



**ICES**

International Council for  
the Exploration of the Sea

**CIEM**

Conseil International pour  
l'Exploration de la Mer

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## 2022 FRSG Expert Group ToRs

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## Generic ToRs for Regional and Species Working Groups

*Approved in November 2021*

2021/2/FRSG01 The following ToRs apply to: AFWG, HAWG, NWWG, NIPAG, WGWIDE, WGBAST, WGBFAS, WGNSSK, WGCSE, WGDEEP, WGBIE, WGEEL, WGEF, WGHANSA and WGNAS.

### **The working group should focus on:**

- a) Consider and comment on Ecosystem and Fisheries overviews where available;
- b) For the aim of providing input for the Fisheries Overviews, consider and comment on the following for the fisheries relevant to the working group:
  - i) descriptions of ecosystem impacts on fisheries
  - ii) descriptions of developments and recent changes to the fisheries
  - iii) mixed fisheries considerations, and
  - iv) emerging issues of relevance for management of the fisheries;
- c) Conduct an assessment on the stock(s) to be addressed in 2022 using the method (assessment, forecast or trends indicators) as described in the stock annex; - complete and document an audit of the calculations and results; and produce a **brief** report of the work carried out regarding the stock, providing summaries of the following where relevant:
  - i) Input data and examination of data quality; in the event of missing or inconsistent survey or catch information refer to the ACOM document for dealing with COVID-19 pandemic disruption and the linked template that formulates how deviations from the stock annex are to be [reported](#).
  - ii) Where misreporting of catches is significant, provide qualitative and where possible quantitative information and describe the methods used to obtain the information;
  - iii) For relevant stocks (i.e., all stocks with catches in the NEAFC Regulatory Area), estimate the percentage of the total catch that has been taken in the NEAFC Regulatory Area in 2021.
  - iv) For category 3 and 4 stocks requiring new advice in 2022, implement the methods recommended by WKLIFE X (e.g. SPiCT, rfb, chr, rb rules) to replace the former 2 over 3 advice rule (2 over 5 for elasmobranchs). MSY reference points or proxies for the category 3 and 4 stocks
  - v) Evaluate spawning stock biomass, total stock biomass, fishing mortality, catches (projected landings and discards) using the method described in the stock annex;
    - 1) for category 1 and 2 stocks, in addition to the other relevant model diagnostics, the recommendations and decision tree formulated by WKFORBIAS (see Annex 2 of [https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2020/WKFORBIAS\\_2019.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2020/WKFORBIAS_2019.pdf)) should be considered as guidance to determine whether

an assessment remains sufficiently robust for providing advice.

- 2) If the assessment is deemed no longer suitable as basis for advice, consider whether it is possible and feasible to resolve the issue through an interbenchmark. If this is not possible, consider providing advice using an appropriate Category 2 to 5 approach.;

vi) The state of the stocks against relevant reference points;

Consistent with ACOM's 2020 decision, the basis for Fpa should be Fp.05.

- 1) 1. Where Fp.05 for the current set of reference points is reported in the relevant benchmark report, replace the value and basis of Fpa with the information relevant for Fp.05
- 2) 2. Where Fp.05 for the current set of reference points is not reported in the relevant benchmark report, compute the Fp.05 that is consistent with the current set of reference points and use as Fpa. A review/audit of the computations will be organized.
- 3) 3. Where Fp.05 for the current set of reference points is not reported and cannot be computed, retain the existing basis for Fpa.

vii) Catch scenarios for the year(s) beyond the terminal year of the data for the stocks for which ICES has been requested to provide advice on fishing opportunities;

viii) Historical and analytical performance of the assessment and catch options with a succinct description of associated quality issues. For the analytical performance of category 1 and 2 age-structured assessments, report the mean Mohn's rho (assessment retrospective bias analysis) values for time series of recruitment, spawning stock biomass, and fishing mortality rate. The WG report should include a plot of this retrospective analysis. The values should be calculated in accordance with the "Guidance for completing ToR viii) of the Generic ToRs for Regional and Species Working Groups - Retrospective bias in assessment" and reported using the ICES application for this purpose.

d) Produce a first draft of the advice on the stocks under considerations according to ACOM guidelines.

- i. In the section 'Basis for the assessment' under input data match the survey names with the relevant "SurveyCode" listed ICES [survey naming convention](#) (*restricted access*) and add the "SurveyCode" to the advice sheet.

e) Review progress on benchmark issues and processes of relevance to the Expert Group.

- i) update the benchmark issues lists for the individual stocks in SID;
- ii) review progress on benchmark issues and identify potential benchmarks to be initiated in 2023 for conclusion in 2024;
- iii) determine the prioritization score for benchmarks proposed for 2023–2024;

- iv) as necessary, document generic issues to be addressed by the Benchmark Oversight Group (BOG)
- f) Prepare the data calls for the next year's update assessment and for planned data evaluation workshops;
- g) Identify research needs of relevance to the work of the Expert Group.
- h) Review and update information regarding operational issues and research priorities on the Fisheries Resources Steering Group SharePoint site.
- i) If not completed in 2020, complete the audit spread sheet 'Monitor and alert for changes in ecosystem/fisheries productivity' for the new assessments and data used for the stocks. Also note in the benchmark report how productivity, species interactions, habitat and distributional changes, including those related to climate-change, could be considered in the advice.

Information of the stocks to be considered by each Expert Group is available [here](#).

### **AFWG – Arctic Fisheries Working Group**

*Approved in November 2021*

2021/2/FRSG02      The **Arctic Fisheries Working Group** (AFWG), chaired by Daniel Howell, Norway, will meet online, 21–27 April 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups, for all stocks except the Barents Sea capelin, which will be addressed at a meeting in the autumn;
- b) For Barents Sea capelin oversee the process of providing intersessional assessment;
- c) Conduct reviews as required of time any series computed using the STOX and ECA open source software for use in assessment in the Barents Sea.

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

AFWG will report by 6 May 2022 and [TBD] October 2022 for Barents Sea capelin for the attention of the Advisory Committee.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

### **HAWG – Herring Assessment Working Group for the Area South of 62°N**

*Approved in November 2021*

2021/2/FRSG03      The **Herring Assessment Working Group for the Area South of 62°N** (HAWG), chaired by Afra Egan, Ireland, and Cecilie Kvamme, Norway will meet:

Online/hybrid meeting 25–27 January 2022 to:

- a) Compile the catch data of sandeel in assessment areas 1r, 2r, 3r, 4, 5r, 6, and 7r and address generic ToRs for Regional and Species Working Groups that are specific to sandeel stocks in the North Sea ecoregion;

and in Copenhagen, Denmark (*dates tbc*) to:

- b) compile the catch data of North Sea and Western Baltic herring on *(dates tbc)*;
- c) address generic ToRs for Regional and Species Working Groups on *(dates tbc)* for all other stocks assessed by HAWG.

The assessments will be carried out based on the Stock Annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

HAWG will report by 11 February (sandeel), *(dates tbc)* (sprat) and *(dates tbc)* (herring) 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

### **NIPAG – Joint NAFO/ICES *Pandalus* Assessment Working Group**

*Approved in November 2021*

2021/2/FRSG04 The **Joint NAFO/ICES *Pandalus* Assessment Working Group** (NIPAG), chaired by Ole Ritzau Eigaard, Denmark (ICES) and Mark Simpson (NAFO), will meet online 28 February to 02 March 2022, and in Copenhagen, Denmark 12–17 September 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups for Northern shrimp in divisions 3.a and 4.a East stock.
- b) Address generic ToRs for Regional and Species Working Groups for other NIPAG stocks.

NIPAG will report by *(dates tbc)* 2022 and 1 October 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

### **NWWG – North-Western Working Group**

*Approved in November 2021*

2021/2/FRSG05 The **North-Western Working Group** (NWWG), chaired by Teunis Jansen, Denmark, will meet in ICES HQ, Copenhagen, Denmark 2–7 May 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups for all stocks, except stocks mentioned in ToRs c)
- b) Compile and review available data and information on plaice in Division 5.a and prepare a road map and issue list for a future benchmark

and on 24-27 October 2022 to:

- c) Address generic ToRs for Regional and Species Working Groups for Capelin (*Mallotus villosus*) in subareas 5 and 14 and Division 2.a west of 5°W, Cod (*Gadus morhua*) in Subdivision 5.b.1 (Faroe Plateau), Cod in Subdivision 5.b.2 (Faroe Bank,) Haddock (*Melanogrammus aeglefinus*) in Division 5.b (Faroese grounds) and Saithe (*Pollachius virens*) in Division 5.b (Faroese grounds).

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

NWWG will report by 19 May and 10 November 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

## WGAMEEL – Working Group on American Eel

*Approved in November 2021*

2021/2/FRSG06 **Working Group on American Eel** (WGAMEEL), co-chaired by Martin Castonguay\*, Canada, and Kristen Anstead\*, USA, will be established, will work on ToRs, and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2022	May 24-26, 2022	Québec City, Canada	Interim report by Sep 2022 to Fisheries Research Steering Group	Meeting dates may be affected by the COVID pandemic.
Year 2023	TBD	USA	Interim report to Fisheries Research Steering Group	
Year 2024	TBD	Canada	Final report to Fisheries Research Steering Group	

### ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
	This should capture the objectives of the ToR	Provide very brief justification, e.g. advisory need, links to Science Plan and other WGs	Use codes (max 3 per ToR)	1, 2 or 3 years	Specify what is to be provided, when and to whom
a	Collate and evaluate data on American eel abundance, distribution, habitat, and biology from surveys and fisheries in Canada and the United States	Fishery-independent and fishery-dependent time series datasets available for various life stages (glass eels, elvers, yellow eels, silver eels) in both countries will be critically reviewed. While the primary focus will be on abundance time series, other types of data (distribution, habitat, biology) may also be important to consider.	1.7, 1.8, 3.1	Year 1	Review paper
b	Assemble information on spatial population structure of growth-phase American eels and devise approaches to fill data gaps	Growth-phase American eels are known to use all sheltered coastal (bay, estuary) and all accessible freshwater (river, stream, lake, pond) habitat types. However, knowledge	1.7, 1.8, 3.1	Years 1 & 2	Review paper

		<p>of eel status is often based on habitat-specific series-of-opportunity (e.g. stream electrofishing, estuary seining), leaving data gaps in other habitats (lakes and ponds). This effort will search for previously unexploited data sources and draw on GIS-based modelling tools to advance a pan-habitat understanding of growth-phase American eel status and relative abundance.</p>			
c	<p>Enhance current understanding of eel spatial distribution, abundances, alternative management strategies, and appreciation of the cultural and social significance of eels by integrating existing Indigenous knowledge systems to complement current scientific knowledge</p>	<p>Recognizing the complexity of Indigenous knowledge systems (IKS) as distinct ways of knowing, IKS is becoming increasingly recognized for its contribution as a form of adaptive management that may enhance sustainable management of resources. However, few attempts to integrate scientific knowledge and IKS exist for eels. The WG will compile existing Indigenous knowledge for the purpose of enhancing current understanding and to improve the management and sustainability of eels.</p>	3.6, 7.1, 7.5	Years 1, 2 & 3	Review paper
d	<p>Compare and contrast modelling approaches used for European and American eels and identify data needs for these approaches</p>	<p>Beginning in 2007, the European Union mandated member states to compare current European silver eel escapement in eel management units to estimated escapement under</p>	4.3	Years 2 & 3	Review paper

pristine conditions. However, this method has not been used to provide management advice, which is instead based on recruitment trends. The American eel has been assessed in US Atlantic states by a model based on fisheries-induced abundance changes, and in Canada's Maritimes Region by spawner-per-recruit analysis. The potential of these approaches to provide insight into American eel population dynamics and status will be examined in the context of current and potential future data availability.

e	Identify potential stock assessment methods and management approaches that would be appropriate to use for fishery management and conservation needs	International governance (i.e., stock assessment and management) remains undeveloped for the American eel, which is comprised of a single, panmictic population shared among many jurisdictions. Although there are concerted assessment and management efforts within each country, there is no formal binational organization overseeing this species between the two main users of the resource, Canada and the United States. The WG will propose methods that could improve assessment, management, and conservation of eels in both countries.	4.3	Years 2 & 3	Report to ICES on methods to improve American eel assessments.
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### Summary of the Work Plan

Year 1	The WG will meet face to face to address primarily the first 3 TORs.
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Year 2	The WG will meet face to face to address the 5 TORs.
Year 3	The WG will meet face to face to address primarily the last 2 TORs. The WG will review drafts of papers developed following the first 2 years.

### Supporting information

Priority	The current activities of this Group will lead ICES into issues related to the ecosystem effects of fisheries, especially with regard to the application of the Precautionary Approach. Consequently, these activities are considered to have a very high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resources required to undertake additional activities in the framework of this group is small.
Participants	The Group should be attended by some 20–25 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	There are no obvious direct linkages but developing the expertise could link to ACOM in the future.
Linkages to other committees or groups	Interactions will be sought with WGEEL and WGFEA.
Linkages to other organizations	There are linkages to a number of organizations and institutions throughout North America and Europe, such as the Research Programme on European eel from the General Fisheries Commission for the Mediterranean.

### WGBAST – Baltic Salmon and Trout Assessment Working Group

*Approved in November 2021*

2021/2/FRSG07 The **Baltic Salmon and Trout Assessment Working Group** (WGBAST), chaired by Martin Kesler, Estonia, will meet in Riga, Latvia (*dates tbc*) to:

- a) Address relevant points in the Generic ToRs for Regional and Species Working Groups;

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

WGBAST will report by 6 April 2022 for the attention of ACOM.

*Further specific terms of reference and/or workshops linked to WGBAST may arise.*

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

### WGBFAS – Baltic Fisheries Assessment Working Group

*Approved in November 2021*

2021/2/FRSG08 The **Baltic Fisheries Assessment Working Group** (WGBFAS), chaired by Mikaela Bergenius Nord, Sweden and Kristiina Hommik\*, Estonia, will meet on 20-27 April 2022 in Rostock, Germany to:

- a) Address generic ToRs for Regional and Species Working Groups

- b) Review the main result from WGMIXFISH, WGIAB, WGSAM, WGBIFS and WKEBFAB. with main focus on the biological processes and interactions of key species in the Baltic Sea;

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting. Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

WGBFAS will report by 12 May 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

### **WGBIE- Working Group for the Bay of Biscay and Iberian waters Ecoregion**

*Approved in November 2021*

2021/2/FRSG09            The **Working Group for the Bay of Biscay and Iberian waters Ecoregion (WGBIE)**, chaired by Ching Villanueva, France, and Cristina Silva, Portugal, will meet online, 02–13 May 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups
- b) Review progress on evaluating the potential for assessing *Nephrops* FU29 and FU30 as one stock;
- c) Review results and recommendations from benchmark and other interim workshops to review the assessment methods for hake, megrim and anglerfish stocks.

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

WGBIE will report by 20 May 2022 for the attention of the Advisory Committee.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

### **WGCSE - Working Group for the Celtic Seas Ecoregion**

*Approved in November 2021*

2021/2/FRSG10            The Working Group for the Celtic Seas Ecoregion (WGCSE), chaired by Mathieu Lundy, UK and Jonathan White\*, Ireland will meet virtually 3–13 May 2022 and by correspondence September / October 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups;

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2021 ICES data call.

WGCSE will report by 25 May 2022 for the attention of ACOM, and by 1 October 2022 for *Nephrops* stocks, anglerfish and megrim in Rockall.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

## **WGDEEP – Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources**

*Approved in November 2021*

2021/2/FRSG11      **Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP)**, chaired by Ivone Figueiredo, Portugal and Elvar Halldor Hallfredsson, Norway, will meet in Copenhagen, Denmark, 28 April-4 May 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups.
- b) Complete the development of Stock Annexes for all the stocks assessed by WGDEEP, based on the most recent agreed assessment.
- c) Update the description of deep-water fisheries in both the NEAFC Regulatory Area and ICES area(s) by compiling data on catch/landings, fishing effort (inside versus outside the EEZs, in spawning areas, areas of local depletion, etc.), and discard statistics at the finest spatial resolution possible by ICES Subarea and Division and NEAFC Regulatory Area. In particular, describe and prepare a first advice draft of any new emerging deep-water fishery with the available data in the NEAFC Regulatory Area.
- d) Continue work on exploratory assessments for deep-water species.
- e) Evaluate the stock status of stocks in Icelandic waters for the provision of annual advice in 2022.
- f) Evaluate the stock status of stocks for the provision of biennial advice due in 2022.

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

WGDEEP will report by 13 May 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

## **WGDIAD – Working Group on Science to Support Conservation, Restoration and Management of Diadromous Species**

*This resolution was approved in in October 2020*

2020/2/FRSG11      The **Working Group on Science to Support Conservation, Restoration and Management of Diadromous Species (WGDIAD)**, chaired by Dennis Ensing, UK (2021-2023), and Hugo Maxwell, Ireland (2022-2024) will meet by correspondence and annually at

the ICES ASCs in September 2021, 2022 and 2023 to work on ToRs and generate deliverables as listed in the Table below.

WGDIAD will report on the activities of each year to FRSG by 31 December of that year.

### Terms of Reference

- a) Collate and publish an inventory of working groups and international research programmes in the study of diadromous fish, as a framework to promote exchanging resources, approaches, and best practices;
- b) Provide a mechanism through which issues relating to diadromous fish species and their environment, including also aspects connected to estuarine and fresh water habitats used by these species, can be addressed and coordinated within the ICES science plan;
- c) Identify scientific needs and propose activities, including expert groups, theme sessions and symposia, to support the implementation of the Science Plan and the work of SCICOM and ACOM Experts Groups on diadromous species and review their outputs and list recommendations and/or conclusions;
- d) Assist FRSG and ICES to integrate important activities with those of other Expert Groups reporting to FRSG, other SGs and/or ACOM.

### ToR descriptors

ToR	DESCRIPTION	BACKGROUND	<a href="#">SCIENCE PLAN CODES</a>	DURATION	EXPECTED DELIVERABLES
a	Collate and publish an inventory of working groups and international research programmes in the study of diadromous fish, as a framework to promote exchanging resources, approaches, and best practices.	There is a need to coordinate and draw the various elements of ICES work together to support the management advice provided for multiple species of diadromous fish, particularly in delivering commitments under various regulations, including the EU-Habitats and Water Framework Directives, Data Collection Multi Annual Programme, and the EU Eel Regulation, but also in exchange of ideas, discussing different approaches, and promoting best practices.	1.4, 6.2, 5.2	Year 1, 2 and 3	Report of the WG and maintenance of a previously established network of diadromous fish experts.

b	Provide a mechanism through which issues relating to diadromous fish species and their environment, including also aspects connected to estuarine and fresh water habitats used by these species, can be addressed and coordinated within the ICES science plan.	WGDIAD brings together experts in the field of diadromous fish ecology, management, and conservation. Through the mechanism at the group's disposal the particular issues of diadromous fish management are addressed and coordinated in accordance with the ICES Science Plan.	6.2, 1.7, 1.9	Year 1, 2 and 3	Organise theme sessions, symposia or EGs. Liaise with experts of other EGs, and relevant sources outside ICES on issues relevant to diadromous fish, and report back on these activities in the annual report.
c	Identify scientific needs and propose activities, including experts groups, theme sessions and symposia, to support the implementation of the Science Plan and the work of SCICOM and ACOM Experts Groups on diadromous species and review their outputs and list recommendations and/or conclusions.	ICES is well placed to coordinate scientific activities which generate up to date information on the biology and ecology of diadromous species, threats to their status, including climate change, and advice on measures to be taken to restore habitats and ecosystems, and rebuild depleted populations.	3.2, 6.1, 5.2	Year 1, 2 and 3	Organise theme sessions, symposia or expert groups. Co-ordinate feedback from these sources for use in publications and CRR documents. Liaise with and support chairs of EGs and WKS to achieve their aims.
d	Assist FRSG and ICES to integrate important activities with those of other Expert Groups reporting to EPDSG, other and/or ACOM.	Issues relating to, for example, rare and data limited species are widely dispersed across the ICES Science plan. This group provides a focal point for both internal and external communication and reporting of new developments and concerns regarding SGs diadromous fish.	5.2, 5.1	Year 1, 2 and 3	Keep ICES abreast of important issues relating to Diadromous fish species and ensure these issues are communicated within the ICES community to relevant EGs and SGs.

### Summary of the Work Plan

Year 1	Coordinate scientific activities (theme sessions, symposia, EGs, CRRs and reports to FRSG)
Year 2	Coordinate scientific activities (theme sessions, symposia, EGs, CRRs and reports to FRSG)
Year 3	Coordinate scientific activities (theme sessions, symposia, EGs, CRRs and reports to FRSG)

## Supporting information

Priority	The Working Group will provide the mechanism to coordinate scientific activities relating to diadromous fish species and their environment in support of the ICES Science Plan. It will also permit ICES to respond fully to requests from NASCO and the EU/FAO/IUCN/CITES for scientific advice on management strategies, research needs and data deficiencies.
Resource requirements	Meeting facilities at the ASC in 2021-2023, including teleconferencing facilities
Participants	National representatives and other invited experts working with diadromous species
Secretariat facilities	Secretarial support for organisation of the meeting and preparation of the report.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	The proposal originates from FRSG but will have direct significance to ACOM for advice from WGNAS, WGBAST, and WGEEL in particular.
Linkages to other committees or groups	Besides FRSG, there are linkages to the SCICOM Steering Groups Ecosystem Observation, Human Activities, Pressures, and Impacts, and Ecosystem Processes and Dynamics and all Expert Groups working on issues of relevance for diadromous species in relation to improving scientific understanding and coordinating scientific activities.
Linkages to other organizations	NASCO, FAO, EIFAAC and GFCM, HELCOM, CITES, NPAFC.

### WGEEL – Joint EIFAAC/ICES/GFCM Working Group on Eels

*Approved in July 2022*

2022/2/FRSG12      The **Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)**, chaired by Jan-Dag Pohlmann, Thünen Institute, Germany, will meet, in a split meeting from 6–9 September (virtually) and 12 September–20 September in Toombridge, Northern Ireland to:

- a) Address the generic EG ToRs from ICES, and any requests from EIFAAC or GFCM;
- b) Report on developments in the state of the European eel (*Anguilla anguilla*) stock, the fisheries on it and other anthropogenic impacts;
- c) Report on updates to the scientific basis of the advice, including any new or emerging threats or opportunities;
- d) Identify and address Mediterranean-specific issues on European eel
- e) Implement the roadmap proposed by WKFEA

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

WGEEL will report by Date, 11 October 2022 for the attention of ACOM, WGDIAD, FRSG and FAO, EIFAAC and GFCM.

## Supporting Information

Priority	<ol style="list-style-type: none"> <li>1. The status of the European eel stock remains outside safe biological limits and continuing and further management actions are required to recover the stock.</li> <li>2. The present stock status assessment is based on recruitment time series, which have no predictive power and therefore cannot be used to identify the most effective way to recover the stock nor the time scale over which recovery might be achieved. Therefore, the development and application of further status assessment methods are urgently required. Therefore the findings of WKFEA require particular attention.</li> <li>3. The Council Regulation (EC) 1100/2007 obliges EU Member States to report national stock indicators, to take management measures and to report progress. Non-EU countries have no such legal obligation, but the same aspirations are necessary to provide a whole-stock assessment and management. The Working Group continues to provide EIFAAC, ICES and the GFCM countries with support in implementing and improving such actions.</li> <li>4. The EU has requested annually recurring scientific advice on the European eel. Specifically, for eel, the advice is sought in support of the Eel Regulation (EC 1100/2007).</li> </ol>
Scientific justification	<p>European eel life history is complex and atypical among aquatic species. The stock is genetically panmictic and data indicate random arrival of adults in the spawning area. The continental eel stock is widely distributed and there are strong local and regional differences in population dynamics and local stock structures. Fisheries on all continental life stages take place throughout the distribution area. Local impacts by fisheries vary from almost nil to heavy overexploitation.</p> <p>Other forms of anthropogenic mortality (e.g. hydropower, pumping stations) also impact on eel and vary in distribution and local relevance.</p> <p>Most but not all EU Member States reported quantitative estimates of the required stock indicators to the EU in 2012, 2015, 2018 and 2021. The reliability and accuracy of these data have not yet been fully evaluated, but the ICES WKEMP will examine this. Furthermore, the stock indicators of some non-European countries within the natural range are lacking.</p>
Resource requirements	SharePoint, WebEx
Participants	EIFAAC, ICES and GFCM Working Group Participants, Invited Country Administrations, Client representative
Secretariat facilities	Support to organize the logistics of the meeting.
Financial	At countries expense
Linkages to advisory committees	ACOM
Linkages to other committees or groups	WGDIAD, SCICOM, FRSG
Linkages to other organizations	FAO EIFAAC, GFCM, EU DG-MARE, EU DG-ENV

## WGEF – Working Group on Elasmobranch Fishes

*Approved in November 2021*

2021/2/FRSG13 The **Working Group Elasmobranch Fishes (WGEF)**, chaired by Jurgen Batsleer (Netherlands) and Pascal Lorance (France), will meet in Lisbon, Portugal, from 14–23 June 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups.

- b) Update the description of elasmobranch fisheries for deep-water, pelagic and demersal species in the ICES area and compile landings, effort and discard statistics by ICES Subarea and Division, and catch data by NEAFC Regulatory Area. Describe and prepare a first Advice draft of any emerging elasmobranch fishery with the available data on catch/landings, fishing effort and discard statistics at the finest spatial resolution possible in the NEAFC RA and ICES area(s);
- c) Evaluate the stock status for the provision of biennial advice due in 2022 for: (i) spurdog in the NE Atlantic; and (ii) skates in the Celtic Seas and Bay of Biscay and Iberian Coast ecoregions Conduct exploratory analyses and collate relevant data in preparation for the evaluation of other stocks (skate stocks in the North Sea ecoregion, the Azores and MAR; catsharks (Scyliorhinidae) in the Greater North Sea, Celtic Seas and Bay of Biscay and Iberian Coast ecoregions; smooth-hounds in the Northeast Atlantic and tope in the Northeast Atlantic) in preparation for more detailed biennial assessment in 2023;
- d) Collate landings and discard data from countries and fleets according to the ICES data call to follow recommendations from WKSHARK5 to: (i) address the following issues: data quality and onboard coverage; raising factors; discard retention patterns between fleets and countries; discard survival; (ii) advise on how to include discard information in the advisory process; and (iii) develop a coherent data-base for landings/discard information used in the assessments.
- e) Follow the outcomes of WSKKATE and to make the best use of survey indices in the assessments where appropriate.
- f) Further develop MSY proxy reference points relevant for elasmobranchs and explore/apply in MSY Proxies analyses for selected stocks;
- g) Further develop the ToR for the proposed joint ICCAT-ICES meeting in 20XX to (i) assess porbeagle shark and (ii) collate available biological and fishery data on thresher sharks in the Atlantic;
- h) Work intersessionally to draft/update stock annexes and then develop a procedure and schedule for subsequent reviews.

The assessments will be carried out on the basis of the stock annex in National Laboratories, prior to the meeting. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting as specified in the 2022 ICES data call must be available to the group no later than 14 days prior to the starting date.

WGEF will report by 12 August 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

### **WGHANSA – Working Group on Southern Horse Mackerel Anchovy and Sardine**

2021/2/FRSG14            The Working Group on Southern Horse Mackerel Anchovy and Sardine (WGHANSA), chaired by Leire Ibaibarriaga, Spain, will meet by correspondence 23–27 May 2022 (WGHANSA1) and in a venue tbd., on 21–25 November 2022 (WGHANSA2) to:

- a) Address generic ToRs for Regional and Species Working Groups for relevant stocks (hom.27.9a and anc.27.9a in WGHANSA1 and pil.27.7, pil.27.8abd, pil.27.8c9a, anc.27.8 and jaa.27.10a2 in WGHANSA2);

The assessments will be carried out on the basis of the Stock Annexes. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

WGHANSA1 will report by 30 May 2022 and WGHANSA2 will report by xx December 2022 for the attention of ACOM.

### **WGHARP – Joint ICES/NAFO/NAMMCO Working Group on Harp and Hooded Seals**

2021/2/FRSG15 *WGHARP has decided to cancel its 2021 meeting for the following reasons: There are no specific request for advice on harp and hooded seals this year and new seal abundance surveys will only take place in 2022; Experts are preparing a full benchmark meeting in 2022 and will be focusing in model development during 2021.*

*A new resolution will be submitted once meeting dates, location, and ToRs for 2022-2023 are agreed.*

### **WGMIXFISH-ADVICE – Working Group on Mixed Fisheries Advice**

2021/2/FRSG16 *Draft resolution not yet provided*

### **WGMIXFISH-METHODS – Working Group on Mixed Fisheries Advice Methodology**

2021/2/FRSG17 The Working Group on Mixed Fisheries Advice Methodology (WGMIXFISH-METHODS), chaired by Marc Taylor\*, Germany, and Harriet Cole\*, UK, will hold an hybrid meeting in Nantes, 20–24 June 2022, to:

- a) Continue the improvement of WGMIXFISH-ADVICE data call, data processing, workflow, auditing, updating associated documentation and increasing transparency;
- b) Respond to the outcomes of the Mixed Fisheries Scoping Meeting;
- c) Exploration of developments in methodology and advice;
- d) Respond to the outcomes and issues encountered during WGMIXFISH-Advice;
- e) Develop mixed fisheries models for sea regions not currently covered in the mixed fisheries advice;

WGMIXFISH-METHODS will report by 30 July 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group.*

## **Supporting information**

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Priority:	The work is essential to ICES to progress in the development of its capacity to provide advice on multispecies fisheries. Such advice is necessary to fulfil the requirements stipulated in the MoUs between ICES and its client commissions.
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Scientific justification and relation to action plan:	<p>The issue of providing advice for mixed fisheries remains an important one for ICES. The Aframe project, which started on 1 April 2007 and finished on 31 March 2009 developed further methodologies for mixed fisheries forecasts. The work under this project included the development and testing of the FCube approach to modelling and forecasts.</p> <p>In 2008, SGMIXMAN produced an outline of a possible advisory format that included mixed fisheries forecasts. Subsequently, WKMIXFISH was tasked with investigating the application of this to North Sea advice for 2010. AGMIXNS further developed the approach when it met in November 2009 and produced a draft template for mixed fisheries advice. WGMIXFISH has continued this work since 2010.</p>
Resource requirements:	No specific resource requirements, beyond the need for members to prepare for and participate in the meeting.
Participants:	Experts with qualifications regarding mixed fisheries aspects, fisheries management and modelling based on limited and uncertain data.
Secretariat facilities:	Meeting facilities, production of report.
Financial:	None
Linkages to advisory committee:	ACOM
Linkages to other committees or groups:	SCICOM through the WGMG. Strong link to STECF.
Linkages to other organizations:	This work serves as a mechanism in fulfilment of the MoU with EC and fisheries commissions. It is also linked with STECF work on mixed fisheries.

## WGNAM – Working Group on Northwest Atlantic Mackerel Ecology and Assessment

*This resolution was approved on the Resolution Forum in October 2019*

2019/2/FRSG33      A **Working Group on Northwest Atlantic Mackerel Ecology and Assessment** (WGNAM), chaired by Kiersten Curti, USA and Stephane Plourde, Canada, will work on ToRs and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2020	Tbd	tbd	Interim report by 30 Jun to Fisheries Resources Steering Group	First meeting postponed to 2022
<b>Year 2022</b>	<b>TBD</b>	<b>USA</b>	<b>Interim report by to Fisheries Resources Steering Group</b>	

Year 2023	TBD	Canada	Interim report by to Fisheries Resources Steering Group
Year 2024			Final report by to Fisheries Resources Steering Group

## ToR descriptors

TO R	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Develop and evaluate hypotheses for decline in recruitment of Atlantic mackerel and identify research approaches to evaluate these hypotheses	The biomass of the Northwest Atlantic Mackerel stock is low. One of the contributing factors is decreased recruitment. Hypotheses have been developed for the northern contingent, but these hypotheses have not been evaluated for the southern contingent. Further, the role of physical changes in the system, changes in movement patterns, changes in age-structure, and changes in reproductive dynamics have not been evaluated. This effort will take a holistic approach and consider evidence for a variety of recruitment hypotheses and then identify research approaches to evaluate the most promising ones.	1.8, 6.6	3 years	Review paper

b	Evaluate population structure of Atlantic mackerel and consider the impact of spatial structure on the population dynamics in the region.	Atlantic mackerel in the Northwest Atlantic have long been divided into a northern and southern contingents – definitions based on spawning areas and migratory patterns. The biological relationship between these two contingents is unclear. Population structure in small scombrids (including Northeastern Atlantic Atlantic mackerel) will be reviewed and new approaches identified to better understand population structure and migratory patterns in Northwestern Atlantic Atlantic mackerel.	5.2	3 years	Report to ICES on research to better define population structure.
c	Compare and contrast data collection programs and modeling used for Atlantic Mackerel in the Northwest Atlantic and identify data needs and research topics that could improve assessments.	The Atlantic Mackerel stock is assessed separately by both the U.S. and Canada. In recent years, there has been increased collaboration in developing assessments. Science supporting the two assessments will be compared including data and models. Data reviewed should include but not be restricted to fishery independent and dependent surveys, acoustics, reproductive, aging, and habitat. From this comparison, data needs and research questions will be identified to improve assessments in the future..	5.1	3 years	Review paper

## Summary of the Work Plan

Year 1	<b>THE WG WILL MEET AND ADDRESS EACH TOR.</b>
Year 2	The WG will review drafts of papers developed following the year 1 meeting
Year 3	The WG will complete the review papers and submit for publication. A final report will also be completed.

## Supporting information

Priority	To be completed.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group will be attended by some 5-10 members and guests..
Secretariat facilities	WebEx coordination may be requested.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	There are no obvious direct linkages but developing the expertise could link to ACOM in the future.
Linkages to other committees or groups	Interactions will be sought with WGMEGS and WGWIDE.
Linkages to other organizations	There are linkages to a number of organizations and institutions throughout North America

## WGNAS – Working Group on North Atlantic Salmon

*Approved in November 2021*

2021/2/FRSG18 The **Working Group on North Atlantic Salmon** (WGNAS), chaired by Dennis Ensing, UK, will meet at ICES HQ (*dates tbc*) to:

- a) Address relevant points in the Generic ToRs for Regional and Species Working Groups for each salmon stock complex;
- b) Address questions posed by NASCO:

### **1. With respect to Atlantic salmon in the North Atlantic area:**

- 1.1 provide an overview of salmon catches and landings by country, including unreported catches and catch and release, and production of farmed and ranched Atlantic salmon in 2021<sup>1</sup>;
- 1.2 report on significant new or emerging threats to, or opportunities for, salmon conservation and management<sup>2</sup>;
- 1.3 provide an update on the distribution and abundance of pink salmon across the North Atlantic and advise on potential threats to wild Atlantic salmon;
- 1.4 provide an overview of the East Greenland stock complex in terms of migration, stock composition, biological characteristics, historical landings, effort etc.;
- 1.5 provide a compilation of tag releases by country in 2021; and
- 1.6 identify relevant data deficiencies, monitoring needs and research requirements;

**2. With respect to Atlantic salmon in the North-East Atlantic Commission area:**

- 2.1 describe the key events of the 2021 fisheries<sup>3</sup>;
- 2.2 review and report on the development of age-specific stock conservation limits, including updating the time-series of the number of river stocks with established CLs by jurisdiction;
- 2.3 describe the status of the stocks, including updating the time-series of trends in the number of river stocks meeting CLs by jurisdiction;
- 2.4 provide catch options or alternative management advice for the 2022/2023 - 2024/2025 fishing seasons, with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding<sup>4</sup>; and
- 2.5 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

**3. With respect to Atlantic salmon in the North American Commission area:**

- 3.1 describe the key events of the 2021 fisheries (including the fishery at St Pierre and Miquelon)<sup>3</sup>;
- 3.2 update age-specific stock conservation limits based on new information as available, including updating the time-series of the number of river stocks with established CLs by jurisdiction;
- 3.3 describe the status of the stocks, including updating the time-series of trends in the number of river stocks meeting CLs by jurisdiction;
- 3.4 provide catch options or alternative management advice for 2022-2025 with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding<sup>4</sup>; and
- 3.5 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

**4. With respect to Atlantic salmon in the West Greenland Commission area:**

- 4.1 describe the key events of the 2021 fisheries<sup>3</sup>;
- 4.2 describe the status of the stocks<sup>5</sup>;
- 4.3 provide catch options or alternative management advice for 2022-2024 with an assessment of risk relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding<sup>4</sup>; and
- 4.4 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

**Notes:**

1. *With regard to question 1.1, for the estimates of unreported catch the information provided should, where possible, indicate the location of the unreported catch in the following categories: in-river; estuarine; and coastal. Numbers of salmon caught and released in recreational fisheries should be provided.*
2. *With regard to question 1.2, ICES is requested to include reports on any significant advances in understanding of the biology of Atlantic salmon that is pertinent to NASCO.*
3. *In the responses to questions 2.1, 3.1 and 4.1, ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch*

*in the following categories: in-river; estuarine; and coastal. Information on any other sources of fishing mortality for salmon is also requested. For 4.1, if any new surveys are conducted and reported to ICES, ICES should review the results and advise on the appropriateness of incorporating resulting estimates into the assessment process.*

4. *In response to questions 2.4, 3.4 and 4.3, provide a detailed explanation and critical examination of any changes to the models used to provide catch advice and report on any developments in relation to incorporating environmental variables in these models. Also provide a detailed explanation and critical examination of any concerns with salmon data collected in 2021 which may affect the catch advice considering the restrictions on data collection programmes and fisheries due to the COVID 19 pandemic.*
5. *In response to question 4.2, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions 2.3 and 3.3.*

WGNAS will report by 12 April 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group.*

## **WGNSSK – Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak**

*Approved in November 2021*

2021/2/FRSG19      **The Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK)**, chaired by Tanja Miethe, UK, and Raphaël Girardin, France, will meet in ICES HQ, Copenhagen, Denmark, 20–29 April 2022 and by correspondence in September 2022 to:

- a) Address generic ToRs for Regional and Species Working Groups.
- b) Assess Norway pout assessments by correspondence.
- c) Report on reopened advice as appropriate;

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group on the dates specified in the 2022 ICES data call.

WGNSSK will report by 13 May 2022, and by **XX** September 2022 (Norway pout) for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

## **WGTAFGOV – Working Group on Transparent Assessment Framework Governance**

*This resolution was approved 1 October 2019*

2019/2/FRSG19      **The Working Group on Transparent Assessment Framework Governance (WGTAFGOV)**, chaired by Nils Olav Handegard (Norway) will be established and will meet 4 times per year via WebEx and may meet physically once per year, to work on ToRs and generate deliverables as listed in the Table below.

	<u>WEBEX Meeting dates</u>	<u>Meeting dates and Venue</u>	<u>Reporting details</u>	<u>Comments (change in Chair, etc.)</u>
<b>Year 2020</b>	1) 13 Feb 2) 14 May 3) 13 Aug 4) 12 Nov	31 January, ICES HQ, Copenhagen	Interim business report by 26 November to FRSG	
<b>Year 2021</b>	1) 8 March 2) XX May (didn't happen) 3) XX Aug (didn't happen) 4) 24 Nov	Online	Interim business report by TBD to FRSG	
<b>Year 2022</b>	1) 28 Jan 2) 12 May 3) 11 Aug 4) 10 Nov	Online	Final business report by 24 Nov to FRSG	

WGTAFGOV will report on its activities by 26 November to ACOM, SCICOM, FRSG and DIG.

### ToR descriptors

<b>ToR</b>	<b>Description</b>	<b>Background</b>	<b>Science Plan codes</b>	<b>Duration</b>	<b>Expected Deliverables</b>
<b>a</b>	Develop a governance framework setting out a forward looking plan, including future and existing objectives of TAF, responsibilities, processes and resources.	In order to successfully develop and maintain a workplan for TAF it is necessary to first establish a vision for the future of TAF, supported by guidance on handling of feedback, task prioritisation and expected resource availability.		3 years/ Generic ToR	The WGTAFGOV manifesto: a mission statement on the direction of TAF development and overarching short to medium term goals. Guidelines on how to prioritise. Definition of resources available. Definition of responsibilities.
<b>b</b>	<i>Based on the guidance established in ToR A:</i> Provide a channel for user feedback to the Transparent Assessment Framework. Feedback will be compiled by WGTAFGOV and appropriate actions to be taken with assigned responsibilities and resource	TAF should develop to meet the requirements of a broad range of users and thus needs to be responsive to user feedback,. Feedback will be collected and organised using GitHub and the traditional recommendations system from ICES reports.		3 years/ Generic ToR	A GitHub site allowing users to submit feedback and requests. Provide an annual workplan, with an agreed and prioritised list of TAF related EG recommendations along with suggested resource allocations, budget estimates

	requirements will be listed and prioritised.	To achieve a long-term stability, availability and quality, TAF development requires a workplan with clear objectives and milestones. This can only be successfully implemented when resource requirements have been estimated and the availability of resources is known.		and feasibility estimates.
<b>c</b>	<i>Using the guidance established in ToR A and the feedback captured in ToR B:</i> Oversee and advise on the interpretation and prioritisation of recommendations and requests addressed to the Transparent Assessment Framework.	The project planning cycle needs to be responsive (more than one meeting a year) in order to manage the TAF development effectively. Although there is an annual plan, short term priorities must be evaluated against resource availability and needs of the ICES advice processes that vary through the year.	3 years/ Generic ToR	Establish and maintain a project board on GitHub to manage tasks. Review project plan and agree on tasks to be completed. Review new tasks for addition to the workplan, or for consideration for the next annual workplan.
<b>d</b>	Oversee development of user guidance and training for the Transparent Assessment Framework.	As TAF develops over time a range of users will require various levels of training including step by step user manuals, tutorials and workshops. Documentation of guidelines and procedures will also be necessary. Outreach activities will be required.	3 years/ Generic ToR	Annually updated training documentation. Workshops with specific goals proposed and planned where necessary. Relevant fora for dissemination investigated and outreach activities planned.

## Summary of the Work Plan.

<b>Year 1</b>	First meeting to establish ToRs a) and b) will be a physical meeting to be followed by quarterly WebEx meetings dealing with ToR c) and d). DIG will aid in review of ToR a).
<b>Year 2</b>	ToRs c) and d) will be addressed in quarterly WebEx meetings, with the potential annual meetings for prioritising ToRs a and b).
<b>Year 3</b>	ToRs c) and d) will be addressed in quarterly WebEx meetings, with the potential annual meetings for prioritising ToRs a and b).

## Supporting information

<b>Priority</b>	High priority.
<b>Resource requirements</b>	A commitment of time from the members of the group consistent with progressing actions identified in the quarterly meetings.
<b>Participants</b>	ACOM Leadership and FRSG representative, one member each representing survey data, commercial data and stock assessments. Members with an overview of stock assessment results. ICES Secretariat and other related EG members as need be.
<b>Secretariat facilities</b>	Community Sharepoint site, remote meeting facilities.
<b>Financial</b>	No financial implications.
<b>Linkages to ACOM and groups under ACOM</b>	This is an integral component to the overall Quality Assurance Framework (of Advice) that ACOM together with the Coordination group are describing.
<b>Linkages to other committees or groups</b>	There is a strong linkage to DIG as the main umbrella for data/software governance structures.
<b>Linkages to other organizations</b>	DFO and NOAA have expressed interest in the system.

## WGTRUTTA – Working Group with the Aim to Develop Assessment Models and Establish Biological Reference Points for Sea Trout (*Anadromous Salmo trutta*) Populations

*This resolution was approved on the Resolution Forum in June 2020*

**2019/2/FRSG20** The **Working Group to develop and test assessment methods for Sea trout populations (anadromous *Salmo trutta*) (WGTRUTTA)**, chaired by Johan Höjesjö, Sweden, and Alan Walker, UK, will work on ToRs and generate deliverables as listed in the Table below.

The WG's 3-year term will run from June 2020 to May 2023.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2020	15-18 June	online meeting		Start-up meeting, learning lessons from WG1, preparing detailed workplan with roles & responsibilities, milestones & deliverables
Year 2021	19-21 January	Online meeting		Mid-year progress review and workshop
	29 June – 1 July	Online meeting	Interim report by 1 October	Review progress in year 1 and plans for years 2 & 3
Year 2022	DATE February	Dublin/Newport, Ireland		Mid-year progress review and workshop
	DATE July	online meeting	Interim report by 1 October	Review progress in Year 2 and plans for year 3
	DATE December	Rennes, France		Mid-year progress review and workshop
Year 2023	DATE May	online meeting		Draft the Final Report and consider a further term
	DATE October	Lisbon, Portugal	Final report by 1 October	Submit the Final Report

### ToR descriptors

ToR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
A	Describe the life history drivers and distribution of sympatric sea and freshwater trout populations	The trout life cycle is highly variable over space and time, which renders assessment and management challenging. Our understanding of ecological patterns in trout phenology, life history and distribution across large scale environmental gradients is far from complete but is a prerequisite to improving sea trout management.	5.2	3 years	<p>A1. Fully establish the sea trout database, its population with data from all involved countries, and its preparation for inclusion as one of the official ICES databases.</p> <p>A2. Define a sub-set of variables for trout life history and habitat characteristics accounting for the between-stocks variances, for identifying key index rivers and for targeting stock-</p>

				recruitment and state models.
				A3. Investigate trout distribution within rivers as a function of abiotic and biotic habitat characteristics.
				A4. Quantify the importance of anadromy for trout populations.
B	Quantify the external pressures on trout populations in formats necessary to understand the state of local populations	Knowledge of the ecology of trout is limiting our ability to understand the consequences for trout populations of the rapidly increasing natural, anthropogenic, additive and cumulative impacts on aquatic environments.	2.1, 2.5, 5.6 3 years	B1. Describe the current and potential future impacts of natural and anthropogenic impacts on trout populations. B2. Make recommendations for unified and standardized protocols for sampling trout, characterizing habitats and calibrating for extrapolations across the natural range. B3. Describe situations outside the Baltic where sea trout stocks may be exploited or otherwise impacted at an international scale.
C	Develop a toolbox of methods to assess stock and population state, based on a suite of options, and suitable for a range of scenarios found across the natural range of the sea trout.	The WG (2017-2019) developed approaches for assessing the state of trout populations, including (i) stock-recruitment models using metrics from various life stages by applying several curve fitting approaches to 'data rich' stocks with data from counts, returning stock estimates, catches, and juvenile abundance surveys, and (ii) length-based indicators using index	3.2, 3.3, 6.1. 3 years	C1. Examine the S/R models from WG (2017-2019) in terms of transfer functions, types and amounts of data required for setting BRPs, additional data and better and standardized reporting of catches. C2. Examination of the opportunities to develop regional versions of the Trout Habitat Score (THS)

	<p>catchments, to demonstrate state and identify where pressures may have had an impact; (iii) extended the application of the Trout Habitat Scores (THS); and collaborated on development of a theoretical Bayesian Population Dynamics Model for Baltic sea trout. These all require further development and testing with novel data and situations in order to advance them to a toolbox for managers and other stakeholders.</p>		<p>process across the native range of sea trout.</p> <p>C3. Develop the Bayesian model of sea trout</p> <p>C4. Develop and propose a data collection framework to support LBI type analysis of pressures on stocks, liaising with EU Regional Coordination Groups.</p> <p>C5. Define the methods for the forecast of catches that would be consistent with the ICES application of the precautionary approach and, in case it is desired, MSY,</p>
<p>D Develop solutions to achieve sustainable governance of trout stocks</p>	<p>Sustainable use and management of the anadromous sea trout is challenging for many reasons including because the fish use multiple environments and are subject to a variety of impacts and stressors, migrating across different ecological and legislative borders. In many European countries, sea trout fishers are not registered or licenced, and knowledge of effort and catch is insufficient or lacking. Knowledge of non-fishery impacts is even more data-poor.</p> <p>To effectively conserve the varied and multiple contributions from sea trout to society, social scientific knowledge must complement ecology. Economic valuation studies can clarify how the public, including participants and non-participants of sea trout fishing, benefit from and value sea trout. This may</p>	<p>7.1, 7.4, 7.7 3 years</p>	<p>D1. Describe the key ecological, social and economic management objectives for sea trout fisheries across the natural range, to identify the target audience requirements.</p> <p>D2. Define conservation reference points to ensure stock sustainability consistent with the precautionary approach.</p> <p>D3. Establish what level of socio-economic risk (uncertainty) is acceptable to fisheries managers in setting management reference points.</p> <p>D4. Explore and evaluate management strategies conducive to meeting socio-economic goals</p>

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vary spatially between fisheries (e.g. between countries) and, moreover, is likely affected by different regulation regimes between regions. Comparative studies of governance across countries and levels can identify “best practice” and learning across jurisdictions.

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while ensuring the biological sustainability of the stocks.

### Summary of the Work Plan

Over the 3-year period, there will be 8 meetings, though some will be face-to-face whereas others will be by webex – the WG will only meet by webex in 2020, and will use webex as much as possible to minimise travel.

Meetings will address: a start-up meeting to agree the work plan with roles and responsibilities; annual review and planning meetings at the end of years 1 and 2; interim workshops in years 1, 2 and 3 focussing on specific tasks; a meeting to specifically draft the final report and a final meeting to submit the Final Report.

Subgroups will work on the ToRs between these meetings with regular contact through email and/or webinars. Most of the work regarding deliverables for the different ToRs will be planned and performed in parallel.

All four ToR will be launched at the onset of the working group and be delivered in parallel throughout the three-year term. However, given that ToR D requires expertise on socio-economics that is not within the existing membership but is available through other ICES working groups, we propose to carry out this ToR as a separate workshop under its own resolution in 2021/22.

### Supporting information

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Priority	The inclusion of sea trout and other diadromous fish in EU policy areas including the CFP and Marine Strategy Framework Directive means that it is important to improve the methods currently available to managers to assess the status of stocks and investigate the effects of management actions. The final report and recommendations will guide both individual countries in making progress on sea trout assessment and management and will steer ICES on the best next steps for sea trout science, assessment and advice.
Resource requirements	The research programmes which provide the main inputs to this group are already underway, and resources are already committed. The additional resource from ICES required to undertake additional activities in the framework of this group is only Secretarial support (see below).  A proposal has been submitted for an International Training Network (ITN) of PhDs on subjects contributing to the general aims of the WGTRUTTA and, if successful, this will significantly enhance resourcing of delivery. However, core delivery does not depend on this ITN support.
Participants	The Group is normally attended by some 15-20 members and guests.
Secretariat facilities	Standard support to EG.

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Financial	No financial implications.
Linkages to ACOM and groups under ACOM	Links to ACOM, FRSG, WGBAST who provide advice on Baltic sea trout, and WGDIAD regarding diadromous fish stocks, life histories, threats and sustainable use of the resource.
Linkages to other committees groups	The activities of this group will take forward the developmental work of WGTRUTTA, testing the implementation of assessment methods, and addressing key knowledge gaps. Links will be fostered with the The Working Group on Cumulative Effects Assessments in Management (WGCEAM). This work will be closely associated with the ICES Ecosystem Observation Steering Group (EOSG) and by incorporating ToR D we will also link with the ICES Human Activities, Pressures and Impacts Steering Group (HAPISG) and any future work of the IEASG-WGSOCIAL. Working Group on Social Indicators.
Linkages to other organizations	Links to the EU Commission and the Data Collection Framework / EU_Multi-annual Plan (MAP), and to the associated InterSessional Sub-Group (ISSG) on Diadromous Species. Links to the EU-funded research projects of SAMARCH (Interreg: France, England); RETROUT (European Regional Developmental Fund); MARGEN II (Interreg: Sweden, Denmark, Norway).

## **WG WIDE – Working Group on Widely Distributed Stocks**

*Approved in November 2021*

2021/2/FRSG20            The **Working Group on Widely Distributed Stocks (WG WIDE)**, chaired by Andrew Campbell, Ireland, will meet 24–30 August 2022 in ICES HQ in Copenhagen to:

- a ) Address generic ToRs for Regional and Species Working Groups.

The assessments will be carried out on the basis of the stock annex. The assessments must be available for audit on the first day of the meeting.

Material and data relevant for the meeting must be available to the group no later than 14 days prior to the starting date.

WG WIDE will report by 2 September 2022 for the attention of ACOM.

*Only experts appointed by national Delegates or appointed in consultation with the national Delegates of the expert's country can attend this Expert Group*

## **WKEVUT – Workshop to Evaluate the Utility of Industry-derived data for enhancing scientific knowledge and providing data for stock assessments**

*This resolution was approved on the Resolutions Forum in October 2021*

2021/2/FRSG21            The **Workshop to Evaluate the Utility of Industry-derived data for enhancing scientific knowledge and providing data for stock assessments (WKEVUT)**, co-chaired by Martin Pastoors (PFA, Netherlands) and Els Torrele (ILVO, Belgium), will be established and will meet online 4-6 April 2022, to:

- a ) Compile an overview of previous, current and planned industry self-sampling initiatives within the ICES regions and describe those initiatives in terms of aim,

scope, sampling approach, guidelines, quality check, data reporting and data utilization for science and advice.

- b) Using specific case examples (e.g. herring, mackerel, demersal species and nephrops), to compare industry self-sampling data with data collected from National Data Collection Programmes for the purpose of understanding the added value in terms of quality, ecological understanding and utility for stock assessment and research.
- c) Mapping and assessing potential benefits and/or drawbacks of different methodologies in self-sampling data, e.g. sensor data, scanner data, camera data, catch sampling data, bycatch data, biological data, environmental data, for utilization in ICES i.e. where additional self-sampling for certain stocks is valuable (end-user need based). The output from the RCGs (i.e. ISSG on Regional overviews of fisheries and sampling) will be used to support this.
- d) Write a scientific publication based on the analyses and output from this WK.

WKEVUT will report by 4 May 2022 for the attention of the ACOM and SCICOM Committees.

## Supporting information

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Priority	This workshop arises as a recommendation from the Workshop on Industry-Science Initiatives (ICES 2019). The purpose is to test the quality and utility of new data derived from industry-science data collection or sole industry initiatives by comparing it with existing data collected under national data collection programs and routinely used by ICES in stock assessment or for other research and advisory purposes. It is a high priority for ICES to be able understand the value of new streams and what it implies for the processes to incorporate and apply them in future work.
Scientific justification:	ToR a Data comparisons are an important method for validation and checking the quality of information, and also for revealing new scientific insights. New data streams from industry data collection initiatives are yet to be tested in terms of the quality and their utility for applications in stock assessment and research. Under ToR a, a broad overview will be compiled of previous, current and planned industry self-sampling initiatives within the within the ICES regions, including their ambitions, setup, quality control procedures and applications for science and advice. An output of this exercise will also be a list of stocks for which standard data collection is available, which have self-sampling data available and what quality checks are performed. There will be looked if these data are useable for scientific applications, do they have an added value to the stock assessment and if no, what need to be improved or changed to the self-sampling to achieve usable data.  ToR b This workshop will use specific case examples from pelagic and demersal fisheries to compare industry-derived data with existing data collected under routine national data collection programmes. The choice on examples used will be based on the data available and the corporation that already exists between the science and the industry for the specific data collection (ex. silver smelt, sole 7a, ...). It is anticipated that comparisons will help contribute to transparency, traceability and the quality assurance process for new data sources intended for use in ICES. It should also at the same time reveal some new scientific understanding of the biological diversity in stocks and how it changes over time.  ToR c Building on the results of ToR a and b , and taking into account the findings of the Workshop on Data Guidelines and Standards 2020, an evaluation of potential benefits and/or drawbacks of different types of self-sampling data will be carried out. Additionally, in corporation with the Regional Coordination Groups, the workshop will look what information and scripts from the <i>ISSG on Regional overviews of fisheries and sampling</i> can give

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	input and guidance where self-sampling for certain stocks is valuable to introduce or to expand in certain regions.
	ToR d Results from the work will be prepared for scientific publication.
Resource requirement	The workshop requires an appropriate venue that is conveniently suited to the participants. The workshop is preferably held with on premise participation, but could, if needed, also be carried as a hybrid meeting (physical and online attendance). The meeting could potentially be held in Copenhagen, Denmark
Participants	15-30 participants are expected. Data analysts involved in design of data collection programs, quality assurance, submission and use of data in stock assessments. Include the stock coordinators/ assessors for each for each of the case examples
Secretariat facilities	ICES HQ support
Financial	No financial implications.
Linkages to advisory committees	ACOM supports the recommendation from WKSCINDI to organise this workshop, which is closely aligned with recommendation 7 from WKRRMAC.
Linkages to other committees or groups	This work is a follow up from the Workshop on Data Standards and Guidelines (WKDSG 2020). There is strong affiliation to stock assessment groups and in particular the process of benchmark workshops. It is important to have relevant experts for each of the case studies. In particular, HAWG, WGWISE, WGNSSK, WGCSE and others. It is also very relevant to WGQUALITY, DIG, WGRDBESGOV, the Benchmark Oversight Group (BOG) and Regional Coordination Groups (RCGs).
Linkages to other organizations	

## WKELASMO – Benchmark Workshop for selected elasmobranch stocks

*This resolution was approved on the Resolutions Forum in October 2021*

2021/2/FRSG22                    A **Benchmark Workshop for selected elasmobranch stocks** (WKELASMO), chaired by External Chair Manuela Azevedo\*, Portugal, and ICES Chair Alain Biseau\*, France, and attended by two invited external experts Enric Cortés USA, and Jan Jaap Poos, Netherlands, will be established and will meet online 29 November - 3 December 2021 for a data evaluation meeting and in Nantes, France and online, for a Benchmark meeting 26–29 April and 5 May 2022 to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the stocks listed in the text table below. The evaluation shall include consideration of:
  - i. Stock identity and migration issues;
  - ii. Life-history data.

- iii. Review current sampling levels and adjust stratification levels for landings and discards accordingly;
  - iv. Inclusion of recent scientific fishing surveys not yet considered in the assessment;
  - v. Examine alternative assessment models to the current model;
  - vi. Explore impact of all tuning fleets on assessment estimates;
  - vii. Further considerations of environmental drivers, multi-species information, and ecosystem impacts for stock dynamics in the assessments and outlook;
  - viii. Examine mixed fisheries interaction;
- b) Agree and document the most appropriate method for evaluating stock status and (where applicable) short term forecast and update the stock annex as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated in the methodology where possible. If no analytical assessment method can be agreed, then an alternative method for providing advice (ideally one of the WKLIFE X (<https://doi.org/10.17895/ices.pub.5985>) methods) should be put forward;
- c) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see Technical document on reference points);
- d) Develop recommendations for future improvements of the assessment methodology and data collection;
- e) As part of the evaluation:
- i) Conduct a 5-day data evaluation workshop. Stakeholders are invited to contribute data (including data from non-traditional sources) and to contribute to data preparation and evaluation of data quality. As part of the data compilation workshop, consider the quality of data including discard and estimates of misreporting of landings;
  - ii) Following the Data evaluation, produce working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting.

WKELASMO will report by 19 May 2022 for the attention of ACOM.

<b>Stocks</b>	<b>Stock leader</b>
por.27.nea	Gérard Biais
rjc.27.8	Pascal Lorange
rju.27.7de	Loïc Baulier
rjn.27.678abd	Pascal Lorange

## WKMSSEDEV – Workshop on MSE development

*This resolution was approved on the Resolution Forum in September 2019. The meeting was postponed from 2019 to 2020. UPDATE: Meeting postponed till 2022 to ensure a physical meeting can be held (dates tbd).*

2019/2/FRSG29 The **Workshop on MSE development (WKMSSEDEV)**, chaired by Daniel Howell\*, Norway, will be established and meet from **xx-xx Month 2022** at ICES HQ, Copenhagen, Denmark to:

- a) Allow developers to compare the different MSE tools under development in different regions around the world
- b) Identify areas where collaboration between development teams could be beneficial.
- c) Produce a catalogue of different MSE tools available, with the different areas of emphasis described for each.

WKMSSEDEV will report by **xx Month 2022** for the attention of FRSG and ACOM.

## Supporting information

Priority	The
Scientific justification	<p>Term of Reference a) Multiple tools for conducting Management Strategy Evaluations (MSEs) / Harvest Control Evaluations are in use and under development around the world. However, there is limited visibility of these tools outside their specific geographic area of use. It is likely that this isolation is resulting in much duplication of effort and giving greater possibilities for errors than a more collaborative approach would imply.</p> <p>Term of Reference b) Different MSE tools have been developed with different aims in mind (data rich, data poor, socio-economic,...), but there is limited visibility outside the geographic area that these tools have been applied to. Such a catalogue would both enable those contemplating running a MSE to be aware of existing tools that might aid them, and allow developers to identify and contact researchers with experience in specific topics.</p> <p>Term of Reference c) By having the development teams of a range of MSE tools in one place, it will be possible to compare the different tools, and identify the extent to which collaboration is possible. Specifically, the meeting will aim to produce guidelines about a common set of outputs, which would allow for greater transparency between MSE exercises, as well as making reviews easier.</p> <p>Term of Reference d) Produce a short document with MSE design and debugging tips based on the experiences of the MSE developers attending the meeting.</p>
Resource requirements	The research programs developing these MSE tools are under way, the only requirement is to provide a forum to allow the developers to share experiences
Participants	Those directly involved in developing MSEs.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	This would have an indirect link to ACOM, but there are no obvious direct linkages.

Linkages to other committees or groups	WKG MSE2, Fisheries Resources Steering Group
Linkages to other organizations	This would link to work going in other fisheries institutes and jurisdictions (for example NOAA in the US, UBC in Canada, Maram in South Africa).

## WKNSCS – Benchmark Workshop for fish stocks in the North Sea and Celtic Sea

*Approved in November 2021*

2020/2/FRSG23      **A Benchmark Workshop for fish stocks in the North Sea and Celtic Sea 2022** (WKNSCS), chaired by External Chair Daniel Duplisea (Canada)\* and ICES Chair Gudmundur Thordarson, (Iceland)\*, and attended by two invited external experts Kristiina Hommik (Estonia)\*, and Vanessa Trijoulet, (Denmark)\* will be established and will meet online 22-24 November 2021 for a data evaluation meeting and at ICES HQ, Copenhagen, Denmark and online, for a 5-day Benchmark meeting 7–11 February 2022 to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the stocks listed in the text table below. The evaluation shall include consideration of:
  - i) Stock identity and migration issues;
  - ii) Life-history data. For sole, fluctuations in mean weights at age will be explored;
  - iii) Review current sampling levels and adjust stratification levels for landings and discards accordingly;
  - iv) Examine alternative assessment models to the current model
  - v) Explore impact of all tuning fleets on assessment estimates;
  - vi) Further consideration of environmental drivers, multi-species information, and ecosystem impacts for stock dynamics in the assessments and outlook;
  - vii) Examine mixed fisheries interaction;
- b) Agree and document the most appropriate method for evaluating stock status and (where applicable) short term forecast and update the stock annex as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated in the methodology where possible. If no analytical assessment method can be agreed, then an alternative method for providing advice (the former method, or following the ICES data-limited stock approach; ideally one of the WKLIFE X methods (<https://doi.org/10.17895/ices.pub.5985>; Annex 3)) should be put forward;
- c) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see Technical document on reference points);
- d) Develop recommendations for future improvements of the assessment methodology and data collection;
- e) As part of the evaluation:
  - i) Conduct a 3-day data evaluation workshop. Stakeholders are invited to contribute data (including data from non-traditional sources) and to contribute to data preparation and evaluation of data quality. As part of the data compilation workshop consider the quality of data including discard and estimates of misreporting of landings;
  - ii) Following the Data evaluation, produce working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting.

WKNSCS will report by 7 March 2022 for the attention of ACOM.

Stocks	Stock leader
cod.27.7a	Pia Schuchert
ple.27.7fg	Vladimir Laptikhovsky
had.27.46a20	Harriet Cole
ple.27.4	Chun Chen
her.27.6a7bc	Afra Egan

## WKPRAWN – Benchmark Workshop on Pandalus stocks

*This resolution was approved on the Resolutions Forum 15 October 2021*

2021/2/FRSG24                    A **Benchmark workshop for pandalus stocks** (WKPRAWN), chaired by External Chair Colm Jordan, Ireland, and ICES Chair Johan Lövgren, Sweden, and attended by two invited external experts Ewen Bell, UK, and Coílín Minto, Ireland, will be established and will meet online for a five-day data evaluation workshop 18–22 October 2021 and a hybrid five-day benchmark workshop 24–28 January 2022 to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the stocks listed in the text table below. The evaluation shall include consideration of:
  - i. Life-history data;
  - ii. Fishery-dependent and fishery-independent data;
  - iii. Further consideration of environmental drivers, multispecies information, and ecosystem impacts for stock dynamics in the assessments and outlook
- b) Agree and document the most appropriate method for evaluating stock status and (where applicable) short-term forecast and update the stock annex as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated in the methodology. A full suite of diagnostics (regarding data, retrospective behaviour, model fit etc.) should be examined as a whole to evaluate the appropriateness of any model developed and proposed for use in generating advice.

If no analytical assessment method can be agreed, then an alternative method for providing advice (ideally one of the WKLIFE X (<https://doi.org/10.17895/ices.pub.5985>) methods) should be put forward;

- c) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see Technical document on reference points)).
- d) Draft Stocks annexes as part of the benchmark outcomes.
- e) Develop recommendations for future improvements of the assessment methodology and data collection;
- f) As part of the evaluation:
  - i) Conduct a 5 day data compilation workshop (DCWK). Stakeholders are invited to contribute data (including data from non-traditional sources) and to contribute to data preparation and evaluation of data quality. Data,

particularly catch information, should be collated as far back in time as possible. As part of the data compilation workshop consider the quality of data including discard and estimates;

- ii) Following the DCWK, produce working documents to be reviewed during the Benchmark workshop at least 7 days prior to the workshop.

The Benchmark Workshop will report by 18 February 2022 for the attention of ACOM.

Stock	Assessment Lead
<b>pra.27.3a4a</b> – Northern shrimp ( <i>Pandalus borealis</i> ) in divisions 3.a and 4.a East (Skagerrak and Kattegat and northern North Sea in the Norwegian Deep)	Mikaela Bergenius; Max Cardinale
<b>pra.27.1-2</b> – Northern shrimp ( <i>Pandalus borealis</i> ) in subareas 1 and 2 (Northeast Arctic)	Carsten Hvingel; Fabian Zimmerman
Northern shrimp ( <i>Pandalus borealis</i> ) on the Flemish Cap ( <b>NAFO Div. 3M</b> )	José Miguel Casas

#### **WKCAPELIN 2022 – Benchmark workshop on capelin (*Mallotus villosus*)**

*Please note: reb.27.5a14 – Beaked redfish East of Greenland Icelandic slope stock (originally together with two capelin stocks in this benchmark formerly named WKREDCAP) has moved to the upcoming 2023 benchmark WKNORTH 2023.*

2021/2/FRSG25 A **Benchmark workshop on capelin (*Mallotus villosus*)** (WKCAPELIN 2022), chaired by Hannah Murphy\*, Canada, and Daniel Howell\*, Norway, and attended by invited external experts Juan Gil\*, Spain and **TBD**, will be established and meet online on 30 November–2 December 2021 for a data compilation workshop (DCWK), and meet in-person (with an online option) at MFRI, Hafnarfjörður, Iceland on 21–25 November 2022 for a benchmark meeting. Dates **TBD** for a Harvest Control Rule evaluation meeting. WKCAPELIN 2022 will work to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short-term outlook taking agreed or proposed management plans into account for the stocks listed in the text table below. The evaluation shall include consideration of:
  - i. Stock identity and migration issues;
  - ii. Life-history data;
  - iii. Fishery-dependent and fishery-independent data;
  - iv. Further inclusion of environmental drivers, multispecies information, and ecosystem impacts for stock dynamics in the assessments and outlook;
- b) Agree and document the preferred method for evaluating stock status and (where applicable) short-term forecast and update the stock annex as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated into the methodology. If no analytical assessment method can be agreed, then an alternative method (the former method, or following the ICES data-limited stock approach) should be put forward;

- c) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see ICES Technical Guidelines on reference points);
- d) Develop recommendations for future improvement of the assessment methodology and data collection;
- e) As part of the evaluation:
  - i. Conduct a three-day data compilation workshop (DCWK). Stakeholders are invited to contribute data (including data from non-traditional sources) and to contribute to data preparation and evaluation of data quality. As part of the data compilation workshop consider the quality of data including discard and estimates of misreporting of landings;
  - ii. Following the DCWK, produce working documents to be reviewed during the Benchmark meeting at least seven days before the meeting;
- f) Evaluate whether the current harvest control rules are precautionary in light of potential acceptance of alternative model formulations and reference points from the benchmark.

Stock or issue	Stock category and methods
<a href="#">cap.27.2a514</a> – Capelin ( <i>Mallotus villosus</i> ) in subareas 5 and 14 and Division 2.a west of 5°W (Iceland and Faroes grounds, East Greenland, Jan Mayen area)	1 – HCR based on survey SSB estimates.
<a href="#">cap.27.1-2</a> – Capelin ( <i>Mallotus villosus</i> ) in subareas 1 and 2 (Northeast Arctic), excluding Division 2.a west of 5°W (Barents Sea capelin)	1 – HCR based on survey SSB estimates.

WKCAPELIN 2022 will report by **TBD** 2022 for the attention of the Advisory Committee.

## WKREF2 – Workshop on ICES reference points

*This resolution was approved on the Resolution Forum in June 2021*

2021/2/FRSG26 The **Workshop on guidelines for reference points** (WKREF2) chaired by Colm Lordan\*, Ireland and Rishi Sharma\*, Italy, will meet as a hybrid meeting online and in ICES, 11-13 January 2022 to:

- a) Review the outcome of the Workshop on ICES reference points (WKREF1).
- b) Based on the outcome of WKREF1, develop best practice guidelines on the estimation of reference points with worked examples.
- c) Develop recommendations for ACOM on a simplified and harmonised set of guidelines for estimating MSY and precautionary reference points applicable in the advice framework across various ICES stock categories.

WGREF2 will report by 15 February 2022 for the attention of the Advisory Committee.

## Supporting information

Priority	High
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Scientific justification	<p>WKREF1 will propose a range of candidate methods to define and estimate reference points based on best available science which are appropriate to the ICES advisory framework and end user needs. WKREF2 will explore these methods in more detail by applying them to a range of ICES stocks and where possible also simulation testing the methods.</p> <p>Based on these worked examples the WK will make recommendations to ACOM on reference points guidelines.</p> <p>In relation to b) the worked examples will need to be clearly documented in TAF for the community to use in the future.</p>
Resource requirements	One meeting room at ICES HQ with at least one breakout room and facilities for online participation.
Participants	Scientists with experience and interest in reference points definition and estimation procedures from inside and also from outside the ICES area.
Secretariat facilities	Secretariat administrative, scientific and TAF support.
Financial	No financial implications.
Linkages to advisory committees	The results of this work will directly feed the ICES advisory process.
Linkages to other committees or groups	HAWG, WKG MSE3, WGWIDE, WGBFAS, WGCSE, WGNSSK, NWWG, AFWG, WGHANSA
Linkages to other organizations	All advice recipients having an interest in ICES reference points.

## WKRRCCSS – Workshop on a Research Roadmap for Channel and Celtic Seas sprat

*This resolution was approved on the Resolutions Forum 2 June 2021 – new dates announced 16 May 2022 on the Resolutions Forum*

2021/2/FRSG27 A **Workshop on a Research Roadmap for Channel and Celtic Seas sprat (WKRRCCSS)** will be established (Co-Chairs: Cormac Nolan\*, Ireland and Campbell Pert\*, UK (Scotland)) and will meet in Galway, Ireland, and online (hybrid meeting) 12–14 September 2022 to:

- a) Identify methods and data available for the identification of sprat stock boundaries in the Channel and Celtic Seas.
- b) Identify and prioritise potential and existing data sets (including environmental parameters), and assessment methods of utility for these sprat stocks.
- c) Identify the advice needs of fisheries managers and stakeholders for sprat in the Channel and Celtic Seas.
- d) Produce a roadmap for the delivery of the future research needed to underpin the scientific advice on management of the sprat fisheries in the Channel and Celtic Seas.

WKRRCCSS will report by **28 September 2022** for the attention of ACOM, FRSG and HAWG.

## Supporting Information

Currently ICES recognises two sprat (*Sprattus sprattus*) ‘stocks’ outside the North Sea (Sub-area 4) and Division 3a, namely sprat in Divisions 7d,e (Channel sprat) and sprat in the Celtic Seas. The Channel sprat is subject to a Category 3 assessment with advice based on a Constant Harvest Rate but the Celtic Seas sprat (residing in Divisions 7a, b,

f-k and 6a) is not assessed, with ICES providing precautionary advice every second year. The stock structure of sprat found all around the British Isles is uncertain and where, if at all, there are stock boundaries is unknown. Catch data are collated for all areas where sprat are caught either in targeted fisheries or as a bycatch. In addition there are a number of surveys (acoustic and bottom trawl) where catches of sprat occur and in some cases the abundance is enumerated.

Sprat is the subject of a targeted fishery in Divisions 7d,e, currently mainly in Lyme Bay along the south coast of England in Division 7e. Recently there has been interest in developing targeted fisheries for sprat in the Celtic Sea (7aS, f-j), southern part of 7a and also in inshore waters of 6a. In recent years there have been increased landings of sprat from the Celtic Sea with the uptake thought to be due to the recent scarcity of Celtic Sea herring.

Currently there is insufficient understanding, information and data on the sprat populations in the Celtic Sea region to be able to provide robust advice on the current 'stocks' or on potential changes in productivity in the short to medium timeframes. Sprat are a key forage fish in these ecosystems forming an important part of the foodchain for key predatory species, including mackerel (*Scomber scombrus*), whiting (*Merlangius merlangus*), Atlantic cod (*Gadus morhua*), horse mackerel (*Trachurus trachurus*), marine mammals and birds to name a few. Therefore, there is a need for advice which takes their role in ecosystem functioning into account.

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**PRIORITY:**

The identification of stock boundaries and the logical definition of management units is vitally important for the sustainable exploitation of fish stocks. In addition, the acquisition of appropriate data on the sprat which occurs in the Celtic Seas is necessary for providing scientific advice in selected areas where fisheries are occurring. A workshop is needed to collate the available information on sprat in the Celtic Seas and to identify gaps in our knowledge and provide a roadmap of the research necessary to be able to provide robust advice to management.

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<b>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:</b>	The aims of this workshop are to collate the information available on sprat populations in the Celtic Seas with a view to determining the stock structure (stock boundaries), data on biological characteristics and abundance, the ecological role of sprat in this ecosystem, where data are missing and a roadmap for research needed to underpin the advice and management of the sprat in the area..
<b>RESOURCE REQUIREMENTS:</b>	No specific resource requirements beyond the need for members to prepare for and participate in the preparatory 'meetings' and participate in the final meeting.
<b>PARTICIPANTS:</b>	In view of its relevance to the EU Data Collection Framework (DCF) and the UK, the Workshop is expected to attract interest from ICES Member States.
<b>SECRETARIAT FACILITIES:</b>	None.
<b>FINANCIAL:</b>	Some additional funding will be required for attendance of personnel at the final workshop. Attendance at other meetings and the use of Skype will be used for the preparatory work to minimise any financial requests. Potential external expertise by invitation.
<b>LINKAGES TO ADVISORY COMMITTEES:</b>	ACOM
<b>LINKAGES TO OTHER COMMITTEES OR GROUPS:</b>	HAWG, ACOM
<b>LINKAGES TO OTHER ORGANISATIONS:</b>	

## **WKMEGRIM – Benchmark Workshop for selected Megrin Stocks**

*Approved in November 2021*

2021/2/FRSG28 A **Benchmark Workshop for selected Megrin Stocks**, chaired by ICES chair Elliot Brown, and attended by two invited external experts Paul Dolder and Christopher Legault, will be established and will meet online for a five-day data compilation workshop 24–27 January 2022 and online for a five-day Benchmark workshop 21–25 February 2022 to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the stocks listed in the text table below. The evaluation shall include consideration of:
  - ix. Stock identity and migration issues;
  - x. Life-history data.
  - xi. Review current sampling levels and adjust stratification levels for landings and discards accordingly;
  - xii. Inclusion of recent scientific fishing surveys not yet considered in the assessment;
  - xiii. Examine alternative assessment models to the current model;
  - xiv. Explore impact of all tuning fleets on assessment estimates;

- xv. Further considerations of environmental drivers, multi-species information, and ecosystem impacts for stock dynamics in the assessments and outlook;
- xvi. Examine mixed fisheries interaction;
- b) Agree and document the most appropriate method for evaluating stock status and (where applicable) short term forecast and update the stock annex as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated in the methodology where possible. If no analytical assessment method can be agreed, then an alternative method for providing advice (ideally one of the WKLIFE X (<https://doi.org/10.17895/ices.pub.5985>) methods) should be put forward;
- f) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see Technical document on reference points);
- g) Develop recommendations for future improvements of the assessment methodology and data collection;
- h) As part of the evaluation:
  - iii) Conduct a data evaluation workshop. Stakeholders are invited to contribute data (including data from non-traditional sources) and to contribute to data preparation and evaluation of data quality. As part of the data compilation workshop, consider the quality of data including discard and estimates of misreporting of landings;
  - iv) Following the Data evaluation, produce working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting.

The Benchmark Workshop will report by 1 April 2022 for the attention of ACOM.

Stock	Assessment Lead
ldb.27.8c9a: Four-spot megrim ( <i>Lepidorhombus boscii</i> ) in divisions 8.c and 9.a (southern Bay of Biscay and Atlantic Iberian waters East)	Esther Abad, Spain
meg.27.8c9a: Megrim ( <i>Lepidorhombus whiffiagonis</i> ) in divisions 8.c and 9.a (Cantabrian Sea and Atlantic Iberian waters)	Esther Abad, Spain
meg.27.7b-k8abd: Megrim ( <i>Lepidorhombus whiffiagonis</i> ) in divisions 7.b-k, 8.a-b, and 8.d (west and southwest of Ireland, Bay of Biscay)	Ane Iriondo, Spain

### **WKEMP3 – Workshop for the Technical evaluation of EU Member States' Progress Reports for submission in 2021**

*Approved in November 2021*

**2021/2/FRSG29** The Workshop for the Technical evaluation of EU Member States' Eel regulation Progress Reports 2021 (WKEMP3 part 1 and part 2), chaired by J.-J. Maguire, Canada will be established and will meet from the 29 November to the 3 December 2021 (WKEMP3 part 1) and from 31 January to the 4 February 2022 (WKEMP3 part 2) to:

- a) Prepare the data for evaluation
- b) Evaluate the overall effectiveness of EMPs in terms of changes in biomass indicators and mortalities
- c) Evaluate the effectiveness and outcome of measures in terms of i) the status of implementation of planned measures, ii) where available, quantification of their effects and iii) comparing implemented measures against threats/pressures and potential other measures in a given region. Propose improvements to the management measures, as appropriate.
- d) Evaluate the effectiveness and outcomes of monitoring measures, particularly the used methodology and its feasibility under the given circumstances/challenges

WKEMP2 2021 will report by 18 of February 2022 for the attention of the Advisory Committee.

## Supporting information

Priority	The EU Regulation (EC 1100/2007) and associated Guidance obliges EU Member States to report on the progress of their Eel Management Plans (EMPs) on a triannual basis. DGMARE has requested an independent external review of the 2021 progress reports.
Scientific justification	The task of providing solid estimates of stock parameters by Eel Management Units (EMUs) that are comparable among regions and can be summed in terms of biomass and mortality, is important to develop an overview of the eel stock and exploitation status in Europe. At present, national reports and estimated biomass and mortality indicators should be analysed to ensure that the current indicators are valid and consistent as there could be considerable differences between national approaches. At present, there is no indicator to evaluate how well management measures are implemented.
Resource requirements	This work will require access to the ICES SharePoint, and potential hosting of two meetings. This work will also require access to the wgeel database and associated shiny visualisation apps.
Participants	<p>The participation should reflect the diverse scientific competence needed to fulfil the objectives of the workshop. The initial workshop will invite a core group of experts: an independent (non-EU) chair to oversee the whole process and ensure objectivity and respect of the outcomes; the WGEEL chair, the stock coordinator and the stock assessor to ensure good linkages to relevant national experts; and an external expert with experience in stock assessment. These experts would review data and methods and make new calculations where needed.</p> <p>The workshop will also open to other participants that wish to participate. If the workshop(s) are oversubscribed, ICES reserves the right, in consultation with the workshop chair to select the final workshop participants based on their expertise, and equitable makeup of the workshop.</p> <p>Progress will be discussed with data providers and stock assessors during WGEEL in September 2021</p> <p>The final workshop of the core group of experts will complete the reporting.</p>
Secretariat facilities	ICES data call, Secretariat support, Meeting facilities at ICES HQ, Copenhagen and Advisory process and Secretariat support
Financial	Covered by DG MARE special requests to ICES

Linkages to advisory committees	To ACOM through the recurring assessment of the eel stock by WGEEL and through the advisory process.
Linkages to other committees or groups	WGEEL, WGDIAD, SCICOM, FRSG.
Linkages to other organizations	The work of this workshop is primarily to support to support EU DGMARE in evaluating the success of the national EMPs through the progress reports. This work also has links to the ICES Scientific Advice which is used by not only EU DG MARE, but also DG ENV, the CITES Secretariat, FAO EIFAAC and GFCM.

## ANNEX 1.

### Considerations from WKEELDATA3.

1. Prepare data for evaluation.
2. Evaluate the effectiveness and outcomes of the EMPs. This could be done using the 3Bs and ΣAs from the Annex 9 Mortality rates and Annex 10 Biomass Indicators, along with the new Annex 13 EMP Overview which provides details on what types of data are used in the assessments. Two questions that could be answered with these data would be: a) Has biomass changed in EMU '1' through time (2000 to present); b) Has mortality changed in EMU '1' through time (2000 to present).
3. Evaluate the effectiveness and outcomes of the measures. This would be done using descriptions of the measures from Annex 15 Measures and Annex 13 EMP Overview, access to data, and scientific opinion, to answer the core question of 'Have EMPs done what they could?' It could be reported using the following: a) A table of standardised/possible measures across the region that would registering their implementation across EMPs as yes; no; not applicable; identify whether pressures/threats were addressed in each EMU [Annex 15 Measures]; and b) A list of measures planned in EMPs, the degree of their implementation (fully, partial, not implemented), year of full implementation, availability of quantification and method of quantification. To expand on some of the terms used here: effectiveness could be examined in terms of the effect on silver eel output in weight of silver eels (B<sub>current</sub>), and in mortality levels; outcomes could be for example the removal of 'x' number of barriers or 'x' kms of wetted area opened up, or number of glass eels stocked in a known wetted area; and acknowledging the indirect benefits of certain measures noting that the cumulative impact of measures should be having an impact but if there is no change in biomass then other factors may be at play.
4. Evaluate the effectiveness and outcomes of monitoring measures (of biomass, mortality, traceability, etc). This would be done using descriptions of monitoring methods and self-assessment of what is achievable and what are the national and international challenges: a) Monitoring description (data collection, analysis; or process) (Annex 13 EMP Overview); b) Assessment methods using Annex 13 EMP Overview; c) Asking has all habitat been included in the biomass and mortality assessments?

### **EU request to ICES:**

- To assess the 2021 Member States' progress reports on the implementation of the Eel Regulation via the measures established and implemented under the eel management plans (EMPs). Those progress reports in line with Article 9(1) of the Regulation are to consist of the biological data required under the Eel Regulation and the general information outlining monitoring, effectiveness and outcome.
- To include the biological data required under Article 9(1)a-d, as well as the estimates of recreational fishermen and their catches under Article 11(2)-(3) in the regular ICES data call on eels, which is done every year to support recurrent advice on eels, to make the process of submitting data more efficient.
- To forward the Commission the biological data required under Article 9(1)a-d submitted by Member States in usable format since countries must submit to the Commission their progress reports with such data, as well as the estimates of recreational fishermen and their catches under Article 11(2)-(3).
- In order for the Commission to strengthen the implementation of conservation measures for the recovery of the stock, we need to know from ICES: a) which measures are delivering results; b) which measures are not; c) which need to be improved.
- To provide the Commission with the advice in 2021 on the evaluation of the Member States progress reports on the eel management plans implementation.

### **WKICEMP – Workshop on the evaluation of assessments and management plans for ling, tusk, plaice and Atlantic wolffish in Icelandic waters**

*Approved on the Resolutions Forum in January 2022*

2021/2/FRSG30            The workshop on the evaluation of assessments and management plans for ling, tusk, plaice and Atlantic wolffish in Icelandic waters (WKICEMP), chaired by Dorleta Garcia (Spain), and attended by two invited external experts, Elisabeth Van Beveren (Canada) and Olav Nikolai Breivik (Norway), will be established and meet online and in Hafnarfjordur, Iceland, 4-8 April 2022, to update (if required) operational assessment models and reference points and evaluate management plan HCRs for ling (lin.27.5a), tusk (usk.27.5a14), plaice (ple.27.5a) and Atlantic wolffish (caa.27.5a) in Icelandic waters. The work will be to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the stocks listed in the text table below. The evaluation shall include consideration of (where applicable):
  - i. Stock identity and migration issues;
  - ii. Life-history data;
  - iii. Fishery-dependent and fishery-independent data;
  - iv. Further inclusion of environmental drivers, multi-species information, and ecosystem impacts for stock dynamics in the assessments and outlook
- b) Agree and document the preferred method for evaluating stock status and (where applicable) short term forecast and update the stock annex as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated in the methodology;

- c) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see Technical document on reference points);
- d) Evaluate the proposed Harvest Control Rule(s) for the management plans for the stocks and develop conclusions on whether the proposed HCR(s) can be considered as consistent with the precautionary approach and in conformity with the ICES MSY framework and can therefore be used as the basis for ICES fishing opportunity advice for the stock.

WKICEMP will report by (*dates tbc*) for the attention of the Advisory Committee.

Stock	Stock code	Stock leader
Ling ( <i>Molva molva</i> ) in Division 5.a (Iceland grounds)	lin.27.5a	Anika Sonjudottir <anika.sonjudottir@hafogvatn.is>
Plaice ( <i>Pleuronectes platessa</i> ) in Division 5.a (Iceland grounds)	ple.27.5a	Elzbieta Baranowska <elzbieta.baranowska@hafogvatn.is>
Tusk ( <i>Brosme brosme</i> ) in Subarea 14 and Division 5.a (East Greenland, and Iceland grounds)	usk.27.5a14	Pamela Woods <pamela.woods@hafogvatn.is>;
Atlantic wolffish ( <i>Anarhichas lupus</i> ) in Division 5.a (Iceland grounds)	caa.27.5a	Pamela Woods <pamela.woods@hafogvatn.is>;

## Supporting Information

Priority:	High
Scientific justification and relation to action plan:	The Ministry of Industries and Innovation in Iceland require an independent review of the proposed HCRs in advance of the 2022/23 fishing season.
Resource requirements:	Work to be conducted by national experts in Iceland.
Participants:	National experts from Iceland and interested NWWG and WGDEEP members
Secretariat facilities:	SharePoint site and online meeting facilities.
Financial:	Part of Iceland-ICES MOU.
Linkages to advisory committees:	Reports to ACOM
Linkages to other committees or groups:	NWWG, WGDEEP
Linkages to other organizations:	-

### WKSEALS – Benchmark Workshop for harp and hooded seals

*Approved on the Resolutions Forum in March 2021*

2020/2/FRSG31      **A Benchmark Workshop for harp and hooded seals (WKSEALS2022)**, chaired by External Chair Alejandro Buren, Argentina, and ICES Chair Daniel Howell, Norway, and attended by two invited external experts Phil Hammond, UK, and Hans Skaug, Norway, will be established and will meet:

- by correspondence on 8 December 2021, for a Modelling planning workshop

- online throughout 2022 as needed
- in a hybrid meeting held at ICES Headquarters, Copenhagen, on 5-9 December 2022 for a Benchmark Workshop

WKSEALS will:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for providing harvest advice for the stocks listed in the text table below. The evaluation shall include consideration of:
    - v. Stock identity and migration issues;
    - vi. Life-history data;
    - vii. Hunt dependent and hunt independent data;
    - viii. Further inclusion of environmental drivers, multi-species information, and ecosystem impacts for stock dynamics in the assessments and outlook;
  - b) For each stock, agree and document the preferred methods for evaluating stock status and harvest advice and produce stock annexes as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated in the methodology to the extent possible;
  - e) Re-examine and update (if necessary) the methods for setting biological limits for seal harvest as defined by ICES in 2005<sup>1</sup>;
  - f) Review and summarise the evidence currently available to support the implementation of harvest control rules, identifying important knowledge gaps, especially in connection with potential changes to assessment model general formulation and/or specifics.
  - g) Develop recommendations for future improvements to the assessment methodology and data collection.
- and, will meet by correspondence in February 2023 to:
- h) Evaluate whether the current harvest control rules (see section 6.3. of ICES 2005)<sup>2</sup> are precautionary in light of potential acceptance of alternative model formulations and reference points from the benchmark.

Working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting.

Stocks	Stock leader
Harp seals ( <i>Pagophilus groenlandicus</i> ) in subarea 1 (Barents and White sea stock)	Martin Biuw

<sup>1</sup> Request from the Norwegian Government regarding Greenland Sea harp and hooded seals and White Sea/Barents Sea harp seals. *In* Report of the ICES Advisory Committee on Fishery Management, Advisory Committee on the Marine Environment and Advisory Committee on Ecosystems, 2005. ICES Advice 2005, Volume 3, Section 1.4.1.2. <http://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Advice/2005/ICES%20Advice%202005%20Volume%203.pdf>

<sup>2</sup> ICES. 2005. Report of the ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP), 30 August–3 September 2005, St Johns, Newfoundland, Canada. ICES CM 2006/ACFM:06. <http://ices.dk/sites/pub/CM%20Documents/2006/ACFM/ACFM0606.pdf>

Harp seals ( <i>Pagophilus groenlandicus</i> ) in subareas 1, 2 and 14 and Division 5.a (Greenland Sea stock)	Martin Biuw
Hooded seals ( <i>Cystophora cristata</i> ) in subareas 2, 5 and 14 (Greenland Sea stock)	Mike Hammill

## **WKSANDEEL – Benchmark Workshop on Sandeel (*Ammodytes* spp.) in 2022**

*Approved on the Resolutions Forum in March 2022*

2021/2/FRSG32 A **Benchmark Workshop on Sandeel (*Ammodytes* spp.) in 2022** (WKSANDEEL), chaired by External Chair Nicola Walker, UK and ICES Chair Niels Hintzen, Netherlands, and attended by invited external experts Amy Schueller, US and Pia Schuchert, UK, will be established 14–16 June 2022 for a data evaluation meeting and for a 5-day Benchmark meeting 14–18 November 2022. There will also be an MSE meeting at a venue to be determined on 13–15 December 2022 to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the stocks listed in the text table below. The evaluation shall include consideration of:
  - i. Stock identity and migration issues;
  - ii. Life-history data;
  - iii. Fishery-dependent and fishery-independent data;
  - iv. Further inclusion of environmental drivers, multi-species information, and ecosystem impacts for stock dynamics in the assessments and outlook
- b) Agree and document the preferred method for evaluating stock status and (where applicable) short term forecast and update the stock annex as appropriate. Knowledge about environmental drivers, including multispecies interactions, and ecosystem impacts should be integrated in the methodology  
If no analytical assessment method can be agreed, then an alternative method (the former method, or following the ICES data-limited stock approach) should be put forward;
- c) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see Technical document on reference points);
- d) Develop recommendations for future improving of the assessment methodology and data collection;
- e) As part of the evaluation:
  - i) Conduct a 3 day data compilation workshop (DCWK). Stakeholders are invited to contribute data (including data from non-traditional sources) and to contribute to data preparation and evaluation of data quality. As part of the data compilation workshop consider the quality of data including discard and estimates of misreporting of landings;
  - ii) Following the DC correspondence work, produce working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting

<b>Stocks</b>	
<b>San.sa.1r</b>	Sandeel ( <i>Ammodytes</i> spp.) in Divisions 4.b and 4.c, Sandeel Area 1r (central and southern North Sea, Dogger Bank)
<b>San.sa.2</b>	Sandeel ( <i>Ammodytes</i> spp.) in Divisions 4.b and 4.c, and Subdivision 20, Sandeel Area 2r (Skagerrak, central and southern North Sea)
<b>San.sa.3r</b>	Sandeel ( <i>Ammodytes</i> spp.) in Divisions 4.a and 4.b, and Subdivision 20, Sandeel Area 3r (Skagerrak, northern and central North Sea)
<b>San.sa.4</b>	Sandeel ( <i>Ammodytes</i> spp.) in divisions 4.a and 4.b, Sandeel Area 4 (northern and central North Sea)

The Benchmark Workshop will report by 31 January 2023 for the attention of ACOM.

#### **WKEELDATA4 – The Fourth Workshop on Designing an Eel Data Call**

*Approved on the Resolutions Forum in April 2022*

**2021/2/FRSG33 A Workshop on Designing an Eel Data Call (WKEELDATA4)**, co-chaired by Tea Bašić (UK) and Hilaire Drouineau (FR), will meet virtually, 9 May–13 May 2022 to design a data call to all ICES/EIFAAC/GFCM countries having natural production of European eel and prepare their integration in the eel database supporting WGEEL work. The data call 2022 will request the same data as every year (e.g. the 2020 call), incorporating WGEEL recommendations, and will also collect biometric data (including from DCF programmes), following the ICES WKFEA roadmap. To achieve this aim, the WK will:

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

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

## Supporting information

Priority	This topic is a high priority for ICES and the countries/institutions supporting the work of the WGEEL because the present data collection procedures of WGEEL are complex and require a large resource in staff time before and during the WGEEL meetings. The refinement of data provision will save time and money, and it will facilitate the future benchmarking of the stock assessment process to support the ICES Advice.
Scientific justification	The WGEEL annually collates data on recruitment, landings from commercial and recreational fisheries, restocking, aquaculture production, rates of other human-induced mortalities on eels, biological characteristics of eels, etc. The development of various tools (database, standardised templates, shiny application for data integration and analysis) have allowed to greatly improve consistency in the data collection and to facilitate their use in the stock assessment process. Since additional data will be collected in 2022 based on WGEEL and WKFEA recommendations, the tools must be adapted to manage these specific types of data.
Resource requirements	The workshop will be run virtually. Videoconferencing system and sharepoint will be required.
Participants	WGEEL members in charge of the data collection and management. One or two persons in charge of answering to the data call. The presence of a GFCM representative would be required to ensure the consistency between ICES and GFCM data calls.
Secretariat facilities	The standard support for arranging the meeting, providing access to sharepoint, videoconferencing system and for formatting the report.
Financial	No financial implications.
Linkages to advisory committees	Links to ACOM as the data collection and related procedures are crucial for the work of WGEEL, providing the scientific basis for the ICES advice on fishing opportunities published by ACOM.
Linkages to other committees or groups	The results will be of direct benefit to the WGEEL and wider to WGDIAD.
Linkages to other organizations	The results will be of direct interest to DG MARE of the European Commission, in relation to the obligations of the Eel Regulation (EC1100/2007) and the EU MAP, and to GFCM in relation to planned eel Data Collection Framework Reference.

### **WKD3Lists2 – The Second Workshop on on Lists of Commercial Fish and Shellfish species for reporting of MSFD D3**

*Approved on the Resolutions Forum in April 2022*

**2021/2/FRSG34** The **second Workshop on Lists of Commercial Fish and Shellfish species for reporting of MSFD D3 (WKD3lists-2)**, chaired by Nikolaus Probst, will be established and will meet in ICES 30 May - 2 June (hybrid) to:

- a) Develop and agree on regional (by MSFD region or subregion) lists of D3 based on agreed standardized weight and commercial value thresholds of the landings.
- b) Further guidance for Member States to prepare their individual D3 lists (including nationally important stocks, species included in national management plans,...).
- c) Account for widely distributed stocks in the regional lists using landings thresholds (by weight and value).
- d) Given the agreed-upon reference period (2016-2021), discuss the appropriateness of including a baseline for inclusion of species beyond the reference period.

WKD3lists\_2 will report by June 24<sup>th</sup> for the attention of the Advisory Committee.

## Supporting information

Priority	<p>High. As a response to a special request from DGENV on the Commission Decision on criteria and methodological standards for Good Environmental Status (EU) 2017/848 and the reporting under MSFD Article 17 (on updates for MSFD Articles 8, 9 and 10).</p> <p>The advice will feed into ongoing efforts to provide guidance on the operational implementation of the MSFD.</p>
Scientific justification	<p>WKD3lists-2 is a continuation of ICES work to develop appropriate lists for descriptor 3 (ICES 2021, ICES 2020).</p> <p><b>Term of Reference a)</b></p> <p>ICES described four general approaches used by MS in their 2018 reporting and advised that one of these is selected by the EC to be used as a standard by all MSs in their 2024 reporting under Article 17 of the EU Marine Strategy Framework Directive (MSFD) (ICES 2020). The Member States agreed to use ICES' preferred approach, namely approach 1 (WGGES 24). Approach 1 consists of MS using all species/stocks referred to in <i>Specifications and standardised methods for monitoring and assessment</i> of Decision 2017/848 for the MSFD (sub)region within which the MRU<sup>3</sup> is located (ICES 2020).</p> <p>WKD3lists2 will develop regional (by MSFD region or subregion) lists of D3 according to approach 1 of ICES advice including a suggestion for standardised (by region) weight and commercial value thresholds of the landings for adoption at EU level.</p> <p>Landings data will be extracted from the JRC FDI database and filtered by relevant ICES rectangle using ICES statistical rectangle factors (Flanders Marine Institute) to identify species that make up to an agreed upon percentage of landings by weight (and value) for any given MSFD region or sub-region.</p> <p>Participation from JRC experts or experts with experience working with FDI database is strongly encouraged.</p> <p>Participants will be distributed according to the MSFD region where the MRU from the MS they represent belongs and work stepwise towards developing regional lists of D3.</p>

<sup>3</sup> \* Marine reporting units (MRUs) are defined by individual MSs and can be of varying sizes, including region, subregion, EEZ, etc

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HELCOM have produced a regional (Baltic) commercial fish list according to approach 1 in ICES advice as part of their third holistic assessment (HELCOM 2021). The development process and final HELCOM regional list of commercial fish and shellfish will be presented at WKD3lists-2 and discussed for adoption. Guidance on how to avoid the inconsistency to report elements at different taxonomic levels detected in previous reporting cycles will also be developed.

**Term of Reference b)**

The regional lists of D3 developed in ToR a) will be able to be used by Member States as reference lists to be included into the national reporting on D3 (upon agreement at WGGES). The regional lists can be amended by Member States with additional elements that do not reach the threshold to be included in the respective regional list. This can be the case for small-scale/local coastal fisheries or species/stocks in national management plans. WKD3lists2 will provide further guidance for Member States on criteria to consider in order to complement the regional lists with additional elements.

It is expected that the list of D3 elements will change over time. Hence, the guidance developed at WKD3lists will include a temporary aspect and a need to review the lists every MSFD reporting cycle to account for changes in the system (e.g. climate change).

WKD3lists2 will aim to provide regional lists of commercially relevant species for as many MSFD regions and sub-regions as possible.

**Term of Reference c)**

ICES advised to establish a threshold to include widely distributed stocks in the list for reporting D3 (ICES 2020). The regional approach to reporting advised too would solve part of the issue as most of the widely distributed stocks will be captured in the regional lists. For highly migratory stocks distributed in more than one MSFD region (e.g. mackerel, whiting, horse mackerel), WKD3lists2 will develop a complete list of the stocks affected and account for their inclusion in one or more regional lists.

**Term of Reference d)**

Stock advice to support the implementation of the common fisheries policy (CFP) is generally provided on an annual basis and represents the main source of data for reporting on D3. However, the Common Implementation Decision (EU 2018/848) requires a 6-year assessment period and allows a nominal assessment period within these years.

The 6-year assessment period for the next cycle of MSFD reporting is 2016-2021 and the assessment will be based on the average of the assessments of the nominal period and not the last year of assessment (WG GES adhoc-meeting 23 March 2022, WG GES meeting 25b). WKD3lists-2 will provide guidance on what nominal period to use for a robust and yet representative period that is comparable and consistent across Member States including a baseline for inclusion of species beyond the reference period needs to be addressed.

**References**

- HELCOM 2021: <https://portal.helcom.fi/meetings/ComFish%20WS%201-2021-934/default.aspx>
- ICES. 2020. EU request for advice on developing appropriate lists for Descriptor 3, commercially exploited fish and shellfish, for reporting by EU Member States under MSFD Article 17 in 2024. In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, sr.2020.13, <https://doi.org/10.17895/ices.advice.7646>
- ICES. 2021. Workshop to review and progress the reported lists of EU MSFD Descriptor 3 (WKD3Lists). ICES Scientific Reports. 2:82. 128 pp. <http://doi.org/10.17895/ices.pub.7467>
- WGGES 24. <https://circabc.europa.eu/ui/group/326ae5ac-0419-4167-83ca-e3c210534a69/library/44df9d4e-802c-4e51-b6d0-5a7294e167e7/details>

Participants	Experts from EU Member States, MSFD data submitters, JRC, EC, HELCOM and participants from the ICES Secretariat. If requests to attend exceed the meeting capacity available, ICES reserves the right to allocate participants based on the experts' relevant qualification.
Secretariat facilities	Secretariat support and meeting rooms
Financial	Covered by DGENV special request to ICES
Linkages to advisory committees	The products from WKD3lists-2 will be peer-reviewed and enter into the ICES Advisory process to be approved by ACOM
Linkages to other committees or groups	Links to SCICOM
Linkages to other organizations	Links to RSCs and EC

## WKSalm2 – Second Workshop in a series on Salmon Mortality at Sea

*Approved on the Resolutions Forum in April 2022*

**2021/2/FRSG35** The **Second NASCO/ICES Workshop on Salmon** (WKSalm2), co-chaired by Colin Bull (UK) and Glenn Nolan (Ireland) will be established and conducted in two sessions: WKSalm2 will meet online on 15 June 2022 for a one day scoping workshop and on 30 August to 01 September 2022 for a 3-day workshop at the ICES Secretariat in Copenhagen with hybrid meeting access for all participants. The objective of WKSalm2 is to identify key hypotheses on the mechanisms behind the declines in wild Atlantic salmon stocks and to identify the data resources available and needed to test these hypotheses.

The overall goal of the WKSalm workshop series is to improve the assessment of Atlantic salmon stocks by identifying and testing key hypotheses regarding at sea mortality, and partitioning these declines or losses among possible or likely “suspects”. This Likely Suspects Framework (LSF) can be used to help identify in which domain (i.e. key points in time and space where a substantial amount of the mortality occurs) actions may need to be focused to ensure the future abundance of this iconic species.

1. A one day scoping meeting in June 2022 will provide the framing for an efficient and productive outcome of the WKSalm2 process.
  - a. In advance of this scoping meeting, participants will be apprised of the current state of the science in a working document prepared by the chairs, work that builds on the output of [WKSalm1](#), developing hypotheses about at sea mortality and the salmon “domains” concept. This scoping meeting will then discuss these hypotheses;
  - b. Agree to a focused set of high priority hypotheses. The hypotheses should focus on examining sources of at sea mortality that are thought to be limiting the conservation potential of North Atlantic salmon. These hypotheses will be tested in the final workshop in this series, WKSalm3; and,
  - c. Propose an approach to represent and integrate the salmon “domains” concept within the likely suspects framework (LSF) hypotheses-testing framework.
2. A three day workshop in late August/early September 2022 will:
  - a. Agree to a final set of high priority hypotheses, based on the discussions in the one day scoping meeting;

- b. Identify opportunities and mechanisms to leverage existing data sources within the ICES region and beyond to investigate the set of high priority hypotheses and salmon “domains” concept (ToR 1b); and,
- c. Draft an ICES Data Call in preparation for WKSalm3. The data requested in the Data Call should support testing of the hypotheses identified in ToR2a. Testing these hypotheses is an attempt to improve our scientific understanding, the stock assessment, and the ICES advice for North Atlantic salmon.

WKSalm2 will report by 14 October 2022 for the attention of the Advisory Committee.

## Supporting information

Priority	Providing the best available scientific advice for the conservation of North Atlantic salmon is a high priority for NASCO and ICES. This workshop will provide the scientific foundation to advance the assessment of the state of North Atlantic salmon.
Scientific justification	<p>To improve the scientific assessment and advice for the conservation of wild Atlantic salmon, ICES in consultation with the North Atlantic Salmon Conservation Organisation (NASCO), convened a series of three workshops to explore how best to integrate available data on salmon, specifically data on marine survival, for use in models to advance the conservation of wild salmon at sea as part of WKSalm3.</p> <p>In agreeing to a set of priority Likely Suspects Framework (LSF) hypotheses (ToR 1), the workshop should:</p> <ul style="list-style-type: none"> <li>• Characterise and agree to a list of questions and priority hypotheses to test within the LSF programme.</li> <li>• Evaluate and agree to the appropriate process of testing priority hypotheses.</li> <li>• Agree how the concept of salmon “domains” should be represented and integrated within the LSF hypotheses-testing framework.</li> </ul> <p>For ToR 2, the workshop should:</p> <ul style="list-style-type: none"> <li>• Explore mechanisms to mobilise and share data for assessing salmon mortality at sea</li> <li>• Identify how to prioritise the access to the datasets that have greatest utility to match and advance the hypothesis-testing process, and ensure agreed, focussed requests.</li> <li>• Refine our understanding of the nature of existing data gaps, and assess the options for addressing them.</li> <li>• Agree common architecture and data sharing for metadata and data organisation within the context of the limits set by ToR 2.</li> </ul>
Resource requirements	<p>There are no additional resource requirements.</p> <p>This workshop series comprises a scoping workshop (WKSalm1 held in 2019), a data meeting (WKSalm2), and finally a modelling meeting (WKSalm3). WKSalm1 convened in 2019 with the first workshop held at ICES headquarters from June 24-28 2019. The workshop report is available at (<a href="https://nasco.int/wp-content/uploads/2020/08/ICES-wksalmon_2019.pdf">https://nasco.int/wp-content/uploads/2020/08/ICES-wksalmon_2019.pdf</a>).</p>
Participants	Participants anticipated from the oceanographic, marine survey and data collection, and salmonid ecology and stock assessment communities.
Secretariat facilities	Web conferencing and SharePoint facilities, as required
Financial	No financial implications.

Linkages to advisory committees	FRSG, ACOM
Linkages to other committees or groups	WGNAS, WGDIAD, WGWISE, SCICOM
Linkages to other organizations	NASCO, NPAFC

## WKFISHDISH2 – Workshop 2 on Fish Distribution

*Approved on the Resolutions Forum in May 2022*

**2021/2/FRSG36**      **Workshop 2 on fish distribution** (WKFISHDISH2), chaired by Maria Teresa Spedicato\*, Italy, Alan Baudron\*, UK, and Anna Rindorf\*, Denmark, will be established and meet at ICES HQ, Copenhagen, Denmark (with online option) 27–30 June 2022 to:

- a) Review models to derive spatial distribution of fish and cephalopods from survey data in DATRAS and MEDITS formats, with the aim of producing temporally resolved distribution maps for individual species based on data from surveys with varying in spatio-temporal coverage ([Science Plan codes: 5.2, 5.4, and 6.3](#));
- b) Consider best practice guidance for model structure to derive distribution maps including but not limited to the choice of response variable, error distribution, selection of area/data based on available non-zero observations, inclusion of landmasses, survey effort and gear standardizations and the use of correlates ([Science Plan codes: 4.2](#));
- c) Implement best practice approaches to produce distribution maps and define and establish an efficient and transparent approach to producing updates of these maps ([Science Plan codes: 4.2](#));
- d) Populate an ICES hosted repository with scripts (models) and resulting distribution maps for several species ([Science Plan codes: 4.2](#)).

In April 2022, formats for data and model reviews will be defined by correspondence.

WKFISHDISH2 will report by 15 August 2022 for the attention of ACOM.

## Supporting information

Priority	<p>Scientific surveys are costly for the contributing nations, but limited effort is made to use the results for products beyond annual abundance indices of commercial species available for the wider public. WKFISHDISH2 is established to facilitate that survey data are routinely used to produce distribution maps, as an advisory product, following the ICES advice framework and principles. Currently, ICES does not routinely present distribution maps of marine species as part of their advisory services, although such maps are often requested by clients and the public along with the opportunity to download distribution data. Distribution maps could further contribute to answering specific requests from clients. WKFISHDISH2 is therefore given a high priority.</p> <p>Data from the Mediterranean trawl surveys from selected case studies can also serve the purpose of mapping species distribution. Experiences gained in precedent European projects proved the usefulness of such maps for end-users.</p>
Scientific justification	ToR a)

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Previous ICES attempts to model distribution (WKFISHDISH, 2017) focused on detecting a potential distributional shift of a fish stock in relation to TAC areas rather than estimating the distribution of a species within its distribution range. Due to issues with standardizing abundance indices between surveys with varying gear and spatio-temporal coverage, analyses were made separately by each individual survey. Data analysis, using survey data from ICES DATRAS, included abundance indices derived from a spatial smoother of catch rates within ICES rectangles. Correlates for distribution and potential shift were identified after the data analysis, rather than included in the model.

MEDITS standardized data and indices per square kilometres have been used so far in modelling spatial distribution for the whole population or population stages (nurse and spawning grounds) of several species.

ToR b)

The task for WKFISHDISH2 is to define and implement methods for estimating spatial distributions for a given species, which may include several ICES stocks. Such analyses may include data from several surveys, and methods for standardization of effort between surveys or gears must be developed. Criteria (e.g. occurrence of the species, need for data as input for subsequent models) for choice of dependent variable and statistical distribution, and criteria for inclusion of drivers as covariates, have to be made for a consistent approach. A set of submodels (e.g. model for a fixed spatial distribution or model for a seasonal spatial distribution) could be specified including the criterion for using such submodel. Further, approaches to modelling distribution on either side of land need to be considered. An overall performance criterion for comparison of candidate models needs to be agreed upon. Further, the models should ideally be able to produce estimates of distribution at a c-square spatial resolution. In the Mediterranean CSs the resolution will be in line with the GFCM statistical grid.

ToR c)

ICES is providing advice for a considerable number of species including more than 200 stocks. Production of distribution maps should ideally be a routine task when the appropriate data and model first have been selected by experts. Regular updates of distribution maps with new data will require additional effort but will be greatly facilitated by open access to a repository (e.g. GitHub) where scripts developed can be updated. Ideally, the repository should make it possible for generalists (including the ICES Secretariat) to update distribution maps when new data are included in DATRAS.

ToR d)

The approach with selection of model approach for individual species from agreed criteria should be tested and the resulting scripts should be included in the repository for a number of example species:

Species	Distribution area	Occurrence	Data (survey) coverage
X1	Wide	High	High
X2	Wide	Low	High
X3	Narrow	High	High
X4	Narrow	Low	High
.....			Low

The agreed models should be used to produce distribution maps with a specified temporal resolution and a spatial resolution of c-squares and a statistical grid of the Mediterranean, where possible dividing fish into

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	juveniles (fish with a length less than length at 50% maturity) and adults (fish with a length greater than length at 50% maturity).
Resource requirements	None specified.
Participants	Probably less than 20 experts and participants from the ICES Secretariat.
Secretariat facilities	None specified.
Financial	No financial implications.
Linkages to advisory and science committees	None specified.
Linkages to other groups	None specified.
Linkages to other organizations	None specified.

## IBPSOL7d – Interbenchmark protocol on eastern English Channel sole

*Approved on the Resolutions Forum in June 2022*

**2021/2/FRSG37** The **Interbenchmark protocol on eastern English Channel sole** (IBPSOL7d 2022), chaired by Alessandro Orio\*, Sweden, and attended by invited external expert Simon Fischer, UK, will be established and meet online 13–14 June 2022 to:

Adapt the rectangle threshold in the calculation of the Belgian commercial beam trawl tuning fleet (BEL CBT) to ensure a stable index over time accounting for the entire area where the Belgian fleet is active. Include the revised BEL CBT index in the assessment;

Adapt the configuration of the SAM model to allow variable catchability at age over time for the UK BTS tuning series using the latest modifications to the SAM model in light of the decreasing length-at-age of sole in the eastern English Channel;

Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see: [ICES Technical Guidelines on reference points](#)).

Stock or issue	Stock category and methods
<a href="#">sol.27.7d</a> – Sole ( <i>Solea solea</i> ) in Division 7.d (eastern English Channel)	1 – XSA.

IBPSOL7d 2022 will report by 5 July 2022 for the attention of the Advisory Committee (ACOM).

## WKNCCCHCR – Workshop on the evaluation of northern Norwegian coastal cod harvest control rules (WKNCCCHCR)

*Approved on the Resolutions Forum in April 2022*

**2021/2/FRSG38** The **Workshop on the evaluation of northern Norwegian coastal cod harvest control rules (WKNCCCHCR)**, chaired by Daniel Howell, Norway, and reviewed by Divya Varkey, Canada, and Liz Brooks, USA, will be established and meet online 26–27 April 2022 to evaluate rebuilding plan options (if required) and HCR options (once recovered) for the northern Norwegian coastal cod stock (cod.27.1-2.coastN). The work will be to:

- a) Evaluate the proposed Rebuilding Plan and Harvest Control Rule options (see below) for the northern Norwegian coastal cod management plan against its rebuilding objectives and develop conclusions on whether the proposed HCR(s) can be considered precautionary and be used as the basis for ICES fishing opportunity advice for the stock. This will require the following:
  - i. Identify, among potential  $B_{lim}$  candidates/definitions, the appropriate  $B_{lim}$  to be used as the target biomass for recovery of northern Norwegian coastal cod;
  - ii. Determine the appropriate age-range to be used for calculating mean fishing mortality given the fisheries pressure on the stock;
- b) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see: [ICES Technical Guidelines on reference points](#)).

WKNCCCHCR will report by May 31 2022 for the attention of the Advisory Committee.

<b>Stock or issue</b>
<a href="#">cod.27.1-2.coastN</a> – Cod ( <i>Gadus morhua</i> ) in subareas 1 and 2, north of 67°N (Norwegian Sea and Barents Sea), northern Norwegian coastal cod

#### **Proposed Rebuilding Plan:**

If SSB is currently below  $B_{lim}$ , evaluate the fishing pressure required to result in a 95% chance for SSB to reach  $B_{lim}$  in a given time frame including:

- a. twice the time that it would take to be 95% likely for SSB to be above  $B_{lim}$  with zero fishery ( $2 \cdot T_{MIN}$ )
- b. the time of one generation (approximately 5 years) plus the time that it would take to be 95% likely for SSB to be above  $B_{lim}$  with zero fishery (one generation +  $T_{MIN}$ )

#### **Proposed Harvest Control Rule:**

Given the bycatch nature of the coastal cod fishery, ICES shall evaluate a precautionary HCR for advice when above  $B_{lim}$  giving the fishing level for two catch options:

- a. one which corresponds to the maximum fishing leading to MSY ( $F_{msy}$ ) and
- b. one which corresponds to the maximum precautionary fishing level ( $F_{p.05}$ )

#### **Supporting information**

Priority	High.
Scientific justification	The Ministry of Trade, Industry and Fisheries in Norway requires an independent review of the analyses done to use this work in the management of Norwegian coastal cod north of 67° N.
Resource requirements	Work to be conducted by national experts in Norway.
Participants	National experts from Norway, AFWG members and observers.
Secretariat facilities	SharePoint site and online meeting facilities for the workshop.
Financial	NA.

Linkages to advisory and science committees	Report to ACOM.
Linkages to other groups	AFWG.
Linkages to other organizations	NA.

## IBPFAR – Interbenchmark protocol on Faroese demersal stocks

*Approved on the Resolutions Forum in June 2022*

2021/2/FRSG39 The **Interbenchmark protocol on Faroese demersal stocks** (IBPFAR 2022), chaired by Johnathan White\*, Ireland, and attended by invited external experts Anders Nielsen\*, Denmark, and Rasmus Hedeholm\*, Greenland, will be established and meet online 26–30 September 2022 to:

- a) Evaluate the inclusion of catch-at-age data for the interim year in the stock assessments for cod, haddock and saithe;
- b) If proposed approach does not solve the retrospective problem, explore data-limited methods;
- c) Update the stock annex as appropriate;
- d) Re-examine and update (if necessary) MSY and PA reference points according to ICES guidelines (see: [ICES Technical Guidelines on reference points](#)).

Stock or issue	Stock category and methods
<a href="#">cod.27.5b1</a> – Cod ( <i>Gadus morhua</i> ) in Subdivision 5.b.1 (Faroe Plateau)	1 – SAM.
<a href="#">had.27.5b</a> – Haddock ( <i>Melanogrammus aeglefinus</i> ) in Division 5.b (Faroese grounds)	1 – SAM.
<a href="#">pok.27.5b</a> – Saithe ( <i>Pollachius virens</i> ) in Division 5.b (Faroese grounds)	1 – SAM.

IBPFAR 2022 will report by 18 October 2022 for the attention of the Advisory Committee (ACOM).

## WKGRENCOD – Benchmark Workshop on three Greenland cod (*Gadus morhua*) stocks

*Approved on the Resolutions Forum in June 2022*

2021/02/FRSG39 A **Benchmark Workshop on three Greenland cod stocks (WKGRENCOD)**, chaired by External Chair Rick Rideout\*, Canada, and ICES Chair, Arved Staby\*, Norway, and attended by invited external experts Helen Dobby, UK, and Johan Lövgreen, Sweden, will be established and will meet 12–14 December 2022 for a data evaluation workshop (DEWK), and on 7–10 February 2023. Both meetings will take place at ICES HQ, Copenhagen, with hybrid meeting access for all participants. If additional time is needed to agree to reference points and the short-term forecast, the benchmark can agree to additional meeting days. Preparatory work on splitting of stocks based on DNA markers was conducted and presented at the NWWG 2022 meeting. Further evaluation of results will take place at a dedicated scoping workshop at DTU AQUA (Lyngby, Denmark) 27–30 September

2022. Stakeholders are invited to contribute data in advance of the data evaluation workshop (including data from non-traditional sources) and to contribute to data preparation and evaluation of data quality. WKGREENCOD will work to:

- 1) As part of the data evaluation workshop:
  - a. Consider the quality of data proposed for use in the assessment;
  - b. Consider stock identity and migration issues;
  - c. Make a proposal to the benchmark on the use and treatment of data for each assessment, including discards, surveys, life history, etc.
- 2) In preparation for the assessment methods workshop:
  - a) Following the DEWK, produce working documents to be reviewed during the Benchmark assessment meeting at least 14 days prior to the meeting.
- 3) As part of the assessment methods workshop, agree to and thoroughly document the most appropriate, data, methods and assumptions for:
  - a) Obtaining population abundance and exploitation level estimates (conducting the stock assessment);
  - b) Estimating fisheries and biomass reference points that are in line with ICES guidelines (see Technical document in reference points);
    - i) If additional time is needed to conduct the work and agree to reference points, a short additional reference point workshop will be scheduled to conduct this work.
  - c) Conducting the short-term forecast.
- 4) As part of the assessment methods workshop, a full suite of diagnostics (regarding data, retrospective behaviour, model fit, predictive power etc.) should be examined as a whole to evaluate the appropriateness of any model developed and proposed for use in generating advice.
- 5) If no analytical assessment method can be agreed, then an alternative method (the former method, or following the ICES data-limited stock approach see WKLIFE X (<https://doi.org/10.17895/ices.pub.5985>) should be put forward by the benchmark;
- 6) Update the stock annex as appropriate; and
- 7) Develop recommendations for future improvements of the assessment methodology and data collection.

<b>Stock</b>	<b>Description</b>	<b>Model</b>	<b>ICES stock category</b>	<b>Assessors</b>
cod.2127.1f14	Cod ( <i>Gadus morhua</i> ) in ICES Subarea 14 and NAFO Division 1F (East Greenland, Southwest Greenland)	SAM	1	Anja Retzel Tanja Baagoe Buch
cod.21.1	Cod ( <i>Gadus morhua</i> ) in NAFO Subarea 1, inshore (West Greenland cod)	SAM	1	Anja Retzel Tanja Baagoe Buch
cod.21.1a-e	Cod ( <i>Gadus morhua</i> ) in NAFO divisions 1A–1E, offshore (West Greenland)	NA, Survey-trends based assessment	3	Anja Retzel Tanja Baagoe Buch

The Benchmark Workshop will report by 10 March 2023 for the attention of ACOM.

## WKTAf – Workshop on Training for the Transparent Assessment Framework

*Approved on the Resolutions Forum in June 2022*

2022/02/FRSG40 The **Workshop on Training for the Transparent Assessment Framework (WKTAf)** chaired by Colin Millar and Cecilia Kvaavik (ICES) will meet online on the following dates:

- 14–15 June 2022 and
- 13–14 September 2022

to address the objectives below:

1. Give an overview of existing analyses on TAF. These include fully completed assessments, partially completed assessments, data-limited stocks, and analyses that only focus on preparation of survey indices, maturity, etc.
2. Practical demonstrations and training of how assessments are transferred into, and run from within TAF. Assist people and answer any technical questions that arise. The Sessions are:
  - a. Overview of GitHub and git
  - b. Documenting and downloading data and software
  - c. Creating csv input data tables
  - d. Running the model
  - e. Creating unrounded csv results tables for upload to ICES databases
  - f. Creating formatted csv tables and plots for the report
  - g. Generating a dynamic document containing plots and tables for the report
3. Discussion and collection of user feedback on:
  - a. R-scripts and workflow
  - b. Web application (<https://taf.ices.dk>).

WKTAf will report by 1 July and 1 October 2022 for the attention of the Fisheries Resources Steering Group and ACOM, on the workshops' purpose and outcome, lessons learned, course material in annexes and list of attendees.

### Supporting Information:

Priority:	Very high
Scientific justification and relation to action plan:	It is important to train stock assessors as efficiently as possible in the TAF framework in order to maximise the uptake of this initiative within the ICES stock assessment community.
Resource requirements:	2 ICES staff (TAF developers)
Participants:	Stock assessors and stock coordinators.
Secretariat facilities:	None.

Financial:	None.
Linkages to advisory committee:	ACOM
Linkages to other committees or groups:	WGTAFGOV; Stock assessment EGs
Linkages to other organizations:	