–7 and divisions 5.b and 12.b
san.27.6a	Sandeel in Division 6.a
sbr.27.6-8	Blackspot seabream in subareas 6–8
sck.27.nea	Kitefin shark in subareas 1–10, 12, and 14
sdv.27.nea	Smooth-hound in subareas 1–10, 12, and 14
sho.27.67	Black-mouth dogfish in subareas 6 and 7
sol.27.7a	Sole in Division 7.a
sol.27.7bc	Sole in divisions 7.b and 7.c

Stock name	List of species
sol.27.7e	Sole in Division 7.e
sol.27.7fg	Sole in divisions 7.f and 7.g
sol.27.7h-k	Sole in divisions 7.h–k
spr.27.67a-cf-k	Sprat in Subarea 6 and divisions 7.a–c and 7.f-k
spr.27.7de	Sprat in divisions 7.d and 7.e
syc.27.67a-ce-j	Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j
syt.27.67	Greater-spotted dogfish in subareas 6 and 7
usk.27.3a45b6a7-912b	Tusk in subareas 4 and 7–9 and in divisions 3.a, 5.b, 6.a, and 12.b
usk.27.6b	Tusk in Division 6.b
whb.27.1-91214	Blue whiting in subareas 1–9, 12, and 14
whg.27.6a	Whiting in Division 6.a
whg.27.6b	Whiting in Division 6.b
whg.27.7a	Whiting in Division 7.a
whg.27.7b-ce-k	Whiting in divisions 7.b–c and 7.e–k

Baltic Ecoregion

Stock name	List of species
bll.27.22-32	Brill in subdivisions 22–32
bwp.27.2729-32	Baltic flounder in subdivisions 27 and 29–32
bwq.27.2425	Flounder in subdivisions 24 and 25
bwq.27.2628	Flounder in subdivisions 26 and 28
cod.27.22-24	Cod in subdivisions 22–24, western Baltic stock
cod.27.24-32	Cod in subdivisions 24–32, eastern Baltic stock
dab.27.22-32	Dab in subdivisions 22–32
ele.2737.nea	European eel throughout its natural range
fle.27.2223	Flounder in subdivisions 22 and 23
her.27.20-24	Herring in subdivisions 20–24, spring spawners
her.27.25-2932	Herring in subdivisions 25–29 and 32, excluding the Gulf of Riga
her.27.28	Herring in Subdivision 28.1
her.27.3031	Herring in subdivisions 30 and 31

Stock name	List of species
ple.27.21-23	Plaice in subdivisions 21–23
ple.27.24-32	Plaice in subdivisions 24–32
sol.27.20-24	Sole in subdivisions 20–24
spr.27.22-32	Sprat in subdivisions 22–32
tur.27.22-32	Turbot in subdivisions 22–32

Barents Sea ecoregion

Stock name	List of species
aru.27.123a4	Greater silver smelt (*Argentina silus*) in subareas 1, 2, and 4, and in Division 3.a (Northeast Arctic, North Sea, Skagerrak and Kattegat)
cap.27.1-2	Capelin (*Mallotus villosus*) in subareas 1 and 2 (Northeast Arctic), excluding Division 2.a west of 5°W (Barents Sea capelin)
cod.27.1-2	Cod (*Gadus morhua*) in subareas 1 and 2 (Northeast Arctic)
cod.27.1-2coast	Cod (*Gadus morhua*) in subareas 1 and 2 (Norwegian coastal waters cod)
gfb.27.nea	Greater forkbeard (*Phycis blennoides*) in subareas 1–10, 12, and 14 (the Northeast Atlantic and adjacent waters)
ghl.27.1-2	Greenland halibut (*Reinhardtius hippoglossoides*) in subareas 1 and 2 (Northeast Arctic)
had.27.1-2	Haddock (*Melanogrammus aeglefinus*) in subareas 1 and 2 (Northeast Arctic)
lin.27.1-2	Ling (*Molva molva*) in subareas 1 and 2 (Northeast Arctic)
pok.27.1-2	Saithe (*Pollachius virens*) in subareas 1 and 2 (Northeast Arctic)
pra.27.1-2	Northern shrimp (*Pandalus borealis*) in subareas 1 and 2 (Northeast Arctic)
reb.27.1-2	Beaked redfish (*Sebastes mentella*) in subareas 1 and 2 (Northeast Arctic)
reg.27.1-2	Golden redfish (*Sebastes norvegicus*) in subareas 1 and 2 (Northeast Arctic)
rjr.27.23a4	Starry ray (*Amblyraja radiata*) in subareas 2 and 4, and Division 3.a (Norwegian Sea, North Sea, Skagerrak and Kattegat)
rng.27.1245a8914ab	Roundnose grenadier (*Coryphaenoides rupestris*) in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2 (Northeast Atlantic and Arctic Ocean)
usk.27.1-2	Tusk (*Brosme brosme*) in subareas 1 and 2 (Northeast Arctic)

Norwegian Sea ecoregion

Stock name	List of species
aru.27.123a4	Greater silver smelt in subareas 1, 2, and 4, and in Division 3.a
bli.27.nea	Blue ling in subareas 1, 2, 8, 9, and 12, and divisions 3.a and 4.a

Stock name	List of species
bsf.27.nea	Black scabbardfish in subareas 1, 2, 4–8, 10, and 14, and divisions 3.a, 9.a, and 12.b
bsk.27.nea	Basking shark in subareas 1–10, 12, and 14
cap.27.2a514	Capelin in subareas 5 and 14 and Division 2.a west of 5°W
cod.27.1-2	Cod in subareas 1 and 2
cod.27.1-2coast	Cod in subareas 1 and 2
dgs.27.nea	Spurdog in subareas 1–10, 12, and 14
gfb.27.nea	Greater forkbeard in subareas 1–10, 12, and 14
ghl.27.1-2	Greenland halibut in subareas 1 and 2
had.27.1-2	Haddock in subareas 1 and 2
her.27.1-24a514a	Herring in subareas 1, 2, and 5 and divisions 4.a and 14.a, Norwegian spring-spawning herring
hom.27.2a4a5b6a7a-ce-k8	Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c,and e–k
lin.27.1-2	Ling in subareas 1 and 2
mac.27.nea	Mackerel in subareas 1–8 and 14 and Division 9.a
pok.27.1-2	Saithe in subareas 1 and 2
por.27.nea	Porbeagle in subareas 1–10, 12, and 14
reb.27.1-2	Beaked redfish in subareas 1 and 2
reg.27.1-2	Golden redfish in subareas 1 and 2
rjr.27.23a4	Starry ray in subareas 2 and 4, and Division 3.a
rng.27.1245a8914ab	Roundnose grenadier in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2
usk.27.1-2	Tusk in subareas 1 and 2
whb.27.1-91214	Blue whiting in subareas 1–9, 12, and 14

Bay of Biscay and Iberian Waters ecoregion

Stock name	List of species
agn.27.nea	Angel shark in subareas 1–10, 12, and 14
alf.27.nea	Alfonsinos in subareas 1–10, 12, and 14
ane.27.8	Anchovy in Subarea 8
ane.27.9a	Anchovy in Division 9.a

Stock name	List of species
ank.27.78abd	Black-bellied anglerfish in Subarea 7 and divisions 8.a–b and 8.d
ank.27.8c9a	Black-bellied anglerfish in divisions 8.c and 9.a
aru.27.6b7-1012	Greater silver smelt in subareas 7–10 and 12, and Division 6.b
bli.27.nea	Blue ling in Subareas 1, 2, 8, 9, and 12, and divisions 3.a and 4.a
boc.27.6-8	Boarfish in subareas 6–8
bsf.27.nea	Black scabbardfish in subareas 1, 2, 4–8, 10, and 14, and divisions 3.a, 9.a, and 12.b
bsk.27.nea	Basking shark in subareas 1–10, 12, and 14
bss.27.8ab	Sea bass in divisions 8.a–b
cyo.27.nea	Portuguese dogfish in subareas 1–10, 12, and 14
dgs.27.nea	Spurdog in subareas 1–10, 12, and 14
ele.2737.nea	European eel throughout its natural range
gag.27.nea	Tope in subareas 1–10, 12, and 14
gfb.27.nea	Greater forkbeard in subareas 1–10, 12, and 14
guq.27.nea	Leafscale gulper shark in subareas 1–10, 12, and 14
gur.27.3-8	Red gurnard in subareas 3–8
hke.27.3a46-8abd	Hake in subareas 4, 6, and 7, and divisions 3.a, 8.a–b, and 8.d; Northern stock
hke.27.8c9a	Hake in divisions 8.c and 9.a; Southern stock
hom.27.2a4a5b6a7a-ce-k8	Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k
hom.27.9a	Horse mackerel in Division 9.a
ldb.27.7b-k8abd	Four-spot megrim in divisions 7.b–k, 8.a–b, and 8.d
ldb.27.8c9a	Four-spot megrim in divisions 8.c and 9.a
lin.27.3a4a6-91214	Ling in subareas 6–9, 12, and 14, and divisions 3.a and 4.a
mac.27.nea	Mackerel in subareas 1–8 and 14 and Division 9.a
meg.27.7b-k8abd	Megrim in divisions 7.b–k, 8.a–b, and 8.d
meg.27.8c9a	Megrim in divisions 8.c and 9.a
mon.27.78abd	White anglerfish in Subarea 7 and divisions 8.a–b and 8.d
mon.27.8c9a	White anglerfish in divisions 8.c and 9.a
mur.27.67a-ce-k89a	Striped red mullet in subareas 6 and 8, and divisions 7.a–c, 7.e–k, and 9.a
nep.fu.2324	Norway lobster in divisions 8.a and 8.b, functional units 23–24

Stock name	List of species
nep.fu.25	Norway lobster in Division 8.c, Functional Unit 25
nep.fu.2627	Norway lobster in Division 9.a, functional units 26–27
nep.fu.2829	Norway lobster in Division 9.a, functional units 28–29
nep.fu.30	Norway lobster in Division 9.a, Functional Unit 30
nep.fu.31	Norway lobster in Division 8.c, Functional Unit 31
ory.27.nea	Orange roughy in subareas 1–10, 12, and 14
pil.27.8abd	Sardine in divisions 8.a–b and 8.d
pil.27.8c9a	Sardine in divisions 8.c and 9.a
pol.27.89a	Pollack in Subarea 8 and Division 9.a
por.27.nea	Porbeagle in subareas 1–10, 12, and 14
raj.27.89a	Rays and skates in Subarea 8 and Division 9.a
rja.27.nea	White skate in subareas 1–10, 12, and 14
rjc.27.8	Thornback ray in Subarea 8
rjc.27.9a	Thornback ray in Division 9.a
rjh.27.9a	Blonde ray in Division 9.a
rjm.27.8	Spotted ray in Subarea 8
rjm.27.9a	Spotted ray in Division 9.a
rjn.27.678abd	Cuckoo ray in subareas 6–7 and divisions 8.a–b and 8.d
rjn.27.8c	Cuckoo ray in Division 8.c
rjn.27.9a	Cuckoo ray in Division 9.a
rju.27.8ab	Undulate ray in divisions 8.a–b
rju.27.8c	Undulate ray in Division 8.c
rju.27.9a	Undulate ray in Division 9.a
rng.27.1245a8914ab	Roundnose grenadier in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2
sbr.27.6-8	Blackspot seabream in subareas 6–8
sbr.27.9	Blackspot seabream in Subarea 9
sck.27.nea	Kitefin shark in subareas 1–10, 12, and 14
sdv.27.nea	Smooth-hound in subareas 1–10, 12, and 14
sho.27.89a	Black-mouth dogfish in Subarea 8 and Division 9.a

Stock name	List of species
sol.27.8ab	Sole in divisions 8.a–b
sol.27.8c9a	Sole in divisions 8.c and 9.a
syc.27.8abd	Lesser spotted dogfish in divisions 8.a–b and 8.d
syc.27.8c9a	Lesser spotted dogfish in divisions 8.c and 9.a
usk.27.3a45b6a7-912b	Tusk in subareas 4 and 7–9 and divisions 3.a, 5.b, 6.a, and 12.b
whb.27.1-91214	Blue whiting in subareas 1–9, 12, and 14
whg.27.89a	Whiting in Subarea 8 and Division 9.a

Icelandic waters ecoregion

Stock name	List of species
aru.27.5a14	Greater silver smelt in Subarea 14 and Division 5.a
bli.27.5a14	Blue ling in Subarea 14 and Division 5.a
cap.27.2a514	Capelin in subareas 5 and 14 and Division 2.a west of 5°W
cod.27.5a	Cod in Division 5.a
had.27.5a	Haddock in Division 5.a
her.27.1-24a514a	Herring in subareas 1, 2, and 5, and in divisions 4.a and 14.a
her.27.5a	Herring in Division 5.a, summer-spawning herring
lin.27.5a	Ling in Division 5.a
mac.27.nea	Mackerel in subareas 1–8 and 14, and in Division 9.a
pok.27.5a	Saithe in Division 5.a
reb.2127.dp	Beaked redfish in ICES subareas 5, 12, and 14 (deep pelagic stock)
reb.27.5a14	Beaked redfish in Subarea 14 and Division 5.a, Icelandic slope stock
reg.27.561214	Golden redfish in subareas 5, 6, 12, and 14
usk.27.5a14	Tusk in Subarea 14 and Division 5.a
whb.27.1– 91214	Blue whiting in subareas 1–9, 12, and 14

Greenland Sea ecoregion

Stock name	List of species
aru.27.123a4	Greater silver smelt in subareas 1, 2, and 4, and in Division 3.a
cod.2127.1f14	Cod in ICES Subarea 14 and NAFO Division 1.F

Stock name	List of species
ghl.27.561214	Greenland halibut in subareas 5, 6, 12, and 14
her.27.1-24a514a	Herring in subareas 1, 2, and 5, and in divisions 4.a and 14.a; Norwegian spring-spawning herring
mac.27.nea	Mackerel in subareas 1–8 and 14 and in Division 9.a
reb.2127.dp	Beaked redfish in ICES subareas 5, 12, and 14, and in NAFO subareas 1 and 2
reg.27.561214	Golden redfish in subareas 5, 6, 12, and 14
usk.27.5a14	Tusk in Subarea 14 and Division 5.a
bli.27.5a14	Blue ling in Subarea 14 and Division 5.a
reb.2127.sp	Beaked redfish in ICES subareas 5, 12, and 14, and in NAFO subareas 1 and 2
reb.27.14b	Beaked redfish in Division 14.b, demersal
rhg.27.nea	Roughhead grenadier in subareas 5–8, 10, 12, and 14
rng.27.1245a8914ab	Roundnose grenadier in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2

Oceanic North East Atlantic Ecoregion

Stock name	List of species
alf.27.nea	Alfonsinos in subareas 1–10, 12, and 14
anf.27.3a46	Anglerfish in subareas 4 and 6, and Division 3.a
ank.27.78abd	Black-bellied anglerfish in Subarea 7 and divisions 8.a–b and 8.d
aru.27.6b7-1012	Greater silver smelt in subareas 7–10 and 12, and Division 6.b
bli.27.nea	Blue ling in subareas 1, 2, 8, 9, and 12, and divisions 3.a and 4.a
boc.27.6-8	Boarfish in subareas 6–8
bsf.27.nea	Black scabbardfish in subareas 1, 2, 4– 8, 10, and 14, and divisions 3.a, 9.a, and 12.b
bsk.27.nea	Basking shark in subareas 1–10, 12, and 14
cod.27.6b	Cod in Division 6.b
cyo.27.nea	Portuguese dogfish in subareas 1–10, 12, and 14
dgs.27.nea	Spurdog in subareas 1–10, 12, and 14
ele.2737.nea	European eel throughout its natural range
gag.27.nea	Tope in subareas 1–10, 12, and 14
gfb.27.nea	Greater forkbeard in subareas 1–10, 12, and 14
guq.27.nea	Leafscale gulper shark in subareas 1–10, 12, and 14

Stock name	List of species
had.27.6b	Haddock in Division 6.b
hke.27.3a46-8abd	Hake in subareas 4, 6, and 7, and divisions 3.a, 8.a–b, and 8.d, Northern stock
hom.27.2a4a5b6a7a-ce-k8	Horse mackerel in Subarea 8 and divisions 2.a, 4.a, 5.b, 6.a, 7.a–c, and 7.e–k
ldb.27.7b-k8abd	Four-spot megrim in divisions 7.b–k, 8.a–b, and 8.d
lez.27.6b	Megrim in Division 6.b
lin.27.3a4a6-91214	Ling in subareas 6–9, 12, and 14, and divisions 3.a and 4.a
mac.27.nea	Mackerel in subareas 1–8 and 14, and in Division 9.a
mon.27.78abd	White anglerfish in Subarea 7 and divisions 8.a–b and 8.d
ory.27.nea	Orange roughy in subareas 1–10, 12, and 14
por.27.nea	Porbeagle in subareas 1–10, 12, and 14
raj.27.67a-ce-h	Rays and skates in Subarea 6 and divisions 7.a–c and 7.e–h
raj.27.89a	Rays and skates in Subarea 8 and Division 9.a
reb.2127.dp	Beaked redfish in ICES subareas 5, 12, and 14, and in NAFO subareas 1 and 2
reb.2127.sp	Beaked redfish in ICES subareas 5, 12, and 14 and NAFO subareas 1 and 2
rhg.27.nea	Roughhead grenadier in subareas 5–8, 10, 12, and 14
rjb.27.67a-ce-k	Common skate complex and flapper skate in Subarea 6 and divisions 7.a–c and 7.e–k
rjb.27.89a	Common skate complex and flapper skate in Subarea 8 and Division 9.a
rjc.27.6	Thornback ray in Subarea 6
rjc.27.8	Thornback ray in Subarea 8
rjf.27.67	Shagreen ray in subareas 6–7
rji.27.67	Sandy ray in subareas 6–7
rjm.27.67bj	Spotted ray in Subarea 6 and divisions 7.b and 7.j
rng.27.1245a8914ab	Roundnose grenadier in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2
rng.27.5a10b12ac14b	Roundnose grenadier in divisions 10.b and 12.c, and subdivisions 12.a.1, 14.b.1, and 5.a.1
rng.27.5b6712b	Roundnose grenadier in subareas 6–7 and divisions 5.b and 12.b
sbr.27.10	Blackspot sea bream in Subarea 10
sbr.27.9	Blackspot sea bream in Subarea 9
sck.27.nea	Kitefin shark in subareas 1–10, 12, and 14
sdv.27.nea	Smooth-hound in subareas 1–10, 12, and 14

Stock name	List of species
sho.27.67	Black-mouth dogfish in subareas 6 and 7
syt.27.67	Greater-spotted dogfish in subareas 6 and 7
tsu.27.nea	Roughsnout grenadier in subareas 1–2, 4–8, 10, 12, and 14 and Division 3.a
usk.27.12ac	Tusk in Subarea 12, excluding Division 12.b
usk.27.3a45b6a7-912b	Tusk in subareas 4 and 7–9, and in divisions 3.a, 5.b, 6.a, and 12.b
usk.27.6b	Tusk in Division 6.b
whb.27.1-91214	Blue whiting in subareas 1–9, 12, and 14
whg.27.6b	Whiting in Division 6.b

Azores ecoregion

Stock name	List of species
alf.27.nea	Alfonsinos in subareas 1–10, 12, and 14
bsf.27.nea	Black scabbardfish in subareas 1, 2, 4–8, 10, and 14, and divisions 3.a, 9.a, and 12.b
cyo.27.nea	Portuguese dogfish in subareas 1–10, 12, and 14
gag.27.nea	Tope in subareas 1–10, 12, and 14
gfb.27.nea	Greater forkbeard in subareas 1–10, 12, and 14
guq.27.nea	Leafscale gulper shark in subareas 1–10, 12, and 14
jaa.27.10a2	Blue jack mackerel in Subdivision 10.a.2
por.27.nea	Porbeagle in subareas 1–10, 12, and 14
raj.27.1012	Rays and skates in subareas 10 and 12
sbr.27.10	Blackspot seabream in Subarea 10
sck.27.nea	Kitefin shark in subareas 1–10, 12, and 14
thr.27.nea	Thresher sharks in subareas 10 and 12, and in divisions 7.c–k and 8.d–e

Annex 3: A template of the proposal for a new topic to be included in fisheries overviews is given below.

Title of the proposed topic:
Proposed by: Name(s)
Expert group(s) involved:
Brief explanation about the topic, proposed scope/content, expected length/word count and any display material (max one page):
Delivery plan (which ecoregions and when [year]):

The proposed new topic should meet the following inclusion criteria:

Criterion	Response
Support the role of fisheries overviews	
Be of interest of ICES requesters of advice and/or stakeholders	
Be based on mature and peer-reviewed science	
Be supported by the capacity of experts to periodically update the topic	
Be based on quality-assured data, follow FAIR principles	
Follow Transparent Assessment Framework (TAF)	
Be applicable for most (if not all) ICES ecoregions	

In case of inclusion of the proposed topic, is there a need to update the technical guidelines? If yes, please specify which section(s)

Annex 3: Data source

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Azores	Introduction	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data		Exclusive economic zones are reported, colour of ecoregion is not consistent with other FOs			
Azores	Who is Fishing	2	Landings	By Coun-try	time se-ries	Historical Nominal Catches 1950-2010; Official Nominal Catches 2006-2018; Preliminary Catches 2019 ICES		Consistency of the time series ; Are all species used ? A selec-tion based on their availability over the time series; 4 coun-tries with higher landings are in-dicated but not stated which other countries are aggragted in "other" category		will never cover such a long time series	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Azores	Catches over time	3	Landings	By Fish Category	time se-ries	Historical Nominal Catches 1950-2010; Official Nominal Catches 2006-2018; Preliminary Catches 2019 ICES		consistency of the time serie ; Are all species used ? A selec-tion based on their availability over the time series ; problem of species labeling/re-groupement over time ; Unde-fined group pooling all species not allocated to a fish group		will never cover such a long time series	
Azores	Catches over time	4	Landings	By Spe-cies	time se-ries	Historical Nominal Catches 1950-2010; Official Nominal Catches 2006-2018; Preliminary Catches 2019 ICES		no info on which species are ag-gregated into the "other" cate-gory (in this Ecoregion this cate-gory comprises the highest landings across most years)		will never cover such a long time series	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Azores	Description of the fisheries	5	Spatial ef-fort distri-bution	By Num-ber of Hooks	map	EU Data Col-lection Framework (DCF) port inquiries 2008–2011		fishing effort mapped by num-ber of hooks, inconsistent with other FOs but probably specific to this Ecoregion		?	
Azores	Description of the fisheries	6	Spatial ef-fort distri-bution	By MW Fishing Hours & Gear Type	map	ICES marine data		Only displayed data for vessels > 12m with VMS, no info on other vessels; Note: 60% of the vessels are less than nine me-tres in length and target many different species		?	
Azores	Mixed Fisheries	7	Technical Interac-tions	By Metier and Stock	?	DCF 2015–2017		?		?	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Introduction	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data		Need harmonization with EO, area 27.3.b.23 is indeed part of the Baltic EO and should be changed in figure caption and legend and in the text	including a map with catchment area would be beneficial (see Reusch et al. 2018 Fig 1a)		
Baltic Sea	Who is Fishing	2	Landings	By Coun-try	time se-ries	ICES Histori-cal catch se-ries		consistency of the time series; Are all species used? A selection based on their availability over the time series. Historical data seem infleunced by reporting (e.g. 1955, 1990)		will never cover such a long time series	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Who is Fishing	3	Nominal effort	By Coun-try	time se-ries	STECF FDI		Which fleets are covered? Pas-sive gear/SSF covered as well? kW-days as unit is not used in Baltic due to the many polyva-lent and passive gear SSF. Scal-ing is wrong: mismatch be-tween figure caption (2005-2018) and the acutal x-axis (2015-2018 or 2019?). Belgium does not fish in Balrtic ("confi-dential data?). Effort seems to be low in some cases (e.g. Ger-many, Finland). Denmark effort is larger than Germany, but not shown in Figure .	Explore MIXFISH Accession. Ex-plore Inter-catch/Assess-ment data or RDB data (e.g. RCG Baltic re-ports on catch and effort over-views)	Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Catches over time	4	Landings	By Fish Category	time se-ries	ICES Histori-cal catche series		consider splitting into fish groups (pelagic is overshadow-ing the other fish groups) con-sistency of the time serie ; Are all species used ? A selection based on their availability over the time series ; problem of species labeling/regroupement over time ; Undefined group pooling all species not allocated to a fish group	consider RDB data (e.g. RCG Baltic reports on catch and effort overviews)	will never cover such a long time series	
Baltic Sea	Catches over time	5	Landings	By Spe-cies	time se-ries	ICES Histori-cal catche series			consider RDB data (e.g. RCG Baltic reports on catch and effort overviews)	will never cover such a long time series	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Catches over time	6	Landings	By Gear Type	time se-ries	STECF FDI		Figure caption does not match with the y-axis (landing, but ef-fort is displayed???), wrong graph (identical with figure 8)	consider RDB data (e.g. RCG Baltic reports on catch and effort overviews)	Should	
Baltic Sea	Catches over time	7	Discard rates	By Gear Category	time se-ries	ICES Stock Assessment data base		delete the zero in the y-axis. Which species are included in the fish groups?		Should	
Baltic Sea	Description of the fisheries	8	Nominal effort	By Gear Category	time se-ries	STECF FDI		Dredging not allowed in Baltic Sea, only in northern 27.3.c.22 (MUS fishery), maybe remove or mention only in text. Split gillnets and longline (e.g. due to different target species, by-catch and discard rates). BEL again in figure caption?	Explore MIXFISH Accession	Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Description of the fisheries	9	Spatial ef-fort distri-bution	By Gear Category	average over 3 (last?) years	ICES marine data		static gears are underepre-sented in VMS data (mostly <12m length, no VMS required). Figure caption should make that clear. OTB data in 37.3.d.31 seems odd, should be checked (trajectories). What is the unit "MW"? Time series of 3 years is quite short.	ask ICES VMS working group (WGSFD)		

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Status of the fishery re-sources	10	Stock sta-tus	relative to reference points	last data year	ICES Stock Assessment data base		Allow for other reference points than MSY/PA? Figure caption needs to be shortened, maybe integrate some information on the traffic lights in the graph or as separate legend? Suddenly other species appear (e.g. sea trout, eel, salmon) that were not properly introduced in for-mer figures			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Status of the fishery re-sources	11	Stock sta-tus	relative to MSFD	last data year	ICES Stock Assessment data base		Figure caption needs to be shortened, maybe integrate some information on the traffic lights in the graph or as sepa-rate legend? Explain the MSFD categories in the header of the graphs			
Baltic Sea	Status of the fishery re-sources	12	Stock sta-tus	temporal trends	time se-ries	ICES Stock Assessment data base		Meaning of the average, why have a mean of two spe-cies/stocks (12 a and 12c)?; Hard to read for a single stock; The stock ple.27.2432 is missing as well (12a). Scales should go to 0 on the y-axis.			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Status of the fishery re-sources	13	Stock sta-tus	relative to F/F_{MSY} and SSB/MSY $B_{trigger}$	last data year	ICES Stock Assessment data base		Colour scale needs to be more clear and stated at the begin-ning. Use colouring/traffic light in the plots (upper left: green, etc.)? What is the shape of the points based on (circles, trian-gles, etc.), needs to be more clear			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Mixed Fisheries	14	Landings	Technical interac-tions	based on?	STECF FDI		Why is there no information on plaice, dab turbot, brill, other species? By-catches of demer-sal/benthic species in pelagic fisheries is not considered, but is proven to exist (e.g. juvenile cod by-catches in the pelagic fisheries in 27.3.c.24 and 25), since it is based on the 5% land-ings share. This is an inappropri-ate threshold to account for de-mersal/benthic by-catches (as they are usually discarded and not in the "landings" statistics). Data source is unclear.	check WGBFAS reports on inter-action. Explore MIXFISH Acces-sion		

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Baltic Sea	Mixed Fisheries	15	Interac-tion in catch	Technical interac-tions	based on?	STECF FDI		no scale on the colour scheme, what is "dark" and "bright" sup-posed to indicate? It is unclear what the figure is supposed to tell us. The subdivision scale is also useless.			
Baltic Sea	Mixed Fisheries	16	food web	food web interac-tion	based on?	Kindergar-den paint-ing?		this Figure does not show the Baltic Sea food web, it is way too simplified and missing all in-formation	Maybe check food web publi-cations on the Baltic Sea? Avoid to focus on East-ern Baltic cod and also con-sider elements in the lower food web (what is the SPF eating, what is "other food", etc.)		
Baltic Sea	Effect of the fisheries on the ecosystem	17		average annual surface and sub-surface disturb-ance	average over 3 (last?) years	ICES marine data		this is just Figure 9, just en-larged and cut out			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Barents Sea	Introduction	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data		Need harmonization with EO			
Barents Sea	Who is Fishing	2	Landings	By Coun-try	time se-ries	ICES Histori-cal catch se-ries					
Barents Sea	Who is Fishing	3	Nominal effort	By Coun-try	time se-ries	ICES VMS data		Missing Russian data, missing Norwegian data after 2018 be-cause data flow is under update - finished 2021	Russian data-base?		
Barents Sea	Catches over time	4	Landings	By Fish Category	time se-ries	ICES Histori-cal catch se-ries					
Barents Sea	Catches over time	5	Landings	By Spe-cies	time se-ries	ICES Histori-cal catch se-ries		Atlantic redfishes nei'?			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Barents Sea	Description of the fisheries	6	Nominal effort	By Gear Category	time se-ries	ICES VMS data		Missing Russian data, missing Norwegian data after 2018 be-cause data flow is under update - finished 2021. Check 15 vs < 12 m	Russian data-base?		
Barents Sea	Description of the fisheries	7	Spatial ef-fort distri-bution	By Gear Category	average over 4 years (2014-2017, lacking NOR data from 2018)	ICES marine data, ICES VMS data		Missing Russian data, missing Norwegian data after 2018 be-cause data flow is under update - finished 2021. Check 15 vs < 12 m			
Barents Sea	Status of the fishery re-sources	8	Stock sta-tus	relative to reference points	last data year	ICES Stock Assessment data base		Missing species that lack msy reference points			
Barents Sea	Status of the fishery re-sources	9	Stock sta-tus	relative to MSFD	last data year	ICES Stock Assessment data base		Missing species that lack msy reference points			
Barents Sea	Status of the fishery re-sources	10	Stock sta-tus	temporal trends	time se-ries	ICES Stock Assessment data base		Missing species that lack msy reference points			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Barents Sea	Status of the fishery re-sources	11	Stock sta-tus	relative to F/F_{MSY} and SSB/MSY $B_{trigger}$	last data year	ICES Stock Assessment data base		Missing species that lack msy reference points			
Barents Sea	Species interac-tion	12	Species interac-tion	Food web	Illustra-tion	Image - IMR Norway					
Barents Sea	Effect of the fisheries on the ecosystem	13	Physical disturb-ance	average annual surface and sub-surface disturb-ance	average over 4 years (2014-2017, lacking NOR data from 2018)	ICES marine data					
Barents Sea	Annex	Table A1	Stock sta-tus	Status summary table - stocks with ref-erence points	last data year	ICES Stock Assessment data base		Missing reference point from management plan as a refer-ence point category			
Bay of Biscay and Iberian Coast	Definition of the ecoregion	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data		Need harmonization with EO			
Bay of Biscay and Iberian Coast	Mixed fisheries considerations BoB	2	Projected catches	Mixed fisheries	“STF”	WGMIXFISH data / TAF					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
				projec-tions							
Bay of Biscay and Iberian Coast	Mixed fisheries considerations BoB	3	Nominal effort	by fleet to reach each sin-gle-spe-cies ad-vice	"STF"	WGMIXFISH data / TAF					
Bay of Biscay and Iberian Coast	Mixed fisheries considerations BoB	4	Landings	By stock	last data year	WGMIXFISH data / Inter-Catch		Mix of data sources for landings through doc, leading to incon-sistencies			
Bay of Biscay and Iberian Coast	Mixed fisheries considerations BoB	5	Landings	By Gear Type	last data year	WGMIXFISH data / Inter-Catch		Mix of data sources for landings through doc, leading to incon-sistencies			
Bay of Biscay and Iberian Coast	Mixed fisheries considerations Iberian	6	Projected catches	Mixed fisheries projec-tions	"STF"	WGMIXFISH data / TAF					
Bay of Biscay and Iberian Coast	Mixed fisheries considerations Iberian	7	Nominal effort	by fleet to reach each sin-gle-spe-cies ad-vice	"STF"	WGMIXFISH data / TAF					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Bay of Biscay and Iberian Coast	Mixed fisheries considerations Iberian	8	Landings	By stock	last data year	WGMIXFISH data / Inter-Catch		Mix of data sources for landings through doc, leading to incon-sistencies			
Bay of Biscay and Iberian Coast	Mixed fisheries considerations Iberian	9	Landings	By Gear Type	last data year	WGMIXFISH data / Inter-Catch		Mix of data sources for landings through doc, leading to incon-sistencies			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Bay of Biscay and Iberian Coast	Who is fishing	11	Landings	By Coun-try	time se-ries	STATLANT 27 historical catch series 1950-2010, 2006-2018, preliminary catches.		Mix of data sources for landings through doc, leading to incon-sistencies consistency of the time series used; - species aggregation/disaggre-gation. - species name changes. - species included/excluded. - level of area resolution. Are all species used ? A selec-tion based on their availability over the time series		will never cover such a long time series	
Bay of Biscay and Iberian Coast	Who is fishing	12	Nominal effort	By Coun-try	time se-ries	STECF FDI		Restricted to European coun-tries ; Problem of confidential-ity ?	Explore MIXFISH Accession	Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Bay of Biscay and Iberian Coast	Catches over time	12	Landings	By species Category	time se-ries	STATLANT 27 historical catch series 1950-2010, 2006-2018, preliminary catches.		Mix of data sources for landings through doc, leading to incon-sistencies consistency of the time series used; - species aggregation/disaggre-gation. - species name changes. - species included/excluded. - level of area resolution. Are all species used ? A selec-tion based on their availability over the time series		will never cover such a long time series	
Bay of Biscay and Iberian Coast	Catches over time	13	Landings	By Spe-cies	time se-ries	STATLANT 27 historical catch series 1950-2010, 2006-2018,				will never cover such a long time series	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
						preliminary catches.					
Bay of Biscay and Iberian Coast	Catches over time	14	Landings	By Gear Type	time se-ries	STATLANT 27 historical catch series 1950-2010, 2006-2018, preliminary catches.		Mix of data sources for landings through doc, leading to incon-sistencies consistency of the time series used; - species aggregation/disaggre-gation. - species name changes. - species included/excluded. - level of area resolution. Are all species used ? A selec-tion based on their availability over the time series	Explore MIXFISH Accession	Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Bay of Biscay and Iberian Coast	Catches over time	15	Discard rates	By Gear Category	time se-ries	ICES Stock Assessment data base		list of the stocks included ;		Should	
Bay of Biscay and Iberian Coast	Description of the fisheries	16	Nominal effort	By Gear Category	time se-ries	STECF FDI		Restricted to European coun-tries ; Problem of confidential-ity ?	Explore MIXFISH Accession	Should	
Bay of Biscay and Iberian Coast	Description of the fisheries	17	Spatial ef-fort distri-bution	By Gear Category	average over 3 (last?) years	ICES marine data					
Bay of Biscay and Iberian Coast	Status of the re-source	18	Stock sta-tus	relative to reference points	last data year	ICES Stock Assessment data base		Allow for other reference points than MSY/PA ?			
Bay of Biscay and Iberian Coast	Status of the re-source	19	Stock sta-tus	relative to MSFD	last data year	ICES Stock Assessment data base					
Bay of Biscay and Iberian Coast	Status of the re-source	20	Stock sta-tus	Temporal trends by species category	time se-ries	ICES Stock Assessment data base		Meaning of the average ; Hard to read for a single stock ; The scale should be changed [em-phasize stocks with a ratio > 1 compared to <1]			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Bay of Biscay and Iberian Coast	Status of the re-source	21	Stock sta-tus	relative to F/Fmsy and SSB/MSY Btrigger	last data year	ICES Stock Assessment data base		compute catch/landings relative to the ecoregion?			
Bay of Biscay and Iberian Coast	Mixed-fisheries	22	Landings	Technical interac-tions	In spanish fleet in 8c9a	STECF FDI?		Mix of data sources for landings through doc, leading to incon-sistencies	Explore MIXFISH Accession		
Bay of Biscay and Iberian Coast	Mixed-fisheries	23	Landings	Technical interac-tions	In Portu-guese fleet in 8c9a	STECF FDI?		Mix of data sources for landings through doc, leading to incon-sistencies	Explore MIXFISH Accession		
Bay of Biscay and Iberian Coast	Effect of the fisheries on the ecosystem	24	Swept area ratio	average annual surface and sub-surface disturb-ance	average over 4 years (2015-2018)	ICES marine data					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Celtic Seas	Introduction	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data		Need harmonization with EO, split of Western English Chan-nel into two may present prob-lems with assigning stocks to ecoregion.			
Celtic Seas	Mixed fisheries considerations	2	Projected catches	Mixed fisheries projec-tions	“STF”	WGMIXFISH data / TAF					
Celtic Seas	Mixed fisheries considerations	3	F	Range scenario	“STF”	WGMIXFISH data / TAF					
Celtic Seas	Mixed fisheries considerations	4	Nominal effort	by fleet to reach each sin-gle-spe-cies ad-vice	“STF”	WGMIXFISH data / TAF		Fleet can change over time			
Celtic Seas	Mixed fisheries consider-ations	5	Land-ings By Gear Type	last data a year	WG MIX FISH data / In-ter-Catch			Other data source than fig. 11; fleets can change over time		Yes problem of inconsistent data sources, but not fleets changing over time	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Celtic Seas	Mixed fisheries consider-ations	6	Landings	By stock last data a year	WG MIX FISH data / Inter-Catch			Other data source than fig. 10; stocks can change over time		Yes problem of inconsistent data sources, but not stocks changing over time	
Celtic Seas	Who is Fishing	7	Landings	By Coun-try	time se-ries	ICES Histori-cal catche series		consistency of the time series ; Are all species used ? A selec-tion based on their availability over the time series		will never cover such a long time series	
Celtic Seas	Who is Fishing	8	Nominal effort	By Coun-try	time se-ries	STECF FDI	NOT FAIR	Restricted to EU ; Problem of confidenciality ?	Explore MIXFISH Accession	Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Celtic Seas	Catches over time	9	Landings	By Fish Category	time se-ries	ICES Histori-cal catche series		consistency of the time serie ; Are all species used ? A selec-tion based on their availability over the time series ; problem of species labeling/re-groupement over time ; Unde-fined group pooling all species not allocated to a fish group		will never cover such a long time series	
Celtic Seas	Catches over time	10	Landings	By Spe-cies	time se-ries	ICES Histori-cal catche series				will never cover such a long time series	
Celtic Seas	Catches over time	11	Landings	By Gear Type	time se-ries	STECF FDI	NOT FAIR	Restricted to EU ; Problem of confidenciality ? Will never match ICES data, will create in-consistancy within the FO	Explore MIXFISH Accession	Should	
Celtic Seas	Catches over time	12	Discard rates	By Fish Category	time se-ries	ICES Stock Assessment data base		list of the stocks included ;		Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Celtic Seas	Description of the fisheries	13	Nominal effort	By Gear Category	time se-ries	STECF FDI	NOT FAIR	Restricted to EU ; Problem of confidenciality ? Will never match ICES data, will create in-consistancy within the FO	Explore MIXFISH Accession	Should	
Celtic Seas	Description of the fisheries	14	Spatial ef-fort distri-bution	By Gear Category	average over 3 (last?) years	ICES marine data					
Celtic Seas	Description of the fisheries	15	Spatial landings distribu-tion	By Fish Category	average over 4 (last?) years	STECF FDI	NOT FAIR	Restricted to EU ; Problem of confidenciality ? Will never match ICES data, will create in-consistancy within the FO			
Celtic Seas	Status of the fishery ressources	16	Stock sta-tus	relative to reference points	last data year	ICES Stock Assessment data base		Allow for other reference points than MSY/PA ?			
Celtic Seas	Status of the fishery ressources	17	Stock sta-tus	relative to MSFD	last data year	ICES Stock Assessment data base					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Celtic Seas	Status of the fishery ressources	18	Stock sta-tus	temporal trends	time se-ries	ICES Stock Assessment data base		Meaning of the average ; Hard to read for a single stock ; The scale should be changed [em-phasize stocks with a ratio > 1 compared to <1]			
Celtic Seas	Status of the fishery ressources	19	Stock sta-tus	relative to F/Fmsy and SSB/MSY Btrigger	last data year	ICES Stock Assessment data base		compute catch/landings relative to the ecoregion?			
Celtic Seas	Mixed Fisheries	20	Landings	Technical interac-tions - Irish Sea catch composi-tion	average over 3 (last?) years	ICES acces-sions		Displays data on catch composi-tion, but doesn't provide infor-mation on strength of technical interactions as per North Sea			
Celtic Seas	Mixed Fisheries	21	Landings	Technical interac-tions - Celtic Sea and WoI catch composi-tion	average over 3 (last?) years	ICES acces-sions		Displays data on catch composi-tion, but doesn't provide infor-mation on strength of technical interactions as per North Sea			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Celtic Seas	Mixed Fisheries	22	Landings	Technical interac-tions - West of Scotland catch composi-tion	average over 3 (last?) years	ICES acces-sions		Displays data on catch composi-tion, but doesn't provide infor-mation on strength of technical interactions as per North Sea			
Celtic Seas	Effect of the fisheries on the ecosystem	23		average annual surface and sub-surface disturb-ance	average over 3 (last?) years	ICES marine data					
Greater North Sea	Introduction	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data		Need harmonization with EO			
Greater North Sea	Mixed fisheries considerations	2	Projected catches	Mixed fisheries projec-tions	“STF”	WGMIXFISH data / TAF					
Greater North Sea	Mixed fisheries considerations	3	F	Range scenario	“STF”	WGMIXFISH data / TAF					
Greater North Sea	Mixed fisheries considerations	4	Nominal effort	by fleet to reach each sin-	“STF”	WGMIXFISH data / TAF					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
				gle-spe-cies ad-vice							
Greater North Sea	Mixed fisheries considerations	5	Landings	By stock	last data year	WGMIXFISH data / Inter-Catch		Other data source than fig. 10			
Greater North Sea	Mixed fisheries considerations	6	Landings	By Gear Type	last data year	WGMIXFISH data / Inter-Catch		Other data source than fig. 11			
Greater North Sea	Who is Fishing	7	Landings	By Coun-try	time se-ries	ICES Histori-cal catche series		consistency of the time series ; Are all species used ? A selec-tion based on their availability over the time series		will never cover such a long time series	
Greater North Sea	Who is Fishing	8	Nominal effort	By Coun-try	time se-ries	STECF FDI		Restricted to European coun-tries ; Problem of confidencial-ity ?	Explore MIXFISH Accession	Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Greater North Sea	Catches over time	9	Landings	By Fish Category	time se-ries	ICES Histori-cal catche series		consistency of the time serie ; Are all species used ? A selec-tion based on their availability over the time series ; problem of species labeling/re-groupement over time ; Unde-fined group pooling all species not allocated to a fish group		will never cover such a long time series	
Greater North Sea	Catches over time	10	Landings	By Spe-cies	time se-ries	ICES Histori-cal catche series				will never cover such a long time series	
Greater North Sea	Catches over time	11	Landings	By Gear Type	time se-ries	STECF FDI		Restricted to European coun-tries ; Problem of confidencial-ity ?	Explore MIXFISH Accession	Should	
Greater North Sea	Catches over time	12	Discard rates	By Gear Category	time se-ries	ICES Stock Assessment data base		list of the stocks included ;		Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Greater North Sea	Description of the fisheries	13	Nominal effort	By Gear Category	time se-ries	STECF FDI		Restricted to European coun-tries ; Problem of confidencial-ity ?	Explore MIXFISH Accession	Should	
Greater North Sea	Description of the fisheries	14	Spatial ef-fort distri-bution	By Gear Category	average over 3 (last?) years	ICES marine data					
Greater North Sea	Status of the fishery ressources	15	Stock sta-tus	relative to reference points	last data year	ICES Stock Assessment data base		Allow for other reference points than MSY/PA ?			
Greater North Sea	Status of the fishery ressources	16	Stock sta-tus	relative to MSFD	last data year	ICES Stock Assessment data base					
Greater North Sea	Status of the fishery ressources	17	Stock sta-tus	temporal trends	time se-ries	ICES Stock Assessment data base		Meaning of the average ; Hard to read for a single stock ; The scale should be changed [em-phasize stocks with a ratio > 1 compared to <1]			
Greater North Sea	Status of the fishery ressources	18	Stock sta-tus	relative to F/Fmsy and SSB/MSY Btrigger	last data year	ICES Stock Assessment data base		compute catch/landings relative to the ecoregion?			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Greater North Sea	Mixed Fisheries	19	Landings	Technical interac-tions	average over 3 (last?) years	STECF FDI			Explore MIXFISH Accession		colours difficult to distinguish
Greater North Sea	Effect of the fisheries on the ecosystem	20		average annual surface and sub-surface disturb-ance	average over 3 (last?) years	ICES marine data					
Greenland Sea	Introduction	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data					Mark where data is missing - can-not distinguish from zero effort
Greenland Sea	Who is Fishing	2	Nominal effort	No ves-sels by Country	time se-ries	National data					
Greenland Sea	Who is Fishing	3	Landings	By Coun-try	time se-ries	ICES Stock Assessment data base					Suggest to change to barplots showing changes over time

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Greenland Sea	Description of the fisheries	4	Landings	By Fish Category	time se-ries	ICES Stock Assessment data base		data is a compilation of national and ICES data, ICES data not available by ecoregion			
Greenland Sea	Description of the fisheries	5	Landings	By species	time se-ries	ICES Stock Assessment data base		data is a compilation of national and ICES data, ICES data not available by ecoregion			Suggest to center deviation to have same range un-der over ratio 1
Greenland Sea	Description of the fisheries	6	Landings	By species	time se-ries	ICES Stock Assessment data base		data is a compilation of national and ICES data, ICES data not available by ecoregion			
Greenland Sea	Description of the fisheries	7	Landings	By Gear Type	time se-ries	?					
Greenland Sea	Description of the fisheries	8	Nominal effort	By species	map	National data - log-books					Add working group
Greenland Sea	Description of the fisheries	9	Nominal effort	By species	map	National data - log-books					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Greenland Sea	Status of the fishery ressources	10	Stock status	relative to reference points	last data year	ICES Stock Assessment data base					
Greenland Sea	Status of the fishery ressources	11	Stock status	relative to MSFD	last data year	ICES Stock Assessment data base					
Greenland Sea	Status of the fishery ressources	12	Stock status	relative to F/Fmsy and SSB/MSY Btrigger	time series	ICES Stock Assessment data base					
Greenland Sea	Status of the fishery ressources	13	Stock status	relative to F/Fmsy and SSB/MSY Btrigger and landings	last data year	ICES Stock Assessment data base					
Greenland Sea	Effect of the fisheries on the ecosystem	14		corals and sponges records and fisheries footprint	map	National data					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Icelandic Waters	Introduction	1	Ecoregion Map	map of the ecoregion	map	ICES marine data		The following ICES divisions within the Icelandic Waters Ecoregion need specific code: 14.b.2 and 14.a (will otherwise also be included in Greenl. Sea Ecor.); 2.a.2 (will otherwise also be included in Norweg. Sea Ecor.); 5.b.1.b (will otherwise also be included in Faroese Sea Ecor.)			
Icelandic Waters	Who is Fishing	2	Landings	By Country	time series	ICES Historical catch series		Fix legend so it is not randomly distributed.	National Data Base		

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Icelandic Waters	Catches over time	3	Landings	By Fish Category	time series	ICES Historical catch series		Some species, for example, Greenland halibut, deep water redfish and blue whiting, are assinged to two different categories, which may double the catches	National Data Base		
Icelandic Waters	Catches over time	4	Landings	By Species	time series	ICES Historical catch series		Some species, for example, Greenland halibut, deep water redfish, blue whiting, are assinged to two different categories, which may double the catches	National Data Base		
Icelandic Waters	Catches over time	5	Landings	By Gear Category	time series	National Data Base					
Icelandic Waters	Description of the fisheries	6	Nominal effort	By Gear Category	time series	National Data Base		Effort only available for Iceland			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Icelandic Waters	Description of the fisheries	7	Spatial effort distribution	By Gear Category	average over 5 last years	National Data Base		Effort only available for Iceland			
Icelandic Waters	Status of the fishery ressources	9	Stock status	relative to reference points	last data year	ICES Stock Assessment data base		Should also include other reference points such as for HR, MGT			
Icelandic Waters	Status of the fishery ressources	10	Stock status	relative to MSFD	last data year	ICES Stock Assessment data base					
Icelandic Waters	Status of the fishery ressources	11	Stock status	relative to F/Fmsy and SSB/MSY Btrigger	last data year	ICES Stock Assessment data base		Should also include other reference points (HR/HRmsy); compute catch/landings relative to the ecoregion			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Icelandic Waters	Status of the fishery ressources	12	Stock status	temporal trends	time series	ICES Stock Assessment data base		Meaning of the mean; The black line (mean) should start when values for two or more stocks are available (see for example North Sea FO); maybe separate widely distributed stocks (fished in two or more ecoregions) from local stocks? For Iceland it would be 3-5 pelagic stocks and 2 demersal ones.			
Icelandic Waters	Mixed Fisheries	13	Landings	Technical interactions	average over 3 last years	National Data Base					
Icelandic Waters	Mixed Fisheries	14	Landings	Technical interactions	average over 3 last years	National Data Base					

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Icelandic Waters	Mixed Fisheries	15	Landings	Technical interactions	average over 3 last years	National Data Base					
Icelandic Waters	Effects of fisheries on the ecosystem	16		average annual surface and subsurface disturbance	average over 4 last years	ICES marine data					
Missing		10									
Norwegian Sea	Introduction	1	Ecoregion Map	map of the ecoregion and statistical areas	map	ICES marine data					
Norwegian Sea	Who is Fishing	2	Landings	By Country	time series	ICES Historical catch series		consistency of the time series ; Are all species used ? A selection based on their availability over the time series			
Norwegian Sea	Who is Fishing	3	Nominal effort	By Country	time series	ICES VMS data		Problem of confidenciality ? No russian data			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Norwegian Sea	Catches over time	4	Landings	By Fish Category	time se-ries	ICES Histori-cal catche series		consistency of the time serie ; Are all species used ? A selec-tion based on their availability over the time series ; problem of species labeling/re-groupement over time ; Unde-fined group pooling all species not allocated to a fish group			
Norwegian Sea	Catches over time	5	Landings	By Spe-cies	time se-ries	ICES Histori-cal catche series		Capelin catches mainly caught outside Norw. Sea ecoregion af-ter 1990. Consider dividing by stock			
Norwegian Sea	Description of the fisheries	6	Nominal effort	By Gear Category	time se-ries	ICES VMS data		Problem of confidenciality ?			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Norwegian Sea	Description of the fisheries	7	Spatial ef-fort distri-bution	By Gear Category	average over 4 years (2014-2017)	ICES marine data ICES VMS data		Only vessels > 12 m with VMS, will bias distributions, particu-larly in cosatal areas. No data for 2018. No data from Russia.			
Norwegian Sea	Status of the fishery ressources	8	Stock sta-tus	relative to reference points	last data year	ICES Stock Assessment data base		Allow for other reference points than MSY/PA ?			
Norwegian Sea	Status of the fishery ressources	9	Stock sta-tus	relative to MSFD	last data year	ICES Stock Assessment data base					
Norwegian Sea	Status of the fishery ressources	10	Stock sta-tus	temporal trends	time se-ries	ICES Stock Assessment data base		Meaning of the average ; Hard to read for a single stock ; The scale should be changed [em-phasize stocks with a ratio > 1 compared to <1]			
Norwegian Sea	Status of the fishery ressources	11	Stock sta-tus	relative to F/Fmsy and SSB/MSY Btrigger	last data year	ICES Stock Assessment data base		compute catch/landings relative to the ecoregion?			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Norwegian Sea	Effect of the fisheries on the ecosystem	12		average annual surface and sub-surface disturb-ance	average over 4 years (2014-2017)	ICES marine data ICES VMS data		No data for 2018. No data from Russia			
Norwegian Sea	Annex	Table A1	Stock sta-tus	Status summary table - stocks with ref-erence points	last data year	ICES Stock Assessment data base		Missing reference point from management plan as a refer-ence point category			
Norwegian Sea	Annex	Table A2	Stock sta-tus	Status summary table - stocks without reference points	last data year	ICES Stock Assessment data base					
Norwegian Sea	Annex	Table A3	List of species	English and scien-tific name	men-tioned in the over-view	Manual (?)		Can this be collected from any ICES database?			
Oceanic Northeast At-lantic	Introduction	1	Ecoregion Map	map of the ecore-gion	map	ICES marine data		Need harmonization with EO			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Oceanic Northeast Atlantic	Who is fishing	2	Landings	By Country	time series	ICES Historical catche series		consistency of the time series ; Are all species used ? A selection based on their availability over the time series		will never cover such a long time series	
Oceanic Northeast Atlantic	Catches over time	3	Landings	By Fish Category	time series	ICES Historical catche series		consistency of the time series ; Are all species used ? A selection based on their availability over the time series		will never cover such a long time series	
Oceanic Northeast Atlantic	Catches over time	4	Landings	By Species	time series	ICES Historical catche series		consistency of the time series ; Are all species used ? A selection based on their availability over the time series		will never cover such a long time series	
Oceanic Northeast Atlantic	Catches over time	5	Discard rates	By Gear Category	time series	ICES Stock Assessment data base		list of the stocks included ;		Should	

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Oceanic Northeast Atlantic	Description of the fisheries	6	Spatial effort distribution	By Gear Category	average over 3 (last?) years	ICES marine data		Many not include all countries and gears of relevance within the ecoregion. Tuna longline fisheries are probably under represented. Others may also be missing.			
Oceanic Northeast Atlantic	Status of the fishery resources	7	Stock status	relative to reference points	last data year	ICES Stock Assessment data base		Allow for other reference points than MSY/PA ?			
Oceanic Northeast Atlantic	Status of the fishery resources	8	Stock status	relative to MSFD	last data year	ICES Stock Assessment data base		Doughnut plot, probably better as a time series			
Oceanic Northeast Atlantic	Status of the fishery resources	9	Stock status	temporal trends	time series	ICES Stock Assessment data base		Meaning of the average ; Hard to read for a single stock ; The scale should be changed [emphasize stocks with a ratio > 1 compared to <1]			

Fisheries Overview	Section	Figure number	Category	sub category	description	data source used	FAIR	identified problem	Other data sources?	Would RDBES solve the identified problems?	Layout improve-ments
Oceanic Northeast Atlantic	Status of the fishery resources	10	Stock status	relative to F/Fmsy and SSB/MSY Btrigger	last data year	ICES Stock Assessment data base		compute catch/landings relative to the ecoregion?			
Oceanic Northeast Atlantic	Effects of fisheries on the ecosystem	11	Spatial effort distribution	average annual surface and sub-surface disturbance	average over 3 (last?) years	ICES marine data					
	Annex	Table A2	Stock status	Status summary table - stocks without reference points	last data year	ICES Stock Assessment data base					
	Annex	Table A3	List of species	English and scientific name	mentioned in the overview	Manual (?)		Can this be collected from any ICES database?			