



ICES

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the Exploration of the Sea

CIEM

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l'Exploration de la Mer

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2020 FRSG Expert Group ToR's

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Generic ToRs for Regional and Species Working Groups

This resolution was approved 1 October 2019

2019/2/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 for the fisheries relevant to the working group on:
 - i) descriptions of ecosystem impacts of fisheries
 - ii) descriptions of developments and recent changes to the fisheries
 - iii) mixed fisheries considerations, and
 - iv) emerging issues of relevance for the management of the fisheries;
- c) Conduct an assessment on the stock(s) to be addressed in 2020 using the method (analytical, forecast or trends indicators) as described in the stock annex and produce a **brief** report of the work carried out regarding the stock, summarising where the item is relevant:
 - i) Input data and examination of data quality;
 - 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 2019.
 - iv) Estimate MSY proxy reference points for the category 3 and 4 stocks
 - v) The developments in spawning stock biomass, total stock biomass, fishing mortality, catches (wanted and unwanted landings and discards) using the method described in the stock annex;
 - vi) The state of the stocks against relevant reference points;
 - vii) Catch scenarios for next year(s) 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 quality issues with these. For the analytical performance of category 1 and 2 age-structured assessment, report the mean Mohn's rho (assessment retrospective (bias) analysis) values for R, SSB and F. 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.

- e) Review progress on benchmark processes of relevance to the Expert Group;
- f) Prepare the data calls for the next year update assessment and for planned data evaluation workshops;
- g) Identify research needs of relevance for the work of the Expert Group.
- h) Review and update information regarding operational issues and research priorities and the Fisheries Resources Steering Group SharePoint site.
- i) Take 15 minutes, and fill a line in the audit spread sheet 'Monitor and alert for changes in ecosystem/fisheries productivity'; for stocks with less information that do not fit into this approach (e.g. higher categories >3) briefly note in the report where and how productivity, species interactions, habitat and distributional changes, including those related to climate-change, have been considered in the advice.

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

AFWG – Arctic Fisheries Working Group

This resolution was approved 1 October 2019

2019/2/FRSG02 The **Arctic Fisheries Working Group (AFWG)**, chaired by Daniel Howell, Norway, will meet by correspondence 16–22 April 2020 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 2020 ICES data call.

AFWG will report by 7 May 2020 and **XX October 2020** for Barents Sea capelin 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

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

This resolution was approved 1 October 2019

2019/2/FRSG03 The **Herring Assessment Working Group for the Area South of 62°N (HAWG)**, chaired by Valerio Bartolino, Sweden, and Afra Egan*, Ireland, will meet at ICES Headquarters:

22–24 January 2020 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 work by correspondence 17–25 March 2020 to:

- b) compile the catch data of North Sea and Western Baltic herring on 17–18 March;
- c) address generic ToRs for Regional and Species Working Groups 19–25 March 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 2020 ICES data call.

HAWG will report by 10 February and 8 April 2020 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

Resolution to be submitted December 2019

2019/2/FRSG04

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

This resolution was approved 1 October 2019

2019/2/FRSG05 **The North-Western Working Group** (NWWG), chaired by Kristján Kristinsson, Iceland, will work by correspondence 23–28 April 2020 to:

- a) Address generic ToRs for Regional and Species Working Groups for all stocks, except stocks mentioned in ToR b).
- b) Begin data compilation and explore potential methods to provide advice on plaice in Division 5a.

and during November 2020 by correspondence 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 2020 ICES data call.

NWWG will report by 13 May and November 2020 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

WGBAST – Baltic Salmon and Trout Assessment Working Group

This resolution was approved 1 October 2019

2019/2/FRSG06 The **Baltic Salmon and Trout Assessment Working Group** (WGBAST), chaired by Martin Kesler*, Estonia, will meet by correspondence 31 March – 8 April 2020 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 2020 ICES data call. WGBAST will report by 15 April 2020 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

WGBFAS – Baltic Fisheries Assessment Working Group

This resolution was approved 1 October 2019

2019/2/FRSG07 The **Baltic Fisheries Assessment Working Group (WGBFAS)**, chaired by Mikaela Bergenius, will meet by correspondence 14–21 April 2020 to:

- a) Address generic ToRs for Regional and Species Working Groups;
- b) Review the main result from WGIAB, WGSAM, WKBALTIC, WGMIXFISH. 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 2020 ICES data call.

WGBFAS will report by 5 May 2020 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

This resolution was approved 1 October 2019

2019/2/FRSG08 The **Working Group for the Bay of Biscay and Iberian waters Ecoregion** (WGBIE), chaired by Ching Villanueva (France) and Cristina Silva (Portugal), will meet by correspondence, 6–13 May 2020 to:

- a) Address generic ToRs for Regional and Species Working Groups;
- b) Review and evaluate the potential for assessing FU29 and FU30 as one stock;

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 2020 ICES data call.

WGBIE will report by 27 May 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

WGCSE – Working Group for the Celtic Seas Ecoregion

This resolution was approved 1 October 2019

2019/2/FRSG09 The **Working Group for the Celtic Seas Ecoregion** (WGCSE), chaired by Mathieu Lundy*, UK and Sofie Nimmegeers, Belgium will meet by correspondence 6–15 May 2020 and by correspondence September / October 2020 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 2020 ICES data call.

WGCSE will report by 25 May 2020 for the attention of ACOM, and by 1 October 2020 for *Nephrops* stocks, anglerfish and megrim in Rockall. Concerning ToR b) the group will report on the ACOM guidelines on reopening procedure of the advice before XX October and will report on reopened advice before XX October.

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

This resolution was approved 1 October 2019

2019/2/FRSG10 **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 by correspondence 24 April–1 May 2020 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 2020.
- f) Evaluate the stock status of stocks for the provision of biennial advice due in 2020.

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 2020 ICES data call.

WGDEEP will report by 8 May 2020 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 EG was transferred from Ecosystem Processes and Dynamics Steering Group (EPDSG) to Fisheries Resources Steering Group (FRSG) in 2019. The resolution for the period 2018-2020 was approved in 2017, ToR d was approved in 1 October 2019

2017/MA2/EPDSG08 The **Working Group on the Science Requirements to Support Conservation, Restoration and Management of Diadromous Species (WGRECORDS)**, will be renamed the **Working Group on Science to Support Conservation, Restoration and Management of Diadromous Species (WGDIAD)**, chaired by Dennis Ensing, UK, and Hugo Maxwell, Ireland, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2018	25 September (during ASC)	Hamburg, Germany	Interim business report by 31 December	
Year 2019	10 September (during ASC)	Gothenburg, Sweden	Interim businessreport by 31 December	Change of Chair: Outgoing: Johan Dannewitz, Sweden Incoming: Hugo Maxwell, Ireland
Year 2020	1-3 September	by corresp/ webex	Final business report by 31 December	

ToR descriptors

ToR	Description	Background	Science Plan codes	Duration	Expected Deliverables
a	Raise the profile of the group by maintaining international scientific co-operation in the	There is a need to coordinate and draw the various elements of ICES	1.4; 2.1; 3.1	Year 1, 2 and 3	Report of the WG and maintenance of a previously

	study of diadromous fish species and provide a mechanism through which issues relating to these 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.	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 and the EU Eel Regulation.			established network of diadromous fish experts.
b	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.	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.	1.7; 5.1; 6.1	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.
c	Assist EPDSG and ICES to integrate important activities with those of other Expert Groups reporting to EPDSG, other SGs 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 diadromous fish.	4.4; 5.2; 5.4	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.
D	Review and update information regarding operational issues and research priorities on the Fisheries Resources Steering Group SharePoint site.				

Summary of the Work Plan

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

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 2018–2020
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 EPDSG but will have direct significance to ACOM, in particular for advice from WGNAS, WGBAST, WGEEL, WKSalmon.
Linkages to other committees or groups	Besides EPDSG, there are linkages to the SCICOM steering groups HAPISG and EOSG 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

WGEEL - Joint EIFAAC/ICES/GFCM Working Group on Eels

This resolution was approved 1 October 2019

2019/2/FRSG11 The **Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)**, chaired by Jan-Dag Pohlmann*, Germany, will meet by correspondence, 21–28 September 2020 (tbc) 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) Report on the temporal migration patterns of European eel, and seasonality of fisheries and closures, per relevant geographical area with the aim to answer a request from the EU.
- e) Review and update the Stock Annex

Material and data relevant for the meeting must be available to the group on the dates specified in the 2020 ICES data call.

WGEEL will report by Date, October 2020 for the attention of ACOM, WGDIAD, FRSG and FAO, EIFAAC and GFCM.

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

Priority	<ol style="list-style-type: none"> 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. 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 to stock nor the time scale over which recovery might be achieved. Therefore, the development and application of further status assessment methods are urgently required. 3. The EU 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.
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	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).
Scientific justification	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. Other forms of anthropogenic mortality (e.g. hydropower, pumping stations) also impact on eel and vary in distribution and local relevance. Most but not all EU Member States reported quantitative estimates of the required stock indicators to the EU in 2012, 2015 and 2018. 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.
Resource requirements	Sharepoint
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

This resolution was approved 1 October 2019

2019/2/FRSG12 The **Working Group Elasmobranch Fishes (WGEF)**, chaired by Jurgen Batsleer* (Netherlands) and Pascal Lorange* (France), will meet by correspondence 16–25 June 2020 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 2020 for: (i) spurdog in the NE Atlantic; and (ii) skates in the Celtic Seas and Bay of Biscay and Iberian Coast ecoregions
- d) 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 2021;

- e) 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.
- 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.
- i) Review and complete the work done by WKSHARK6 in order to answer the special request from NEAFC-OSPAR for scientific advice on deep sea sharks, rays and Chimaeras.

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 must be available to the group no later than 14 days prior to the starting date.

WGEF will report by 10 August 2020 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

Resolution to be submitted December 2019

2019/2/FRSG13 The Working Group on Southern Horse Mackerel Anchovy and Sardine (WGHANSA), chaired by Alexandra Silva, Portugal, will meet by correspondence on 26–29 May 2020 (WGHANSA1) and at IPMA in Lisbon, Portugal, on 23–26 November 2020 (WGHANSA2) to:

- a) Address generic ToRs for Regional and Species Working Groups for relevant stocks (hom.27.9a and ane.27.9a in WGHANSA1 and pil.27.7, pil.27.8abd, pil.27.8c9a, ane.27.8, jaa.27.10a2 in WGHANSA2);
- b) Explore data from juvenile surveys (e.g. JUVESAR, JUVENA, ECOCADIZ, RECLUTAS) for future incorporation in the assessments;
- c) Propose geographical subdivisions within Division 8.c and Division 9.a. WGHANSA to report data and stock biomass trends for sar.27.8c9a and ane.27.9a.

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 2020 ICES data call.

WGHANSA1 will report by 3 June 2020 and WGHANSA2 will report by 2 December 2020 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

WGHARP – ICES/NAFO/NAMMCO Working Group on Harp and Hooded Seals (WGHARP)

Transferred from HAPISG to FRSG. Resolution to be submitted Spring/Summer 2020 by potential new chairs Sophie Smout/Martin Biuw for a meeting in 2021

2019/2/FRSG14

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

WGMIXFISH-ADVICE – Working Group on Mixed Fisheries Advice

This resolution was approved 14 January 2020 (Forum)

2019/2/FRSG15 The **Working Group on Mixed Fisheries Advice (WGMIXFISH-ADVICE)**, chaired by Claire Moore (Ireland) met by correspondence 26–30 October 2020 to:

- a) Carry out mixed demersal fisheries projections for the North Sea taking into account the single species advice and the management measures in place for 2020 for cod, haddock, whiting, saithe, plaice, sole, turbot, *Nephrops norvegicus*, sole 7.d and plaice 7.d that is produced by WGNSSK in May 2020;
- b) Carry out mixed demersal fisheries projections for the Celtic Sea taking into account the single species advice and the management measures in place for 2020 for cod, haddock, whiting, hake, megrim, monkfish, and *Nephrops norvegicus* that is produced by WGCSE and WGBIE in 2020.
- c) Carry out mixed fisheries projections for the Bay of Biscay and for the Iberian waters taking into account the single species advice and the management measures in place for 2019 for hake, four-spot megrim, megrim and white anglerfish that is produced by WGBIE in May 2020, and further develop mixed fisheries analyses for the region;
- d) Produce draft mixed-fisheries sections for the ICES advisory report 2020 that includes a dissemination of the fleet and fisheries data and forecasts for the North Sea, Celtic Sea, Bay of Biscay, and Iberian waters;

WGMIXFISH-Advice will report by 30 November 2020 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.

WGMIXFISH-METHODS – Working Group on Mixed Fisheries Advice Methodology

This resolution was approved 1 October 2019

2019/2/FRSG16 The Working Group on Mixed Fisheries Advice Methodology (WGMIXFISH-METHODS), chaired by Claire Moore, Ireland, will meet by correspondence 22–26 June 2020 to:

- a) Continue improvement of WGMIXFISH-ADVICE workflow, updating associated documentation and increasing transparency;
- b) Respond to the outcomes of the Mixed Fisheries Scoping Meeting;
- c) Respond to the outcomes and issues encountered during WGMIXFISH-Advice;
- d) Review of updated data call, identifying possible areas of improvements;
- e) Assess the fleet/métier definition in Bay of Biscay;
- f) Development of Irish Sea FCube;
- g) Continued development of the combined implementation of FCube and FLBEIA in conjugation with STECF/WGECON economists.

WGMIXFISH-METHODS will report by 3 August 2020 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

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.
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.

WGNAS – Working Group on North Atlantic Salmon

This resolution was approved 1 October 2019 and updated in February 2020

2019/2/FRSG17 The **Working Group on North Atlantic Salmon** (WGNAS), chaired by Martha Robertson, Canada, will meet in by correspondence 24 March – 2 April 2020 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 2019¹;
 - 1.2 report on significant new or emerging threats to, or opportunities for, salmon conservation and management²;
 - 1.3 provide a compilation of tag releases by country in 2019;
 - 1.4 identify relevant data deficiencies, monitoring needs and research requirements;
 - 1.5 provide an overview of the methods used by jurisdictions to calculate conservation limits, including assumptions, benefits and short comings of each method, and advise on next steps to improve methodologies and include how conservation limits are used for setting catch advice;
 - 1.6 provide an update on the distribution and abundance of pink salmon across the North Atlantic and advise on potential threats to wild Atlantic salmon.
 2. **With respect to Atlantic salmon in the North-East Atlantic Commission area:**
 - 2.1 describe the key events of the 2019 fisheries³;
 - 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;
 3. **With respect to Atlantic salmon in the North American Commission area:**
 - 3.1 describe the key events of the 2019 fisheries (including the fishery at St Pierre and Miquelon)³;

- 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;
- 4. With respect to Atlantic salmon in the West Greenland Commission area:**
 - 4.1 describe the key events of the 2019 fisheries³;
 - 4.2 describe the status of the stocks⁵;

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, including information on any new research into the migration and distribution of salmon at sea and the potential implications of climate change for salmon management.*
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 phone surveys are conducted, ICES should review the results and advise on the appropriateness for incorporating resulting estimates of unreported catch into the assessment process).*
4. *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 17 April 2020 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

This resolution was approved 1 October 2019

2019/2/FRSG18 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 by correspondence 22 April – 1 May 2020 and by correspondence in September 2020 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 2020 ICES data call.

WGNSSK will report by 15 May 2020, and by 25 September 2020 (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>
Year 2020	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	
Year 2021	1) 11 Feb 2) 13 May 3) 12 Aug 4) 11 Nov	Dates and venue TBD	Interim business report by TBD to FRSG	
Year 2022	1) 10 Feb 2) 12 May 3) 11 Aug 4) 10 Nov	Dates and venue TBD	Final business report by TBD to FRSG	

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

ToR descriptors

ToR	Description	Background	Science Plan codes	Duration	Expected Deliverables
a	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	<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 requirements will be listed and prioritised.	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. 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.	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 and feasibility estimates.
c	<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.
d	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.

Year 1	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).
Year 2	ToRs c) and d) will be addressed in quarterly WebEx meetings, with the potential annual meetings for prioritising ToRs a and b).
Year 3	ToRs c) and d) will be addressed in quarterly WebEx meetings, with the potential annual meetings for prioritising ToRs a and b).

Supporting information

Priority	High priority.
Resource requirements	A commitment of time from the members of the group consistent with progressing actions identified in the quarterly meetings.
Participants	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.
Secretariat facilities	Community Sharepoint site, remote meeting facilities.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	This is an integral component to the overall Quality Assurance Framework (of Advice) that ACOM together with the Coordination group are describing.
Linkages to other committees or groups	There is a strong linkage to DIG as the main umbrella for data/software governance structures.
Linkages to other organizations	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	DATE January	TBC		Mid-year progress review and workshop
	DATE July	TBC	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		EXPECTED DELIVERABLES
				DURATION	
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-recruitment and state models.</p> <p>A3. Investigate trout distribution within rivers as a function of abiotic and biotic habitat characteristics.</p> <p>A4. Quantify the importance of anadromy for trout populations.</p>
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	<p>B1. Describe the current and potential future impacts of natural and anthropogenic impacts on trout populations.</p> <p>B2. Make recommendations for</p>

			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 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.	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) process across the native range of sea trout. C3. Develop the Bayesian model of sea trout C4. Develop and propose a data collection framework to support LBI type analysis of pressures on stocks, liaising with EU Regional Coordination Groups. 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,
D	Develop solutions to achieve sustainable governance of trout stocks	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	7.1, 7.4, 7.7 3 years D1. Describe the key ecological, social and economic management objectives for sea trout fisheries across the natural range, to identify the target audience requirements. D2. Define conservation reference points to ensure stock sustainability consistent with the precautionary approach.

effort and catch is insufficient or lacking. Knowledge of non-fishery impacts is even more data-poor.

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 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.

D3. Establish what level of socio-economic risk (uncertainty) is acceptable to fisheries managers in setting management reference points.

D4. Explore and evaluate management strategies conducive to meeting socio-economic goals 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

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.
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).

WGWIDE- Working Group on Widely Distributed Stocks

This resolution was approved 1 October 2019

2019/2/FRSG21 The **Working Group on Widely Distributed Stocks (WGWIDE)**, chaired by Andrew Campbell*, Ireland, will meet by correspondence 26 August – 1 September 2020 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.

WGWIDE will report by 10 September 2020 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

WKBALTIC – Workshop on the Ecosystem Based Management of the Baltic Sea

This resolution was approved in 2018 but the workshop was postponed.

2018/2/FRSG36 The **Workshop on the Ecosystem Based Management of the Baltic Sea (WKBALTIC)**, chaired by Rudi Voss*, Germany and David Reid*, Ireland will be established and will meet in ICES HQ, Copenhagen, on 25–26 February 2020 to:

- a) With stakeholders, identify issues necessary for management needs regarding mixed-fisheries interactions, ecosystem drivers of fisheries productivity and inter- and intra-specific interactions;

- b) Consider and potentially adapt existing mixed fisheries methodology for application in the Baltic, and prioritise recommendations for a new mixed fisheries model for pelagic species;
- c) Develop a roadmap for the delivery of future research needs for EBM and mixed fisheries management of Baltic Sea fisheries.

WKBALTIC will report by 19 March 2020 for the attention of FRSG.

WKCluB – Benchmark Workshop on herring (*Clupea harengus*)

This resolution was approved 1 October 2019

2019/2/FRSG22 **A Benchmark Workshop on herring (*Clupea harengus*) in the Gulf of Bothnia** (WKCluB), chaired by Noel Holmgren*, Sweden, and attended by two invited external experts Jim Ianelli, US and Santiago Cerviño, Spain will be established and will meet in Copenhagen, Denmark, in 4–6 February 2020 for a 3 day Benchmark meeting:

- 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. Examine SS3 as an alternative assessment model to SAM;
 - ii. Explore impact of all tuning fleets on assessment estimates;
- 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;
- a) Update the stock annex as appropriate;
- b) Re-examine and update MSY and PA reference points according to ICES guidelines (see Technical document on reference points);
- c) Prioritize recommendations for future improving of the assessment methodology and data collection.
- d) Produce working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting.

Stocks	Stock leader
Herring (<i>Clupea harengus</i>) in Subdivisions 30 and 31 (Gulf of Bothnia)	Zeynep Pekcan Hekim

The Benchmark Workshop will report by 15 March 2020 for the attention of ACOM.

WKCOLIAS– Workshop on Atlantic chub mackerel (*Scomber colias*)

This resolution was approved on the Resolution Forum in May 2019

2019/2/FRSG23 The **Workshop on Atlantic chub mackerel** (WKCOLIAS), chaired by Alexandra Silva* (Portugal) and Teresa G. Santamaría* (Spain), will work by correspondence during 2019 and meet in 13–17 January 2020, in Santa Cruz de Tenerife, to:

- a) Collate and analyse data on Atlantic chub mackerel abundance, distribution and biology from surveys (acoustic and bottom trawl) and fisheries in Atlantic European waters;
- b) Propose scenarios of Atlantic chub mackerel stock structure and dynamics;
- c) Identify potential stock assessment approaches for Atlantic chub mackerel that would be appropriate to provide advice given the fishery management needs;
- d) Explore the connectivity between Atlantic chub mackerel in Atlantic European and Northwest African waters.

WKCOLIAS will report by 7 February 2020 for the attention of ACOM.

Supporting information

Priority	High. This workshop will provide ICES with the necessary data and biological knowledge to assess chub mackerel stocks in the northeast Atlantic waters and to provide fisheries advice if requested. Further knowledge of the species is essential to progress to multispecies assessments and ecosystem models.
Scientific justification	Atlantic chub mackerel (<i>Scomber colias</i> Gmelin, 1978) is a middle-sized pelagic fish distributed in warm and temperate northeast Atlantic waters. The bulk of the catches used to take place in north western waters of Africa (CECAF), with also a rather stable fishery in the Gulf of Cadiz, and also a small one in the inner part of the Bay of Biscay. However, in the last 15 years, landings in both Portuguese waters and in the Cantabrian Sea (ICES Division 9a and 8c) have increased exponentially and are currently around 80 000 t per year. Atlantic chub mackerel has become an important resource for the purse seine fishery, partly compensating for the decrease of fishing opportunities for sardine in Iberian waters, the traditional target of the fishery. Yet, the dynamics, stock identity, and stock status of Atlantic chub mackerel in Atlantic European waters, and also the connectivity with the Atlantic African waters populations are unknown. While there are technical management measures at the national level, catches are not limited, and there are concerns about the long-term sustainability of this resource. Atlantic chub mackerel is a key species of the pelagic ecosystem in Atlantic waters and it is very important to improve knowledge on this species and the interactions with other pelagic fish species (e.g., Atlantic mackerel, sardine, anchovy or horse mackerel) in order to improve assessment and management at the multispecies/ecosystem level.
Resource requirements	Atlantic chub mackerel is sampled within the Data Collection Framework including the Canary Island. 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 are negligible.
Participants	The Workshop will be attended by 15–20 members, including experts in bottom trawl and acoustic surveys and stock assessment.
Secretariat facilities	None.
Financial	No financial implications.

Linkages to advisory committees	The Workshop has links to ACOM and SCICOM
Linkages to other committees or groups	Workshop on age estimation of Atlantic chub mackerel otoliths (WKARCM), WGWIDE, WGHANSA, WGBIOP, SIDWG.
Linkages to other organizations	Not applicable.

WKDEM – Benchmark Workshop for Demersal species

This resolution was approved 1 October 2019

2019/2/FRSG24 **A Benchmark Workshop for Demersal species (WKDEM)**, chaired by External Chair Richard Nash, UK and ICES Chair Daniel Howell*, Norway and attended by two invited external experts Robert Boenish, US and Amy Schueller, US will be established and will meet at ICES, HQ, Copenhagen 9–13 December 2019 for a data evaluation meeting and at ICES HQ, Copenhagen, Denmark, for a 5 day Benchmark meeting 10–14 February 2020 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. Examine alternative assessment models to the current model
 - v. Explore impact of all tuning fleets on assessment estimates;
 - vi. Further inclusion 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 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 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;
- f) Following the Data evaluation, produce working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting.

Stocks	Stock leader
cod.27.6a	Helen Dobby
whg.27.6a	Andrzej Jaworski
whg.27.3a	Alexandros Kokkalis
had.27.1-2	Alexey Russkikh and Edda Johannesen

WKENSEMBLE – Workshop on Model Ensembles for Stock Assessment and Advice

This resolution was approved at the 2018 November ACOM meeting

2019/2/FRSG25 The joint **ICES-JRC Workshop on Model Ensembles for Stock Assessment and Advice** (WKENSEMBLE), chaired by Liz Brooks*, USA, Cólín Minto*, Ireland, and Ernesto Jardim*, Italy, will be established and will meet by correspondence 11–15 May to:

- a) Explore the potential application of model ensembles in existing stock assessment and advice frameworks;
- b) Identify aspects of advice frameworks that may need to be reconsidered if ensemble methods are to be applied and provide hypothetical guidance on the use of model ensembles in advice based on probabilistic reasoning. Provide a short review of existing applications of model ensembles in ICES, NOAA, and RFMOs;
- c) Use three case studies to develop examples of ensemble stock assessments and generate some hypothetical advice sheets.

WKENSEMBLE will report by TBD 2020 for the attention of the ACOM Committee.

Supporting information

Priority	The provision of advice should adequately reflect assessment uncertainty. In addition to uncertainty in model estimates, there can also be uncertainty in the model structure. While sensitivity analysis can demonstrate the direction that advice would change under different model structure, there is no formal method to reflect this in the advice. The activities of this group will build on the conclusions and recommendations from the JRC Exploratory Workshop on Model Ensembles (to conclude in August 2020) with a focus on practicalities of providing advice based on model ensembles.
Scientific justification	Term of Reference a) This ToR will identify how model ensembles could be implemented given the current workflow of assessment and

advice. Advice will be provided on which category of assessment is appropriate for an ensemble approach.

Term of Reference b)

This ToR will also consider how differences between the single assessments versus model ensemble characterizations of uncertainty relate to the buffers used in calculating reference points, such as, Bpa and Blim and what can be done when there are multi-modal predictions of stock status.

Additionally, to maintain transparency in the assessment process, it is important to describe how working groups would document decisions regarding candidate models and model weighting and how that information will be summarized in report materials.

Compiling the lessons learned from existing examples of ensemble based modelling in ICES, NOAA and RFMOs will provide a useful platform to work from.

Term of Reference c)

This ToR addresses what ensemble advice would look like to better understand how advice based on model ensembles could be communicated and understood by stakeholders.

The case studies are chosen to illustrate situations where it is anticipated that model ensembles could better reflect the true range of assessment outcomes and subsequent advice. Proposed cases are: NE Atlantic mackerel (mac.27.nea), Georges Bank haddock, and Southern Hake (hke.27.8c9a).

Resource requirements	None.
Participants	Expected 10-20 stock assessment, environmental modelling and statistical modelling experts.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	ACOM.
Linkages to other committees or groups	Stock assessment EGs, e.g. WGWIDE, WGNSSK, AFWG.
Linkages to other organizations	NOAA and, potentially, tuna RFMOs.

WKFlatNSCS – Benchmark Workshop for Flatfish stocks in the North Sea and Celtic Sea

This resolution was approved on the Resolution Forum in June 2019

2019/2/FRSG26 **A Benchmark Workshop for Flatfish stocks in the North Sea and Celtic Sea** (WKFlatNSCS), chaired by External Chair Meaghan Bryan*, USA and ICES Chair Timothy Earl*, UK, and attended by two invited external experts Eoghan Kelly, Ireland, and Morten Vinther, Denmark will be established and will meet in Ghent, Belgium 20–22 November 2019 for a data evaluation meeting and at ICES HQ, Copenhagen, Denmark, for a 5 day Benchmark meeting 17–21 February 2020 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 inclusion 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 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 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.

Stocks	Stock leader
tur.27.3a	Jon Svendsen
sol.27.7h-k	Claire Moore
sol.27.7fg	Sofie Nimmegeers
sol.27.4	Ruben Verkempynck
sol.27.7d	Lies Vansteenbrugge

WKGSS – Benchmark Workshop on Greater Silver Smelt

This resolution was approved 1 October 2019

2019/2/FRSG27 A **Benchmark Workshop on Greater Silver Smelt (WKGSS)**, chaired by External Chair **XX XX, XX** and ICES Chair Pamela Woods, Iceland and attended by

three invited external experts Alexandros Kokkalis, Denmark and Arni Magnusson, Denmark will be established and will meet in Reykjavik, Iceland for a three days data compilation meeting 12–14 November 2019 and at ICES headquarters for a five days Benchmark meeting 3–7 February 2020 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) Evaluate the possible implications for biological reference points, when new standard analyses methods are proposed. Propose new MSY reference points including ranges if necessary taking into account the WKFRAME results and the introduction to the ICES advice ([section 1.2](#)).
- d) Draft Stocks annexes as part of the benchmark outcomes.
- e) Develop recommendations for future improving of the assessment methodology and data collection;
- f) 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;
 - ii) Following the DCWK, produce working documents to be reviewed during the Benchmark meeting at least 7 days prior to the meeting

	Stock	Assessment Lead
aru.27.5a14	Greater silver smelt (<i>Argentina silus</i>) in Subarea 14 and Division 5.a (East Greenland and Iceland grounds)	Pamela Woods
aru.27.5b6a	Greater silver smelt (<i>Argentina silus</i>) in divisions 5.b and 6.a (Faroes grounds and west of Scotland)	Lise H. Ofstad/ Sjúrður Hammer
aru.27.123a4	Greater silver smelt (<i>Argentina silus</i>) in subareas 1, 2, and 4, and in Division 3.a (Northeast Arctic, North Sea, Skagerrak and Kattegat)	Elvar H. Hallfredsson
aru.27.6b7-1012	Greater silver smelt (<i>Argentina silus</i>) in 6.b, 7, 8, 9,10 and 12	NO ASSESSOR

The Benchmark Workshop will report by 1 April 2020 for the attention of ACOM.

WKMIXFISH – The scoping workshop on next generation of mixed fisheries advice

This resolution was approved 1 October 2019

2019/2/FRSG28 **The scoping workshop on next generation of mixed fisheries advice** (WKMIXFISH), chaired by Paul Dolder*, UK, will meet on 3–5 March 2020 in ICES HQ, Copenhagen to:

- a) Review recent scientific developments on mixed fisheries analysis, modelling and visualization to create awareness of what is currently achievable and identify potential approaches for the future.
- b) With advice recipients and stakeholders, identify a range of questions on mixed fisheries in the context of policy objectives such as achieving MSY, spatial management, discard reduction (landings obligation), improving selection and ecosystem approach;
- c) Prioritize recommendations for research to lead to future improvements of the mixed fisheries advice;
- d) Consider potential process and timetables by which new data and methods can be incorporated into the advice system
- e) Consider methods to improve communication of mixed fisheries information and advice.

WKMIXFISH-Scope will report by 19 March 2020 to the attention of the ACOM Committee.

Supporting Information

Priority	The current activities of this Group will enable ICES to respond to advice requests from a number of clients. Consequently, these activities are considered to have a high priority.
Scientific justification	<p>ToR [a] The ICES mixed fisheries advice using Fcube is focused on the short term consequences of different advice scenarios. While this approach is useful to look at short term trade-offs and conflicts with the single stock advice both understanding and utilisation of this advice has been low. There have been a number of research projects looking for new ways to analyse, visualise and model mixed fisheries data. It would be very useful to demonstrate these to advice recipients and clients.</p> <p>ToR [b] There is a need for a wide dialogue among the scientific community, advice recipients and stakeholders on the scope of current and future advice requirements linked to current and emerging policy needs.</p> <p>ToR [c] Based on the types of questions identified in b) prioritise the research needed.</p> <p>ToR [d] Consider how new mixed fisheries advice can be developed in practice e.g. will this be possible with existing EG or are new groups needed? Timing and frequency of the advice etc.</p>

ToR [d] The current mixed fisheries advice is complex and the communication of future mixed fisheries information and advice needs to be simple.

Resource requirements	Some support will be required from the ICES Secretariat
Participants	The Group is normally attended by some 15–20 members and guests.
Secretariat facilities	None, apart from WebEx and SharePoint site provision.
Financial	No financial implications.
Linkages to advisory committees	ACOM is the parent committee
Linkages to other committees or groups	WKMIXFISH-Scope will be linked with WGMIXFISH-Methods and WGMIXFISH-advice
Linkages to other organizations	STECF – Fisheries Dependent Information expert group.

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 2021 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 10-12 November 2020 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 7 December 2020 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 spoepecific 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 geographi area that these tools have been applied to. Such a catlogue would both enable thos contemplating running a MSE to be aware of existing tools that migh aid them, an 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).

WKREBUILD – Workshop on guidelines and methods for the evaluation of rebuilding plans

This resolution was approved on the Resolution Forum in June 2019

2019/2/FRSG30 A **Workshop on guidelines and methods for the evaluation of rebuilding plans (WKREBUILD)** chaired by Vanessa Trijoulet* (Denmark) and Martin Pastoors* (Netherlands) will meet from 24 – 28 February 2020 at ICES headquarters, to:

- a) Review the history of scientific advice, evaluation and implementation of rebuilding plans for fisheries management in the Northeast Atlantic and in other fora around the world.
- b) Evaluate technical tools that are available or could be developed for evaluating the performance of different types of rebuilding plans. Take into account the work of WKG MSE2 (2019) on characterizing relevant uncertainties and bias.
- c) Develop guidelines for the evaluation of rebuilding plans that take into account the precautionary approach, the species life history (incl. longevity), changes in productivity and rebuilding potential.
- d) Propose criteria for the acceptability of rebuilding plans including rebuilding target, time and probability that would be consistent with international best practices.

WKREBUILD will report to ACOM by 27 March 2020.

Supporting Information

Priority	<p>High. ICES regularly recommends rebuilding plans in combination with zero TACs for the next year, especially when stocks are estimated to be below Blim and there is no perceived possibility of rebuilding above Blim within the time-frame of a short-term forecast. While there has been ample attention in ICES to the guidelines and methods for carrying out Management Strategy Evaluations (MSE, e.g. WKG MSE2 2019) that are applicable in the long term, there are no agreed methods or guidelines on evaluating rebuilding plans.</p> <p>Faced with a number of herring stocks where rebuilding plans have been recommended by ICES (Celtic Sea herring, Western Baltic herring, Herring in 6a and 7bc) and where rebuilding plans have been proposed or are under development, ICES is faced with the challenge to evaluate such plans and their potential to achieve a form of rebuilding that would be consistent with the precautionary approach while at the same time stocks may be expected to be below Blim for a number of years.</p> <p>The ICES WKG MSE2 guidelines (2019) touch on the issue of rebuilding plans but they do not address the technical and advisory implications. The specific feature of evaluation of rebuilding plans is that they tend to focus on the short-term perspectives, and thereby the starting conditions, while MSEs tend to focus on the longer term when starting conditions are no longer relevant.</p>
Scientific justification	<p>ICES is regularly recommending the development of rebuilding plans so guidance on how to evaluate these plans is required.</p>

Resource requirements	One meeting room at ICES HQ with at least one breakout room.
Participants	Scientists with experience and interest in rebuilding plans and tools for short-term evaluations of potential effects of rebuilding plans.
Secretariat facilities	Secretariat administrative and scientific support.
Financial	No extra funding requested
Linkages to advisory committees	The results of this work will feed in directly in the ICES advisory process.
Linkages to other committees or groups	HAWG, WKG MSE2, WG WIDE, WGBFAS, WGCSE, WGNSSK, NWWG, AFWG, WGHANSA
Linkages to other organizations	

WKRFSAM – The Workshop on the Review and Future of State Space Stock Assessment Models in ICES

This resolution was approved 1 October 2019

2019/2/FRSG31 **The Workshop on the Review and Future of State Space Stock Assessment Models in ICES (WKRFSAM)**, chaired by Noel Cadigan* (Canada) will meet 21-23 January 2020 in ICES HQ, Copenhagen, Denmark, to address the objectives in the table below:

Explore future directions of state-space assessment models for ICES stocks, utilising recent advances in fisheries modelling research to help define best practises. More specifically, provide advice on the advantages and disadvantages of methods/tools relating to:

- 1) model formulation and selection for example,
 - a. the F and the M process models
 - b. observation error models
 - c. other components of variation
- 2) model estimation efficiency and robustness (including treatment of survey indices and fishery catch statistics), for example do certain formulations affect model robustness or result in models with impractical optimisation times.
- 3) model validation, including:
 - a. do different models provide a practical difference?
 - b. are there reliable ways to conduct model selection between alternatives?
- 4) specific issues to consider
 - a. Random effects on survival
 - b. Random walks on fishing mortality in log scale
 - c. Modelling catches on the log scale

WKRFSAM will report by 7 February 2020 for the attention of the Advisory Committee.

Supporting Information

Priority:	Very high
Scientific justification and relation to action plan:	<p>This workshop relates to item 5.1 in the action plan: <i>Improve methods of single-species and multi-species stock assessment, including data-limited methods. Develop and conduct management strategy evaluations, address uncertainty, and improve the transparency, robustness, efficiency and repeatability of stock assessment.</i></p> <p>State space stock assessment models make up a large proportion of the stock assessments for category 1 stocks in ICES. It is important that stock assessors and reviewers of ICES stock assessments understand advantages, disadvantages and limitations of the underlying formulations of state space models. This is important from the view point of extending models to include new dynamics and new data sets but also to review current model formulations with respect to new developments in fisheries science.</p>
Resource requirements:	Meeting room
Participants:	Stock assessment model experts, statistical modelling experts.
Secretariat facilities:	None.
Financial:	
Linkages to advisory committee:	ACOM
Linkages to other committees or groups:	Stock assessment EGs, ADGs, FRSG, SCICOM
Linkages to other organizations:	

WKSHARK6 – Workshop on the OSPAR and NEAFC joint advice request to generate species distribution maps for listed deep sea shark species and provide scientific support for ICES advice on bycatch management options (WKSHARK6)

This resolution was approved 1 October 2019

2019/2/FRSG32 The workshop on the OSPAR and NEAFC joint advice request to generate species distribution maps for listed deep sea shark species and provide scientific support for ICES advice on bycatch management options (WKSHARK6), chaired by Maurice Clarke (Ireland) will meet in Galway, Ireland from 20–24 January 2020 to:

- a) Review the first drafts of the species distribution maps and, where possible, identify key areas for the species;
- b) Review and, where necessary, update the table on overview of surveys;
- c) Create a table with the following: complete list of species; overview of fleets taking the species as bycatch both past (from mid-1980s) until present; and area covered by the fleet (see also WKSHARK1)
- d) Summarise ICES advice for species/stocks where applicable;

Start to formulate potential options that can contribute to improving the status of the species and mitigate bycatch (using information from questionnaire in WGEF Report 2019 and the “EU request for ICES to provide advice on a revision of the contribution of TACs to fisheries management and stock conservation” (TACMAN)).

This workshop is part of a 2 year process to answer the NEAFC/OSPAR request on Deep Sea Sharks, rays and chimaeras.

WKSHARK6 will report by 02 of March 2020 for the attention of FRSG and ACOM.

Supporting information

Priority	<p>This workshop will provide access to data from surveys and include species for which ICES does not provide catch advice. The list of species considered can be found on the draft request.</p> <p>This work is essential to generate the scientific knowledge basis that can be used as ICES information/advice by both organizations NEAFC and OSPAR when respectively considering possible future measures, each within their competence. Using the same scientific information will provide common understanding of species status and could help facilitate respective efforts by the two conventions in aiming to ensure healthy populations of deep-sea elasmobranchs. While the main focus should be on elasmobranchs, it is also requested that deep-sea rays and chimaeras be considered in order to develop a general understanding of the distributions and ecological roles of all deep-sea elasmobranchs</p> <p>This work is also an essential step to underpin a sound scientific basis for the management of the ABNJ by recording sources of information and discussions on the decisions by the experts. The work of this workshop will feed directly into the Advisory process. Consequently, these activities are considered to have a very high priority for the management of deep sea sharks</p>
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Scientific justification	<p>Environments and ecosystems vary over time, sometimes with a trend and sometimes with a step change. The regional ecosystem overviews are intended to provide advisory groups with information on natural variability, trends and step changes in the dynamics of their respective ecosystems based on the best available evidence that are expected to influence the advice.</p> <p>They will also summarise the impacts that human activities have on the state of living and non-living resources of the ecosystem components through the main pressures in the region. This information needs to consider both spatial and temporal variability, with priority given to changes that would lead to the most significant modifications to the advice.</p> <p>To support emerging policy developments, those developing advice on the impacts of specific sectors (e.g. fisheries catch options, contaminants, bycatch, seabird abundance, sensitive areas etc.) will need to understand and respond to the implications of their advice for a range of ecosystem components and attributes, with priority given to those impacts that may compromise known management objectives.</p> <p>The development of ecosystem overviews is one of a number of ICES initiatives to integrate the advice on managing the human impacts on marine ecosystems of the ICES area. ICES still does not have a good understanding of the distribution and scale of anthropogenic pressures across the marine system or a suitable ensemble of tools available to estimate their cumulative effects.</p> <p>The process will be iterative with a number of phases which will increase the relevance, impact and quality of the ecosystem overviews.</p>
Resource requirements	ICES Data Centre, Secretariat support and advice process, Irish Marine Institute it-GIS support and meeting facilities.
Participants	The participation should reflect the diverse scientific competence needed to fulfill the objectives of the workshop. If requests to attend exceed the meeting capacity available, ICES reserves the right to allocate participants based on the experts' relevant qualifications. Participants join the workshop at national expense. Participation of stakeholders is not committed.
Secretariat facilities	Secretariat support
Financial	No financial implications.
Linkages to advisory committees	The products from WSHARK 6 will enter into the ICES Advisory process to be approved by ACOM.
Linkages to other committees or groups	Several ICES working groups may contribute or be interested in the output of this workshop: EO process, WGBYCH, WGCATCH, as well as FRSG, ACOM and SCICOM.
Linkages to other organization	The work of this group may be used or is closely aligned with work under OSPAR, the EEA, NEAFC and National Programmes. organizations with legal mandates to manage elasmobranch fishes (EU, MStates, NEAFC and OSPAR). Additional IGOs of interest to this work: NAMMCO and ICCAT, some of them with management mandates in the ABNJ.

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)**, co-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	
Year 2021	TBD	USA	Interim report by to Fisheries Resources Steering Group	
Year 2022	TBD	Canada	Final report by to Fisheries Resources Steering Group	

ToR descriptors

ToR	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 assessmentst 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	THE WG WILL MEET AND ADDRESS EACH TOR.
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

WKTAf-BI: Workshop on Training for the Transparent Assessment Framework: Bay of Biscay and the Iberian Coast

This resolution was approved on the Resolution Forum in November 2019

2019/2/FRSG34 **A Workshop on Training for the Transparent Assessment Framework: Bay of Biscay and the Iberian Coast (WKTAf-BI)**, chaired by Arni Magnusson* (ICES), and Colin Millar* (ICES) will meet in Lisbon, Portugal, 18–19 February 2020 to address the objectives listed 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>).
4. Talk about TAF governance and quality assurance. A governance group has been set up to guide TAF development and how it is used (see [WGTAfGOV ToRs](#)). An idea is to recognize assessments and users for various achievements through badges that indicate how transparent and reproducible an assessment is. It is not a small task to make ICES assessments open and reproducible, thus improving the quality assurance and peer review process that ICES stands for. TAF aims to provide a working environment, but in the end it's the stock assessment experts who do the work and deserve credit for that.

WKTAf-BI will report by 26 March 2020 for the attention of the Fisheries Resources Steering Group and ACOM.

Supporting Information:

Priority:	Very high
Scientific justification and relation to action plan:	<p>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.</p> <p>Previous training workshops have proven to be very successful in transferring stock assessments into the TAF framework and training stock assessors in its use. The limiting factor was the ability of participants to attend in person. This TAF workshop is the first in a set of regional workshops which will allow many more stock assessors and stock coordinators access to hands on training in TAF.</p>
Resource requirements:	None
Participants:	Stock assessors and stock coordinators.
Secretariat facilities:	None
Financial:	None
Linkages to advisory committee:	ACOM
Linkages to other committees or groups:	WGTAFF-GOV; Stock assessment EGs: WGBIE, WGWIDE, WGHANSA, and WGMIXFISH.
Linkages to other organizations:	

WKTAF-BN: Workshop on Training for the Transparent Assessment Framework: Baltic Sea and Norway

This resolution was approved on the Resolution Forum in November 2019

2019/2/FRSG35 The **Workshop on Training for the Transparent Assessment Framework: Baltic Sea and Norway (WKTAF-BN)**, chaired by Arni Magnusson* (ICES), and Colin Millar* (ICES) will meet 3–5 March 2020 in Lysekil, Sweden, 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>).
 4. Talk about TAF governance and quality assurance. A governance group has been set up to guide TAF development and how it is used. An idea is to recognize assessments and users for various achievements through badges that indicate how transparent and reproducible an assessment is. It is not a small task to make ICES assessments open and reproducible, thus improving the quality assurance and peer review process that ICES stands for. TAF aims to provide a working environment, but in the end it's the stock assessment experts who do the work and deserve credit for that.

WKTAF-BN will report by 6 April 2020 for the attention of the Fisheries Resources Steering Group and ACOM.

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. Previous training workshops have proven to be very successful in transferring stock assessments into the TAF framework and training stock assessors in its use. The limiting factor was the ability of participants to attend in person. This TAF workshop is the first in a set of regional workshops which will allow many more stock assessors and stock coordinators access to hands on training in TAF.
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: WGBFAS, WGNSSK, AFWG, NIPAG.
Linkages to other organizations:	

WKGME3 – The third Workshop on guidelines for management strategy evaluations

This resolution was approved on the Resolution Forum in November 2019

The third Workshop on guidelines for management strategy evaluations (WKG MSE3), chaired by José De Oliveira, United Kingdom, will be established and will meet in Country, City, Date to:

- a) Develop guidelines for when and how reference points should be extracted from an MSE when one is conducted.
- b) Develop guidelines for how to treat the results of alternative operating models. Currently, these have been used as robustness tests for “optimised” management strategies.
- c) Explore the relationship between estimated risk and assumed levels of uncertainty included in the MSE. Risk and uncertainty are closely related, and including more uncertainty affects the estimated level of risk from the MSE. Apart from uncertainty, consideration should also be given to:
 - i) The number of replicates and length of projection period used in the MSE;
 - ii) The stationarity of MSE projections, from which risk metrics are calculated;
 - iii) The risk metric itself (e.g. several definitions are given in the WKG MSE report of 2019).
- d) Develop more efficient ways of conducting searches over a grid to the required level of precision be investigated. This is needed because of the high-performance computing requirements for full MSEs. This work could include investigating statistical properties that relate sample size to required precision, GAMs to interpolate over an incomplete grid, etc.
- e) Compare the short-cut and full MSE approaches, providing guidelines for use of the former as an approximation for the latter, if appropriate. Consideration should be given to MSE with alternative operating models (i.e. operating models not solely based on the currently-used assessment).

WKG MSE3 will report by **DATE** for the attention of ACOM and FRSG.

Supporting information

Priority	This workshop picks up on some of the recommendations from WKNSMSE, covering aspects that the latter could not fully explore. They cover extracting reference points from MSEs, defining risk, and methods for finding optimised management strategies. An additional TOR has been added to compare short-cut and full MSE approaches.
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Scientific justification	This workshop explores in greater detail issues that were uncovered during the work of WKNSMSE, and that could be further explored at the time given work load and time constraints. TOR (a) deals with extracting reference points from MSEs when they are conducted, including the time-frame to be used; it came about because of discrepancies between reference points from the standard ICES approach (EqSim), and the MSEs conducted as part of WKNSMSE. A fundamental principle of MSE is to have a range of operating models (other than one based on the current assessment) to cover uncertainty, but how results from these are weighted and/or combined is not always clear. Currently, they have been used to check robustness of optimised management strategies. TOR (b) explores how to handle alternative operating models. TOR (c) covers issues related to the definition of risk, and in particular whether there is some way of benchmarking risk in relation to the amount of uncertainty incorporated in an MSE, and what do do in the presence of non-stationary MSE projections. TOR (d) covers the practical problem of optimising management strategies under full MSEs when each cell of a grid over which the optimisation takes place takes a long time to run. This TOR covers more effective and efficient ways of conducting the optimisation (e.g. through statistical means, or by using methods such as genetic algorithms). Finally, TOR (e) covers something that is topical for MSEs conducted within ICES, namely comparing the short-cut approach to carrying out computer-intensive full MSEs
Resource requirements	
Participants	
Secretariat facilities	
Financial	
Linkages to advisory committees	
Linkages to other committees or groups	This work follows on from WKNSMSE and is closely linked to WKG MSE.
Linkages to other organizations	

WKNSROP – Workshop on the North Sea reopening protocol

This resolution was approved on the Resolution Forum in November 2019

2019/2/FRSG37 **The Workshop on the North Sea reopening protocol (WKNSROP)**, chaired by Alexander Kempf, Germany, and José De Oliveira, United Kingdom, will be established and will meet 24–27 August 2020 by correspondence to:

- a) Reconsider the autumn reopening protocol from ICES AGCREFA for North Sea stocks, particularly in relation to methods, settings and data (i.e. which age groups to consider) used, both for the reopening trigger mechanism, and for actual forecast update.
- b) Consider the use of additional information for reopening that better informs the assumptions for the intermediate year in catch forecasts (e.g., information from the fisheries such as quota uptake, or fishing effort).
- c) Evaluate the historic performance of the current reopening procedure in delivering improved recruitment estimates for short term forecasts.
- d) Propose an updated reopening protocol taking into account timelines and data availability.

WKNSROP will report by 1 October 2020 for the attention of ACOM and FRSG.

Supporting information

Priority	The work of ICES AGCREFA dates back to 2008, and there have been many benchmarks conducted and new assessment models introduced since then – the assessment and advice landscape has changed substantially, and it is time to revisit the protocol and to think about what additional information could be used in the forecasts when they are triggered by the protocol.
Scientific justification	As is bound to happen with a protocol that has been applied for many years, a number of inconsistencies of application have crept in across stocks, both in terms of the settings applied and the data used. Also new methods could have emerged over time. TOR (a) deals with these aspects. In relation to the forecasts themselves, there is potentially more information and data available than is currently used, and TOR (b) explores if and how this additional information and data could be used directly in the forecast. TOR c will deliver an updated reopening protocol to be used in the coming years for the reopening of process.
Resource requirements	
Participants	
Secretariat facilities	
Financial	
Linkages to advisory committees	ACOM
Linkages to other committees or groups	WGNSSK
Linkages to other organizations	

WKEELMIGRATION – Workshop on the temporal migration patterns of European eel

This resolution was approved on the Resolution Forum in December 2019

2019/2/FRSG38 The **Workshop on the temporal migration patterns of European eel (WKEELMIGRATION)**, in response to the EU request for ICES advice on the relevant geographical area and temporal migration patterns of European eel chaired by Alan Walker* (United Kingdom), will work by correspondence (September 2019 to January 2020) and meet in Copenhagen, Denmark, 4–6 February 2020 to specifically answer the questions (summarized below) agreed with the EU:

- a) Describe the period and the peak time of arrival of European glass eel on the different EU shores, and whether this has changed substantially since before 2007 (by eel management unit (EMU) if possible, or next higher aggregate level. Areas outside the EU are not to be covered).
- b) Describe the period and the peak time of escapement of European silver eel from the different relevant regions in the EU towards the Sargasso Sea, and whether this has changed substantially since before 2007 (by EMU and idem to 1).
- c) Describe the period and the peak time of migration of the yellow eel, when relevant, through different relevant regions in the EU (when, and from and to where yellow eels migrate), and whether this has changed substantially since before 2007 (by EMU and idem to 1).

- d) Describe in the relevant cases, the period when migrating eels need to pass through narrow passages (e.g. such as the exits of the Baltic and Mediterranean) on the way to their destination, and whether this has changed substantially since before 2007.
- e) Assess whether the closure periods set up under the national Eel Management Plans prior to the EU temporal closure are consistent (in terms of time periods of the closures) with the periods established following the EU closure. This requires delivery of information on glass/silver, yellow and silver eel fisheries on (i) the fishery closure periods per EMU area in place from 2000 to 2007, (ii) any changes introduced through EMPs, and (iii) in response to the EU closures in 2018 and 2019.

To do so, a subgroup of members from WKEELMIGRATION/WGEEL will work by correspondence to update previous work from WGEEL 2004 on seasonality of fisheries by adding details on fishery closures and to collate peer-review and grey literature sources (including data from the monitoring programmes) in advance of WKEELMIGRATION (by 31st January 2020).

WKEELMIGRATION will report by 14th February 2020 for the attention of FRSG, ACOM and FAO, EIFAAC and GFCM (as partners).

Supporting Information

Priority	<p>High, in response to a special request from the EU Commission to ICES to provide the scientific knowledge basis support the Commission in assessing the effectiveness of the fishing closure periods set up by the Member States and in view of deciding on possible future measures to further enhance the protection and recovery of the stock of European eel.</p> <p>The Commission has requested ICES to coordinate its work with the GFCM so as to avoid possible overlaps or contradictions with the upcoming GFCM research programme.</p>
Scientific justification	<ol style="list-style-type: none"> 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. 2. In order to support the protection of the stock the EU adopted in 2007 Regulation 1100/2007 establishing measures for the recovery of the eel stock. This Regulation is currently being evaluated. 3. Furthermore, to step up the protection effort beyond measures taken at national level the EU has introduced since 2018 a closure period of three consecutive months via the annual "TAC and quota regulation" (Regulation 2018/120 for the 2018 fishing season, and Regulation 2019/124 for the 2019 fishing season). 4. In 2018 the closure covered the commercial marine catches of eel longer than 12 cm in EU waters of ICES area; the three-month closure was to be set by each Member State between 1st September 2018 and 31st January 2019. In 2019 the scope of the closure was extended to cover also catches in transitional waters, recreational catches and eel at all life stages (i.e. including glass eel and elvers) 5. Moreover, the TAC and quotas regulation for 2019 transposes the closures decided in the GFCM Recommendation for a multi-annual management plan for European eel in the Mediterranean Sea GFCM/42/2018/1. The consecutive three-month closure is to be set by the Member States between 1st August 2019 and 29th February 2020 for the EU waters of ICES area, and in accordance with the conservation objectives of the Recommendation and the migration patterns of eel in the waters of the Contracting Parties (CPCs) to the GFCM in the Mediterranean. For the Mediterranean, the closures were adopted as

	<p>transitional measures, pending the results of an EU-funded GFCM research programme. The latter will aim i.a. at examining the management measures implemented in the CPCs, including the closure dates, and propose additional or alternative long-term management measures, if appropriate.</p> <p>6. 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).</p> <p>In this context and to answer the specific ToRs, WKEELMIGRATION will continue work started in by WGEEL in 2005, enhance by i) a dedicated data call for “fishery catch data by month, and months of fishery closures 2000-2019”; and for “information on migration seasons of glass, yellow and silver eel; by country/EMU; ii) add information on fishery closures mentioned above; iii) collate peer-review and grey literature sources describing the period and peak time of glass eel arrival, silver eel escapement and yellow eel migrations through EU regions, including through narrow passages such as the straits of the Baltic and Mediterranean seas; iv) collate literature findings with data from the monitoring programmes.</p>
Resource requirements	ICES Data Centre for data call, Secretariat support, Meeting facilities at ICES HQ, Copenhagen and Advisory process.
Participants	The participation should reflect the diverse scientific competence needed to fulfil the objectives of the workshop. If requests to attend exceed the meeting capacity available, ICES reserves the right to allocate participants based on the experts' relevant qualification with priority to WGEEL members, EIFAAC, and GFCM Working. Participation of stakeholders is not committed.
Secretariat facilities	Secretariat support
Financial	Covered by DG MARE special requests to ICES
Linkages to advisory committees	The products from WKEELMIGRATION will enter into the ICES Advisory process to be approved by ACOM.
Linkages to other committees or groups	WGEEL, WGDIAD, SCICOM, FRSG
Linkages to other organizations	FAO EIFAAC, GFCM, EU DG-MARE, EU DG-ENV

WKMSEMAC – Workshop on Management Strategy Evaluation of Mackerel

This resolution was approved on the Resolution Forum in December 2019

2019/2/FRSG39 The **Workshop on Management Strategy Evaluation of Mackerel** (WKMSEMAC), chaired by Andrew Campbell*, Ireland, will be established and will meet in Copenhagen, Denmark, 7–9 January 2020 for a scoping meeting and by correspondence 2-4 June 2020 for the final workshop meeting to:

Scoping meeting:

- a) Agree on the specifications of the MSE based on the requirements of the requestors and following the WGMSE2 template; this should include the operating models to be used, performance statistics to be presented, and criteria to be used to draw conclusions on the performance of the various management strategies.
- b) Decide on the tools to be used for the evaluation.
- c) Review and, if necessary, update reference points for the stock.

- d) Develop a work plan leading up to the final meeting in May 2020. This should include strategic WebEx meetings to check progress on the work.

Final meeting:

- a) Analyse the results of the MSE, and develop conclusions (in consideration of ICES guidelines) on whether evaluated management strategies are precautionary or not.
- b) Ensure that the minimum requirements for conducting MSE, as developed by WKMSE2, are met.
- c) Produce a report describing the management strategies evaluated, the specifications of the MSE, results and conclusions.
- d) Produce a draft advice sheet in response to the request.

WKMSEMAC will report by 14 July 2020 for the attention of the Advisory Committee.

Supporting information

Priority	High
Scientific justification	ICES received a Special Request from the European Union, Norway and the Faroe Islands for advice on the long-term management strategies on Northeast Atlantic Mackerel. WKMSEMAC plans two workshops, the first to clarify the request, agree specifications of the MSE, discuss the tools to be used, and develop a work plan, and the second to discuss the results of the work and produce a final report. The workshop will aim to meet the minimum requirements for conducting an MSE, as agreed by WKMSE2.
Resource requirements	Two/three external reviewers and work from WG members.
Participants	The Group is expected to be attended by 15-20 members. These would include stock assessment scientist and MSE experts. Stakeholders will be invited. The requestors should be also engaged in the process through Webexs towards the end of the scoping and final meetings as outlined in WKMSE2 to ensure the product is fit for purpose.
Secretariat facilities	Web conference, meeting rooms.
Financial	An appropriate budget has been agreed.
Linkages to advisory committees	ACOM.
Linkages to other committees or groups	WGWIDE, various MSE development workshops (WKMSEDEV, WKMSE3)
Linkages to other organizations	

WKDLSSLS 2 – The second Workshop on Data-Limited Stocks of Short-Lived Species

This resolution was approved on the Resolution Forum in January 2020

2019/2/FRSG40 **The second Workshop on Data-Limited Stocks of Short-Lived Species** (WKDLSSLS 2), chaired by Andrés Uriarte* (Spain) and Mollie Elizabeth Brooks* (Denmark) will meet by correspondence from 14 to 18 September 2020, to further develop methods for stock assessment and catch advice for short-lived stocks in categories 3–4, focusing on the provision of advice rules that are within the ICES MSY framework.

On the basis of the outcome of WKLIFE7, WKLIFE8, WKLIFE9, WKSPRAT 2018, WKSPRATMSE 2018 and WKDLSSLS 2019, the following issues should be addressed:

- a) Test different assessment methods for data-limited short-lived species (seasonal SPiCT, others) and provide guidelines on the estimation of MSY proxy reference points for category 3–4 short lived species.
 - i) Further work on assessment methods of initial stock status relative to MSY with simpler analyses of historical catches, the abundance indices, or from expert knowledge where it is relevant.
 - ii) Further testing of SPiCT advice rules for management for short-lived species. Evaluation of the performance of these rules either alone or in combination with uncertainty caps and biomass safeguards.
- b) Further explore the appropriateness of the management procedures currently in use for short-lived species by means of Long-Term Management Strategy Evaluations (LT-MSE). This will involve:
 - iii) Revisiting, if required, the advice rules proposed in WKDLSSLS 2019
 - iv) Testing the effectiveness of the precautionary buffer in mitigating the short-term risks associated with the new harvest control rules being tested.
 - v) Further exploring the benefits of adding a biomass safeguard of minimum observed index or at a quantile of the index series to the rules either alone or in combination with uncertainty caps.
 - vi) Revisiting, if necessary, the suitability and magnitude of the uncertainty caps explored in WKDLSSLS2019, including further testing of asymmetric uncertainty caps with variable upper and lower bounds, or assessing the effect of shifting the uncertainty cap levels in time.
 - vii) Constant or variable harvest rate strategies instead of the trend-based rules (aligned with HCR 3.2.2 Catch rule based on applying an Fproxy–WKMSYCat34).

WKDLSSLS will report by xx October 2020 for the attention of ACOM.

WKSTATUS – Workshop to review and update OSPAR status assessments for stocks of listed shark, skates and rays in support of OSPAR

This resolution was approved on the Resolution Forum in January 2020

2020/2/FRSG41 **The workshop to review and update OSPAR status assessments for stocks of listed shark, skates and rays in support of OSPAR (WKSTATUS)**, chaired by Paddy Walker*, The Netherlands, will work by correspondence 26–30 June 2020 to:

- a) Review the first drafts of the OSPAR status assessments for Basking shark, Porbeagle, Spurdog, Angel shark, Common skate complex, Spotted ray, Thornback ray, White skate and, if available, the three deep sea sharks (Gulper shark, Leafscale gulper shark and Portuguese dogfish) ICES assessed at WKSHARK6

- b) Update, where available, information about recent changes in species distribution, including seasonal aspects and habitats, changes in abundance or relative abundance
- c) Conform, as far as possible, with the data elements and format of the OSPAR Guidance on the Development of Status Assessments for the OSPAR List of Threatened and/or Declining Species and Habitats

The Status assessments should include, where available, information on the most relevant human activities that have an effect on the status of the species, changes in human activities and pressures that are threats to the species and the current measures with regard to human activities affecting the status of the species, including fisheries.

WKSTATUS will report by 10 of July 2020 for the attention of FRSG and ACOM.

Supporting information

Priority	High, in response to a special request from OSPAR to provide the scientific knowledge basis to prepare the OSPAR Quality Status Report 2023 (QSR2023). The output of this workshop will feed directly into the ICES Advisory process and the advice will be of relevance for the further work of OSPAR with regard to the OSPAR Recommendations and Agreements with regard to the Threatened and/or Declining Species and Habitats listed by OSPAR.
Scientific justification	<p>Prior to the workshop the OSPAR technical guideline document “Guidance on the Development of Status Assessments for the OSPAR List of Threatened and/or Declining Species and Habitats (JAMP B3)” will be used to generate draft assessments for Basking shark (<i>Cetorhinus maximus</i>), Porbeagle (<i>Lamna nasus</i>), Spurdog (<i>Squalus acanthias</i>), Angel shark (<i>Squatina squatina</i>), Common skate complex (Blue skate (<i>Dipturus flossada</i>), Flapper skate (<i>Dipturus intermedia</i>)), Spotted ray (<i>Raja montagui</i>), Thornback ray (<i>Raja clavata</i>) and White skate (<i>Rostroraja alba</i>). All of these species except the Flapper Skate are included in the OSPAR list of Threatened and/or Declining Species and Habitats. The scientific evidence will be examined on the basis of the relevant Texel/Faial criteria for the identification of species in need of protection.</p> <p>During the workshop these draft assessments will be reviewed and updated with information about recent changes in species distribution, including seasonal aspects and habitat, changes in abundance or relative abundance, etc., based on best available knowledge. The following aspects will also be addressed:</p> <ul style="list-style-type: none"> a) the most relevant human activities that have an effect on the status of the species; b) changes in human activities and pressures that are threats to the species; c) current measures with regard to human activities affecting the status of the species, including fisheries.
Resource requirements	Secretariat support and advice process.
Participants	The participation should reflect the diverse scientific competence needed to fulfill the objectives of the workshop. If requests to attend exceed the meeting capacity available, ICES reserves the right to allocate participants based on the experts' relevant qualification. Participation of stakeholders is not committed.
Secretariat facilities	Secretariat support
Financial	Covered by OSPAR special requests to ICES
Linkage to Advisory	The products from WKSTATUS will enter into the ICES Advisory process

Committees	to be approved by ACOM.
Linkages to other committees or groups	Several ICES working groups may contribute or be interested in the output of this workshop: WKSHARK6, WGEF, WGBYC, WGEKO as well as FRSG, ACOM and SCICOM.
Linkages to other organizations	<p>The work of this group will be used for OSPAR in the preparation of the OSPAR Quality Status Report 2023 (QSR2023) and will be of relevance for the further work of OSPAR with regard to i.a. OSPAR Recommendations and Agreements with regard to the Threatened and/or Declining Species and Habitats listed by OSPAR and more in particular in:</p> <ol style="list-style-type: none"> a) developing additional guidance to Contracting Parties on the implementation of OSPAR Recommendations for OSPAR listed Species and Habitats; b) revising existing OSPAR Recommendations or developing additional Recommendations; c) communicating, where action lies outside OSPAR's competence, with competent authorities on the need for action, for example, with respect to questions relating to management of fisheries or maritime transportation; d) reviewing the continued inclusion of a species or habitat on the OSPAR List (a status assessment could trigger a proposal for delisting following the process in Agreement 2016-02); e) communicating actions related to the OSPAR List of Threatened and/or Declining Species and Habitats.

WKDSG – The Workshop on Standards and Guidelines for fisheries dependent data

This resolution was approved on the Resolution Forum in February 2020

2020/2/FRSG42 The **Workshop on Standards and Guidelines for fisheries dependent data (WKDSG)**, chaired by Edvin Fuglebakk* (Norway) and Steven Mackinson* (UK), will work by correspondence 22 June to 25 June to:

- a) Review existing documentation from ICES and other sources on science and data standards. Identify and synthesise elements necessary to provide guidance to the scientific community and industry on fisheries dependent data collection and its application in ICES. Standards for information relating to both improvement of existing data streams, as well as the incorporation of new kinds of fisheries dependent data will be considered.
- b) Map out the connections and relationships between the existing components of ICES work on science quality assurance (e.g. Transparent Assessment Framework, Quality Assurance Framework, Regional Database and Estimation System) and define how and where they fit in with the need for a higher level document on the principles and criteria for establishing standards in science information used in ICES (see Tor c)
- c) Using outputs from ToR a-b, evaluate if existing standards provide sufficient guidance for data collection programs carried out in collaboration with industry or other data providers outside the scientific community. Suggest revisions to existing guidelines if necessary, and draft an outline Science Information Standards document that provides guidance to data collectors and users on the quality assurance requirements necessary for application of data in ICES. The document should include a description of the flow of data through the quality assurance system.

WKDSG will report by 9 June 2020 for the attention of ACOM, SCICOM and WGCATCH.

Supporting information

Priority This workshop arises as a recommendation from the Workshop on Industry-Science Initiatives (ICES 2019). The purpose is to review existing standards and guidelines on fisheries dependent scientific data collection and use it to provide a reference document for new (and existing) fisheries data collection programs. This will facilitate and contribute to ICES work on developing a data accreditation system. It is an important priority of ICES to ensure that it is in a position to make best use of all available data in its work, and to ensure that the integrity of its advice has a solid foundation on quality assured information.

Scientific justification Term of Reference a)
Considerable resources already exist relating to the standards required to ensure that fisheries data collection programs provide information that is fit-for-purpose for scientific application. They include guidance documents on survey design, data collection protocols, quality control and quality assurance. But most of these documents are intended to apply to data collection programs carried out by scientific institutions under agreed sampling and survey frameworks. The increasing prevalence of research collaborations between science and industry and sole industry initiatives, is yielding new sources of data collected in different ways. Documentation that defines the standards for research and science information, irrespective of its source, are needed to guide best practice in relation to the delivery and quality assurance of data and scientific information. In addition, there is a great potential for incorporating new kinds of data from new technology applied in the industry. Particular consideration will therefore be given to standards pertaining to incorporating new fisheries dependent information arising from industry-science initiatives, and whether and how these might differ depending on application. This documentation needs to be accessible and understandable so that data collection initiatives with and by industry are well supported and lead to data that is useable and useful for science and advisory purposes. Participants will review available documentation and define elements necessary to develop an ICES-led document on research and science information standards (see ToR c).

Term of Reference b)

ICES staff are expected to actively participate in ToRa, bringing their knowledge and current work to bear on the discussions and documentation that arises. ToR b provides a specific opportunity to learn from ICES secretariat about progress towards the planned data accreditation system and to discuss within the workshop whether and to what extent the products can and should be aligned.

Term of Reference c)

The intended Science Information Standards document is not intended to be a detailed methodological manual. Rather, its main purpose is to define the standards for quality and integrity that should be met for any data submitted to ICES to be considered for use in ICES work. Its secondary purpose would be to provide guidance on how to meet those standards, so that any data collection initiatives, irrespective of source, have access to sufficient information to successfully get underway. ToR c should consider ways to make the information dynamic in terms of its accessibility and updatability.

Resource requirements The workshop requires an appropriate venue, preferably ICES HQ because of its strategic relevance and enabling ICES staff to attend.

Participants	15-30 participants are expected. Appropriate representation from the scientific community and industry is required, therefore preference will be given to participants based on their experience with existing processes and documentation relevant to the ToRs.
Secretariat facilities	ICES HQ support for meeting planning and delivery
Financial	No financial implications.
Linkages to advisory committees	ACOM supports the recommendation from WKSCINDI to organise this workshop, which is closely aligned with recommendations 6 & 7 from WKRRMAC.
Linkages to other committees or groups	There is strong affiliation to WGCATCH, whose chairs played a lead role in the initiation and preparation of the resolution. In particular, WGCATCH ToR 'Review of sampling and estimation procedures, including use of new technology and other data sources' is highly relevant. Issues regarding data acquisition, provision and quality assurance also imply strong links with PGDATA, WGBIOP, WGTIFD, WGIPS, DIG, WGDG, WGRFS, and EU Regional Data Coordination Groups.
Linkages to other organizations	The work of this group is closely aligned with various national programmes across ICES regions. In particular, the EU Regional Data Coordination Groups, and similar initiatives in other countries.

IBPBASH – Inter–benchmark Process (IBP) on Baltic Sprat (*Sprattus sprattus*) and Herring

This resolution was approved on the Resolution Forum in February 2020

2020/2/FRSG42 **An Inter-Benchmark Process (IBP) on Baltic Sprat (*Sprattus sprattus*) and Herring (*Clupea harengus*) (IBPBASH)**, chaired by Bjarte Bogstad*, Norway, and attended by invited external experts Simon Fischer, UK and Marc Taylor, Germany will be established and will work by correspondence on 6th and 16th March 2020 to:

- a) Evaluate the appropriateness of the use of the natural Mortality estimates derived from the multispecies SMS keyrun for the Baltic ([WGSAM 2019](#)) in the stock assessments for herring and sprat;
- b) Update the stock annex as appropriate;
- e) Re-examine and update MSY and PA reference points according to ICES guidelines (see Technical document on reference points);

Stocks	Stock leader
Sprat (<i>Sprattus sprattus</i>) in Subdivisions 22–32 (Baltic Sea)	Jan Horbowy
Herring (<i>Clupea harengus</i>) in subdivisions 25–29 and 32, excluding the Gulf of Riga (central Baltic Sea)	Tomas Gröhsler

The IBP will report by 3rd April 2020 for the attention of ACOM.

WKNSCodID– Workshop on stock identification of North Sea Cod.

This resolution was approved on the Resolution Forum in February 2020

2020/2/FRSG43 A **Workshop on Stock Identification of North Sea Cod (WKNSCodID)** chaired by Steve Cadrin, US will meet from 3–6 August by correspondence (Webex) to:

- a) Review information on stock identification of North Sea cod and comparative review of Atlantic cod population structure, including critical evaluation of inferences from each source of information, to build up a picture of cod sub-stock structure in the North Sea and adjacent areas, based on the following:
 - i) Distribution and movements of different life-stages of cod, including changes over time, inferred from:
 - 1)WKNSCodID Tagging
 - 2)Scientific Surveys
 - 3)Commercial landings
 - 4)Dispersal models (e.g. of cod eggs and larva/juveniles)
 - ii) Genetic analyses
 - iii) Otolith microchemistry
 - iv) Morphometrics and meristics
 - v) Life-history and parasites
 - vi) Other approaches not listed above
- b) Based on the evidence from ToR 1, formulate scenarios for cod stocks in the North Sea and adjacent areas, and assess the evidence-based plausibility of each of these scenarios (including current definitions).
- c) Consider the practical implications, for data, particularly historical time-series of catch data, of each of the scenarios in ToR 2, and how any difficulties might be dealt with. For example, considering spatial components with mixing in a single model has different implications for data compared to split stock units. Considerations should include how to deal with changes over time.
- d) Make recommendations for which cod stock scenario(s) to take forward in the forthcoming cod benchmark, including in what format data should be requested and prepared.

The Workshop will report by 20 August for the attention of ACOM and FRSG.

WKEUVME – Workshop on EU regulatory area options for VME protection

This resolution was approved on the Resolution Forum in April 2020

2020/2/FRSG44 The **Workshop on EU regulatory area options for VME protection (WKEUVME)**, chaired by Ellen Kenchington (Canada) and Peter Hopkins (Belgium) will meet by correspondence, and 24-25 June in Brussels, Belgium. The workshop is tasked to:

- a) Establish a draft workflow, with respective criteria for area selection, which can be applied to propose a set of regulatory area options using available ICES data. The regulatory area options will vary in the priority given to VME protection and fisheries. The applicability of the workflow will be demonstrated in a test area.

- b) Establish for the larger area, based on review by WGECO, a set of regulatory area options that vary in the degree of VME protection and estimate for each of the options how it will affect bottom fisheries. Prepare a dissemination document of the regulatory area options, and the workflow and criteria used, in a way appropriate to get input from stakeholders during a meeting with EU Member States and/or relevant Advisory Council members. The dissemination document will be delivered by 5 June.
- c) Run a dissemination meeting in Brussels, Belgium (24-25 June) to discuss the regulatory area options that the workflow and criteria produce. Gather stakeholder arguments and preferences that can be used to fine-tune a list of closed area boundaries and identify knowledge gaps associated with each proposed area.

In preparation for the workshop meeting, the Chairs Ellen Kenchington (Canada) and Peter Hopkins (Belgium), together with five ACOM invited attendees will facilitate coordination and consolidation of work on TOR a-c. This group will also help ensure that the workshop report is finalized.

WKEUVME will report to the attention of ACOM by 31 August 2020.

Supporting information

Scientific justification WKEUVME will suggest regulatory areas options in line with the deep-sea access regulation that vary in the degree of VME protection from bottom fishing. The work will build on from Phase 1 (Technical Service and WKREG workshop), as well as previous ICES advice (ICES 2018a) and technical services (ICES 2018b). All work will draw upon the available VMEs and fishing activity data at ICES that has been quality assured following the respective annual ICES data calls for VMS/logbook ([link](#)) and VMEs ([link](#)).

Term of Reference a)

Members of the planning team, i.e., the core group, will also meet 23-24 March. This core group for WKEUVME will propose, as a working document, a workflow that can be used to propose a set of regulatory area options. The workflow will have criteria for area selection that can be used with available data at ICES. The workflow will include a set of constraints (e.g. depth limits, enforceable areas, number of coordinates per area) in line with the deep-sea access regulation (EU) 2016/2336 to assess proposed area closures. The workflow will describe different VME protection scenarios with definitions of any terms and values used. The workflow will serve as input to carry out the required technical work. The applicability of the workflow will be demonstrated in a test area where WKEUVME will suggest regulatory area options. These options should vary in the degree of VME protection from bottom fishing. The work plan and test case area will be delivered as a working document to WGECO for review by 31 March.

Term of Reference b)

Using the developed workflow and criteria reviewed by WGECO, WKEUVME will establish a set of regulatory area options in a second meeting (18-22 May). Scientific participation from EU countries in the North East Atlantic that can enhance the information content of the data (add additional knowledge of VME and fisheries, identify current closed areas in the relevant locations etc). WKEUVME will estimate for each of the regulatory area options how area closures for VME protection will affect fisheries (e.g. spatial footprint and intensity of bottom fishing).

Term of Reference c)

WKEUVME will prepare a dissemination document of workshop material in a way appropriate to get input from stakeholders during a meeting (24-25 June) with EU Member States and/or relevant Advisory Council members. The dissemination document will be delivered by 5 June.

WKD3lists – Workshop to review and progress the reported lists of EU’s MSFD Descriptor 3

This resolution was approved on the Resolution Forum in May 2020

**2020/2/FRSG45 The Workshop to review and progress the reported lists of MSFD
Descriptor 3, D3**, chaired by Maurice Clarke, Ireland, will meet by correspondence from 22–30 June to:

- a) Review the operational (reference) list compiled by the European Commission for assessments of Descriptor 3 for each MSFD marine region and sub-region.
- b) Review the lists of commercially-exploited fish and shellfish species, D3, reported by Member States in 2018 under Article 17 against the reference list.
- c) In light of previous ICES advice, evaluate and if required propose revisions of the criteria used to define commercially-exploited fish and shellfish species (this should be in relation to a region/subregion and how a national list relates to that regional/subregional approach).
- d) Based on the outcome of the above ToRs, propose changes to the reference D3 lists to fully meet the requirements of the GES Decision and for regionally and subregionally agreed lists, differentiated by Member State where necessary.

The review of the D3 lists will be done following the criteria under “specifications” in the GES decision ((EU) 2017/848). A working document, the ICES D3 reference list, will be prepared by ICES Secretariat and the chair prior to the workshop and will highlight issues that need to be considered discussed at the workshop.

WKD3lists will report by 15 of August 2020 for the attention of ACOM.

Supporting information

Priority	High, in 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). The advice will feed into ongoing efforts to provide guidance on the operational implementation of the MSFD.
Scientific justification	The Marine Strategy Framework Directive aims to protect the marine environment and to achieve Good Environmental Status (GES) by 2020. For assessments of D3, the European Commission (EC) compiled operational (reference) lists of commercially-exploited species (fish and shellfish) for each marine region (Baltic Sea and Black Sea) and sub-region (NE Atlantic and Mediterranean) from which Member States could select those to be reported and/or add new ones if needed. This workshop focuses on both the EC reference list (ToR a) and the reported lists of MSFD Descriptor 3 by Member States (ToR b) and aims to first review

the lists and second to propose changes to the lists. During the review of the reference list special attention will be given to:

- a) Provide clarity in the mapping of ICES areas (where necessary including FAO areas) against MSFD regions and subregions.
- b) Identify stocks under national management plans.
- c) Describe the attribution of stocks to each MSFD marine region and subregion, especially where scientific stock assessment units and total allowable catches (TAC) areas do not match.
- d) Identify important species at regional or national scale for small-scale/local coastal fisheries.

ICES Secretariat and the chair will prepare a working document, the ICES reference list, with a collation of all the issues identified. More preparatory work will be developed through online meetings with relevant national experts ahead of WKD3lists. The workshop participants will address the issues and prepare a report that will feed the ICES advisory process and assist the EC with the next round of reporting in 2024.

Previous ICES advice on MSFD D3, (ICES 2014a, ICES 2014b, ICES 2016, ICES 2017) set criteria and operational guidance for assessment of D3.

Building from that, WKD3lists will re-evaluate the concept of commercially-exploited species (ToR c) and will propose changes to the lists of D3 to be reported by Member States to fully meet the requirements of the GES Decision to report on all commercially-exploited fish and shellfish in the next (2024) updates under Article 17 (ToR d). The proposal will include regional and subregional agreed lists, differentiated by Member State where necessary and other outstanding issues identified during the workshop. For example:

-Should information on the contribution of populations (stocks) to landings be used to further refine the lists?

-With regards to the use of secondary indicators for assessment of GES, SPiCT is used widely now as an analytical approach for MSY proxy reference points for category 3 and 4 stocks/ data limited stocks (ICES 2018). Potential inclusion of secondary indicators will be considered in the context of including them as secondary indicators for reporting of Descriptor D3.

References

ICES. 2014a. EU request on draft recommendations for the assessment of MSFD Descriptor 3. In Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 1, Section 1.6.2.1.

ICES. 2014b. EU request to ICES for review of the Marine Strategy Framework Directive Descriptor 3 – Commercially exploited fish and shellfish. Technical service. In Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 11, Section 11.2.1.3.

ICES. 2015. EU request on revisions to Marine Strategy Framework Directive manuals for Descriptors 3, 4, and 6. In Report of the ICES Advisory Committee, 2015. ICES Advice 2015, Book 1, Section 1.6.2.1.

ICES. 2016a. EU request to provide guidance on operational methods for the evaluation of the MSFD criterion D3C3. In Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.6.2.2.

ICES 2016b. EU request to provide guidance on the practical methodology for delivering an MSFD GES assessment on D3 for an MSFD region/subregion

ICES 2018. ICES reference points for stocks in categories 3 and 4. Technical guideline

Resource requirements

Secretariat support and advice process,

Participants

Workshop with experts from Member States, RSC, RFMOs, and stakeholders. If requests to attend exceed the meeting capacity available, ICES reserves the

	right to allocate participants based on the experts' relevant qualification. Participation of stakeholders is not committed.
Secretariat facilities	Secretariat support and meeting rooms
Financial	Covered by DGENV special request to ICES
Linkage to Advisory Committees	The products from WKD3lists 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.

WKCOLIAS2 – Second Workshop on Atlantic chub mackerel

This resolution was approved on the Resolution Forum in July 2020

2020/2/FRSG46 The Second Workshop on Atlantic chub mackerel (*Scomber colias*) (WKCOLIAS2) chaired by Cristina Nunes and Alba Jurado-Ruzafa, will work by correspondence during 2020 and meet from 25–29 January 2021, in Lisbon, to address the following ToRs:

- Analyse chub mackerel abundance, distribution and migrations in the Northeast Atlantic waters of Europe and Northwest Africa;
- Explore the connectivity between Atlantic chub mackerel in Atlantic and Mediterranean waters.
- Analyse the population structure and propose stock units in European Atlantic waters.

WKCOLIAS2 will report by 28 February 2021 for the attention of ACOM.

Supporting information

Priority	High. This workshop will provide ICES with the necessary data and biological knowledge to assess stock status and fishing opportunities for chub mackerel stocks in the northeast Atlantic waters. Further knowledge of the species is essential to progress to multispecies assessments and ecosystem models.
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Scientific justification	Atlantic chub mackerel (<i>Scomber colias</i> Gmelin, 1978) is a middle-sized pelagic fish distributed in warm and temperate northeast Atlantic waters. The bulk of the catches used to take place in north western waters of Africa (CECAF area of competence), with also a rather stable fishery in the Gulf of Cadiz, and also a small one in the inner part of the Bay of Biscay. However, in the last 15 years, landings in both Portuguese waters and in the Cantabrian Sea (ICES Division 9a and 8c) have increased exponentially. Atlantic chub mackerel has become an important resource for the purse seine fishery, partly compensating for the decrease of fishing opportunities for sardine in Iberian waters, the traditional target of the fishery. Yet, the dynamics, stock identity, and stock status of Atlantic chub mackerel in Atlantic European waters, and also the connectivity with the Atlantic African waters populations are unknown. While there are technical management measures at the national level, catches are not limited, and there are concerns about the long-term sustainability of this resource. Atlantic chub mackerel is a key species of the pelagic ecosystem in Atlantic waters and it is very important to improve knowledge on this species and the interactions with other pelagic fish species (e.g., Atlantic mackerel, sardine, anchovy or horse mackerel) in order to improve assessment and management at the multispecies/ecosystem level.
Resource requirements	Atlantic chub mackerel is sampled within the EU Data Collection Framework including the Canary Islands. 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 (e.g. SharePoint access and ICES Secretariat support) in the framework of this group are negligible.
Participants	The Workshop will be attended by 15–20 members, including experts in bottom trawl and acoustic surveys and stock assessment.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	The Workshop has links to ACOM and SCICOM
Linkages to other committees or groups	Workshop on age estimation of Atlantic chub mackerel otoliths (WKARCM), WGWIDE, WGHANSA, WGBIOP, SIDWG.
Linkages to other organizations	Not applicable.

WKFEA – Workshop on the Future of Eel Advice

This resolution was approved on the Resolution Forum in July 2020

2020/2/FRSG47 Workshop on the future of eel advice (WKFEA) chaired by Estibaliz Diaz, Spain, and Alain Biseau, France, will work by correspondence (2 November 2020–29 January 2021) and meet from 1–5 February 2021, in Copenhagen, Denmark, to discuss the current advice framework, consider options for future assessment and advice needs and draft a roadmap towards recommendations for a new or adapted advice framework on fishing opportunities and potentially other anthropogenic pressures on European eel. Acknowledging that ICES has provided advice on fishing opportunities and effectiveness of management plans in the past, this WK will provide recommendations for advice and potential approaches to deliver those

recommendations to ICES, GFCM and EIFAAC. To achieve this aim, the WK will address the following ToRs:

- **ToR 1:** *Does the current advice include recent methodological advances and current knowledge?* Review and discuss the current advice procedure and identify relevant end-users (also other than the EC). Elicit whether the advice complies with the precautionary approach, is based on the best scientific information available, sufficiently supports management decisions, considers all relevant anthropogenic sources of mortality or can be improved in any other way. Identify potential issues that need to be addressed in future advice and define evidential needs (assessment requirements) to support management and recovery of the eel stock.
- **ToR 2:** *What are the options for improving the evidence base and adapting advice?* Use all available sources of information (WGEEL Database, FAO data, literature, etc.) and consider general concepts for the future assessment and consecutive advice.

Evaluate these concepts in terms of their feasibility, considering e.g. the precautionary approach, the support of management decisions, the advisory framework and data needs. Outline the challenges and opportunities for providing a more operational advice.

- **ToR 3:** Scope the needs for advice and the concepts with the requesters, in order to determine the feasibility for requesters to meet their management objectives.
- **ToR 4:** *What is the future of eel assessment and advice?* Based on the findings of the above, and where deemed appropriate, draft a roadmap (or roadmaps) towards future advice for the European eel stock (in context of the ecosystem approach). This/These should elaborate the modalities of potential assessment approaches (method, frequency, scale, reference points etc.), customize data needs, define objectives for future work and set a time frame for the completion of these tasks.

To do so, a group of members from WGEEL, including a representative from Norway, GFCM and EIFAAC, in liaison with representation from the European Commission will, work by correspondence to add to the work done during the WGEEL 2019 on the consequences of the precautionary approach on advice for European eel in advance of the WKFEA. The effort required during the work by correspondence will vary, but is expected to be approx. one day per week, including a weekly WebEx.

WKFEA will report by 28 February 2021 for the attention of ACOM.

Supporting information

Priority	High to ICES to provide a roadmap to address limitations of the current advice framework for the European eel.
	ICES should inform of this work with the GFCM and EIFAAC so as to avoid possible overlaps or contradictions with the upcoming GFCM research programme.

Scientific justification	<p>Despite increased efforts to aid the recovery of the European eel stock since the implementation of the “eel regulation” (EU 1100/2007) it remains at a very low level and it is considered outside of safe biological limits according to the latest ICES advice (ICES, 2019).</p> <p>The current advice is, however, almost exclusively based on recruitment time series (lacking meaningful biological reference points for the management of the stock) and could be improved in order to better account for the complex biology, assessment and management of the species. Briefly, there are two levels to be considered: i) the whole (panmictic) stock, which is scattered across Europe and North Africa and ii) the regional level, since there is large variation in vital population characteristics (e.g. growth, sex ratio, age at maturation) as well as fisheries and other anthropogenic sources of mortality (e.g. hydropower) across the distributional range, which consequently need to be accounted for in the assessment and management of the stock.</p> <p>Since large improvements were made in data collection and availability of the European eel stock (which provided towards a pan-European database developed by the WGEEL) it is deemed necessary to review and improve the current advice and advice framework and develop concepts on how to improve it in order to make use of the best scientific knowledge available and provide a more operational advice for managers.</p>
Resource requirements	Secretariat support and meeting facilities at ICES HQ, Copenhagen.
Participants	The participation should reflect the diverse scientific competence needed to fulfil the objectives of the workshop and relevant end-users of the advice. If requests to attend exceed the meeting capacity available, ICES reserves the right to allocate participants based on the experts' relevant qualification with priority to WGEEL members, EIFAAC, and GFCM Working. Participation of stakeholders is not committed.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	The Workshop will have implications in the eel advisory process to be reviewed by ACOM.
Linkages to other committees or groups	The findings will be of direct benefit to the WGEEL, FRSG and wider to WGDIAD.
Linkages to other organizations	The findings will be of direct interest to DG MARE and DG ENVIRONMENT of the European Commission, in relation to the obligations of the Eel Regulation (EC 1100/2007) and the EU MAP, and to GFCM and EIFAAC in relation to eel management.

WKRPCChange – Workshop of Fisheries Management Reference Points in a Changing Environment

This resolution was approved on the Resolution Forum in July 2020

2020/2/FRSG48 **The Workshop of Fisheries Management Reference Points in a Changing Environment (WKRPCChange)** chaired by Anna Rindorf (Denmark), Jeremy Collie (USA) and Daniel Howell (Norway) will meet from 21-24 September 2020 by remote means to:

- a) Review the robustness to environmental and ecological change (e.g. environmental, density dependent or ecological shifts in productivity and distribution) of the current ICES concepts for estimation and application of fisheries target, range and limit reference points.

- b) Define appropriate changes in estimation and application of fisheries target, range and limit reference points; within the framework of the management objectives of robustness of advice, precautionarity and yield, in response to:
- i. environmentally induced changes in stock productivity,
 - ii. change in species interactions,
 - iii. stock density induced changes in stock productivity,
- c) Propose a step wise approach to making appropriate changes in target, range and limit reference points

The workshop will use current understanding and best available science to address these terms of reference.

The Workshop will report by 23 October for the attention of ACOM and FRSG.

Supporting information

Priority	Medium
Scientific justification	Need to provide appropriate fisheries management advice under environmental change.
Resource requirements	Webex facilities
Participants	Anna Rindorf, Daniel Howell, Jeremy Collins (Chairs), and an invited range of relevant scientists across and beyond the ICES area. The WK will be open to other members too.
Secretariat facilities	Webex, organisational and report support
Financial	N/A
Linkages to advisory committees	ACOM
Linkages to other committees or groups	Fisheries resources EGs
Linkages to other organizations	N/A