Ecosystem Observation Steering Group EGs Resolutions

Groups transferred from EOSG to DSTSG

The following groups have been transferred to the resolutions file for Data Science and Technology Steering Group (DSTSG) Expert Groups; although they formally belong to EOSG until 1 January 2021:

List of Expert Groups

- Workshop on Age reading of Sea bass (Dicentrarchus labrax) 2 (**WKARDL2**)
- Workshop on Age estimation of European anchovy (*Engraulis encrasicolus)* (**WKARA3**)
- Steering Committee for the Regional Database and Estimation System (**SCRDB**)[1]
- Working Group on Fisheries Acoustics, Science and Technology (**WGFAST**)
- Working Group on DATRAS Governance (**WGDG**)
- Working Group on Recreational Fisheries Surveys (**WGRFS**)
- Workshop on Acoustic Backscatter Models (**WKABM**)
- The Fourth Workshop on Optimization of Biological Sampling (**WKBIOPTIM4**)
- Working Group on Commercial Catches (**WGCATCH**)
- Workshop on Operational Implementation of Stomach Sampling (**WKOISS**)
- Working Group on SmartDots Governance (**WGSMART**)
- Working group on machine learning in marine science (**WGMLEARN**)
- Working Group on Technology Integration for Fishery-Dependent Data (**WGTIFD**)
- Working Group on Atlantic Larval and Egg Surveys (**WGALES**)
- Working Group on Biological Parameters (**WGBIOP**)
- Working Group on Acoustic Data Governance (**WGAcousticGov**)

1 Steering Committee for the Regional Database and Estimation System (**SCRDB**) will change names to Working Group on Governance of the Regional Database & Estimation System (**WGRDBESGOV**)

Resolution approved in 2019/2020

WGNAEO - Working Group on Northwest Atlantic Ecosystem Observations

2019/FT/EOSG03 A **Working Group on Northwest Atlantic Ecosystem Observations** (WGNAEO), chaired by Philip Politis, USA, and Don Clark, 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	11-13 February	Halifax, Canada	Interim report by 12 March 2020 to Ecosystem Observation Steering Group	
Year 2021	6-7 May 2021	Online Meeting	Interim report by 04 June 2021 to Ecosystem Observation Steering Group	
Year 2022	TBD	Canada	Final report by June 2022 Ecosystem Observation Steering Group	

ToR descriptors[1]

ToR	Description	Background	Science Plan codes	Duration	Expected Deliverables
a	Coordinate US and Canadian resource and ecosystem survey strategies for enhanced regional evaluation in the Northwest Atlantic.	Canada and the U.S. have begun discussions of trawl survey coordination on Georges Bank, which would entail addressing differences in strata design, gear, and ecosystem observations. The main product of this ToR would be an operational plan to coordinate surveys, subject to review by DFO and NEFSC leadership. After implementation of the Plan, the WG would review the first year of coordinated survey activities.	3.1, 3.2	3 years	Draft Plan for coordination in June 2020 Final Plan for Coordination in Jan 2021

1 Avoid generic terms such as "Discuss" or "Consider". Aim at drafting specific and clear ToR, the delivery of which can be assessed

b	Coordinate and develop access, metadata, and methods for integrating historical Canadian and U.S. trawl survey data to facilitate scientific analyses	With ongoing concerns over the changes in species distribution and changes in species productivity on the Northwest Atlantic shelf, approaches for combining the two nation's datasets would be extremely valuable to regional science and management entities. The purpose here would be to develop data sharing methods and methods for analyzing combined data.	3.1, 3.2, 3.3	Year 2 and 3	
c	Collate and review ocean observations collected in the Northwest Atlantic Ocean and conduct gap analyses to inform integrated ecosystem assessments and ecosystem science activities.	There are numerous ocean observing activities underway in the Northwest Atlantic Ocean. These data are critical to a number of users. Under this ToR, the WG will bring the different activities together, document variables measured and methods used, consider mechanisms to combine data across activities, and conduct gap analyses relative to variables useful for marine resource management.	3.1, 3.2	3 years	Review paper

Summary of the Work Plan

Year 1	The WG will meet and develop a plan for meeting the timelines of ToR a. The WG will also host a Workshop on ToR c in spring 2020 including both U.S. and Canadian organizations and groups involved in Ocean and Ecosystem Observations.
Year 2	The WG will complete the trawl survey coordination plan and deliver to U.S. and Canadian leadership for review (ToR a). The WG will also make recommendations as to combining data for joint analyses (ToR b). The Ocean Observing inventory and gap analyses will be completed (ToR c).
Year 3	The WG will review status of coordinated surveys (ToR a). Trawl survey data will be made available either jointly or with described methods on how to combine (ToR b). The WG will complete the review papers on regional ocean observations and submit for publication (ToR c).

Supporting information

Priority	High priority. The ToRs of this working group are closely aligned with a number of the observation and exploration priorities described in the ICES Science Plan. Additionally, this expert group will conduct survey coordination, data complication, and oceanographic information that will aid WGNAM to assess environmental and ecosystem effects on mackerel stock dynamics.
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 5-10 members.
Secretariat facilities	WebEx Coordination may be requested
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	There are no immediate linkages but developing the expertise could link to ACOM in the future especially WGNAM.
Linkages to other committees or groups	There is a very close working relationship WGNARS. In addition connections will be developed with WGOH and other EOSG groups.
Linkages to other organizations	There are linkages to a number of organizations and institutions throughout the western North Atlantic engaged and interested in ecosystem observations including academic, government, non-governmental organizations, and marine industries.

WGIDEEPS - Working Group on International Deep Pelagic Ecosystem Survey

2019/FT/EOSG04 A **Working Group on International Deep Pelagic Ecosystem Surveys** (WGIDEEPS), chaired by Hannes Höffle, Norway, and Matthias Bernreuther, Germany, 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	25-27 August	Online Meeting	E-evaluation by 24 September 2020 to ACOM-SCICOM	Kristján Kristinsson as outgoing chair.
Year 2021	16-19 February	Online Meeting	Interim report by 15 March 2021 to ACOM-SCICOM	
Year 2021	14-16 September	Online Meeting	Interim report by 14 October 2021 to ACOM-SCICOM	
Year 2022	TBD January	To be decided	Interim report by 1 March 2022 to ACOM-SCICOM	
Year 2022	By correspondence		Final report by 15 September 2022 to ACOM-SCICOM	

ToR descriptors[2]

ToR	Description	Background	Science plan codes	Duration	Expected Deliverables
a	Evaluate calculation of biomass and abundance indices derived from the trawl method in the Irminger Sea.	The mehtod of calculating biomass and abundance indices from the trawl data has been based on convertion of the trawl data into acoustic values. This method needs to be evaluated and other methods to be explored.	3.2	Year 1 (2020)	Datras data product developed in cooperation with Data Centre and TAF
b	Finalise transfer of trawl survey data from international deep pelagic ecosystem surveys coordinated by the group to ICES DATRAS databases	Data is now stored by individual nations/participants. ICES has committed to a fully transparent and documented quality assurance framework for all data products and assessment results derived from data collated within the ICES working groups, this underpins agreements with all the recipients of ICES advice.	3.2	Year 1 (2020)	Inclusion of data in datras
c	Set up a formal procedure for the use and transfer of Norwegian Sea survey data to AFWG and WGINOR expert groups	There is currently no agreed format and standard on how the data collected by WGIDEEPS should be transfered to relevant assessment EGs.	3.1, 3.2	Year 1 (2020)	TAF proceedure for formally including survey data in assessments.
d	Coordinate the international deep pelagic ecosystem survey with special emphasis on redfish to be carried out in the Irminger Sea and adjacent waters in June/July 2021	The WG has been responsible for the planning of the international trawl/acoustic surveys on pelagic redfish (*Sebastes mentella*) in the Irminger Sea and adjacent waters since 1994 and producing reports on the survey results and outcomes.	3.1, 3.2	Year 2 (January meeting)	

2 Avoid generic terms such as “Discuss” or “Consider”. Aim at drafting specific and clear ToR, the delivery of which can be assessed

e	Report on the outcome of the Irminger Sea survey	a) Support sound, credible, timely, peer-reviewed, and integrated scientific advice on fishery management and the protection of the marine environment. b) Redfish indices are being used by assessment working groups.	3.1, 3.2	Year 2 (August meeting)	WGIDEEPS 2021 – 2 report chapter 1 September 2021 SCICOM
f	Coordinate the international deep pelagic ecosystem survey with special emphasis on redfish to be carried out in the Norwegian Sea and adjacent waters in August 2022	The WG has been responsible for the planning of the international trawl/acoustic surveys on pelagic redfish (*Sebastes mentella*) in the Norwegian Sea since 2008 and corresponding reports on the survey results.	3.1, 3.2	Year 3 (January meeting)	WGIDEEPS 2022 – 1 report 1 March 2022 SCICOM
g	Report on the outcome of the 2022 Norwegian Sea survey	a) Support sound, credible, timely, peer-reviewed, and integrated scientific advice on fishery management and the protection of the marine environment. b) Redfish indices are being used by assessment working groups.	3.1, 3.2	Year 3	WGIDEEPS 2022 – 2 report chapter 15 September 2022 SCICOM

Summary of the Work Plan

Year 1	CARRY OUT TOR A-C
Year 2	Carry out ToR d-e
Year 3	Carry out ToR f-g

Supporting information

Priority	Essential, primary basis for the advice on the stock status of pelagic redfish in the Irminger Sea and adjacent waters and in the Norwegian Sea.
Resource requirements	N/A
Participants	Less than 12 participants (incl. the cruise leaders of each vessel and the principle experts involved in abundance and biomass calculations and deep sea ecology).
Secretariat facilities	N/A
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	NWWG, AFWG, WGDEC

Linkages to other committees or groups	SCICOM, WGOH, WGBIODIV, WKFAST, WGISDAA, ICES data centre
Linkages to other organizations	NAFO, NEAFC

WKIDCLUP2 - Workshop 2 on the identification of clupeid larvae

2019/WK/EOSG05 The **Workshop 2 on the identification of clupeid larvae** (WKIDCLUP2), chaired by Matthias Kloppmann, Germany, will meet online, 1 – 2 September 2020 and in 30 August – 03 September 2021 to:

a) Conduct comparative identification trials focusing on clupeid and clupeid-like larvae evaluating suitable criteria for the identification using the trial – analysis – retrial methodology (Science Plan codes: 3.1, 3.2);

b) Review available information on the identification of clupeoid larvae on the Northeast Atlantic Shelf, with special consideration of the larval appearance and morphology through development (Science Plan codes 3.1, 3.2);

c) Identify and evaluate sources of misidentification of larvae by preparing an uncertainty matrix of clupeid larvae identification (Science Plan codes: 3.1, 3.2);

d) Standardize sample processing and data reporting of clupeid larvae surveys (Science Plan codes: 3.1, 3.2).

WKIDCLUP2 will report by 8 October 2021 for the attention of EOSG, SCICOM, WGSINS, WGALES, WGBIOP and HAWG.

Supporting Information

Priority	Different clupeid larvae surveys, e.g. IHLS and MIK are carried out on the Northeast Atlantic Shelf and provide essential data for the assessment of fish stocks in the North Sea, Irish Sea and the Baltic.
Scientific justification	Larvae surveys are carried out by different countries and the result of these surveys are of direct importance for the assessment. In recent years other clupeids besides herring are occurring in the survey samples in increasing numbers. Since clupeid larvae can easily be mixed up, effective quality control and proper larvae identification is essential for reliable survey results. The overall agreement on clupeid larvae identification between participants at the 2014 WKIDCLUP workshop was 66%. It is necessary to repeat these identification workshops regularly in order to keep the level of identification for experienced and train and improve the skills of new survey participants.
Resource requirements	None.
Participants	Mainly scientists and technicians (approximately 12 - 15) involved in the surveys.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	SCICOM, ACOM

Linkages to other committees or groups	HAWG, WGSINS, WGALES, IBTSWG, WGBIOP
Linkages to other organizations	None.

WGFTFB - ICES-FAO Working Group on Fishing Technology and Fish Behaviour

2019/FT/EOSG08 The ICES-FAO **Working Group on Fishing Technology and Fish Behaviour** (WGFTFB), chaired by Daniel Stepputtis, Germany, Antonello Sala, Italy and Jon Lansley*, Italy, will meet to work on the following Terms of References (ToRs) and produce deliverables as listed in the following table for the years 2020 through 2022. WGFTFB will report on the activities and findings by 25 June each year to EOSG.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2020	By correspondence		Interim report by 22 May to EOSG	Incoming Chair Daniel Stepputtis, and Antonello Sala Pingguo He Chair on behalf of FAO No online meeting this year only by correspondence
Year 2021	19-23 April	Online meeting	Interim report by 25 June to EOSG	Outgoing: Pingguo He Chair on behalf of FAO Incoming: Jon Lansley, Italy
Year 2022	To be determined	Potentially Turkey	Final report by 25 June to EOSG	Sponsored by FAO

ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Deliberate, discuss and synthesize recent research on topics related to: i) Designing, planning, and testing of fishing gears used in abundance estimation; ii) Selective fishing gears for the reduction of bycatch, discard and unaccounted mortality, especially as they relate to EU Landing Obligation; iii) Environmentally benign fishing gears and methods, iv) Improving fuel efficiency and reduction of emission from fisheries, and v) Summaries of research activities by nation	Through open sessions and focused, multiyear topic groups, the Working Group provides opportunities for collaboratively developing research proposals, producing reports and manuscripts, and creating technical manuals on current developments and innovations.	3.3, 4.5, 5.4	3 Years	ICES report
b	Organize a FAO-sponsored FAO-ICES mini-symposium with thematic issues. Symposium themes will be determined at Year 2, and included in the updated ToR.	Under mutual agreement between ICES and FAO, FAO develops and leads a mini-symposium of relevant topics, while also continuing ICES commitments.	2.1, 4.5, 5.4	Year 3	FAO report, ICES report
c	Organize a Joint Workshop on Fishing Technology, Acoustics and Behavior (JTFAB) to review research topics of mutual interest to both the Working Group on Fishing Technology and Fish Behaviour (WGFTFB) and the Working Group on Fisheries Acoustics, Science and Technology (WGFAST).	Every three years, WGFAST and WGFTFB meet for a one-day Joint workshop on Fishing Technology, Acoustics and Behaviour (JFTAB) to review and share information on topics of mutual interest.	3.2, 4.5, 5.4	Year 1	JFATB report

d	Help organize an international fishing technology and fish behaviour symposium or workshop	The last similar symposium was 13 years ago (2006).	2.1, 4.5, 5.4	Fall 2020	Symposium or workshop with proceedings published in a special issue in ICES JMS
e	Support survey working groups with fishing gear expertise upon request	EOSG has identified gear expertise gaps in survey working groups.	3.2	Year 1,2,3	Report of relevant survey trawl working groups or associated workshop

Summary of the Work Plan

YEAR 1	Produce the annual report; hold joint session with WGFAST; connect to survey WGs
Year 2	Produce annual report; Continue development of relationships with survey WGs
Year 3	Produce the annual report; organize FAO-ICES mini-symposium

Supporting information

Priority	The activities of WGFTFB will provide ICES with knowledge and expertise on issues related to the ecosystem effects of fisheries, especially the evaluation and reduction of the impact of fishing on marine resources and ecosystems and the sustainable use of living marine resources and other topics related to the performance of commercial fishing gears and survey gears.
Resource requirements	The research programmes that provide the main input to this working group already exist, and resources are already committed by individual institutions. FAO has committed to support the WG by sponsoring a WG meeting every third year. There are no additional resource requirements for the EG beyond the secretariat support for group organisation
Participants	The group is normally attended by about 60–100 regular members and chair-invited members. Participation is about 100 - 140 in the year when FAO-ICES mini-symposium is held. The numbers of attendees to the meeting have been growing over the last years.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	Linkages to advisory groups via reports on changes to fleets and fleet effort.
Linkages to other committees or groups	There is a very close working relationship with other groups of EOSG, e.g. WGFAST, and the acoustic survey groups.
Linkages to other organizations	The WG is jointly sponsored with the FAO.

WGBEAM – Working Group on Beam Trawl Surveys

2019/FT/EOSG10 A **Working Group on Beam Trawl Surveys** (WGBEAM), chaired by Ingeborg de Boois, the Netherlands, will work on ToRs and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 1	24-26 March 2020	Online meeting	The first interim report by 30 April 2020 to SCICOM and ACOM	**Incoming Chair:** Ingeborg de Boois
Year 2	22-26 March 2021	Online meeting	The second interim report by 30 April 2021 to SCICOM and ACOM	

Year 3	2022	Town, Country	Final report by XX YYYY 20XX to SCICOM and ACOM

ToR descriptors[3]

ToR	Description	Background	Science plan codes	Duration	Expected Deliverables
a	Evaluate the combined offshore and inshore beam trawl surveys data by region data in a reproduceable manner for the species used in fish stock assessment, including elasmobranchs and brown shrimp. Compare internal and external consistency of indicies age based indices where provided. Document inconsistencies or correct errors or omissions where identified.	Evaluation by region will ensure that patterns in the data (e.g. time-series, cohort strength) are consistent and sampling artefacts including year effects are identified, even when inter survey trends contradict.	3.1, 3.2	annually	(a) Updated, consistent and quality controlled beam trawl survey data are available in DATRAS; (b) R script to evaluate the results by region
b	Evaluate the cross regional offshore beamtrawl data in a reproduceable manner for the overlapping species used in fish stock assessment in multiple regions (e.g. sole, elasmobranch species). Document inconsistencies and correct errors or omissions where relevant.	Evaluation of species that are assessed in multiple regions cross-regionally will provide insight in the commonalities and differences in stock dynamics in different regions.	3.1, 3.2	annually	(a) Updated, consistent and quality controlled beam trawl survey data are available in DATRAS; (b) R script to evaluate the results cross-regionally

3 Avoid generic terms such as "Discuss" or "Consider". Aim at drafting specific and clear ToR, the delivery of which can be assessed

c	Evaluate the combined survey results of the offshore and inshore beam trawl surveys by region on consistency, including litter data in a reproduceable manner.	Evaluation of e.g. species composition and litter registrations will ensure that patterns in the data (e.g. time-series non-commercial species, litter, species composition, length frequencies) are based on correct data and not due to artefacts, even when the signals contradict. By doing this in a reproduceable manner (R script), the focus can be shifted or extended over the years without re-inventing the wheel. Moreover, traceability of analyses increases.	3.1, 3.2	annually	(a) Updated, consistent and quality controlled (e.g. species composition, litter coding, consistent species identification in overlapping survey areas) beam trawl survey data are available in DATRAS. (b) R script to evaluate the results by region
d	Coordinate and evaluate the data delivery into the ICES database for offshore and inshore beam trawl surveys of (at least) the last two years and document gaps.	Unaggregated beam trawl survey data are stored in DATRAS up and until the survey of the year previous to the meeting year. Data from the year(s) before that, should be checked for completeness (final data submitted).	3.1	annually	(1) Achievable deadlines for data delivery of the next survey (2) Updated ICES database for inshore and offshore beam trawl surveys.
e	Coordinate and plan inshore and offshore surveys including overlapping tows	Dates, sampling areas and contact details of key persons are shared in order to (a) identify opportunities for tows on the same location, to support the deltaGAM methodology for index calculation in combining different survey gears. (b) coordinate effort in case of unforeseen circumstances hampering one of the surveys, primarily North Sea	3.1	annually	Finalized planning for the inshore and offshore beam trawl surveys, including areas where overlappinig tows may occur.
f	Report on the performance and abnormalities in the inshore and offshore surveys in the past year	For interpretation of the results, information on the performance of the sampling has to be provided to end-users	3.1	annually	Survey summary sheet by region.

g	Review and update the manual for offshore beam trawl surveys (SISP 14)	Review and update the survey manual.	3.1, 3.2	Year 3	Updated BTS manual (SISP 14)
h	Review and update the manual for inshore beam trawl surveys (DYFS, SNS)	Finalize the current draft manual in line with SISP 14 and hand in for review.	3.1, 3.2	Year 2	Manual for inshore beam trawl surveys
i	Provide indices for plaice, sole and if necessary other species if not yet derived directly from DATRAS	Indices are needed for the stock assessments. Especially for the Q1SWECOS survey, North Sea inshore surveys and offshore surveys outside the North Sea where indices are not (always) yet derived from DATRAS directly	3.1, 3.2	annually	Indices for plaice and sole if needed

Summary of the Work Plan

Year 1	• Compilaton of survey summary sheets • Provide tabular overview of survey planning, including geographical areas for overlapping tows • Data for all beam trawl surveys (inshore and offshore) including litter uploaded in DATRAS for at least the past two years, as far as DATRAS allows the survey data to be submitted. For datasets where index calculation is done directly from DATRAS, as many years of the time-series should be uploaded as is feasible • R scripts for and results from the data evaluation by region as well as across regions • First draft of inshore beam trawl survey manual following the outlines of SISP 14 • If relevant, updated SISP 14 at sharepoint
Year 2	• Compilaton of survey summary sheets • Provide tabular overview of survey planning, including geographical areas for overlapping tows • Data for all beam trawl surveys (inshore and offshore) including litter uploaded in DATRAS for at least the past two years, as far as DATRAS allows the survey data to be submitted. For datasets where index calculation is done directly from DATRAS, as many years of the time-series should be uploaded as is feasible • R scripts for and results from the data evaluation by region as well as across regions • Final version of inshore beam trawl survey manual following the outlines of SISP 14 • If relevant, updated SISP 14 at sharepoint
Year 3	• Compilaton of survey summary sheets • Provide tabular overview of survey planning, including geographical areas for overlapping tows • Data for all beam trawl surveys (inshore and offshore) including litter uploaded in DATRAS for at least the past two years, as far as DATRAS allows the survey data to be submitted. For datasets where index calculation is done directly from DATRAS, as many years of the time-series should be uploaded as is feasible • R scripts for and results from the data evaluation by region as well as across regions • If relevant, updated SISP 14 for review and publication

Supporting information

Priority	The scientific surveys coordinated by this Group provide major fishery-independent tuning information for the assessment of several fish stocks in the a number of regions. Consequently, these activities are considered to have a very high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by about 12 beam trawl survey experts
Secretariat facilities	Report finalization, support ICES Data Centre with respect to DATRAS-related topics
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	The survey data feed into to the assessments of flatfish stocks, brown shrimp and elasmobranch species carried out by various stock assessment EGs. Linked to ACOM through the quality of stock assessments and management advice.
Linkages to other committees or groups	Outcomes of and data supplied by WGBEAM are relevant to WGML and integrated ecosystem assessment groups.
Linkages to other organizations	The offshore beam trawl survey data are used in the large fish indicator (OSPAR).

WGACEGG - Working Group on Acoustic and Egg Surveys for small pelagic fish in NE Atlantic

2020/FT/EOSG17 A **Working Group on Acoustic and Egg Surveys for small pelagic fish in NE Atlantic (WGACEGG)**, chaired by Jeroen van der Kooij*, United Kingdom and Maria Manuel Angélico*, Portugal, 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	16 -20 November	Online meeting	Interim report by 11 December 2020 to EOSG	**Outgoing Chairs:** Maria Santos, Spain and Mathieu Doray, France **Incoming Chairs:** Jeroen van der Kooij, U.K and Maria Manuel Angélico, Portugal
Year 2021	15-19 November	Online meeting	Interim report 17 December 2021 to EOSG	
Year 2022	November	TBD	Final report by TBD to EOSG	Select new chairs for net term (2023-2025)

ToR descriptors[4]

ToR Description	Background	Science plan codes	Duration	Expected Deliverables

4 Avoid generic terms such as "Discuss" or "Consider". Aim at drafting specific and clear ToR, the delivery of which can be assessed

a	Evaluate and provide echo-integration and/or Daily Egg Production Method (DEPM) estimates for sardine, anchovy horse mackerel, boarfish, herring, and sprat in ICES sub-Areas 6, 7, 8 and 9	a) Data provide backbone of relevant stock assessments for key species at relevant WGs (Advisory Requirements) b) Requirements from other EGs	3.1	annually	Abundance and biomass estimates by age and/or length group . Fish spatial distribution will be provided to WGHANSA, WGWIDE, HAWG by the end of the WGACEGG meeting. Datasets will be published in the ICES repository when available.
b	Analyse sardine and anchovy (adults and eggs), spatial and temporal distribution and their habitats in European waters	a) Surveys collect additional data on the wider ecosystem; interannul variation in sardine and anchovy biomass and distribution will be studied in relation to ecological processes. Science Requirements b) Requirements from other EGs	1.5	Year 2	Aim to publish results in a peer reviewed paper and/or CRR in 2021; with decision to be made following review of results and progress in 2020.
c	Provide ecosystem data such as temperature, salinity, plankton diversity, top predators abundances, egg densities and backscattering for sardine, anchovy and other small pelagic fish for pelagic ecosystem monitoring (e.g. MSFD)	a) Combining the data from concurrent surveys (e.g. spring) provides improved insight into large scale features potentially affecting local survey observations and will ultimately help improve (understanding of both) the stock assessment and ecosystem dynamics. (Science Requirements) b) Requirements from other EGs	1.4, 1.5	annually	Gridded maps updated every year. Datasets will be published in the ICES repository when available
d	Assess developments in the technologies and data analyses for the application of both acoustics and the DEPM (on egg production or adult parameters).	a) Ensure best practise is applied. Science Requirements b) Advisory Requirements c) Requirements from other EGs	3.3	3 years	Report relevant new methodologies in annual WG report, available to the public one month after the meeting.
e	Improve and assess the suitability of CUFES data for anchovy and sardine egg production estimates in areas 8 and 9.	a) Science Requirements b) Advisory Requirements c) Requirements from other EGs	3.3	3 years	
f					
f	Develop and standardization of data processing methods for DEPM and acoustics for surveys in Atlantic and Mediterranean waters	a) Science Requirements b) Advisory Requirements c) Requirements from other EGs	3.1, 3.2	3 years	Updated data processing protocols shared with the MEDIAS group (Mediterranean acoustic survey group)

G	Provide echo-integration estimates for other species (mainly blue whiting, mackerel, herring, sprat, horse mackerel, chub mackerel and boarfish) ICES sub-Areas 6, 7, 8 and 9	a) Surveys collect additional distribution, abundance and biological data on pelagic fish species, that are not currently used in stock assessment – make available for studies and possible future inclusion in assessment. Advisory Requirements b) Requirements from other EGs	3.5	3 years	Biomass per age group when available otherwise per length classes and spatial density distribution, provided to WGWIDE and HAWG before the WG annual meeting. Datasets will be published in the ICES repository when available.
H	Develop, coordinate and review survey protocols for WGACEGG surveys (DEPM: BIOMAN, SAREVA, PT-DEPM-PIL, BOCADEVA; Acoustic: PELAGO, PELACUS, PELGAS, ECOCADIZ, WESPAS, ECOCADIZ RECLUTAS, IBERAS-JUVESAR, JUVENA, PELTIC, CSHAS)in line with ICES QAQC proceedures	ICES aims to have a quality assurance process for data collections used in the provision of advice. One element of this is that all procedures describing the data collection are adequately described.	3.1	annually	Publication of survey manual, TIMES (SISP) for the data collection and product specification conducted under the auspices of WGACEGG (2020); review document annually and, if required, submit new version in 2022 for publication..
I	Compare acoustic and DEPM biomass estimates of anchovy and sardine and evaluate their respective bias and precision with a view to providing improved data to stock assessment WGs	a) Currently, DEPM and acoustic derived indices for anchovy and sardine are presented separately to stock assessment working groups. Data from either methods may be used to interpretate the other method and improve information provided to assessment WGs. Science Requirements b) Advisory Requirements c) Requirements from other EGs	-	3 years	
J	Develop the use of image recognition techniques to characterise the distribution of surface mesozooplankton and possibly microplastics in areas 7, 8 and 9, based on CUFES and/or plankton nets.	a) Science Requirements b) Requirements from other EGs	1.2	3 years	
K	Collaborate with groups wishing to utilize available timeseries from WGACEGG coordinated surveys.	a) Science Requirements	3.2	Years 1-3	Facilitate collaborative activities with WGSPF and other groups, by contributing expertise and data to large scale studies on small pelagic fish.

Summary of the Work Plan

Year 1	Annual meeting, including, if possible, a joint session with MEDIAS (Mediterranean acoustic survey group): • **Evaluation of echo-integration and/or Daily Egg Production Method (DEPM) estimates for sardine, anchovy horse mackerel, boarfish, herring, and sprat in ICES sub-Areas 6, 7, 8 and 9** • **Update of gridded maps of ecosystem data derived from surveys, and assessment of feasibility of production of megafauna and mesozooplankton grid maps for ecosystem assessment** • **Session on historic data series consolidation and storage** • **Update of the WGACEGG DEPM and acoustic Survey Protocols (TIMES) if required** • **Session on acoustic data collection and analysis, including a topic on the analysis of acoustic data in presence of mixed mesopelagic and juvenile anchovies assemblages** • **Session on DEPM data collection and analysis** • **Session on comparison of acoustic and DEPM indices** • **Session on results of the analysis on time series of gridded maps of species-and ecosystem data** • **Session to analyse progress on sardine and anchovy egg production estimates from CUFES**
Year 2	Annual meeting: • **Evaluation of echo-integration and/or Daily Egg Production Method (DEPM) estimates for sardine, anchovy horse mackerel, boarfish, herring, and sprat in ICES sub-Areas 6, 7, 8 and 9** • **Update of gridded maps of ecosystem data derived from surveys, historic data series consolidation and storage** • **Session on historic data series dissemination and valorisation** • **Update of the WGACEGG DEPM and acoustic Survey Protocols (SISP) if required** • **Session on acoustic data collection and analysis** • **Session on DEPM data collection and analysis** • **Session on comparison of acoustic and DEPM indices** • **Session to analyse progress on sardine and anchovy egg production estimates from CUFES**
Year 3	Annual meeting, including a joint session with MEDIAS (Mediterranean acoustic survey group): • **Evaluation of echo-integration and/or Daily Egg Production Method (DEPM) estimates for sardine, anchovy horse mackerel, boarfish, herring, and sprat in ICES sub-Areas 6, 7, 8 and 9** • **Update of gridded maps of ecosystem data derived from surveys, historic data series consolidation and storage** • **Update of the WGACEGG DEPM and acoustic Survey Protocols (SISP) if required** • **Session on developments in acoustic data analysis** • **Session on developments in DEPM data analysis** • **Session on the use of image recognition techniques to characterise the distribution of (surface) mesozooplankton communities** • **Session on comparison of acoustic and DEPM indices** • **Session to analyse progress on sardine and anchovy egg production estimates from CUFES**

Supporting information

Priority	The current activities of this Group will ensure the provision and the quality of the data provided to ACOM advisory groups in charge of the assessment of anchovy, sardine, blue whiting, Atlantic and horse mackerels, boarfish, herring and sprat in ICES sub-Areas 6, 7, 8 and 9. The activities of the group will also lead to the provision and analyses of a series of gridded maps of data on the hydrology, phytoplankton, small pelagic fish and megafauna of the North Eastern Atlantic pelagic ecosystem. Those spatially explicit data will be useful to any group interested in assessing the state of the North Eastern Atlantic pelagic ecosystem. Consequently, these activities are considered to have a very high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by some 15–30 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	WGACEGG is cooperating with the following advisory structures a) ICES Assessment Working groups: WGHANSA, WGWIDE, HAWG together with related Benchmark WG and Workshops b) Advice drafting Groups: ADGHANSA
Linkages to other committees or groups	There is a close working relationship with the following SCICOM groups: WGFAST, WGALES WGEAWESS and WGMEGS. Similarly, it is anticipated that close collaboration will be createdwith WGSPF, which will benefit from WGACEGG's expertise and data.
Linkages to other organizations	A joint session is held every two years during WGACEGG annual meeting with the survey group MEDIAS in charge of the coordination of acoustic surveys in the Mediterranean Sea.

WKMACHIS - Workshop on Mackerel, Horse Mackerel and Hake Eggs Identification and Staging

2019/2/EOSG18 The **Workshop on Mackerel, Horse Mackerel and Hake Eggs Identification and Staging (WKMACHIS)** chaired by Matthias Kloppmann*, Germany, will meet online, 11-15 October 2021 to:

a) Carry out internationally comparative plankton sorting trials on typical MEGS survey samples to evaluate and standardize the effectiveness of plankton sampling procedures. This should follow the pattern of trial – analysis– identification of problem areas – retrial; **ICES Science plan** 3.1

b) Carry out comparative egg identification and staging trials for mackerel, horse mackerel and hake eggs following the methodology used in the previous egg staging workshops in order to quality assure the egg production estimates for the target species; **ICES Science plan** 3.1

c) Discuss sources of misidentification and -staging of fish eggs and prepare an uncertainty matrix of mackerel, horse mackerel and hake egg identification and staging; **ICES Science plan** 3.1

d) Review available documentation on species identification and staging of fish eggs, define **standard protocols and updated relevant descriptions and pictures in the survey manual; ICES Science plan** 3.1

WKMACHIS will report by 19 November 2021 for the attention of EOSG, WGMEGS and WGBIOP

Supporting Information

Priority	High priority to ensure the quality of data provided to WGWIDE for the production of advice.
Scientific justification	Sorting fish eggs from plankton samples, their staging and identification to species remains one of the key proficiencies in the execution of the mackerel and horse mackerel egg surveys. As this is carried out by a number of different operators in many different countries, and then the data combined, it is vital that the process be standardized. WGMEGS strongly feels that this is best done through the mechanism of a regular workshop to compare results between survey participants. In the context of the triennial egg surveys, it proved appropriate to hold a workshop prior to every survey to standardize approaches and methodologies in the run-up to the surveys. This will have the advantage of training new operators as well as harmonizing the approach of experienced operators. Egg staging workshops were held since 2000, and were very successful in achieving these aims. It is recommended that experiences gathered during these be used for setting up the procedures for the proposed workshop in 2022. The workshop will use the proven method of carrying out a set of sorting trials, analysing the results and identifying problems, and then repeating the trials on the basis of the new understanding. The workshop will also be tasked to update the descriptions and photographs given in the MEGS manual to assist in the plankton sample handling procedure.
Resource requirements	None
Participants	Mainly scientists and technicians (approximately 20) involved in the surveys.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	SCICOM, ACOM
Linkages to other committees or groups	WGMEGS, WGBIOP, WGALES and WGWIDE
Linkages to other organizations	None.

WKAEPM - Workshop on Adult Egg Production Methods Parameters estimation in Mackerel and Horse Mackerel

2019/2/EOSG19 The **Workshop on Adult Egg Production Methods Parameters estimation in Mackerel and Horse Mackerel (WKAEPM)** chaired by Maria Korta*, Spain, will meet in San Sebastian, 22-26 November 2021 to:

c) Inter-calibration of egg production methods (Annual and Daily Egg Production Methods), including historical re-evaluation of histological samples for maturity, fecundity, batch fecundity Estimation and atresia and post-ovulatory follicle classification **ICES Science plan** 3.1, 3.3, 5.1

d) Comparison of egg production indices based on harmonized maturity, fecundity, atresia and POF estimates with currently used egg production estimates. **ICES Science plan** 3.1, 3.3, 5.1

e) Review existing, previously utilized and newly developed methods and calculations for realised fecundity estimation as well as batch fecundity and spawning fraction estimation, and document changes in procedures and their consequences in a protocol to be stored on the WGMEGS GitHub; **ICES Science plan** 3.1, 3.3, 5.1

f) Review available documentation on adult parameters estimation, both textual and **figures, to redefine the standard protocols and update the survey manual; ICES Science plan** 3.1, 3.3, 5.1

WKAEPM will report by 7 January 2022 for the attention of EOSG, WGMEGS, WGALES and WGBIOP

Supporting Information

Priority	Data quality, used to provide fisheries advice through WGWIDE, will be impaired if this workshop is not conducted.
Scientific justification	Adult reproductive parameters estimation is fundamental for conversion of egg production into spawning stock biomass of western and southern mackerel and horse mackerel stock components. Both (batch) fecundity and atresia estimation as well as spawning fraction estimation are carried out using histological and image analysis methods, and the analysis and interpretation of these materials requires standardization across participating institutes. The standardization in this aspect is carried out in workshops since 2001 which have been extremely helpful for agreed practices among institutes and is recommended that experiences gathered during these workshops be extended during the consecutive workshop in 2021. It is expected that the workshop will refine the developed methodologies and clarify established calculations for these adult parameters estimation to obtain unbiased biomass output from the egg surveys. The workshop will update the survey manual with regards to any new findings in the fecundity, atresia, and spawning fraction estimation from sampling as well as the evaluation procedures and final calculations, for appropriate quality assurance purposes.
Resource requirements	None
Participants	Mainly scientists and technicians (approximately 20) involved in the surveys.
Secretariat facilities	None.

Financial	No financial implications.
Linkages to advisory committees	ACOM
Linkages to other committees or groups	SCICOM, WGMEGS, WGBIOP, WGALES WGISDAA and WGWIDE
Linkages to other organizations	None.

WGMEGS - Working Group on Mackerel and Horse Mackerel Egg Surveys

2020/FT/EOSG01 A **Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS)**, chaired by Gersom Costas*, Spain and Brendan O'Hea*, 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 2021	26–30 April	Online meeting	Interim report by 14 June 2021 to ACOM/SCICOM	Brendan O'Hea and Gersom Costas confirmed as new chairs.
Year 2022	WebEx after the survey and prior to WGWIDE meeting of the same year		Interim report by 30 September 2022 to ACOM/SCICOM	second meeting of group via correspondence and remotely as WebEx conference as it falls within the year of the triennial MEGS Survey. The date for report delivery is set after the WGWIDE meeting to be able to include the preliminary results of the 2022 survey.
Year 2023	April	TBD	Final report by 12 June 2023 to ACOM/SCICOM	

WGMEGS ToRs 2021 – 2023

ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
a	Plan and coordinate the Mackerel/Horse Mackerel Egg Surveys in the ICES areas 4 to 9.	The egg surveys in the Northeast Atlantic (ICES areas 5 to 9) and in the North Sea (ICES area 4) provide important data for fishery-independent stock indices for Northeast	3.1	years 1 – 3	Continuously updated survey plans and survey summary sheets of the surveys in 2022/23 on the WGMEGS sharepoint

		Atlantic mackerel and for both the western and the southern horse mackerel stocks. The survey is part of a time-series that commenced in 1977. With up to 10 nations and up to 18 individual cruises participating in the survey, careful and detailed planning and coordination of the surveys is essential.			
b	Plan and Coordinate the sampling and laboratory analysis for mackerel/horse mackerel fecundity and atresia.	Reliable realized fecundity estimates are needed to convert the egg abundance data to SSBs. International coordination is needed to ensure that the samples collected on different survey are representative and collections efficient.	3.1	Year 1, 2 & 3	Coordinated Sampling Plan for the surveys in 2022/23 on the WGMEGS sharepoint
c	Review and update the manuals for the Mackerel and Horse Mackerel Egg Surveys and fecundity estimation	Well defined, standardized sampling and laboratory procedures are necessary to properly interpret the monitoring data as well as ensuring that rigorous and transparent QAQC procedures have been applied and can be evaluated by external reviewers.	3.1, 3.2	Year 1, 2 and 3	Updated manuals for both, egg surveys and fecundity estimation for WGMEGS on the sharepoint in years 1 and 2, for for publication in TIMES in year 3
d	Coordinate the quality-controlled data delivery to the ICES databases for both, egg abundance and fecundity data	x	3.1	Year 3	Updated ICES egg and larval database. ICES fecundity and atresia database
e	Organise and evaluate workshops aimed at developing survey specific expertise in fish egg identification and staging, and fecundity estimation	For quality assurance in the year before the Atlantic survey two workshops will be organized in which survey participants are obliged to	3.2, 3.3	Year 1 and 2	TIMES survey manual article

		participate in order to standardize egg identification and staging and fecundity estimation. The WGMEGS manual is required to be updated with the results from those workshops.			
f	Prepare, organise and evaluate a workshop on mackerel and horse mackerel survey design and data quality assurance and control	Since the recent surveys and due to rapidly changing environmental conditions, the assumptions, under which the current survey design was determined, are being increasingly challenged. New survey strategies and techniques, as well as new methods for spatial data analysis need to be carefully implemented in order to maintain the integrity of the time series.	3.2, 3.3	Year 3	CRR
g	Provide relevant fisheries resources assessment groups with quality-controlled time series of indices on spawning stock biomass for mackerel, horse mackerel and hake in time fore the assessments.	Provisional estimates of mackerel SSB, and egg production of horse mackerel and hake are delivered in the year of the survey. The estimates however are finalized during the WGMEGS meeting in the year after the Atlantic survey.	1.3, 3.1, 5.1, 5.2	Years 2 and 3	

Summary of the Work Plan

Year 1	**Planning of the egg survey in 2022, conduct 2 workshops to develop survey specific expertise**
Year 2	Survey year, the Atlantic survey is conducted in 2022, a WebEx meeting will take place in year 2 after the survey to collate the survey results and provide preliminary results. A report, by correspondence, with the updated planning and manuals, and the preliminary results of the 2022 survey, is published.
Year 3	Reporting and finalizing of the results of the 2022 egg survey. Planning of the 2023 North Sea egg survey. Delivery of CRR on mackerel and horse mackerel survey design.

Supporting information

Priority	Essential. The egg survey provides important fishery-independent stock data used in the assessment for Northeast Atlantic mackerel and for the western horse mackerel stocks.
Resource requirements	No additional resources needed for ICES. For participants the surveys are all part of the national programs. The surveys and associated meetings are also partially funded under the EU fisheries data directive.
Participants	Usually ca. 15–20 participants from ICE, Far, N, NL, P, ESP, UK (E), UK (Scot), DE, DK, IRL.

WGSSSE - Working Group on Size and Species Selection Experiments

2020/FT/EOSG02 A Working Group on Size and Species Selection Experiments (WGSSSE), chaired by Haraldur Arnar Einarsson, Iceland/FAO, and Michael Pol, USA 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	10 December	Online meeting		Follow-up breakout day in second week of January 2021
Year 2021	October 2021	Online meeting		
Year 2022	TBD	Rome	Final report by 1. December to EOSG	

ToR descriptors[5]

ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
a	Review historic and newly developed analytical and statistical methodology to estimate size and species selection in towed and static fishing gears including consideration of environmental covariates (both instantaneous and modelled).	Estimates of selectivity are important to management through both the assessment process and the development of more selective management measures. A common understanding of the pros and cons of different methods of estimating selectivity is vital to making progress.	5.4	1 year (2020-21)	

b	Write guidelines for field data collection, including covariates which may affect size and species selection..	Knowledge of the data requirements of the different methods will result in more consistent data collections across studies even if conducted by non-experts	5.4	1 year (2020-21)	
c	Develop comprehensive guidelines for accurate estimation of size selection for a global audience	Wileman, et al. (1996) published a manual on the methodology for estimating retention, or selectivity WGFTFB members see a need to update the methodological information and augment it to include additional gears.	5.4	2 years (2020-2022)	
d	Compile the guidelines on field data collections and methods for accurate estimation of fishing gear size selectivity into a technical report for ICES and FAO	WGFTFB has been seeking to produce a much-needed updated manual to estimate selectivity but struggled with time and resource issues to produce this. This WG, consisting of members of WGFTFB aims to resolve this issue.	5.4	1 year (2022-23)	CRR

Summary of the Work Plan

Year 1	Meet to identify areas, develop an outline of the new manual, and create thematic subgroups
Year 2	Bring text together for group editing and approval
Year 3	Produce final draft

Supporting information

Priority	The activities of this group will provide a much-needed update to a primary reference document, ICES Cooperative Research Report No. 215: Manual for Methods of Measuring the Selectivity of Towed Fishing Gears. The Manual is now nearly 25 years old, and was developed before the availability of open-source statistical software and newer statistical methodology accessible due to computing power. ICES Report No. 215 is a foundational document for gear technologists.

Resource requirements	No resource requirements for ICES. Additional resources to undertake these activities is minimal, and will be drawn from members' institutions
Participants	The Group is expected to consist of at least 10 members, mostly drawn from WGFTFB
Secretariat facilities	Standard support
Financial	Publication of CRR
Linkages to ACOM and groups under ACOM	There are no obvious direct linkages.
Linkages to other committees or groups	Annual or more frequent updates to WGFTFB are planned
Linkages to other organizations	FAO Fishing Operations and Technology Branch (NFIO)

WGBIFS - Baltic International Fish Survey Working Group

2020/FT/EOSG03 The Baltic International Fish Survey Working Group (WGBIFS), chaired by Elor Sepp*, Estonia and Olavi Kaljuste, Sweden, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2021	22–26 March 2021	Online meeting	Interim report by 15 May 2021 to, SCICOM and ACOM	Elor Sepp and Olavi Kaljuste appointed as chairs
Year 2022			Interim report by 15 May 2022 to, SCICOM and ACOM	
Year 2023			Final report by 15 May 2023 to, SCICOM and ACOM	

ToR descriptors

ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
a	Combine and analyse the results of acoustic surveys and experiments	Acoustic surveys provide important fishery-independent stock estimates for Baltic herring and sprat stocks	3.1	annually Year 1, 2 and 3	Updated acoustic tuning indices for WGBFAS
b	Update the BIAS, BASS and GRAHS hydroacoustic databases and ICES database for acoustic-trawl surveys	The aim of BIAS, BASS and GRAHS databases is to store the aggregated data that are used for the calculation of the survey indices. The aim of ICES database is to ensure that the standardized and quality-controlled scrutinized data from the acoustic-trawl surveys will be stored centrally in a safe way and enables easy access	3.1	annually Year 1, 2 and 3	Updated databases with acoustic and biotic data for WGBIFS

		to the data, which will facilitate usage for many different analyses by a wider range of users.			
c	Coordinate and plan acoustic surveys including any experiments to be conducted	Acoustic surveys provide important fishery-independent stock estimates for Baltic herring and sprat stocks	3.1	annually Year 1, 2 and 3	Finalized planning for the surveys for WGBIFS
d	Review the results of BITS surveys and evaluate the characteristics of TVL and TVS standard gears used in BITS	Demersal trawl surveys provide important fishery-independent stock estimates for Baltic cod and flatfish stocks	3.1	annually Year 1, 2 and 3	Updated BITS data in DATRAS database for ICES Data Centre and WGBFAS
e	Coordinate and plan demersal trawl surveys and experiments to be conducted, and update and correct the Tow Database	Demersal trawl surveys provide important fishery-independent stock estimates for Baltic cod and flatfish stocks	3.1	annually Year 1, 2 and 3	Finalized planning for the surveys for WGBIFS, updated and corrected Tow Database
f	Conduct the analyses related to the improvement of quality of acoustic indices and estimation of the uncertainty in the acoustic surveys coordinated by WGBIFS	Acoustic surveys provide important fishery-independent stock estimates for Baltic herring and sprat stocks	3.1, 3.2, 3.3	Year 1-3	Improved quality of acoustic indices with estimates of the uncertainty for WGBFAS
g	Update on progress in development of the StoX software and implementation of it for the calculation of WGBIFS acoustic stock estimates	StoX post-processing software produces fish abundance estimations in a transparent and reproducible way. Planned development of the StoX should allow implication of this software by WGBIFS using the data from ICES database. Comparisons will be performed to validate whether the StoX software provides us similar results as the current IBAS calculation method in order to allow WGBIFS to use it as a new standard tool for the calculation of annual acoustic survey estimates.	3.1, 3.2	Year 1-3	Improved quality, transparency and reproducibility of acoustic indices, improved pace of work on the level of national data compilation and verification
h	Coordinate the marine litter-sampling programme within the Baltic International Trawl Survey and	Collected and registered information about the marine litter (mostly anthropogenic origin), occasionally appeared in the ground trawl fish	3.1	annually Year 1, 2 and 3	Coordinated marine litter sampling programme within the Baltic International

	registering the data in the ICES database.	control-catches, are additional source of data about present ecological status of marine seabed in investigated areas of the Baltic.			Trawl Survey (BITS).
i	Agree a standard pelagic trawl gear used in the acoustic surveys	Acoustic surveys provide important fishery-independent estimates for Baltic herring and sprat stocks size and possible uncertainties, which result from, e.g. different type of fishing gears applied for fish control-catches, should be eliminated.	3.1, 3.2	Year 1-3	Agreement on the standard pelagic fishing gear which will be used in the BIAS and BASS surveys
j	Review and update the manual for International Baltic Acoustic Surveys (IBAS; former SISP 8) and address methodological question raised at the last review of the SISP	Acoustic surveys provide important fishery-independent stock estimates for Baltic herring and sprat stocks	3.1, 3.2	Year 3	Updated IBAS manual for publication in TIMES
k	Review and update the manual for Baltic International Trawl Survey (BITS; former SISP 7) and address methodological question raised at the last review of the SISP	Demersal trawl surveys provide important fishery-independent stock estimates for Baltic cod and flatfish stocks	3.1, 3.2	Year 3	Updated BITS manual for publication in TIMES
l	Conduct analyses related to the uncertainties in the Gulf of Riga Acoustic Herring Survey (GRAHS) in order to improve the quality of the GRAHS and subsequent indices.	Until now, the preparation of the survey data for stock assessment is the responsibility of the Latvian and Estonian national laboratories. The methodology and consistency of results of this survey should be evaluated by the wider international scientific expertise available.	3.1, 3.2	Year 1-3	Improved quality, transparency and reproducibility of acoustic indices, updated databases with acoustic and biotic data from GRAHS
m	Evaluate if there are methodological and/or environmental reasons for different survey catchabilities in different ICES Sub-divisions and what may be magnitude of these differences	Within the INSPIRE project assessments of herring and sprat stocks were conducted by former assessment units (AUs) instead of currently used central Baltic herring (CBH) and sprat in the entire Baltic. It was dis-covered in these assess-ments that catchabilities (q)	3.1, 3.2	Year 1-3	Improved quality and transparency of acoustic indices

	(understood as ratio between the acoustically estimated and the model assessed stock sizes in given area/AU) of acoustic surveys estimated by applied assessment models differed by AUs, and usually q's were higher in northern than in southern waters. The question is if these differences may to some extent be caused by "environmental" differences, acoustic methodologies, area coverages etc. in the surveyed areas. This information is important to have if ICES is asked to develop/evaluate a spatial management plan for sprat and herring, as has been suggested for several years in the sprat advice.

Summary of the Work Plan

Year 1	Compilation the survey results from 2020 and the first quarter of 2021 and reporting to WGBFAS. Coordination and planning the schedule for surveys in 2021 and first half of 2022. Review the development and validation progress of the StoX software. Conduct the analyses related to the improvement of quality of acoustic indices and estimation of the uncertainty in the acoustic surveys coordinated by WGBIFS. Uploading the data from the Gulf of Riga Acoustic Herring Survey into the ICES database for acoustic and trawl surveys and screening of the data. Conduct analyses related to the evaluation of the different survey catchabilities. Coordinate the marine litter-sampling programme in the BITS surveys and registering the data in the ICES database. Cooperate with WGIPS to find, whether there can be a joint approach for designing a standard pelagic fishing gear used in the acoustic surveys.
Year 2	Compilation the survey results from 2021 and first quarter of 2022 and reporting to WGBFAS. Coordination and planning the schedule for surveys in 2022 and first half of 2023. Review the development and validation progress of the StoX software. Conduct the analyses related to the improvement of quality of acoustic indices and estimation of the uncertainty in the acoustic surveys coordinated by WGBIFS. Conduct analyses related to the uncertainties in the Gulf of Riga Acoustic Herring Survey. Conduct analyses related to the evaluation of the different survey catchabilities. Coordinate the marine litter-sampling programme in the BITS surveys and registering the data in the ICES database. Joint approach with WGIPS, if possible, to designing the standard pelagic fishing gear used in acoustic surveys.

Year 3	Compilation the survey results from 2022 and first quarter of 2023 and reporting to WGBFAS. Coordination and planning the schedule for surveys 2023 and first half of 2024. Implementation of the StoX software linked with the ICES acoustic-trawl survey database for the calculation of stock estimates for Baltic herring and sprat. Present the results of the analyses related to the improvement of quality of acoustic indices and estimation of the uncertainty in the acoustic surveys coordinated by WGBIFS. Present the quality checked, transparent and reproducible acoustic indices from the Gulf of Riga Acoustic Herring Survey. Adress results of the analyses related to the evaluation of the different survey catchabilities to WGBFAS. Coordinate the marine litter-sampling programme in the BITS surveys and registering the data in the ICES database. Reviewing and updating the BITS and IBAS survey manuals, and publication inTIMES. Final decision concerning the possible implementation of the standard pelagic fishing gear for control-catches in acoustic surveys.

Supporting information

Priority	The current activities of this Group will lead ICES into issues related to the ecosystem effects of fisheries, especially with regard to the application of the Precautionary Approach. Consequently, these activities are considered to have a very high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by about 25 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and group under ACOM	The survey data are prime inputs to the assessments of Baltic herring, sprat, cod and flatfish stocks carried out by WGBFAS. Linked to ACOM through the quality of stock assessments and management advice.
Linkages to other committees or groups	There is a very close working relationship with WGBFAS. It is also relevant to the HAPSISG, WGFAST and the working group on Marine litter (WGML).
Linkages to other organizatior	No direct linkage to other organizations.

WKFDNG - Workshop on the Further Development of the New IBTS Gear

2020/WK/EOSG04 The Workshop on the Further Development of the New IBTS Gear (WKFDNG), chaired by Ingeborg de Boois, Netherlands and to be decided, will be established and will meet TBD, to be decided 2021 to:

a) Review the data of the GOV and both new gears: technical details, the field data on net geometry and stability, and the catch comparison data. (Science Plan codes: 3.1, 3.3)
b) Rank the two new gears according to the criteria recommended by SGSTG/SGSTS (a.o. robustness and durability, herding effect, stability, costs). Based on the ranking conclude if there is a merit in one design over another, or is an average of both gears the better. (Science Plan codes: 3.1, 3.3)
c) Select design issues including detailed material choices. (Science Plan codes: 3.1, 3.3)
d) Comment on the recommendations by WKNSIMP on implementation of the gears. (Science Plan codes: 3.1, 3.3)

WKFDNG will report by To be decided for the attention of the to be decided Committee.

Supporting information

Priority	Fisheries surveys are expensive and a key source of fisheries independent information supporting sustainable advice. IBTS have detailed significant issues in the design and use of the current survey trawl in a number of study groups (SGSTG, SGSTS) and provided a roadmap for addressing them. Not addressing these recommendations will likely have implications for the core assumption of survey data i.e. standardized catchability. The goal of the proposed workshop is to bring survey and gear technology expertise together to produce a final revised survey trawl design based on the sea trials carried out by IBTS in recent years to address these recommendations.
Scientific justification	The traditional role of IBTS has been to produce relative indices of abundance, for a range of species, for use in sustainable management of marine resources. The relativity part of these indices depends wholly on sampling efficiency remaining constant over time through well-managed protocols and survey equipment. Design issues highlighted by IBTS regarding the current standard survey trawl ask strong questions about that founding assumption. In addition, among other evolving roles, IBTS in recent years has been a key data provider for emerging fisheries, spatial shifts in existing fisheries as well as indicator species for vulnerable marine ecosystems. To embrace these additional questions fully, consideration must be given to following the data into potentially new survey areas where the current sampling trawl design is known to be very vulnerable. Proven design modifications to reduce variability in catch performance as well as enhance robustness and ubiquity of the trawl have been evaluated. In face of the growing remit of IBTS, a workshop to peer review findings at this point is now required to recommend a final design and kick start the difficult task of modernizing the extensive data collection program that is IBTS. **Term of Reference a)** The Study Group on Survey Trawl Standardization (SGSTS) developed a list of recommended criteria to consider when developing a new survey trawl. Using these criteria, this workshop will rank the standard trawl and two new solutions to lay a foundation for a final design proposal. **Term of Reference b)** Clarify differences and list the pros and cons of each solution to the SGSTS criteria. Make recommendations on whether either, or a compromise solution might best address the issue across the extensive IBTS survey program. **Term of Reference c)** Provide guidance on further technical options for trawl design including materials choice and best science in terms of sampling efficiency vs fuel efficiency vs seabed impact. **Term of Reference d)** Provide an achievable implementation plan, considering the work done on this by WKNSIMP, including the relevant simulation, modelling and sea trials data required of the final design, such that assessment scientists and marine managers can evaluate and plan for likely changes. Once acquired, the data and preliminary analysis will be passed back to IBTSWG.
Resource requirements	The data and reports on the gear trials done with the new gears are required. Detailed information on the new gear designs is required. The choice for the location is Lorient to be able to use the Flumetank.
Participants	Anticipated number of participants is 25-35, including the IBTS gear technicians, the IBTS surveyleaders, external gear experts.

Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	There are no obvious direct linkages with the advisory committees.
Linkages to other committees or groups	There is a very close relation with the IBTSWG, and there is clear relevance for the various groups using the data of the IBTS.
Linkages to other organizations	There is relevance for OSPAR and MSFD-groups using the data of the IBTS.

WKSAE-DATRAS - Workshop on the production of swept area estimates for all hauls in DATRAS for biodiversity assessments

2020/WK/EOSG05 The **Workshop on the production of swept area estimates for all hauls in DATRAS for biodiversity assessments** (WKSAE-DATRAS), chaired by Kai Wieland*, Denmark, will be established and meet online 31 May–4 June 2021 to:

a) Harmonize the selection on surveys and time series available in DATRAS for biodiversity assessments by:
   i. Checking and validating the calculations of missing data of the variables related to the swept-area effort estimates by some countries/countries in need;
   ii. Proposing common strategies to reduce missing data in the crucial variables for biodiversity assessments;
   iii. Defining common calculations, when possible, across surveys and countries, and perform a quality check against the observations from the most recent year(s);
   iv. Building on previous work (WKSABI) to define species groups for which the swept-area estimates should be based on door spread or wing spread and those for which swept-area may not be used;
b) Develop a script to calculate swept-area indices for biodiversity assessments;
c) Calculate swept-area indices and create a data product as input to OSPAR common indicators for fish and food webs;
d) Update the DATRAS calculation document to include reference to the new data product and fields used for biodiversity assessments.

In the first part of the workshop, national experts and members of survey groups together with the ICES Data Centre will work to clean up the data (obtain and validate missing algorithms) for the agreed NE Atlantic bottom and beam trawl surveys and time series (see Table 1 in supporting information).

WKSAE-DATRAS will report [day][month] 2021 for the attention of the Advisory Committee and the Ecosystem Observation Steering Group.

Supporting information

Priority	High, in response to a special request from OSPAR to provide swept area outputs for all otter and beam trawl surveys in the North East Atlantic and regional seas based on DATRAS. The outputs of this workshop will feed directly into the ICES advisory process and the advice will be used by OSPAR to update the common indicators FC1, FC2, FC3, FW3 for the QSR 2023.

Scientific justification

Data from groundfish surveys intended to sample commercial fish species populations to support formal stock assessments under the European Union's Common Fisheries Policy (CFP) can also be used to monitor and assess the status of the broader fish community to support the implementation of ecosystem-based management (EBM).

A suite of indicators has already been developed (see: OSPAR IA 2017 for methods) that require swept-area (tonnes per km^2) including the Large Fish Indicator for demersal fish, Typical Length of fish communities, Mean Maximum Length of fish communities, and Mean Trophic Level of marine predators. This workshop focuses on the generation of swept area indices to support OSPAR common indicators for fish biodiversity (FC1, FC2, FC3) and foodwebs (FW3). Central to this will be agreement on time series and surveys to be included and develop a script package that can fill in missing data.

The following supporting material is provided to guide implementation of ToRs a-e:

Term of Reference a)

Standard data collected on the selected surveys from Table 1 will include the fields in Table 2 and Table 3.

Table 1. Surveys considered in the OSPAR Groundfish Survey Assessment data products for IA2017 that will inform Tor a) (from "Derivation of Groundfish Survey Monitoring and Assessment Data Products for the Northeast Atlantic Area" in https://data.marine.gov.scot/sites/default/files//SMFS%200816.pdf)

Survey Acronym	Previous name(s)	Country	Years of Data	Vessels	Quarter	Gear Type	Subregion	Data Source
GNSIntOT1	Q1 IBTS	International	1983-2016	Multiple ships	1	Otter (GOV)	Greater North Sea	DATRAS
GNSIntOT3	Q3 IBTS	International	1998-2016	Multiple ships	3	Otter (GOV)	Greater North Sea	DATRAS
GNSFraOT4	FR CGFS	France	1988-2015	Thalassa II, Gwen Drez	4	Otter (GOV)	Greater North Sea	DATRAS
CSScoOT1	SWC Q1 IBTS	Scotland	1985-2015	Scotia II, Scotia III	1	Otter (GOV)	Celtic Seas	DATRAS
CSScoOT4	SWC Q3 IBTS	Scotland	1985-2015	Scotia II, Scotia III	4	Otter (GOV)	Celtic Seas	DATRAS
CSIreOT4	IE IGFS	Ireland	2003-2015	Celtic Explorer	4	Otter (GOV)	Celtic Seas	DATRAS
CSNIrOT1	Q1 NIGFS	Northern Ireland	1992-2015	Corystes	1	Otter (ROT)	Celtic Seas	NDB 92-07, DATRAS 08-15
CSNIrOT4	Q4 NIGFS	Northern Ireland	1992-2015	Corystes	4	Otter (ROT)	Celtic Seas	NDB 92-07, DATRAS 08-15
CS/BBFraOT4	EVHOE	France	1997-2014	Thalassa II	4	Otter (GOV)	Celtic Seas, Bay of Biscay	DATRAS (Cors. NDB)
BBIC(s)SpaOT1	SP-ARSA	Spain	1993-2014	Cornide de Saavedra, F de P Navarro	1	Otter (BACA)	Bay of Biscay and Iberian Coast	NDB
BBIC(n)SpaOT4	SP-North	Spain	1990-2014	Cornide de Saavedra, F de P Navarro	4	Otter (BACA)	Bay of Biscay and Iberian Coast	NDB
BBIC(s)SpaOT4	SP-ARSA	Spain	1997-2014	Cornide de Saavedra, F de P Navarro	4	Otter (BACA)	Bay of Biscay and Iberian Coast	NDB
BBICPorOT4	PT-IBTS	Portugal	2001-2011	Capricornio, Noruega	4	Otter (NCT)	Bay of Biscay and Iberian Coast	DATRAS
WAScoOT3	Rockall	Scotland	1999-2015	Scotia II, Scotia III	3	Otter (GOV)	Wider Atlantic	DATRAS
WASpaOT3	PS-PORC	Spain	2001-2014	Vizconda de Eza	3	Otter (PBACA)	Wider Atlantic	DATRAS
GNSNetBT3	BTS	The Netherlands	1987/1996-2015	Isis, Tridens II	3	Beam (8m)	Greater North Sea	DATRAS
GNSEngBT3	BTS	England	1990-2015	Carhelmar, Corystes, Endevour	3	Beam (4m)	Greater North Sea	DATRAS
GNSGerBT3	BTS	Germany	2002-2015	Solea I, Solea II	3	Beam (7m)	Greater North Sea	DATRAS
CSEngBT3	BTS/VIIa	England	1993-2014	Corystes, Endevour	3	Beam (4m)	Celtic Seas	DATRAS

ICES performs a quality check of the data before it is accepted and incorporated in the database for data from 2004 onwards. Some survey time series extend back to the 1960s and this historic data have not been subject to the same level of quality control. WKSAE_DATRAS will develop swept area estimates for data from 2004 onwards and discuss potential adjustments and work required to include data before 2004 at a later stage.

With regards to the status of data available, WKSAE_DATRAS will evaluate progress with data cleanup and algorithm development for the estimation of missing values for the different surveys initiated back in 2013 (IBTSWG 2013) with the support of the ICES Data Centre and propose common strategies to reduce missing data in the crucial variables.

The tables below will inform the fields required for each survey:

Table 2. Sampling information in new product (from "Derivation of Groundfish Survey Monitoring and Assessment Data Products for the Northeast Atlantic Area" in https://data.marine.gov.scot/sites/default/files//SMFS%200816.pdf)

Field		Unit	Description
HaulID	A27		Unique haul identifier (SurveyAcronym/Ship/Year/HaulNo)[1] (*H*)
Survey-Acronym	A13		Unique survey identifier (SubregionCountryGearTypeQuarter: e.g. GNSNedBT3)
Ship	A4		Unique vessel identifier (e.g. SCO3: *Scotia* III)
GearType	A4		Unique gear type code (BT = Beam Trawl, OT = Otter Trawl)
Gear	A6		Unique gear code (e.g. GOV = Grande Oerverture Verticale)
YearShot	S		Year that gear was shot[2]
MonthShot	S		Month that gear was shot[2]
DayShot	S		Day that gear was shot[2]
TimeShot	S	GMT	Time that gear was shot (in format HHMM)[3]
HaulDur(min)	S	min	Duration of fishing operation[4]
ShootLat(decdeg)	N	Deg.	Latitude in decimal degrees of the haul shoot position[5]
ShootLong(decdeg)	N	Deg.	Longitude in decimal degrees of the haul shoot position[5]
ICESStSq	A12		ICES statistical rectangle where gear was shot
SurvStratum	A12		Stratum tag for stratified surveys[6]
Depth(m)	N	m	Depth tag assigned to the haul[7]
Distance(km)	N	km	Tow distance[8] ($d_{H,TOW}$)
WingSpread(m)	N	m	Mean distance between the wings during fishing operation[9,12] ($d_{H,WING}$)
DoorSpread(m)	N	m	Mean distance between the doors during fishing operation[10,13] ($d_{H,DOOR}$)
NetOpen(m)	N	m	Mean head-line height above seabed during fishing operation[11,14] ($d_{H,HEIGHT}$)
WingSwptArea(sqkm)	N	km^2	Area of seabed swept by the net[15] ($A_{H,WING} = d_{H,TOW} \times d_{H,WING}$)
WingSwptVol_CorF	N		Multiplier ($1 / d_{H,HEIGHT}$): converts to 'density by wing-swept volume'[16]
DoorSwptArea_CorF	N		Multiplier ($d_{H,WING} / d_{H,DOOR}$): converts to 'density by door-swept area'[17]
DoorSwptVol_CorF	N		Multiplier ($d_{H,WING} / (d_{H,DOOR} \times d_{H,HEIGHT})$): converts to 'density by door-swept volume'[18]

Table 3 Biological information in the new product (from "Derivation of Groundfish Survey Monitoring and Assessment Data Products for the Northeast Atlantic Area" in https://data.marine.gov.scot/sites/default/files//SMFS%200816.pdf**)**

Field	Unit	Description
HaulID		Unique haul identifier (SurveyAcronym/Ship/Year/HaulNo)[1] (*H*)
SpeciesSciName		Unique species name for each species sampled across the NE Atlantic[2] (*S*)
FishLength(cm)	cm	Integer numbers indicating fish length to the 'cm below'[3] (*L*)
IndivFishWght(g)	g	Estimated weight of individual fish of specified species and length[4] ($W_{S,L}$)
Number		Total number of fish of specified species and length in the catch[5] ($N_{S,L,H}$)
DensAbund(N_sqkm)	km^{-2}	Abundance density estimate[6,8] ($D_{nos,S,L,H} = N_{S,L,H} / A_{H,WING}$)
DensBiom(kg_Sqkm)	kg km^{-2}	Biomass density estimate[7,8] ($D_{biom,S,L,H} = (N_{S,L,H} \times W_{S,L}) / A_{H,WING}$)

Term of Reference b)

The data collected comprises the number of each species of fish sampled in each trawl, measured to defined length categories. By dividing these species catch numbers-at-length by the area swept on each sampling occasion, the catch data are converted to standardised estimates of fish density-at-length, by species, at each sampling location i.e the data product. The DATRAS Specification Document will be updated with output product information, other methodologies, quality standards:

https://www.ices.dk/data/Documents/DATRAS/NS-IBTS_swept_area_km2_algorithms.pdf

Term of Reference c)

A script (with 10 components) was developed to prepare the data for indicator assessments for OSPAR IA2017. The script repository is available here:

https://github.com/MarineScotlandScience/MSFD-QA-GFSM-A-DP

The relevant components of this script package to fill in missing data will be used as a basis for developing an R script according to ICES processes and standards with agreement among the workshop participants.

Term of Reference d)

WKSEA_DATRAS will use the latest FlexFile data product from DATRAS download. FlexFile data product is the combination of exchange file and swept area parameter. The FlexFile contains the calculated wing spread, door spread, and distance for those data where this parameter is missing.

Resource requirements	ICES Data Centre, Secretariat and the 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. Participation of stakeholders is not committed.
Secretariat facilities	Remote meeting assistance will be facilitated for the dates of the workshop. Also, assistance from the ICES Data Centre and Advisory Department will be provided.
Financial	Covered by OSPAR special requests to ICES.
Linkages to advisory committees	Direct link to ACOM.
Linkages to other committees or groups	EGs coordinating surveys in DATRAS (IBTSWG, BIFS, WGMAL, WGNSSK, WGCSE, WGBEAM).
Linkages to other organizations	OSPAR.

WKABSENS - Workshop on the production of annual estimates of abundance of sensitive species

2020/WK/EOSG06 The **Workshop on the production of annual estimates of abundance of sensitive species** (WKABSENS), chaired by Anna Rindorf*, Denmark, will be established and meet online 14–18 June 2021 to:

a) Consider the applicability of the ICES list of sensitive fish species for OSPAR FC1.
b) Split the list into:
    i. Species with existing ICES assessments (including reference points);
    ii. Species for which no ICES assessments currently exist;
c) Calculate swept-area indices and create a data product as input to OSPAR common indicators for fish and food webs;
    v. Define criteria to select surveys and time-series for analysis;
    vi. Discuss and agree in algorithm(s) to infill missing data at genus or family level;
    vii. Agree on the approach to estimate single species population abundance density per year;
d) Discuss and agree on criteria of data capable to support formal assessment; The selection of assessment units will be informed by available information, data and knowledge from other ICES expert groups.
e) Calculate individual survey-based assessments for all sensitive species and create a data product to OSPAR informed by Table 2 Biological information, see below.

WKABSENS will report [day][month] 2021 for the attention of the Advisory Committee and the Ecosystem Observation Steering Group.

Supporting information

Priority	High, in response to a special request from OSPAR to provide abundance outputs for all otter and beam trawl surveys in the North East Atlantic and regional seas based on DATRAS. The outputs of this workshop will feed directly into the ICES advisory process and the advice will be used by OSPAR to update the common indicators FC1, FC2, FC3, FW3 for the QSR 2023.

Scientific justification

Data from groundfish surveys intended to sample commercial fish species populations to support formal stock assessments under the European Union's Common Fisheries Policy (CFP) can also be used to monitor and assess the status of broader fish community to support implementation of ecosystem-based management (EBM) among others.

Two sensitivity metrics have already been developed (see OSPAR IA 2017 for methodologies) to assess the extent of population recovery among sensitive fish species based on species' life trait information: Average Life-history Trait (ALHT) and Proportion Failing to Spawn (PFS).

This workshop focuses on the generation of abundance indices to support OSPAR common indicators for fish biodiversity (FC1, FC2, FC3) and foodwebs (FW3).

The following supporting material is provided to guide the implementation of ToRs a-d:

Term of Reference a)ICES WGECO, WGBIODIV and WKCOFIBYC have worked to compile a list of fish species (commercial and non-commercial) of conservation concern (threatened, sensitive, or already listed in legislation) for biodiversity assessments. The list is structured by relevance, geography (ICES ecoregion) and according to which legal, scientific or other designations of being sensitive are relevant. WKABSENS will review the lists and agree to use them as a basis for estimates of abundance.

Tor b) The species in the adopted list will be split into species with an existing ICES assessment and species without an existing ICES assessment. Abundance estimates from species with existing ICES assessments enter as 3rd party assessments (including reference points). Some of the ICES assessed stocks have age or length-based assessment methods (estimates of stock size or SSB), others have only survey-based assessments of stock size while others have no abundance estimates and only catch information.

WKABSENS will extract the assessment results from ICES Stock Assessment Graphs SAG and calculate abundance estimates based on the available information/approaches discussed at WKABSENS?

For species where no ICES assessment currently exists, survey-based indices should be available as ICES data products and will be calculated as follows:

Tor c)

Data from the groundfish surveys in Table 1 will be considered. WKABSENS will determine which datasets from each survey are available for analysis for the OSPAR region II, III and IV

Table 1. Surveys considered in the OSPAR Groundfish Survey Assessment data products for IA2017 that will inform Tor c) (from "Derivation of Groundfish Survey Monitoring and Assessment Data Products for the Northeast Atlantic Area") *Source: https://data.marine.gov.scot/sites/default/files//SMFS%200816.pdf)*

Survey Acronym	Previous name(s)	Country	Years of Data	Vessels	Quarter	Gear Type	Subregion	Data Source
GNSIntOT1	Q1 IBTS	International	1983-2016	Multiple ships	1	Otter (GOV)	Greater North Sea	DATRAS
GNSIntOT3	Q3 IBTS	International	1998-2016	Multiple ships	3	Otter (GOV)	Greater North Sea	DATRAS
GNSFraOT4	FR CGFS	France	1988-2015	Thalassa II, Gwen Drez	4	Otter (GOV)	Greater North Sea	DATRAS
CSScoOT1	SWC Q1 IBTS	Scotland	1985-2015	Scotia II, Scotia III	1	Otter (GOV)	Celtic Seas	DATRAS
CSScoOT4	SWC Q3 IBTS	Scotland	1985-2015	Scotia II, Scotia III	4	Otter (GOV)	Celtic Seas	DATRAS
CSIreOT4	IE IGFS	Ireland	2003-2015	Celtic Explorer	4	Otter (GOV)	Celtic Seas	DATRAS
CSNIrOT1	Q1 NIGFS	Northern Ireland	1992-2015	Corystes	1	Otter (ROT)	Celtic Seas	NDB 92-07, DATRAS 08-15
CSNIrOT4	Q4 NIGFS	Northern Ireland	1992-2015	Corystes	4	Otter (ROT)	Celtic Seas	NDB 92-07, DATRAS 08-15
CS/BBFraOT4	EVHOE	France	1997-2014	Thalassa II	4	Otter (GOV)	Celtic Seas, Bay of Biscay	DATRAS (Cors. NDB)
BBIC(s)SpaOT1	SP-ARSA	Spain	1993-2014	Cornide de Saavedra, F de P Navarro	1	Otter (BACA)	Bay of Biscay and Iberian Coast	NDB
BBIC(n)SpaOT4	SP-North	Spain	1990-2014	Cornide de Saavedra, F de P Navarro	4	Otter (BACA)	Bay of Biscay and Iberian Coast	NDB
BBIC(s)SpaOT4	SP-ARSA	Spain	1997-2014	Cornide de Saavedra, F de P Navarro	4	Otter (BACA)	Bay of Biscay and Iberian Coast	NDB
BBICPorOT4	PT-IBTS	Portugal	2001-2011	Capricornio, Noruega	4	Otter (NCT)	Bay of Biscay and Iberian Coast	DATRAS
WAScoOT3	Rockall	Scotland	1999-2015	Scotia II, Scotia III	3	Otter (GOV)	Wider Atlantic	DATRAS
WASpaOT3	PS-PORC	Spain	2001-2014	Vizconda de Eza	3	Otter (PBACA)	Wider Atlantic	DATRAS
GNSNetBT3	BTS	The Netherlands	1987/1996-2015	Isis, Tridens II	3	Beam (8m)	Greater North Sea	DATRAS
GNSEngBT3	BTS	England	1990-2015	Carhelmar, Corystes, Endevour	3	Beam (4m)	Greater North Sea	DATRAS
GNSGerBT3	BTS	Germany	2002-2015	Solea I, Solea II	3	Beam (7m)	Greater North Sea	DATRAS
CSEngBT3	BTS/VIIa	England	1993-2014	Corystes, Endevour	3	Beam (4m)	Celtic Seas	DATRAS

(i) Data collected on the surveys comprises the numbers of each species of fish sampled in each trawl sample, measured to define length categories (see Table 2)

Table 2. Biological information in the new product (from "Derivation of Groundfish Survey Monitoring and Assessment Data Products for the Northeast Atlantic Area" https://data.marine.gov.scot/sites/default/files//SMFS%200816.pdf)

Field	Unit	Description
HaulID		Unique haul identifier (SurveyAcronym/Ship/Year/HaulNo)[1] (*H*)
SpeciesSciName		Unique species name for each species sampled across the NE Atlantic[2] (*S*)
FishLength(cm)	cm	Integer numbers indicating fish length to the 'cm below'[3] (*L*)
IndivFishWght(g)	g	Estimated weight of individual fish of specified species and length[4] ($W_{S,L}$)
Number		Total number of fish of specified species and length in the catch[5] ($N_{S,L,H}$)
DensAbund(N_sqkm)	km^{-2}	Abundance density estimate[6,8] ($D_{nos,S,L,H} = N_{S,L,H} / A_{H,WING}$)
DensBiom(kg_Sqkm)	kg km^{-2}	Biomass density estimate[7,8] ($D_{biom,S,L,H} = (N_{S,L,H} \times W_{S,L}) / A_{H,WING}$)

(ii) By dividing the species catch numbers-at-length by the area swept by the trawl on each sampling occasion, the catch data are converted to estimates of fish density-at-length, by species, at each sampling location in each year. Summing these trawl-sample species density-at-length estimates across all trawl samples collected within each sampling stratum in each year (e.g. ICES statistical rectangles), and dividing by the number of trawl samples within each stratum per year, gives an estimate of the density (of each species and length category) within each sampling stratum in each year. Summing these sample stratum density estimates across all sampling strata sampled in each year, and dividing by the number of strata sampled, provides estimates of the average density (N), of each species (s) and length category (l), in each year, across the whole area covered by the survey. Summing these density estimates (Ns,l / km2) across all length classes provides the required estimate of species population abundance density (Ns / km2) in each year for each survey.

Indicators of abundance of sensitive species rely on the availability of species-level identification data and abundance-at-length data. Where coarser resolution identification data or just species count data is available, a k-Nearest-Neighbour (kNN) have been used to model the missing information and resolve genus-or family-level identifications to species-level , and species count data to abundances-at-length. In some cases the kNN model could not adequately resolve genus-or family-level data to species level. Where this was the case, all the species identification information was merged so that all individuals of a genus or family were recorded at the genus or the family level, whichever was the finest level resolution possible (see https://data.marine.gov.scot/sites/default/files/SMFS%200816.pdf for reference)

(iii) WKABSENS will establish the number of sensitive species encountered by each survey. These species are very rare and the data available can be too sparse to support a robust assessment. WKABSENS will establish a criteria based on a percentage of occasions encountered/specie/survey by which the data can be used for assessments.

(iv) WKABSENS will discuss the adequacy of the kNN model or discuss other alternatives for resolving genus- or family level data to species level.

Resource requirements	ICES data centre, secretariat 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	Remote meeting assistance will be facilitated for the dates of the workshop. In addition, assistance from the ICES Data Centre and Advisory Department will be provided.
Financial	Covered by OSPAR special requests to ICES.
Linkages to advisory and science committees	Direct link to ACOM.
Linkages to other groups	WGECO, WGBIODIV, WKCOFIBYC, IBTSWG, WGBEAM.
Linkages to other organizations	OSPAR.

WGELECTRA - Working Group on Electrical Trawling

2020/FT/EOSG07 A **Working Group on Electrical Trawling (WGELECTRA),** chaired by Mattias van Opstal*, Belgium, and Edward Schram*, the Netherlands, will work on ToRs and generate deliverables as listed in the Table below

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2021	TBD	Online Meeting	Interim report by 31 of December 2021 to ACOM-SCICOM	
Year 2022			Interim report by 31 of December 2022 to ACOM-SCICOM	
Year 2023			Interim report by 31 of December 2023 to ACOM-SCICOM	

ToR descriptors[6]

ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
a	Produce a state-of-the-art review of all relevant studies on marine electrofishing. Yearly update it by evaluating and incorporating new research to it.	a) Science Requirements b) Advisory Requirements	2.1, 6.1, 6.4	Yearly update	Review report

6 Avoid generic terms such as "Discuss" or "Consider". Aim at drafting specific and clear ToR, the delivery of which can be assessed

b	Discuss and prioritise knowledge gaps, and discuss ongoing and upcoming research projects in the light of these knowledge gaps, including the experimental set up	a) Science Requirements b) Advisory Requirements	2.1, 2.7, 6.4, 6.6	Year 1, 2 & 3	Scientific research adressing knowledge gaps or questions from management
c	Create a platform for the application for supra-national joint research projects on electrotrawling and scientific publication of the obtained results	a) Science Requirements b) Advisory Requirements	3.1, 6.6	Year 1, 2 & 3	Joint projects and publications among participants and others Collaboration with other related WG's such as WGNSSK, WGCRAN
d	Discuss and synthetsze new and emerging techniques and technologies that have potential to become alternatives for Electrical Trawling	a) Science Requirements b) Advisory Requirements	2.1, 2.7, 4.1, 4.5	Year 1, 2 & 3	Joint projects and publications among participants and others Collaboration with other related WG's such as WGFTFB
e	Discuss future for electrical trawling and the lessons learned when deploying new technologies.	a) Science Requirements b) Advisory Requirements	2.7	Year 1, 2 & 3	Joint projects and publications among participants and others Collaboration with other related WG's such as WGFTFB

Summary of the Work Plan

Year 1	– Discussing & evaluating ongoing& recently completed research – Evaluating and presenting results from research projects – Answering possible requests
Year 2	- Updating the review document - Discussing & evaluating ongoing& recently completed research - Evaluating and presenting results from joint research projects - Answering possible requests
Year 3	- Finalise the review document - Discussing & evaluating ongoing& recently completed research - Evaluating and presenting results from joint research projects - Answering possible requests

Supporting information

Priority	The current activities of this Group will lead ICES into issues related to the ecosystem effects of fisheries, especially with regard to the application of the Precautionary Approach. Consequently, these activities are considered to have a very high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by some 20–25 members and guests.
Secretariat facilities	None.

Financial	No financial implications.
Linkages to ACOM and groups under ACOM	There are no obvious direct linkages.
Linkages to other committees or groups	There is a very close working relationship with all the groups XXXSG. It is also very relevant to the Working Group on XXX.
Linkages to other organizations	

Resolutions approved in 2018

IBTSWG – International Bottom Trawl Survey Working Group

2018/MA2/EOSG03 The **International Bottom Trawl Survey Working Group** (IBTSWG), co-chaired by Ralf van Hal, Netherlands, and Pascal Laffargue, France, will meet to work on ToRs and generate deliverables as listed in the Table below:

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2019	1–5 April	Den Helder, NL	Interim report by 20 May 2019 to EOSG	
Year 2020	30 March – 2 April	By Correspondence/Online	Interim report by 30 April to EOSG	
Year 2021	12-16 April	Online meeting	Final report by 14 May 2021 to EOSG	

ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
A	Coordination and reporting of North Sea and Northeastern Atlantic surveys, including appropriate field sampling in accordance to the EU Data Collection Framework. Review IBTS SISP manuals in order to achieve additional updates and improvements in survey design and standardization. (ACOM)	Intersessional planning of Q1; Q3 and Q4 surveys; communication of coordinator with cruise leaders; combing the results of individual nations into an overall survey summary. Intersessional activity, ongoing in order to improve survey and manuals quality.	3.1, 3.2	Recurrent annual update	1) Survey summary including collected data and description of alterations to the plan, to relevant assessment WGs and other EGs (WGCSE, WGNSSK, HAWG, WGHMM;,WGDEEP, WGWIDE, WGEEL, WGCEPH, WGML) and SCICOM. 2) Indices for the relevant species to assessment WGs (see above) 3) Planning of the upcoming surveys for the survey coordinators and cruise leaders 4) Updated version of survey manual, whenever substantial changes are made.

B	Address DATRAS-related topics in cooperation with DGG: data quality checks and the progress in re-uploading corrected datasets, quality checks of indices calculated, and prioritizing further developments in DATRAS. (ACOM)	Issues with data handling, data requests or challenges with re-uploading of historical or corrected data to DATRAS have been identified and solutions are being developed	2.1, 3.1	Multi-annual activity.	Prioritized list of issues and suggestion for solutions and for quality checking routines, as well as definition of possible new DATRAS products, submitted to DATRAS group at ICES. Annual check of recent survey data.
C	Develop a new survey trawl gear package to replace the existing standard survey trawl GOV. (SCICOM)	The divergence in the GOV specification from the one given in the survey manual due to historical drift and technical creep has been acknowledged by the group (WGIBTS 2015). Furthermore, the deviation from the specification contained in the manual and between users has widened to the point where it will never be reversed. Therefore, the perefered option is to maintain the status quo of national GOV specifications and develop a new survey trawl package to replace the GOV. A number of IBTS members are due to replace vessels in the next few years and this provides an oppertunity to review time-series and undertake inter-calibration trials between the GOV and a new trawl. A further driver for a new gear has been highlighted by the Celtic Sea area where the necessity to optimize sampling oppertunities are not been provided by the GOV. In parellel with	3.1, 3.2	2 years	Design specification (Working document) in 2020

		trawl development the process of replacing the GOV will need to be defined with reference to continuing the assessments and existing time-series. (For this ToR, the IBTS WG seeks support from gear technology experts and welcomes their advice and input into the development of the new survey gear package)			
D	Evaluate the current survey design and explore modifications or alternative survey designs, identifying any potential benefits and drawbacks with respect to spatial distribution and frequency of sampling, survey effort in terms of number of otoliths by species and number of trawl hauls. (SCIOCM)	Specific issues to be addressed include: Stratification and optimal spatial distribution of effort.	3.2	1 - 3 years	CRR on effect of tow duration on catch rates and species richness by end of 2019 Paper on variance estimation of abundance indices in 2020 Paper on Stratification and distribution of survey effort in 2021.

Summary of the Work plan

Year 1	Organise a workshop bringing together gear technologist and survey scientists to discuss gear options in relation to data needs and implementation issues
Year 2	Evaluate proposed gear options and their effect on timeseries
Year 3.	Carry out at sea trials and evaluate results
Recurrent annual activity	Updates for ToRs a, b, and c.

Supporting information

Priority	Essential, The general need for monitoring fish abundance using surveys is evident in relation to fish stock assessments, and it has increasing importance in relation to MSFD GES descriptors biodiversity, foodwebs, and bottom integrity. Besides the relation of fish abundance with descriptor 3 Exploited stocks.
Scientific justification	**ToR a)** This is a core function of the IBTSWG, an important forum for coordination and evaluation of standardized bottom trawl surveys in the Eastern Atlantic Area, to ensure good survey coverage in relation to stocks and areas. inter-calibration work. and high quality of data. The group also provides a brief overview the result of the individual surveys undertaken during the previous year and in the first quarter of the ongoing year. IBTSWG will continue to review feedback and implement modifications, including coordination and implementing new requirements of the EU DCF. To ensure quality and traceability of sampling protocols, changes in the design and procedures used in the surveys coordinated by the IBTSWG have tobe implemented and documented in detail

	in the IBTS manuals, which are available via the ICES webpage under Series of ICES Surveys Protocols. **ToR b)** DATRAS has become the core database containing the data obtained in the national IBTSurveys, the The development of DATRAS needs to be evaluated annually, and the group is also one of the forum to discuss with ICES Data Centre and agree on the priority of desired further developments. **ToR c)** A number of IBTS members is due to replace vessels in the next few years and this provides an opportunity to review time-series and undertake inter-calibration trials between the GOV and a new trawl. **ToR d**) Efficiency and effectiveness are important drivers in the implementation of high cost surveys. Evaluations of different implementation options and their consequences need to be reviewed at regular intervals, particularly as changes to the gear are being discussed at present.
Resource requirements	A 5-day IBTS meeting. Prepared documents from members following ToR Leaders identified above. 8-day Chair's time to edit. It is estimated that each ToR will require at least 8 hours of preparation.
Participants	The Group is normally attended by some 20–25 members and guests. All members will participate on the discussion of all ToRs, but ToRs leaders have been identified and appointed to intersessionally prepare the work and lead it in the meeting.
Secretariat facilities	SharePoint plus normal secretariat support.
Financial	No financial implications.
Linkages to advisory committees	ACOM. IBTS indices are used in the assessment of multiple stocks.
Linkages to other committees or groups	There are relations with other bottom-trawl surveys (WGBEAM, WGBIFS) that also use DATRAS as the international repository for its data (WGDIM, DGG). There are also linkages with Assessment WGs using IBTS indices. Also relevant to the Working Group on Ecosystem Effects of Fishing Activities (WGECO) , the Working Group on Improving use of Survey Data for Assessment and Advice (WGISDAA) and Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR).
Linkages to other organizations	IOC, GOOS, OSPAR, Regional Coordination groups (DCF).

WGSINS - Working Group on Surveys on Ichthyoplankton in the North Sea and adjacent Seas

2018/MA2/EOSG09 The **Working Group on Surveys on Ichthyoplankton in the North Sea and adjacent Seas (WGSINS),** chaired by Norbert Rohlf, Germany, will work on ToRs and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2019	22 – 25 October	Bremerhaven, Germany	Interim report by 15 December 2019	
Year 2020	01 – 04 December	By Correspondence	Interim report by 15 January 2021	
Year 2021	30 November - 02 December	Belfast, Northern Ireland	Final report by 13 January 2022	

ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Planning and execution of North Sea and adjacent seas ichthyplankton surveys used for assessment and management purposes	Ichthyoplankton surveys in the North Sea and adjacent Seas deliver abundance data of early life history stages for fish SSB and/or recruitment for assessment of several fish stocks.	3.1, 3.2, 5.2	year 1, 2, 3	Survey Plan
b	Provide quality assurance of the survey indices time series to assessment working groups	Consistency in generation of data is a cruicial prerequisite for the use of a time series in the assessment.	3.1, 3.2, 5.2	year 1, 2, 3	
c	Prepare a manual for ichthyoplankton surveys in the North Sea and adjacent seas	A manual that describes the standard procedures of ichthyoplankton surveys and their necessary adaptations to the survey specific objectives needs to be in place and reviewed regularly.	3.1, 3.2	year 3	SISP manual on standards in ichthyoplankton surveys
d	Provide quality assurance of ichthyoplankton identification, including molecular methods	The accurate identification of ichthyoplankton and the developmental stages is crucial for species specific abundance estimates.	3.1, 3.2	year 1, 2, 3	

e	Standardization of sampling and sample processing procedures	Standards of sampling and sample processing procedures need to be optimized w.r.t. efficiency	3.1	year 1, 2, 3	
f	Prepare data for archiving in the ICES eggs and larvae database	WGSINS data need to be prepared and uploaded to the ICES eggs and larvae database by each institute	3.2	year 1, 2, 3	Updated dataset om the ICES egg and larval databse
g	Assess possibilities for the different ichthyoplankton surveys to supply data for the implementation of ecosystem approach to fisheries management	Ichthyoplankton surveys are able to provide additional data than needed for the original survey objectives. The acquisition of additional data has to be assessed w.r.t. feasibility of new survey objectives.	3.1, 3.3	year 1, year 2, year 3	Review any additional objectives that are proposed for the different ichthyoplankton surveys in the North Sea and adjacent seas.

Summary of the Work Plan

Year 1	PLAN AND EXECUTE THE INTERNATIONAL HERRING LARVAE SURVEY (IHLS), THE RÜGEN HERRING LARVAE SURVEY (RHLS), THE BALTIC ICHTHYOPLANKTON SURVEY (BIS), MIK SURVEYS IN THE NORTH SEA (MIK), THE NORTHERN IRELAND METHOD ISAACS KIDD SURVEY (NIMIK), AND THE IRISH SEA HERRING LARVAE SURVEY (ISHLS)
Year 2	Plan and execute the IHLS, the RHLS, the BIS, the MIK, the NIMIK, ISHLS
Year 3	Plan and execute the IHLS, the RHLS, the BIS, the MIK, the NIMIK, ISHLS

Supporting information

Priority	This working group is important for the fisheries advisory process. The different ichthyoplankton surveys in the North Sea and adjacent seas provide important fishery-independent stock and/or recruitment data used in the assessment for herring stocks in the North and Baltic Seas as well as for cod in the Baltic and the Irish Sea, as well as for haddock in the Irish Sea and informs management of whiting in the Irish Sea.
Resource requirements	None.
Participants	The Group is normally attended by some 8 – 15 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	HAWG, WGCSE, WGBFAS
Linkages to other committees or groups	EOSG, WGBIOP, IBTSWG, WGALES, WGML, WGZE
Linkages to other organizations	None

WGNEPS – Working Group on Nephrops Surveys

2018/MA2/EOSG10 A **Working Group on Nephrops Surveys (WGNEPS)**, chaired by Jennifer Doyle, 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 2019	12-14 November	Split, Croatia	1st Interrim report by 6 January 2019 to EOSG	Election of new chair(s)
Year 2020	17-19 November	By Correspondence/Webex	2nd Interrim report by 17 December 2020 to EOSG	**Change of chairs:** Outgoing: Kai Wieland and Adrian Weetman Incoming: Jennifer Doyle
Year 2021	16-18 November	Cadiz, Spain	Final report by 16 December 2021 to EOSG	

ToR descriptors

ToR	Description	Background	Science Plan codes	Duration	Expected Deliverables
a	To review any changes to design, coverage and equipment for the various *Nephrops* UWTV and full-scale trawl surveys since 2018 and to update the Series of ICES Survey Protocols (SISP) as required	To ensure surveys used by WGCSE, WGBIE and WGNSSK are fit for purpose.	3.1, 3.2	Recurrent annual update	Survey summary including and description of alterations to the plan, to relevant assessment-WGs (WGCSE, WGNSSK,WGBIE) and SCICOM. Planning of the upcoming surveys for the survey coordinators and cruise leaders, and update the SISP accordingly if necessary.
b	Develop an international database for *Nephrops* UWTV survey data which will hold burrow counts, ground shape files and associated data.	There is a need to centralize UWTV data in a single international database. Ensure data is available externally.	3.5	Year 1-3	ICES database
c	Update R scripts for *Nephrops* UWTV survey data processing including functions to quality control, analyze and visualize data, and interface the tools with the international database for *Nephrops* UWTV survey data	Improving standarisation of data QC and data processing. Support new developing surveys on data analysis.	3.1	Recurrent annual update	Document and R packages for UWTV survey data on github site.

d	To review video enhancement, video mosaicking, automatic burrow detection and other new technological developments applied in *Nephrops* UWTV surveys and to update the Series of ICES Survey Protocols (SISP) as required .	WGNEPS should periodically review emerging technologies that might improve survey methodologies.	4.1	Recurrent annual update	To update the SISP based on conslusions if necessary. Other publications when appropriate.
e	Review and report on the utility of UWTV and trawl *Nephrops* surveys as platforms for collecting data for purposes other than *Nephrops* assessment (e.g. the collection of data for OSPAR and MFSD indicators).	*Nephrops* UWTV surveys have a role in relation to benthic habitat monitoring and the collection of other environmental and ecosystem variables.	1.5	Year 2	Joint workshop/meeting report with users
f	Analyse existing data from UWTV and trawl *Nephrops* surveys to evaluate possible factors affecting burrow emergence of *Nephrops* (e.g. currents and light)	Recent behaviour aspects have been investigated in the laboratory. Important to investigate correlation with field data.	1.3	Year 3	Review paper
g	Review differences of new HD and previous used SD camera systems and its effect on burrow detection, edge effects and bias correction factors, and explore the possibility of HD system tools for providing estimates of burrow size distributions.	Recent changes from SD to HD technology for many survey areas. Important to investigate edge effects and correction factors with field data on burrow system size.	3.2	Year 2&3	To update the SISP based on conslusions if necessary. Other publications when appropriate.

Summary of the Work Plan

Year 1	ALL TORS WILL BE ADRESSED IN THIS YEAR BUT THE THE MAIN TASK IN YEAR 1 WILL BE TO ESTABLISH THE UWTV DATABASE AND TO PROVIDE UPDATED SHAPE FILES OF NEPHROPS FUS AND SURVEY DOMAINS (TOR B)
Year 2	All ToRs will be adressed in this year. In addition to this focus will be on ToR e in year 2
Year 3	All ToRs will be adressed in this year. Focus in year 3 will be on new technologies and, if appropriate, an update of the SISP (ToR b) as well on the review of field date on factors affecting burrow emergence and occupancy (ToR f)

Supporting information

Priority	*Nephrops* are a valuable species whose stocks are potentially sucseptible to local depletion. UWTV/Trawl surveys are an integral part of the stock assessment and management advice provided by ICES. WGNEPS is the international co-ordination group for *Nephrops* surveys focusing on planning, coloboration, quality control and survey development issues. This work is considered high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by some 15–20 members and guests.
Secretariat facilities	ICES Data Centre
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	This group will feed into the assessment working groups and subsequently on to ACOM as well as to SCICOM
Linkages to other committees or groups	There is a very close working relationship with relevant to stock assessment experts groups that used the survey results i.e. WGCSE, WGBIE and WGNSSK.
Linkages to other organizations	FAO , OSPAR

Resolutions approved in 2017

WGISDAA – Working Group on Improving use of Survey Data for Assessment and Advice

2017/2/EOSG06 A **Working Group on Improving use of Survey Data for Assessment and Advice** (WGISDAA), chaired by Sven Kupschus, UK, 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	3-5 July	Copenhagen, Denmark	Interim report by 20 September to ACOM/SCICOM	
Year 2019	8-10 October	Copenhagen, Denmark	Interim report by 15 November to ACOM/SCICOM	
Year 2020	6-8 October	By Correpondence/Online meeting	Final report by 5 November 2020 to ACOM/SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan Codes	Duration	Expected Deliverables
a)	To work together with assessment working groups to provide resolution to assessment issues prioritized by the assessment working groups	Specific resolutions to individual assessment issues with a report to feedback into the assessment, or where necessary into the benchmark process. In addition, cataloguing and classification of issues and review of	5.1		

		methods used to resolve problems in order to provide "self-help" options to resolve similar issues in other assessments.			
b)	'To work together with survey working groups to provide resolution to problems associated with index calculations, survey design changes (proposed or realized) to ensure efficient and effective use of survey resources.	Specific resolutions to individual survey issues with a report to feedback into the survey working group. In addition cataloguing and classification of issues and review of the methods used to resolve them in order to provide "self-help" options for survey working groups.	3.1, 3.2		
c	Initiate with ACOM and secretariat a process to identify upcoming issues associated with the use of survey data in benchmarks. This should be initiated as soon as the benchmark process is started	Survey data issues, as in ToR a, are often critical in the benchmarking process. WGISDAA can advise best if involved in this process from the start, can collaborate with the operators and present conclusions at the benchmark	5.1	As required	Reports and presentations to the appropriate Benchmark workshop.
d	Review the output from the topic specific workshops initiated by WGISDAA and document more general principles learned from the specifc cases dealt with in TOR a and b	WGISDAA has had difficulty in attaining wider participation in its work	-		

Summary of the Work Plan

Year 1	Continue and update process elicitating advice requests from other elements of the ICES system; assessment, survey and benchmarking groups. Identify priorities within requests, and set up meeting and personnel accordingly. Prepare for topic specific workshops.
Year 2	Continue and update process elicitating advice requests from other elements of the ICES system; assessment, survey and benchmarking groups. Identify priorities within requests, and set up meeting and personnel accordingly. Review output from the topic specific workshops.
Year 3	As in year 2, plus appraisal of the success of the process, and make proposals for changes and any continuation

Supporting information

Priority	This group will feed the results of its work directly into the assessment and hence advisory process. As such it should be considered central and of high priority
Resource requirements	The key additional resource requirement is the group needs particpation of the key players in the relevant assessment, survey or benchmark group. This would be in addition to work required for the normal operations of htese groups. Essentially, this would involve key personnel attending the relevant WGISDAA

	meeting, and where rquired, personnel from WGISDAA attending the relevant requesting EG
Participants	Dependant on information requests, but normally less than 10 core members
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	ACOM, Benchmark process and assessment EGs as well as Survey EGs will be the key clients for the work of WGISDAA
Linkages to other committees or groups	WGISDAA will have strong links to to survey working groups under SSGIOMP, and in particular to the work of WGISUR. Given surveys as an important source of wider ecosystem data there will also be important links to groups under SSGIEA
Linkages to other organizations	None specific

WGIPS – Working Group of International Pelagic Surveys

2017/MA2/EOSG23 The **Working Group of International Pelagic Surveys** (WGIPS), chaired by Bram Couperus, The Netherlands, and Michael O´Malley, Ireland, will meet to work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2019	14–18 January	Santa Cruz, Spain	Interim report by 3 March 2019 to EOSG, SCICOM & ACOM	Incoming chair Michael O´Malley
Year 2020	13–17 January	Bergen, Norwa	Interim report by 2 March 2020 to EOSG, SCICOM & ACOM	
Year 2021	18–22 January	Online Meeting	Final report by 8 March 2021 to EOSG, SCICOM & ACOM	

ToR descriptors

ToR	Description	Background	Science plan codes	Duration	Expected Deliverables
a (ACOM)	Combine and review annual ecosystem survey data to provide: indices of abundance and spatial distribution for the stocks of herring, sprat, mackerel, boarfish and blue whiting in Northeast Atlantic waters.	a) Advisory Requirements b) Requirements from other EGs	3.2, 5.2	years 1–3	Survey reports containing indices of stock biomass and abundance at age, spatial distributions of stocks and hydrographic conditions. HAWG WGWIDE
b(ACOM)	Coordinate the timing, area and effort allocation and methodologies for individual and	a) Science Requirements b) Advisory Requirements	3.1	years 1–3	Cruise plans for international and individual surveys. HAWG WGWIDE

	multinational acoustic surveys on pelagic resources in the Northeast Atlantic waters covered (Multinational surveys: IBWSS, IESNS, IESSNS, HERAS, and individual surveys: CSHAS, ISAS, PELTIC, GERAS, WESPAS, industry coordinated surveys, CAPS).	c) Requirements from other EGs			
c (SCICOM)	Adopt standardized analysis methodology and data storage format utilizing the ICES acoustic database repository for all acoustically derived abundance estimates of WGIPS coordinated surveys	a) Science Requirements b) Advisory Requirements	3.2	years 1–3	Progress on the adaption of standardized analysis methodology and data storage format utilizing the ICES pelagic acoustic database repository for WGIPS coordinated surveys.
d (ACOM)	Periodically review and update the WGIPS acoustic survey manual to address and maintain monitoring requirements for pelagic ecosystem surveys	a) Science requirements b) Advisory requirements	3.1	years 1–3	Updated WGIPS survey manual.
e (ACOM)	Review the work, and report of workshops organised by WGIPS and develop formal ICES recommendations. This should include SISP updates and adopting changes to survey coordination where deemed appropriate.	a) Science requirements b) Advisory requirements	3.1	years 1–3	
f (ACOM)	Review and evaluate survey designs across all WGIPS coordinated surveys to ensure the integrity of survey deliverables,	a) Science requirements b) Advisory Requirements c) Requirements	3.1, 3.3	years 1–3	Optimize and harmonise sampling designs and precision estimates for the different surveys to ensure survey quality. HAWG

	including acoustic surveys on spawning aggregations.	from other EGs			WGWIDE
g(ACOM)	Assess and compare scrutinisation procedures employed for the analysis of raw acoustic data from WGIPS coordinated surveys	a) Science requirements b) Advisory requirements	3.2, 3.3, 4.2	year 1	Documented standardised scrutinisation recommendations; Update of survey manual to address and maintain monitoring requirements for pelagic ecosystem surveys.
h (SCICOM)	Collaborate with groups wishing to utilize available time-series from WGIPS coordinated surveys.	a) Science requirements	3.2	Years 1-3	Facilitate testing and developing forecast models provided by WGS2D and other groups.
i (SCICOM)	Assess developing pelagic ecosystem surveying technology (e.g. optical technology, multibeam and wideband acoustics) to: (i) achieve monitoring of different ecosystem components, and/or (ii) give input to the development of ecosystem indicators from surveys covered by WGIPS, (iii) continue to support the development of tools to improve the accuracy and precision of survey estimates.	a) Science Requirements b) Advisory Requirements c) Requirements from other EGs	3.1, 3.3, 4.1	years 1–3	Update ecosystem metrics that are collected by WGIPS coordinated surveys; and protocols/recommendations for practical implementation of new technologies.

Summary of the Work Plan

Year 1	General meeting, preceded by 3 post-cruise meetings which collate data of multinational surveys. Session to review and evaluate survey designs across all WGIPS coordinated surveys done in Year 1; and coordinate planning and discuss designs for surveys taking place in Year 2. Session to standardize scrutinisation procedures for the International Ecosystem Summer Survey in the Norwegian Sea (IESSNS) covered by the WG (WKSCRUT). Inter-sessional work on the review and updates for the WGIPS acoustic manual, followed by a session during the annual meeting **to review and provide possible updates for the WGIPS acoustic survey manual.** Harmonize changes amongst the different surveys. Develop survey design protocols for acoustic surveys on spawning aggregations for inclusion in the survey manual.

	Session (mini symposium) to assess auxiliary pelagic ecosystem surveying technology focusing on methods currently used to monitor different ecosystem components across WGIPS coordinated surveys. Session on the future and development of databases (more specifically the ICES acoustic database and the PGNAPES database)
Year 2	General meeting, preceded by 3 post-cruise meetings which collate data of multinational surveys. Session to review and evaluate survey designs across all WGIPS coordinated surveys done in Year 2, and coordinate planning and discuss designs for surveys taking place in Year 3. Inter-sessional work on the review and updates for the WGIPS acoustic manual, followed by a session during the annual meeting to review and provide possible updates for the WGIPS acoustic survey manual. Harmonize changes amongst the different surveys. **Develop survey design protocols for acoustic surveys on spawning aggregations for inclusion in the survey manual.** Session to assess progress in the implementation of auxiliary pelagic ecosystem surveying technology and methodology (e.g. optical technology, multi-beam and wideband acoustics) for monitoring components of the wider ecosystem in surveys covered by WGIPS. Session on the future and development of databases (more specifically the ICES acoustic database and the PGNAPES database).
Year 3	General meeting, preceded by 3 post-cruise meetings which collate data of multinational surveys. Session to review and evaluate survey designs across all WGIPS coordinated surveys done in Year 3. Inter-sessional work on the review and updates for the WGIPS acoustic manual, followed by a session during the annual meeting to review and provide possible updates for the WGIPS acoustic survey manual. Harmonize changes amongst the different surveys. **Develop survey design protocols for acoustic surveys on spawning aggregations for inclusion in the survey manual.** Session to assess progress in the implementation of auxiliary pelagic ecosystem surveying technology and methodology (e.g. optical technology, multibeam and wideband acoustics) for monitoring components of the wider ecosystem in surveys covered by WGIPS. Session on the future and development of databases (more specifically the ICES acoustic database and the PGNAPES database).

Supporting information

Priority	The Group has a very high priority as its members have expertise in design and implementation of acoustic-trawl surveys, including sampling of additional ecosystem parameters. It will therefore directly contribute to the implementation of integrated pelagic ecosystem monitoring programmes in the ICES area. The Group's core task is the standardisation, planning, coordination, implementation, and reporting of acoustic surveys for the main pelagic fish species including herring, sprat, blue whiting, mackerel, and boarfish in Northeast Atlantic waters. The work provides essential data in the form of survey indices to WGWIDE and HAWG in the aim to perform integrated ecosystem assessment.
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 is normally attended by some 20–25 members and guests.
Secretariat facilities	None.
Financial	No financial implications.

Linkages to ACOM and groups under ACOM	WGWIDE, HAWG
Linkages to other committees or groups	There is a very close working relationship with other groups in EOSG, especially relevant links to WGACEGG, WGALES, WGBIFS, WGFAST, WGFTFB, WGISDAA, WGISUR, WGMEGS, WGTC, WGINOR, WGINOSE, WGIAB, WKEVAL, WKMSMAC2, WKSCRUT, WKSUREQ
Linkages to other organizations	EU H2020 project 'AtlantOS'

Resolutions approved in 2016

WGISUR – Working Group on Integrating Surveys for the Ecosystem Approach

2016/MA2/SSGIEOM1 The **Working Group on Integrating Surveys into ecosystem monitoring programmes** (WGISUR), chaired by Ralf van Hal, The Netherlands, will work on ToRs mentioned below and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2018	29 May-1 June	Saint Andrews, New Brunswick	Interim report by 13 July to ACOM/SCICOM	2 days meeting of core group only, 2 days meeting to evaluate Canada/USA ecosystem survey plans
Year 2019	17-20 June	Bremerhaven, Germany	Interim report by 1 August 2019 to ACOM/SCICOM	2 days meeting of core group only, 2 days working on how to organise integrated monitoring in the North Sea
Year 2020	2-3 November	By Correspondence/ Online meeting	Final report by 17 December 2020 to ACOM/SCICOM	2 days meeting of core group only, 2 days working on evaluation of Norwegian Sea ecosystem monitoring in relation to IEA and survey results.

ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Provide guidance on the development of ecosystem monitoring surveys and/or programmes	The work of the group directly relates to goals 1, 2, and 3 of the ICES Strategic Plan (pages 14–15). Specifically, WGISUR work is strongly linked to the last bullet point under goals 1 and 2 (page 14).	3.1, 3.2, 3.3, 3.4	3 (focus in year 1)	after Year 3 a CRR on evaluation, use and improvement of ecosystem monitoring plans, surveys and/or programmes following up on the 2017 CRR

b	Provide guidance and advice on the shift from surveys to ecosystem monitoring programmes	The work of the group directly relates to goals 1, 2, and 3 of the ICES Strategic Plan (pages 14–15). Specifically, WGISUR work is strongly linked to the last bullet point under goals 1 and 2 (page 14), and stronger links to IEA groups.	3.1, 3.2, 3.3, 3.4	3 (focus in year 2)	after year 3 a CRR on evaluation, use and improvement of ecosystem monitoring plans, surveys and/or programmes following up on the 2017 CRR
c	Evaluation of ecosystem monitoring surveys and/or programmes	The work of the group directly relates to goals 1, 2, and 3 of the ICES Strategic Plan (pages 14–15). Specifically, WGISUR work is strongly linked to the last bullet point under goals 1 and 2 (page 14).	3.1, 3.2, 3.3, 3.4	3 (focus in year 3)	after year 3 a CRR on evaluation, use and improvement of ecosystem monitoring plans, surveys and/or programmes following up on the 2017 CRR
d	Provide an opportunity for exchange of experiences on development and evaluation of ecosystem monitoring		3.1, 3.2, 3.3, 3.4	3 (ongoing)	CRR

Summary of the Work Plan

Year 1	Review and provide guidance on the plans for the integrated USA/Canada ecosystem survey
Year 2	How to organize integrated monitoring in the North Sea (e.g. how to make use of the different surveys in the area and how to organize regional collaboration)
Year 3	Evaluation of Norwegian Sea ecosystem monitoring; prepare final output in CRR format

Supporting information

Priority	High. Integrated ecosystem monitoring will lead to better exosystem understanding. The topics covered by WGISUR are mentioned in the ICES Strategic Plan. The working group will provide guidance to those collecting data as well as to data users on integrated ecosysem monitoring. There is a clear momentum for guidance on evaluation of plans for and results of ecosystem monitoring as there are initiatives to set up ecosystem surveys, and results from existing ecosystem monitoring becomes more and more available. In order to optimise guidance, WGISUR will use regional monitoring from different regions in the next term. From this, a generalised overview will be created.
Resource requirements	The focus for the next period will be on providing guidance on evaluating ecosystem monitoring, and application of the current guidance by evaluating plans for new ecosystem monitoring based on plans under development and by evaluating survey results of current monitoring. Furthermore, for the North Sea it will be investigated how to move from ecosystem surveys towards monitoring.

Participants	The group is normally attended by 10–15 members and guests ('core' group). Participation from all ecoregions is important. The group likes to explicitly state that there is a strong wish to keep the current participation from Norway, Canada, and USA next to EU countries, as this prevents that the group narrows down 'ecosystem monitoring' to 'MSFD monitoring'. The following expertise should be added to the 'core' group: analytical expertise, expertise on (monitoring of) other ecosystem components than fish (e.g. zooplankton, birds, physical/chemical), integrated ecosystem assessments. On top op that, dedicated additional expertise is needed in each year during a part of the meeting, on top of the 'core' members: year 1 (2018): Additional attendance needed from WGNARS USA/Canadian experts on the survey plans. year 2 (2019): Additional attendance needed from all North Sea survey planning groups, WGINOSE and chairs of IEASG, EOSG; and preferred attendance from WGNSSK, HAWG, OSPAR. year 3 (2020): Additional attendance of WGINOR and Norwegian Sea survey experts needed.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	In general, good linkage with groups under ACOM including the BSG is necessary as the move towards ecosystem monitoring may have implications on the survey stratification and as a result, on survey time-series used in stock assessment. Good linkage and communication is needed for survey groups moving towards ecosystem monitoring to understand the assessment needs, and for the assessment groups to understand the added value of the improved way of data collection, and to accept changes in time-series. Specific linkage in year 2 to assessment groups in the North Sea.
Linkages to other committees or groups	SCICOM, Survey planning WGs under EOSG, IEA WGs under IEASG, WGECO and other ecology based WGs, DIG.
Linkages to other organizations	Involvement of OSPAR and HELCOM is welcomed in the work of this group.

WGELECTRA - Working Group on Electrical Trawling

2016/2/SSGIEOM22 A **Working Group on Electrical Trawling (WGELECTRA)**, chaired by Mattias van Opstal, Belgium, and Adriaan Rijnsdorp, the Netherlands, 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	17-19 April	WMR Ijmuiden, the Netherlands	Interim report by 31 of May 2018 to ACOM-SCICOM	
Year 2019	11-13 June	Ghent, Belgium	Interim report by 11 of July 2019 to ACOM-SCICOM	
Year 2020	25-27 March	By CorrespondenceOnline meeting	Final report by 24 April 2020 to ACOM-SCICOM	

ToR descriptors

ToR	Description	Background	Science plan codes	Duration	Expected Deliverables
a	Produce a state-of-the-art review of all relevant studies	a) Science Requirements b) Advisory Requirements	2.1, 6.1, 6.4	Yearly update	Review report to SCICOM

	on marine electrofishing. Yearly update it by evaluating and incorporating new research to it.				
b	Compare the ecological and environmental effects of using traditional beam trawls or pulse trawls when exploiting the TAC of North Sea sole, on (i) the sustainable exploitation of the target species (species and size selectivity); (ii) target and non-target species that are exposed to the gear but are not retained (injuries and mortality); (iii) the mechanical disturbance of the seabed; (iv) the structure and functioning of the benthic ecosystem; and to assess (v) the impact of repetitive exposure to the two gear types on marine organisms..	b) Advisory Requirement as part of a response to request from the Dutch Ministry of Agriculture, Nature and Food Quality. s WGECO will provide some considerations for WGELECTRA to take account of when responding to this request.	2.1, 2.7, 6.4	Year 1	Relevant section of the WGELECTRA report must be made available for independent external review by 30 April 2018.
c	Discuss and prioritise knowledge gaps, and discuss ongoing and upcoming research projects in the light of these knowledge gaps, including the experimental set up	a) Science Requirements b) Advisory Requirements	2.1, 2.7, 6.4, 6.6	Year 1, 2 & 3	Scientific research adressing knowledge gaps or questions from management
d	Create a platform for the application for supra-national joint research projects on electrotrawling and scientific publication of the obtained results	a) Science Requirements b) Advisory Requirements	3.1, 6.6	Year 1, 2 & 3	Joint projects and publications among participants and others Collaboration with other related WG's such as WGNSSK, WGCRAN
e	Analyse the possible contribution of pulse trawling to reduce or increase the ecosystem/ environmental impacts of the fishery for sole in the North Sea and reflect on the fuel consumption used in the fishery sole in the North Sea.	Advisory Requirement as part of a response to request from the Dutch Ministry of Agriculture, Nature and Food Quality. Analysys must be developed taking into consideration: 1. The elements listed in article 31(1) of regulation (EU)2019/1241 of 20 June 2019 namely: marine ecosystems (including the long-term effects on), sensitive habitats and selectivity. 2. Discussions within FAO on the issue of CO2 emissions	2.1, 6.1, 6.4	Year 3	Relevant section of the WGELECTRA report must be made available for independent external review by 3 April 2020

	in fisheries and its impact on climate change. See http://www.fao.org/policy-support/resources/resources-details/en/c/1152846/ in particular chapter 27

Summary of the Work Plan

Year 1	- Initiating the review document - Discussing & evaluating ongoing & recently completed research - Brainstorm & application of a joint research project - Answering special request from The Netherlands-Dutch Ministry of Agriculture, Nature and Food Quality.
Year 2	- Updating the review document - Discussing & evaluating ongoing& recently completed research - Evaluating and presenting results from joint research projects - Answering possible requests
Year 3	- Finalizing the review document - Discussing & evaluating performed research - Presentation achievements and further goals joint research projects - Answering possible requests - Writing the final 3year report

Supporting information

Priority	The current activities of this Group will enable ICES to respond to advice requests from member countries. Consequently these activities are considered to have a very high priority. It will also lead ICES into issues related to the ecosystem effects of pulse fisheries, especially with regard to the application of the Precautionary Approach. Current pulse derogations in the sole fishery will expire in 2019. Consequently, these activities are considered to have a very high priority.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by some 10–15 members and guests. In 2016 two PhD students started working on the ecosystem effects of pulse trawling in the Netherlands.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	There is a close working relationship with the Assessment Working groups (WGNSSK) dealing with the target species of the pulse fisheries (sole, plaice) and WGCRAN. It is also very relevant to the Working Group on Ecosystem Effects of Fishing.
Linkages to other committees or groups	
Linkages to other organizations	/

EOSG Expert Groups Dissolved in 2020

2019/WK/EOSG01	**WKBIOARC** – Workshop on Scale, Otolith Biochronology Archives	Deirdre Brophy, Ireland, and Martha Robertson, Canada
2017/2/EOSG07	**WKUSER** – Workshop on unavoidable survey effort reduction	Stan Kotwicki, US, Sven Kupschus, UK and Wayne Palsson, USA
2019/WK/EOSG12	**WKING** – Workshop on Innovative Fishing Gear	Antonello Sala, Italy, and Manu Sistiaga, Norway
2019/2/EOSG14	**WKRDB-POP2** – Second Workshop on Populating the RDBES data model	David Currie, Ireland, and Edvin Fuglebakk, Norway
2020/2/EOSG02	**WKRDB-EST2** – Second Workshop on Estimation with the RDBES data model	Nuno Prista, Sweden and Kirsten Birch Håkansson, Denmark
2017/2/EOSG12	**PGDATA** – Planning Group on Data Needs for Assessments and Advice	Joël Vigneau, France