SCICOM/ACOM Ecosystem Observation Steering Group EGs Resolutions

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WGBIFS – Baltic International Fish Survey Working Group

2017/MA2/EOSG01

The Baltic International Fish Survey Working Group (WGBIFS), chaired by Olavi Kaljuste*, Sweden, 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 2018	24–28 March 2018	Lyngby-Copenhagen, Denmark	The first interim report by 15 May 2018 to, SCICOM and ACOM	Olavi Kaljuste appointed as chair
Year 2019	25-29 March 2019	Klaipeda University, Lithuania	The second interim report by 15 May 2019 to SCICOM and ACOM	
Year 2020			Final report by 15 May 2020 to SCICOM and ACOM	

ToR descriptors

TOR	Description	Background	Science plan topics addressed	Duration	Expected deliverables
a	Combine and analyse the results of spring and autumn acoustic surveys and experiments	Acoustic surveys provide important fishery-independent stock estimates for Baltic herring and sprat stocks	1	annually Year 1, 2 and 3	Updated acoustic tuning index for WGBFAS
b	Update the BIAS and BASS hydroacoustic databases and ICES database for acoustic-trawl surveys	The aim of BIAS and BASS databases is to store the aggregated data. 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 to the data, which will facilitate usage for many different analyses by a wider range of users.	31	annually Year 1, 2 and 3	Updated databases with acoustic and biotic data for WGBIFS
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	27	annually Year 1, 2 and 3	Finalized planning for the surveys for WGBIFS
d	Discuss the BITS surveys results 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	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	27	annually Year 1, 2 and 3	Finalized planning for the surveys for WGBIFS, updated and corrected Tow Database
f	Conduct analyses related to the improvement of quality of acoustic indices and estimation of the uncertainty in the BIAS and BASS surveys	Acoustic surveys provide important fishery-independent stock estimates for Baltic herring and sprat stocks	31	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, based on the IBAS methodology and data from ICES acoustic-trawl survey database	StoX software produces fish abundance estimations in a transparent and reproducible way. Planned development of the StoX post-processing program should allow implication this software by WGBIFS using the acoustic and biotic data from ICES database for acoustic-trawl surveys. Comparissons 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 BIAS and BASS survey estimates.	31	Year 1-3	Improved transparency and reproducibility of acoustic indices, improved pace of work on the level of national data compilation and verification
h	Define methods for the appropriate processing of the survey data and output products from the BITS survey to deliver input-data for calculation of the Baltic LFI and MML indicators.	The ground trawl surveys provide important fishery-independent stock estimates for Baltic cod and flatfish stocks and can be a source of the ecosystem indicators, recently requested by different scientific organizations	9, 31	Year 1, 2 and 3	Improvement the scientific knowledge about the demersal/benthic components (mostly fish) in the Baltic Sea
i	Coordinate the marine litter-sampling programme within the Baltic International Trawl Survey and registering the data in the ICES database.	Collected and registered information about the marine litter (mostly anthropogenic origin), occasionally appeared in the ground trawl fish control-catches, are additional source of data about present ecological status of marine seabed in investigated areas of the Baltic.	1	annually Year 1, 2 and 3	Coordinated the marine litter sampling programme in the Baltic International Trawl Survey (BITS).
j	Agree a standard pelagic trawl gear used in BIAS and BASS 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.	31	Year 1-3	Agreement on the standard pelagic fishing gear which will be used in the BIAS and BASS surveys

k	Review and update the International Baltic Acoustic Surveys (IBAS) manual 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	31	Year 3	Updated IBAS manual for WGBIFS (SISP 8)
l	Review and update the Baltic International Trawl Survey (BITS) manual 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	31	Year 3	Updated BITS manual for WGBIFS (SISP 7)

Summary of the Work Plan

Year 1	Compilation the survey results from 2017 and the first quarter of 2018 and reporting to WGBFAS. Coordination and planning the schedule for surveys in 2018 and first half of 2019. Review the development and validation progress of the StoX software. Coordinate the marine litter-sampling programme in the BITS surveys and registering the data in the ICES database. Define methods for the appropriate processing of the survey data and output products from the BITS survey to deliver input-data for calculation of the Baltic LFI and MML indicators. The approach to designing the standard pelagic fishing gear used in BIAS and BASS surveys.
Year 2	Compilation the survey results from 2018 and first quarter of 2019 and reporting to WGBFAS. Coordination and planning the schedule for surveys in 2019 and first half of 2020. Review the development and validation progress of the StoX software. Coordinate the marine litter-sampling programme in the BITS surveys and registering the data in the ICES database. Define methods for the appropriate processing of the survey data and output products from the BITS survey to deliver input-data for calculation of the Baltic LFI and MML indicators. The approach to designing the standard pelagic fishing gear used in BIAS and BASS surveys.
Year 3	Compilation the survey results from 2019 and first quarter of 2020 and reporting to WGBFAS. Coordination and planning the schedule for surveys 2020 and first half of 2021. Implementation of the StoX software linked with the ICES acoustic-trawl survey database for the calculation of stock estimates for Baltic herring and sprat. Coordinate the marine litter-sampling programme in the BITS surveys and registering the data in the ICES database. An attempt to calculate the LFI and MML indicators based on the Baltic research surveys (e.g. BITS). Reviewing and updating the BITS and IBAS survey manuals according to SISP standards. Final decision concerning the possible implementation of the standard pelagic fishing gear for control-catches in BIAS and BASS surveys and assignment of the intercalibration exercises between the new and old fishing gears.

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 Baltic Sea. 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 groups 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 o groups	There is a very close working relationship with WGBFAS. It is also relevant to the HAPSISG, WGFAST and the new working group on Marine litter (WGML).
Linkages to other organizations	No direct linkage to other organizations.

WGMEGS – Working Group on Mackerel and Horse mackerel Egg Surveys

2017/MA2/EOSG02

The **Working Group on Mackerel and Horse mackerel Egg Surveys (WGMEGS)**, chaired by Matthias Kloppmann*, Germany, and Gersom Costas*, Spain, 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	9–13 April	Dublin	Interim report by 1 June 2018 to ACOM/SCICOM	Matthias Kloppmann and Gersom Costas confirmed as new chairs.
Year 2019	via correspondence		Interim report by 15 September 2019 to ACOM/SCICOM	second meeting of group via correspondence 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 2019 survey.
Year 2020	27 April – 1 May 2020	Madrid	Final report by 12 June 2020 to ACOM/SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Coordinate the timing and planning of the 2019 Mackerel/Horse Mackerel Egg Survey in the ICES areas 5 to 9.	The egg survey provides important fishery-independent stock estimates for Northeast 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. For calculating SSB from egg surveys it is important to cover the entire spawning season and area. In order to be able to cover the entire spawning	25, 27, 31	year 1	Planning description and updated manuals for the survey in 2019 for WGMEGS

		season for both species a comprehensive survey plan is required that covers the area from Portugal to Iceland.			
b	Coordinate the planning of the sampling programme 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.	25, 27, 31	Year 1	Planning description and updated manuals for the survey in 2019 for WGMEGS through WKFATHOM
c	Review and report on procedures for egg sample sorting, species identification and staging.	Well defined sampling procedures are necessary to properly interpret the monitoring data as well as ensure a rigorous and transparent QAQC procedure.	25, 27, 31	Year 1	Updated manual for the survey in 2019 for WGMEGS through WKFATHOM
d	Review and report on procedures for fecundity and atresia estimation.	Techniques for fecundity and atresia estimation are developing quickly. Since the survey is carried out once every 3 years it is important to update the protocols on the estimation of fecundity and atresia.	25, 27, 31	Year 1	Updated manual for the survey in 2019 for WGMEGS through WKFATHOM
e	Update the survey manual and make recommendations for the standardization of all sampling tools, survey gears and procedures.	Standardization of sampling and sampling gear is important in surveys to produce a reliable estimate of SSB for stocks. As MEGS is a triennial survey it is important to update manuals in order to provide as much standardization as possible.	25, 27, 31	Year 1	Updated manual for the survey in 2019 for WGMEGS through WKFATHOM
f	Analyse and evaluate the results of the 2017 mackerel egg survey in the North Sea.	The North Sea mackerel egg survey is the only fisheries independent information used in the advice on North Sea mackerel.	1, 3, 8	Year 1	Final estimate of North Sea mackerel SSB for WGWIDE 2018.
g	Examine the results of the Bremerhaven, Germany and IJmuiden, The	For quality assurance in the year before the Atlantic survey a workshop	31	Year 2	Updated manual for the survey in 2019 for WGMEGS

	Netherlands workshops (8 – 12 October and 19 – 23 November 2018) on mackerel and horse mackerel egg staging and identification and fecundity and histology, and incorporate these into the Survey Manual for the 2019 survey;	(WKFATHOM) is organized in which survey participants are obliged to participate in order to standardize egg identification and staging and fecundity estimation. The WGMEGS manual is required to be updated with the results from the WKFATHOM workshop.			
h	Fine-tune survey execution in 2019.	Not all institutes have the vessel planning ready one year before the Atlantic survey. Hence it is necessary to fine-tune and finalize the planning of the survey in the actual survey year.	25, 27	Year 2	Optimised plan for survey in 2019 for WGMEGS
i	Analyse and evaluate the results of the 2019 mackerel and horse mackerel egg surveys in the western and southern areas; 1. calculate the total seasonal stage 1 egg production estimates for mackerel separately for the western and southern areas; 2. calculate the total seasonal stage 1 egg production estimates for the western horse mackerel stock (AEPM); 3. analyse and evaluate the results of the mackerel and horse mackerel fecundity and mackerel atresia sampling in the western and southern areas; 4. provide estimates of the spawning-stock biomass of mackerel, using	Provisional estimates of mackerel SSB, and egg production of horse mackerel 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, 8	Year 3	Finalized results of the mackerel SSB index, western horse mackerel egg production for WGWIDE.

	stage 1 egg production estimates and the estimates of fecundity and atresia, separately for the western and southern areas; 5. evaluate the quality and reliability of the 2019 survey in the light of the previous surveys and to evaluate the reliability of the preliminary estimates calculated in 2019 against the final estimates.				
j	Plan and coordinate the 2020 North Sea mackerel egg survey.	Currently the North Sea mackerel egg survey is carried out in the year after the Atlantic survey. Careful planning is necessary in order to get a reliable North Sea mackerel SSB estimate with the limited resources available.	25, 27, 31	Year 3	Planning of the North Sea mackerel egg survey for WGMEGS.
k	Review and reformat the historic time-series of North Sea mackerel egg surveys and upload data to the ICES egg and larvae database	The egg data of the North Sea mackerel egg survey were stored at the Norwegian institute in the past and since 2014 were handed to the Netherlands. The data needs to be checked and revised and put in the correct format to be uploaded to the ICES egg and larvae database	4, 25	Year 3	Historic dataset of the North Sea mackerel egg surveys in the ICES egg and larvae database.

Summary of the Work Plan

Year 1	Planning of the egg survey in 2019 and reporting on the North Sea egg survey of 2017.
Year 2	Survey year, the Atlantic survey is conducted in 2019, no meeting takes place in year 2. A report, by correspondence, with the updated planning and manuals and the preliminary results of the 2019 survey, is published.
Year 3	Reporting and finalizing of the results of the 2019 egg survey. Planning of the 2020 North Sea egg survey.

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	None. 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, IRL.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	The survey data are prime inputs to the assessments carried out by WGWIDE which provide ACOM with information required for responding to requests for advice/information from NEAFC and EC DG MARE.
Linkages to other committees or groups	WGWIDE, WKFATHOM, WGALES, WGBIOP.
Linkages to other organizations	There have been a number of associated EU funded projects in the past.

WGACEGG – Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES Areas 7, 8 and 9

2017/MA2/EOSG03

A **Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES areas 7, 8, and 9** (WGACEGG), chaired by Maria Santos, Spain and Mathieu Doray, France, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2017	3–17 November	Cadiz, Spain	Interim report by December, 1st 2017 to EOSG	First year of new co-chairs M; Santos and M. Doray
Year 2018	19-23 November	Nantes, France	Interim report by 4 January 2019 to EOSG	
Year 2019			Final report by Date Month May to EOSG	Change in chair

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
	This should capture the objectives of the ToR	Provide very brief justification, e.g. advisory need, links to Science Plan and other WGs	Use codes	1, 2 or 3 years	Specify what is to be provided, when and to whom
a	Provide echo-integration and Daily Egg Production Method (DEPM) estimates for sardine and anchovy in ICES sub-Areas 7, 8 and 9	a) Advisory Requirements b) Requirements from other EGs		3 years	Abundance and biomass estimates by age group. Fish spatial distribution will be provided to WGHANSA by the end of the WGACEGG meeting
b	Analyse sardine and anchovy (adults and eggs), spatial and temporal distribution and their habitats in European waters	a) Science Requirements b) Requirements from other EGs	1	Year 3	Manuscript and/or technical report in 2019
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) Science Requirements b) Requirements from other EGs	1	3 years	Gridded maps updated every year
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) Science Requirements b) Advisory Requirements c) Requirements from other EGs	27, 28, 31	3 years	New methodologies reported 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	27, 28, 31	3 years	Advances reported in annual WG report, available to the public one month after the meeting.
f	Coordination and standardization of the surveys	a) Science Requirements b) Advisory Requirements	30, 31	3 years	Annual plan for coordinated surveys. Updated survey protocols
g	Development 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	30, 31	3 years	Updated data processing protocols shared with the MEDIAS group (Mediterranean acoustic survey group)

h	Provide echo-integration estimates for other species (mainly blue whiting, mackerel, horse mackerel, chub mackerel and boarfish) ICES sub-Areas 8 and 9	a) Advisory Requirements b) Requirements from other EGs	1	3 years	Biomass per age group when available otherwise per length classes and spatial density distribution, provided to WGWIDE before the WG annual meeting
j	Ensure QAQC procedures are in palce	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.	27, 28, 31	3 years	Develop an independent SISP for the data collection and product specification conducted under the auspices of WGACEGG
k	Compare acoustic and DEPM biomass estimates of anchovy and sardine to improve the precision of stock estimates	a) Science Requirements b) Advisory Requirements c) Requirements from other EGs	1, 27, 28, 30, 31	3 years	Advances reported in annual WG report, available to the public one month after the meeting

Summary of the Work Plan

Year 1	Annual meeting: • Session on acoustic data collection and analysis • Session on DEPM data collection and analysis • Session on acoustic and DEPM indices comparison • Update of gridded maps of ecosystem data derived from surveys • Session on methods for the analysis of series of gridded maps of ecosystem data • Session to analyse progress on sardine and anchovy egg production estimates from CUFES • Submission of the WGACEGG DEPM Survey Protocols (SISP)
Year 2	Annual meeting, including a joint session with MEDIAS (Mediterranean acoustic survey group): • Session on acoustic data collection and analysis • Session on DEPM data collection and analysis • Session on anchovy and sardine eggs staging intercalibration exercises • Session on acoustic and DEPM indices comparison • Session on survey design • Update of gridded maps of ecosystem data derived from surveys • Session on methods for the analysis of series of gridded maps of ecosystem data • Session to analyse progress on sardine and anchovy egg production estimates from CUFES • Submission of the WGACEGG acoustic Survey Protocols (SISP)
Year 3	Annual meeting: • Session on acoustic data analysis and developments • Session on DEPM data analysis and developments • Session on anchovy and sardine eggs identification and staging using automated methodologies • Session on acoustic and DEPM indices comparison • Writing of a report or manuscript on the analysis of series of WGACEGG gridded maps of ecosystem data • 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 and boarfish in the North Eastern Atlantic. The activities of the group will also lead to the provision of 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: HANSA, WIDE, 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 and WGMEGS.
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.

WKMSIGD – Workshop on Methods for Stakeholder Involvement in Gear Development

2017/MA2/EOSG04

The **Workshop on Methods for Stakeholder Involvement in Gear Development (WKMSIGD)**, chaired by Jordan Feekings, Denmark, and Daniel Valentinsson, Sweden, will meet in ICES HQ, Denmark, in **22-24 May 2018** to:

a) Review current knowledge and experience in involving stakeholders in the development of fishing gears (ideally this should involve scientists, fishers and managers);
b) Propose future work looking at how to improve the methodologies current employed;
c) Develop an advice and best practice document to help identify incentive structures, self-sampling methods, facilitating stakeholder involvement, and information transfer between initiatives;
d) Identify how these initiatives can facilitate the landing obligation and the proposal of the new technical measures;

WKMSIGD will report by 28 June 2018 for the attention of the Advisory and Science Committees.

Supporting information

As described in the *Impact Assessment on a proposal for a regulation of the European Parliament and of the council on the conservation of fishery resources and the protection of marine ecosystems through technical measures (11.03.2016*), the current technical measures regime is no longer fit for achieving the sustainability objectives of the new common fisheries policy (CFP). Specifically, the current measures are:

based on negative, mostly coercive incentives in a top–down governance system creating mistrust among stakeholders as measures are seen as inequitable, leading to non-compliance;
impossible to measure their impact on the achievement of the conservation objectives of the CFP;

numerous and overly complex making compliance and control more difficult;
controlling too many aspects of fishing operations undermining the sector's confidence in the measures;
providing little incentive to fish selectively where there is no cost to discarding, or of catching vulnerable species or affecting adversely on the seabed; and
suboptimal in respect of achieving broader environmental and ecological policy objectives

The Impact assessment aimed to:

1. Maximise the contribution of technical measures in achieving the key objectives (to minimize/phase out discards) of the new CFP that came into force on 1 January 2014.
2. Create the flexibility required to adjust technical measures by facilitating regionalised approaches (consistent with the objectives in EU law).

Currently, there are several countries trialling initiatives which aim to have the fishing industry to develop the gears they perceive better suit their fisheries. The involvement of stakeholders in the development and testing of fishing gears can help to alleviate some of the mistrust and non-compliance currently observed, provide incentives to fish selectively, and help achieve the aims described in the Impact Assessment. The initiatives established are currently coordinated at a national level, where project structures, incentives, data collection methods etc. all differ from each other. To be able to use such types of initiatives to help facilitate the landing obligation and the proposed reformed technical measures these initiatives should be coordinated at a regional level. This workshop aims to define how to obtain the most out of these initiatives.

Priority	Gear selectivity trials/improvements provide crucial information on the selectivity of fishing gears used in the fisheries and their descriptions in the technical regulations. Consequently, these activities are considered to have a high priority.
Scientific justification	TOR a) to d) The work currently being carried out by a number of member states on involving stakeholder in the development and testing of fishing gears is coordinated at a national level, where project structures, incentives, data collection methods etc. all differ from each other. To be able to use such types of projects to help facilitate the landing obligation and the proposed reformed technical measures these initiatives should be coordinated at a regional level.
Resource requirements	The national programs which provide the main input to this group are already underway, and resources are already committed. The additional resources required to undertake the workshop are meeting room facilities at ICES headquarters.
Participants	Members of WGFTFB (10-15 participants expected) and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	There are linkages to both SCICOM and ACOM.
Linkages to other committees or groups	There are links to WGFTFB and WGMARS.
Linkages to other organizations	The work of this group is of interest to all EU countries as it pertains to the landing obligation and how stakeholder driven gear development can facilitate a successful management framework.

WKNEPS – Workshop on *Nephrops* burrow counting

2017/2/EOSG05

The **Workshop on *Nephrops* burrow counting (WKNEPS)**, chaired by Adrian Weetman*, UK and Jennifer Doyle*, Ireland, will meet at Marine Science Scotland, Aberdeen, Scotland, UK in **2-5 October 2018** to:

a) To build capacity in burrowing counting skills and support counting procedures for new and developing surveys across Europe. (Science Plan Topic addressed, 31)

b) To analyse challenges and differences among *Nephrops* grounds. (Science Plan Topic addressed, 31)

c) To update the UWTV SISP based on WKNEPS conclusions. Redefine counting protocols if necessary. (Science Plan Topic addressed, 31)

d) To define periodicity of this type of training workshops (Science Plan Topics addressed, 27,31)

WKNEPS will report by 20 December 2018 for the attention of EOSG and SCICOM.

Supporting information

Priority	This work is considered high priority as it is crucial to keep building capacity in burrow counting skills across all institutes that are responsible to assess and provide advice on *Nephrops* stocks using UWTV surveys are an integral part of the stock assessment. It is important to standardise this process and ensure quality control of this method and to redefine counting protocols if needed. This workshop will be particularly important in supporting training for new and developing surveys.
Scientific justification	*Nephrops* are a valuable species whose stocks are potentially susceptible to local depletion. UWTV surveys have become the main basis of management advice for *Nephrops* stocks in ICES. There is a need to build capacity in burrowing counting skills and support counting procedures for new and developing surveys.
Resource requirements	This workshop will be held in meeting venue and date will be decided by WGNEPS 2017. Four days will be allocated to the *Nephrops* burrow counting training workshop and the facilities and equipment will be provided by the relevant institute; additional equipment might be provided by other Institutes if required.
Participants	Expected around 20 members.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	There are no direct linkages with the advisory committees.
Linkages to other committees or groups	There is a very close working relationship with WGNEPS. It is also very relevant to stock assessment experts groups that use the survey results i.e. WGCSE, WGNSSK, and WGBIE.
Linkages to other organizations	None

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	TBD July	Copenhagen, Denmark	Interim report by Date Month to ACOM/SCICOM	
Year 2020	TBD July	Copenhagen, Denmark	Final report by Date Month to ACOM/SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	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 methods used to resolve problems in order to provide "self-help" options to resolve similar issues in other assessments.	26, 31		
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.	31		
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	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		As required	Reports and presentations to the appropriate Benchmark workshop.

	started	conclusions at the benchmark
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

WKUSER – Workshop on unavoidable survey effort reduction

2017/2/EOSG07

The **Workshop on unavoidable survey effort reduction** (WKUSER), chaired by Stan Kotwicki*, US, will meet in Seattle, US, 14 – 18 January 2019 to:

a) The workshop will reflect on the current processes used in dealing with unavoidable reductions in survey efforts and examine the existing coping strategies (e.g. spatial coverage, survey frequency, or sampling density) and their qualitative consequences.

b) Develop key quality metrics that can be used to describe "total survey uncertainty" for survey derived indices of abundance for common survey designs.

c) Define "changes to survey designs" that require inter-survey calibration and what changes can be resolved by a model-based approach to index generation.

d) Consider the development of methods that aim to provide quantitative decision-making tools that describe the effects on the quality of the survey deliverables and ultimately advisory products.

WKUSER will report by 15 February 2019 for the attention of the ACOM and SCICOM.

Supporting information

Priority	Marine surveys are expensive and under recent budgetary and polictical presussures a number of decisions on survey implementation have had to be made at very short notice and with little opportunity to evaluate different options for effort reductions the effects o which will only become apparent in the next few years. Such changes are likely to be a recurring theme, and it is in the interest of national governments making the decisions and ICES using such information for their advice to have a better understanding of their effects on stock assessment advice and a clearer understanding of the mitigation measur that can be implemented to minimse the impact of such events.
Scientific justification	Most survey programs are at one time or another asked to make substantial short term savings. Usually these requests leave little time for planning let alone evaluation so there is a real need to develop methods that provide a better understanding of the risks of different implementation options, an investigation of methods that can help to compensate for some of the information loss, and lastly under which survey design and survey objectives these methods are most appropriate. Often survey scientist / managers are having to make decisions on the fly, the consequences of which are poorly understood. Having a framework or a set of methods that can be applied to the specific problem is highly valuable together with summarisations of findings for general cases, which allow survey scientist to make decisions in the absence of data or the opportunity to evaluate options statistically.
Resource requirements	Many different approaches to evaluate effects and survey options have been developed independently at different times in response to specific cases. A large part of this work is to 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	Unknown at present but likely between 10 and 20 participants
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	There is a direct link with the advisory committee as they require knowledge on the sensitivity of the advice to changes in surveys in order to provide precautionary advice when survey information is compromised.

Linkages to other committees or groups	The wporkshop should link closely back to WGISDAA which will maintain the tools / methods and broaden the approach over time. Work with stock assessment WG is thought to be essential.
Linkages to other organizations	The work of this group is closely aligned with similar work in FAO and in the Census of Marine Life Programme.

WKESIG – Workshop on evaluating survey information Celtic Sea gadoids

2017/2/EOSG08

The **Workshop on evaluating survey information Celtic Sea gadoids (WKESIG)**, chaired by David Stokes*, Ireland, will meet in October 2018 to:

e) Review and consider the quality and availability of survey data going into the assessment of cod, haddock and whiting as requested by WGCSE2017;

f) Evaluate the potential to improve current survey indices by use of additional information such as standardising by swept area or using model based index approaches;

g) Review and standardize methods for evaluating and constructing indices including applying and filling in ALKs, estimating uncertainty and, where desirable, combining or complementing surveys with other data sources.

WKESIG will report by DATE for the attention of ACOM and SCICOM.

Supporting information

Priority	The Benchmark process is critical to the review and quality assurance of stock assessments within ICES. A number of points for investigation have been indentified by WGCSE for cod, haddock and whiting which form a key mixied fishery in the Celtic Sea. These stocks are largely, if not exclusively tuned using survey data and therefore this work is considered a high priority.
Scientific justification	Term of Reference a) Three of the largest stocks assessed by WGCSE (Cod 7e_k, Haddock 7b_k and Whiting 7b_k) form part of a significant mixed demersal fishery in the Celtic Sea. These assessments rely heavily on survey indices which in all cases use at least one combined survey index between Ireland (IE-IGFS) and France (EVHOE). How these data are standardised and combined is somewhat different across stocks and achieved by R code passed through earlier Benchmark but not currently published or documented in detail. The proposed workshop will review the construction and quality of these survey indices including: a) optimal standardization such as swept area b) appropriate fill ins of ALKs c) appropriate estimates of uncertainty which could be passed in to the assessment process.
Resource requirements	The input data for this work is largely available already through DATRAS and Intercatch and therefore time to process the inputs is main resource requirement.
Participants	The Group is normally attended by 6-10 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	The results and conclusions will likely feed into future benchmark processes for these or other species.
Linkages to other committees or groups	There is a close working relationship with IBTS, WGCSE and WGMIXFISH.
Linkages to other organizations	

WKFATHOM – Workshop on Egg staging, Fecundity and Atresia in Horse mackerel and Mackerel

2017/2/EOSG09

The **Workshop on Egg staging, Fecundity and Atresia in Horse mackerel and Mackerel (WKFATHOM)** chaired by Maria Korta*, Spain, and Matthias Kloppmann*, Germany, will meet in Bremerhaven, Germany, on 8–12 October 2018 (egg staging) and in IJmuiden, The Netherlands, on 19–23 November 2018 (fecundity) to:

a) Carry out comparative plankton sorting trials on typical survey samples. This should follow the pattern of trial – analysis – retrial – identification of problem areas;
b) Carry out a comparative egg staging trial for mackerel and horse mackerel eggs following the pattern used in the 2009 egg staging workshop;
c) Update a set of standard pictures and descriptions for species identification and egg staging;
d) Review available documentation on identifying eggs to species and define standard protocols;
e) Carry out inter-calibration work on fecundity and atresia determination and POFs staging;
f) Update a set of standard pictures for both oocytes and POFs stages;
g) Harmonize the analysis and interpretation of fecundity and atresia samples;
h) Review the methodology in use and available documentation on fecundity determination in order to redefine the standard protocols.

WKFATHOM will report by 11 January 2019 for the attention of EOSG.

Supporting information

Priority	Information quality, used to provide fisheries advice through WGWIDE, will be impaired if this workshop is not conducted.
Scientific justification	Sorting eggs from plankton samples, identification of eggs to species and the staging of those eggs remains one of the key areas in the execution of the mackerel and horse mackerel egg surveys. As this process 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 regular workshops 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 2018. It is expected that 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 a standard manual of descriptions and photographs to assist in the plankton sample handling procedure. This material was assembled and embedded into the agreed MEGS standard survey manual at previous workshops.

	In the context of these surveys, and equivalent to egg staging, fecundity estimation is fundamental for conversion of egg production to spawning stock biomass in western and southern mackerel stock components. Both fecundity and atresia estimation are carried out using histological and image analysis methods, and the analysis and interpretation of these material also 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 as in the case of egg staging workshop, it is recommended that experiences gathered during these workshops be extended during the consecutive workshop in 2018. It is expected that the workshop will refine the developed methodologies for fecundity estimation to overcome problems identified during surveys by means of several inter-institutes exercises that may test the new techniques. In this sense, the workshop will also update the manual assisting the fecundity estimation from sampling to analysis procedures. As in the case of egg staging, the material will improve the agreed MEGS standard survey manual.
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 and WGWIDE
Linkages to other organizations	None.

WKNSIMP – Workshop on Impacts of planned changes in the North Sea IBTS

2017/2/EOSG10

The **Workshop on Impacts of planned changes in the North Sea IBTS** (WKNSIMP), chaired by Kai Wieland*, DK, will meet in DATE 2019 to:

a) Review expected near future changes in the North Sea IBTS;

b) Evaluate the impacts of the planned changes in the NS-IBTS on data consistency for stock assessments and ecosystem indicators (existing and potential future indicators where expertise are available) and examine options to minimise the impacts (design based and model based approaches).

c) Advise on the implications of different change-options on future survey deliverables and how to minimise the impact of necessary changes.

WKNSIMP will report by DATE for the attention of the ACOM and SCICOM.

Supporting information

Priority	The NS-IBTS is an important source of fisheries independent information for stock assessements of several North Sea stocks and provides additional information on biodiversity and marine litter. Changes of the survey, howeverer, cannot entirely be avoided (e.g. change of vessels and survey gear in the future due to technical reasons but it is crucial that the consistency of the time series is impaired as less as possible.
Scientific justification	Term of Reference a) Several countries will replace their research vessels in the near future. The current survey gear (GOV) is old fashioned and it becomes more and more difficult to get the material for repairs. Furthermore, ideas have been discussed in the recent years to modify the NS-IBTS towards an ecosystem survey, and there may be other changes the various survey participants may wish to implement e.g. a new stratification, random station position selection and allocation of sampling areas to the different countries. Term of Reference b) All the expected changes will potentially impact the quality and consistency of the time series provided by the NS-IBTS but its magnitude may likely differer depending on the purpose for which the data area used. Term of Reference c) There different ways to implement the unavoidable or wanted changes: - Implementation in both the 1Q and 3Q NS-IBTS at the same time, - Abrupt implementation of all change in the 3Q IBTS, or - Gradual implementation in the 3Q IBTS over an perido of several years, and advice is needed which approach would minimize the impact on the suitability of the data to be used for the various purposes .
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	Is that the workshop will be attended by 10–20 survey and stock assessment expert group members and guests.
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 working relationship with many of the groups of the SSGIEOM Committee. It has relevance to WGNSSK and enduser workshops with the RCGs
Linkages to other organizations	This work is of interest to the RCGs and the national governments in developing their monitoring programs. The workshop is also of interest for MSFD groups related to OSPAR.. Both these groups will be contacted ahead of the workshop to ensure

WKMLEARN - Workshop on Uses of Machine Learning in Marine Science

2017/2/EOSG11

A **Workshop on Uses of Machine Learning in Marine Science** (WKMLEARN), co-chaired by Ketil Malde*, Norway and Shaheen Syed*, Netherlands/UK, will be established and will meet in ICES HQ, Copenhagen, 16-20 April 2018 to:

a) Review ICES Fisheries Science processes to understand where machine learning and/or deep learning may be of greatest benefit, including:
   i) Survey and data collection,
   ii) Data handling,
   iii) Analysis and assessment,
   iv) Review and advice
   v) Check degree to which expert groups are meeting their terms of reference
   vi) Taking a forward look and consider emerging topics;

b) Identify areas of marine science, data and advice within the ICES remit where machine learning/deep learning has already been applied;

c) Identify options to better include social scientists into ICES processes, through the use of machine learning/deep learning, ;

d) Recommend ways forward, particularly to include experts from outside ICES, and consider further areas of work within ICES where machine learning/deep learning would be particularly applicable. Future data storage options to facilitate machine learning/deep learning could also be considered.

WKMLEARN will report by 31 May 2018 for the attention of the Advisory and Science Committees.

Supporting information

Priority	The Workshop will explore an area of science and technology that is rising rapidly in its ability to support science and which has the potential to replace a number of traditional activties within the fishery science process. ICES needs to understand how best to respond to theese developments.
Scientific justification	Term of Reference a) Machine Learning (and/or Deep Learning) can be used in many ways – from text analysis to finding hidden patterns in large datasets, to analysing images and video, and to deriving analytical algoriths. All forms of machine learning will be considered in examing each stage of fish stock assessment and advice. Term of Reference b) Machine Learning has been applied to determining numbers of salmon lice on farmed fish, identifying fish species from trawl cameras, interpreting fish scales, classifying fish behavior, and interpreting acoustics data through use of image analysis. It has also been applied to analysis of marine science literature to determine trends in research and publication. Participants who can provide further examples will be specifically sought. Term of Reference c) Among the challenges in bringing more social science into the traditional fisheries science and advice process has been the lack of a common language – with specialist terms being used in both areas that may not have any meaning elsewhere. Machine learning can help overcome such barriers. One option might be to match trends in social science data and publications with trends in fisheries science literature. The overall aim would be to facilitate the further inclusion of the social sciences in ICES processes. It may also be useful to identify research areas that can be addressed through multi-/inter-disciplinary computational social science approaches to study social processes relevant to fisheries. Term of Reference d)

	The Terms of Reference for this workshop have been kept deliberately constrained so as not to overload its work. Lessons learned from the workshop should be considered and a path forward recommended.
Resource requirements	It is hoped that participants will have sufficient access to computing resources so as to not require any further input.
Participants	Participants will be sought from as wide a community as is possible. We would hope to attach scientists with skills in surveying, stock assessment, social aspects, experience in ICES processes including advice and inter-disciplinary scientists. Scientists with access to complex datasets would be welcomed also. Early career scientists with skills in machine learning would be particularly welcome
Secretariat facilities	The Atlantic Room for 3 days, and the usual welocome Secretariat support.
Financial	No financial implications.
Linkages to advisory committees	Directly linked
Linkages to other committees or groups	Directly linked, and potentially to all SCICOM steering groups. Science Impact and Publications Group would be interested in bibliometric and citation analysis.
Linkages to other organizations	None at present

PGDATA - Planning Group on Data Needs for Assessments and Advice

2017/2/EOSG12

A **Planning Group on Data Needs for Assessments and Advice** (PGDATA), chaired by Joël Vigneau, France, 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	13-16 February	Ifremer Nantes, France	Interim report by 2 April 2018 to SCICOM, ACOM, EOSG	
Year 2019			Interim report by April to SCICOM, ACOM, EOSG	
Year 2020			Final report by April to SCICOM, ACOM, EOSG	Change in chair

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Implement and maintain Quality Assurance Framework for assessment EGs to evaluate data quality and its impact on assessments	The ACOM/SCICOM assessment and advisory process needs to be based on a better understanding of the impacts of data quality. Build on experience in PGCCDBS, WKPICS, SGPIDS and other EGs; Establish close working with case study		Year 1-3	Proposal of a structured approach for agreement within ICES, including the development of the ICES/RDB for detailed fisheries Development of a 'best practice SISP' for data collection

		benchmark workshops; consult with WGCATCH, WGBIOP, WGISDAA, ICES Data Centre, other relevant SSGIEOM EGs & ACOM.		in support of stock assessment. Provision of a service to EOSG expert groups for statistical advice and guidance on sampling design to promote good practice and establish effective 2-way communication.
b	Review the outcomes on methodological procedures and quality estimates from past ICES technical workshops and working groups, and advise on ways forward.	Objective procedures are needed to identify where data quality improvements will have greatest impact on quality of advice. Build links with statistical experts within and external to ICES; establish workshops to develop and test methods. Consult with the intergrated assessment working groups. Many ICES groups have provided valid information on best practice and guidelines but it is very time consuming to locate the relevant information on how to improve the data quality for a specific domain. Therefore, PGDATA should locate and host a repository where the information on best practice and guidelines are available	Year 1-3	Organisation of a better accessibility to any recommendation or good practice provided by the variety of technical workshops, and including work done by other for a such as STECF and EU-MAP Identification of gaps and needs for statistical and/or tools developments Initiate workshops where needed
c	Propose ways to improve the communication and feedbacks on data issues		Year 1 – 3	Direct input in the same years data call in cooperation with ICES sec. Publication on findings (in the form of peer-reviewed publication (e.g. CRR) documenting the development of methodologies in the field of data collection)

Summary of the Work Plan

Year 1-3	Consolidate 3-year workplan; establish membership & skills needed; consultation within SSGIEOM on broader QAF implementation (e.g. surveys); establish links and working procedures with ICES EGs, ICES Data Centre, external bodies, external experts; develop draft QAF guidelines for benchmarks; work with test case benchmark5. Specific ToRs for the plenary meeting will be to: a) Implement and maintain Quality Assurance Framework for assessment EGs to evaluate data quality and its impact on assessments; i) Propose a structured approach for agreement within ICES, including the development of the ICES/RDB for detailed fisheries data, and develop a "best practice SISP" for data collection in support of stock assessment; ii) Collaborate with EOSG expert groups to identify problems and prioritize actions to progress and improve quality data collection. iii) Provide a service to EOSG expert groups for statistical advice and guidance on sampling design to promote good practice seeking to establish effective two-way communication. iv) Cooperate with assessment expert groups to show and demonstrate the effects of data collection methodology on the advisory assessments to underline the relevance of good practice to the advisory process. b) Review the outcomes on methodological procedures and quality estimates from past ICES technical workshops and working groups, and advise on ways forward. i) Maintain knowledge of the work done and organize accessibility to any recommendation or good practice provided by the variety of technical workshops and propose changes to SISP as necessary ii) Review the work done in other fora such as STECF and EU-MAP in order to integrate the initiatives and propose complementary work; iii) Identify gaps and needs for statistical and/or tools developments, and initiate workshops as needed; c) Propose ways to improve the communication and feedbacks on data issues i) Review and comment on ICES data calls ii) Organize participation to end-user meetings to seek for mutually beneficial improvements iii) Promote publication on findings, likely in the form of peer-reviewed publication (e.g. CRR) that documents the development of methodologies in the field of data collection and the state of scientific knowledge on the topic at the end of the 3-year TOR period
Year 3	Review of progress / results in implementing QAF; further implementation in benchmarks; Methodological Workshop – developing and testing criteria for evaluating data needs and requests; consultations with end users on data needs; 3rd PG meeting; evaluate future PGDATA workplans.

Supporting information

Priority	The focus should be made on the development of the QAF for both fishery dependent and fishery independent data, and on creating links between the different expert groups. The statistical improvements and good practices should be put in context, promoted for implementation, and easily accessible to the public. i) Design a Quality Assurance Framework to ensure that information on data quality is adequately documented and applied in assessments; ii) Ensure consistency of approach for fishery dependent and fishery independent data quality framework, and complementarity with approaches developed in other fora such as STECF, EU-MAP, …; iii) Identify improvements in data quality, or collections of new data, that have the greatest impacts on the quality of advice; iv) Improve or create communication routes between data collectors, data managers and end-users, and advise on new approaches to ease the

	implementation of the QAF (through publication, RDB-development and, cooperation with other WG including shared workshops);. The terms of references should focus on methods and their evaluation rather than providing solutions to a specific data issue or recommending a single method to be used in all cases. The reason for this is that many assessments and data collections follow different methodologies ofr have different assumptions so that a universal answer is unlikely to be appropriate. The aim is to gather the existing information on data quality in a structured way, develop expertise and tools where gaps are identified, develop communication with end-users, and maintain knowledge of the work done.
Resource requirements	The national science programmes which provide the main input to this group are already underway, and will need to commit resources to support participation of staff in the PG. Due to relevance of the PG to fishery management under the CFP and to the DC-MAP, use of national EMFF funds to co-finance involvement in the PG should be agreed as eligible.
Participants	The core PG participation required to address annual work plans and plenary meetings will require experts in statistics, sampling design, surveys, modelling, stock assessment, management strategy evaluation methods and other modelling approaches needed, DC-MAP implementation; and RCGs, and efforts are needed to ensure participation of experts directly involved in specific work areas, such as regional benchmark processes, which are being addressed. Other experts, including external experts from USA and elsewhere will be invited when required. EC DG-MARE involvement will be beneficial. A broader pool of experts and other national scientists will be identified for participation in meetings and workshops and to facilitate two-way communication between PGDATA and national institutes.
Secretariat facilities	Support needed from Secretariat involved in setting up benchmarks meetings
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	This is a joint ACOM-SCICOM Expert group. There will be strong and direct linkages with ACOM and with assessment EGs involved in regional benchmarks targeted for case studies.
Linkages to other committees or groups	There will be a very close working relationship with all the groups of EOSG and with ACOM benchmarking groups.
Linkages to other organizations	There will be linkages with STECF, RCMs/RCGs; stakeholder Advisory Committees, European Commission and other RFMOs

WKMACQI – Workshop on Mackerel biological parameter Quality Indicators

2017/2/EOSG13

The **Workshop on Mackerel biological Quality Indicators (WKMACQI**), chaired by Cindy van Damme, The Netherlands, will meet in IJmuiden, The Netherlands, 15–17 May 2018 to:

a) Review and consider quality indicators for and issues with biological parameters of western, southern and North Sea mackerel;
b) Prepare and update the Age Error Matrix and Maturity Staging Error Matrix;
c) Carry out sensitivity analyses of the mackerel assessment with regards to the quality indicators of mackerel biological parameters.

WKMACQI will report by 15 August 2018 for the attention of the WGBIOP and WGWIDE.

Supporting information

Priority	WGBIOP has prepared quality indicators for biological parameters for upcoming benckmark stocks in the first 3-year term 2015–2017. The original ToR for WGBIOP included the incorporation of the quality indicators in the assessment proces. This goal has not been reached because WGBIOP has not been able to get stock assessors involved

	in the WGBIOP meetings in 2016 or 2017. However, contact has been established with the stock coordinators and issues and quality indicators on biological parameters have been put forward to them. Positive reactions from them facilitated a qualitative consideration of the issue in the assessment. However, it is necessary to improve the assessment proces to include the quality indicators further in the assessments. This workshop with mackerel as a case study will be an example of how the quality indicators can be further incorporated in the assessment.
Scientific justification	Term of Reference a) WGBIOP has prepared information on the quality indicators and issues with biological parameters of mackerel. The mackerel stock coordinator has formulated further needs with regards to the biological parameters. These need to be combined and evaluated to come to the final quality indicators and issues with biological parameters for mackerel. Term of Reference b) Age Error Matrices (AEM) have been developed for some species, for mackerel an (unpublished) matrix has been developed some time ago. However, since then a new age reading workshop has been executed. The AEM need to be updated with the results of the latest workshop. A calibration of the maturity staging has been carried out in 2015. With the results of this workshop a Maturity Staging Error Matrix (MSEM)can be developed. Term of Reference c) Sensitivity analyses using the quality indicators and the AEM and MSEM will show the impact on the assessment.
Resource requirements	No specific resource requirements beyond the need for members to prepare for and participate in the meeting.
Participants	It is essential that the stock assessor of western, southern en North Sea mackerel will participate in this workshop. WGBIOP participants involved in quality indicators and issues with biological parameters.
Secretariat facilities	None.
Financial	Travel costs will be eligible for participants from Member States of the European Union through the EU Data Collection MAP (DCMAP).
Linkages to advisory committees	ACOM
Linkages to other committees or groups	WGBIOP, WGWIDE
Linkages to other organizations	There is a direct link with the EU DCMAP.

WKPETSAMP - Joint WGBYC/WGCATCH Workshop on sampling of by-catch and PET species 2017/2/EOSG14

The **Joint WGBYC/WGCATCH Workshop on sampling of by-catch and PET species (WKPETSAMP)** under EU-MAP programmes and directed by-catch studies, co-chaired by Bram Couperus, The Netherlands, and Katja Ringdahl, Sweden, will meet in Lysekil, Sweden, from 24-26 April to 2018 to:

a) Develop an inventory of existing sampling programmes that currently provide data on PETS by-catch at national level, including both DCF at-sea catch sampling programs and studies that target primarily PET by-catch (directed studies). In each sampling programme identify the target population, the sampling units, sampling frames, stratification schemes and sample selection methods for the different levels of the sampling hierarchy (primary, secondary and lower level sampling units).

b) Compare the designs, assumptions, advantages and limitations of existing at-sea catch sampling programmes to those of directed studies carried out in the same country. Attempt to develop criteria, which identify the situations in which at-sea catch sampling programmes fail to provide the necessary precision required by end-users and what alternate methods exist.
c) Define proper mechanism(s) for storage, maintenance and dissemination of both the PETS monitoring programme inventory and monitoring data.
d) Provide evidence for preparation of guidelines for at-sea sampling programmes, listing best practices and relevant parameters for PETS sampling for specific fisheries.

WKPETSAMP will report by 1 May for the attention of the ACOM, SCICOM, WGBYC and WGCATCH.

Supporting information

Priority	This workshop is considered to have a high priority to ensure statistically sound and consistent sampling designs of routine DCF at-sea catch sampling programmes, DCF pilot programmes and national and international fisheries monitoring schemes directed at bycatch of protected species in ICES countries.
Scientific justification	With the implementation of sampling of protected species in the EU-MAP, member states in the EU have to adjust their on board sampling protocols to improve their coverage of bycatch of protected species or initiate (pilot) studies that specifically monitor this group of species. At the same time, significant differences have been identified between the bycatch estimates obtained from DCF at-sea data collection programme that aim to determine discard of the main commercial fisheries and those of national and international projects that aim specifically at determining bycatches of protected species [e.g., WGBYC 2015, WGCATCH 2016]. There is need to ensure that statistically sound practices are followed by both types of programmes and that consistent designs and assumptions are used by all members states that allow for consistent analyses of bycatch rates. There is also a need for clear criteria to determine when existing on board sampling programmes of commercial fisheries cannot provide sufficient data for the evaluation of bycatch rates.
Resource requirements	None beyond the usual secretariate facilitation.
Participants	Participants should include members of WGBYC and WGCATCH and otherwise people involved in the execution of dedicated monitoring of protected species and EU-MAP sampling schemes. Also needed willl be expertise on statistical analysis of rare events.
Secretariat facilities	Some secretarial support will be needed.
Financial	None
Linkages to advisory committees	ACOM and SCICOM
Linkages to other committees or groups	WGBYC, WGCATCH, PGDATA, WGEF and JWGBIRD.
Linkages to other organizations	OSPAR, EC, ASCOBANS, GFCM(….)

WKVALPEL Workshop on age validation studies of small pelagic species

2017/2/EOSG15

A **Workshop on age validation studies of small pelagic species (WKVALPEL),** replaces WKMIAS, chaired by Javier Rey, Spain, Kelig Mahé, France, and Pierluigi Carbonara, Italy, will meet in Boulogne Sur Mer, France, 20–24 November 2018 to:

a) Review information on age estimations, otolith exchanges, workshops, and validation works done for each pelagic species

b) Assemble and compare the results of different validation methods (i.e. marking and recapture, marking the calcified structure, marginal increment analysis, marginal analysis, modal progression analysis, length back-calculation, micro increment analysis, etc.);

c) Discuss and propose the most appropriate validation methods of age and growth pattern of calcified structures (CS), for each species and stock;

d) Propose the appropriate validation methods to recognize the growth checks.

WKVALPEL will report by 4 January 2019 to the attention of ACOM and SCICOM

Supporting information

Priority:	The current activities of this Group will lead ICES into issues related to the ecosystem affects of fisheries, especially with regard to the application of the Precautionary Approach. Consequently, these activities are considered to have a very high priority
Scientific justification:	Based on main results produced in previous ICES workshops and Exchanges on ageing adult anchovy and sardine (WKARA 2009, WKARAS 2011, Anchovy Exchange 2014), a focal point was to correctly identify the right position of the first ring (annulus) on sagittal otoliths of these species, being one of the main sources of error affecting ageing precision. Improving precision in age reading is extremely important in general, even more in short-lived species such as anchovy and sardine. One of the most common method to validate the timing and position of the first ring consists of counting of otolith micro-increments (daily rings) in juveniles (young-of-the-year). Daily growth studies of anchovy and sardine are currently carried out in different European laboratories, principally to analyse the effects of environmental parameters on growth and survival, and thus to understand the factors affecting recruitment processes of these species. However, given the wide span of methodologies already existing within laboratories, ageing data are often difficult to compare, actually masking the contribute of environmental conditions of different growth rate patterns observed among areas. The aim of the workshop is to collate these different protocols as starting point to produce single validated protocol to better standardize age estimates, either on daily or annual basis.
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:	None
Linkages to advisory committee:	ACOM, GFCM
Linkages to other committees or groups:	WGBIOP, WGHANSA
Linkages to other organizations cost:	There is a direct link with the EU DCF

WKBIOPTIM2 – The Second Workshop on Optimization of Biological Sampling

2017/2/EOSG16

The **second Workshop on Optimization of Biological Sampling (WKBIOPTIM2)** chaired by Ana Cláudia Fernandes, Portugal, and Maria Teresa Facchini, Italy, will meet in IFREMER Nantes, 29 to 31 May 2018 to:

a) Further develop catch-sampling evaluation toolbox (following WKBIOPTIM 1): Improvements will be considered based on additional case studies (i.e. stocks or fisheries) and consideration of additional metrics (e.g. age and maturity) and considerations for methods to calculate effective sample size for these metrics.

b) Development of quality indicators: evaluate a second set of quality indicators

c) Discuss progress achieved in implementation at national level since WKBIOPTIM 1.

WKBIOPTIM 2 is a joint WK of WGBIOP and WGCATCH and will report by 5 July 2018 to the attention of the ACOM, SCICOM, WGBIOP and WGCATCH

Supporting information

Priority	This workshop is considered to have a high priority for already established and new commercial fishery and survey sampling programmes developed under the MAUP. The results of the WK will provide means of evaluating sampling precision of exisiting and new sampling designs and provide means to comparing sampling efficiency a variety of stocks and metrics.
Scientific justification	Statistical sound sampling is a requirement of the new EU-MAUP that now specifies that "where data are to be collected by sampling, Member States shall use statistically sound designs" (COM IMPL DEC 2016/1701). It is important that the national laboratories of MS have common tools to quantify the effects, advantages and disadvantages of different sampling intensities and sampling designs so they can evaluate sampling in terms of time and costs and information content (effective sample size). The Workshop on Optimization of Biological Sampling at Sample Level (WKBIOPTIM) developed and tested a set of simple R-scripts (based on the RBD exchange format) which produce a range of simple statistical and graphical ouputs to be used for discussion of appropriate levels of biological sampling of different stocks. Data quality indicators of the biological variables under the optimization procedures carried out at the workshop were discussed and a roadmap for future discussions with end users outlined. Given the positive feedback both from national labs and RCM's it is recommended that a second workshop takes place to continue the work initiated. It is envisioned that WKBIOPTIM should be a joint workshop bringing together experts from WGCATCH and WGBIOP and that the main results will be brought to further discussion by these two groups.
Resource requirements	The data collection programmes which provide the main input to this group are already underway, and resources are already committed. All EU countries already have the datasets required for analysis available in the RDB format. Some preparation of R-scripts and selection of case-studies will be required prior to the meeting.
Participants	The Workshop is expected to attract wide interest from those involved in WGCATCH and WGBIOP and should include a subset of participants familiar with R-code to the level of "loop coding" and "function building" and a subset of participants experienced in age and reproduction analysis. In view of its relevance to data collection within ICES, the EU-MAUP and regional sampling designs, it should include those involved in the annual planning of sampling and and laboratory analysis, including e.g., number of trips to be sampled and fish to be measured and aged/sexed. Members of survey groups located under EOSG are also among the probable participants.
Secretariat facilities	Some secretarial support will be needed.
Financial	None

Linkages to advisory committees	ACOM and SCICOM
Linkages to other committees or groups	WGCATCH, WGBIOP, PGDATA, EOSG
Linkages to other organizations	RCGs

WGBIOP - Working Group on Biological Parameters

2017/MA2/EOSG17

The **Working Group on Biological Parameters** (WGBIOP), chaired by Pierluigi Carbonara, Italy, Cindy van Damme, The Netherlands and Julie Olivia Coad, Denmark will meet in Ghent, Belgium, **1–5 October 2018**, to work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2018	1–5 October	Ghent (Belgium)	Interim report by 9 November 2018 to EOSG, SCICOM& ACOM	
Year 2019			Interim report by "DATE"to EOSG, SCICOM& ACOM	
Year 2020			Final report by "DATE" to EOSG, SCICOM& ACOM	

ToR descriptors

Tor	Description	Background	Science plan topics addressed	Duration	Expected deliverables
a	Plan studies, workshops and exchange schemeson interpretation of fisheries data on stock-related biological variables, and review the output	Review incoming suggestions for inter-sessional work from EGs, WKs and other ICES related groups, e.g. planned benchmarks	21, 25, 31	Generic ToR	Yearly provision of a prioritized overview of planned studies, workshops and exchanges will be delivered to PGDATA for review
b	Improve training and quality assurance of age reading and maturity staging. Identify the need for validation studies and assign priorities.	Routines for monitoring the quality of age and maturity are currently based on national protocols and these need to be standardized. Validation is essential to ensure the accuracy of biological data used as input for assessment	20, 21, 25, 30, 31	Generic ToR	Review the current national procedures for quality assurance. Devise best practice guidelines on a regional level. Continuous monitoring of the implemented standardized guidelines.

c	Evaluate the quality of biological parameters: Issues and guidelines	Guidelines were established in 2017 for a qualitative evaluation of biological parameters. This ToR will further develop these guidelines, for (quantitative) quality indicators of biological parameters.	25, 27	3 years /Generic	Generic guidelines for a quantitative evaluation of the quality of biological parameters. Evaluation of issues put forward by the assessment WGs for benchmark species in 2018−2020. Carrying out case studies on one or two species through a specific workshop in close c ooperation with stock assessors.
d	Investigate and develop data availability, documentation and methods to improve identified biological parameter estimates, as input to assessment models.	WGBIOP 2015−2017 identified a series of life-history parameters required by end-users by means of literature review, input from experts and in consultation withExpertGroups on Integrated Ecosystem Assessmentand Multispecies modelling.	20, 25, 30	3years	Document current sources of life-history parameter estimates identified by ICES/GFCM Expert Groups, as critical components and relevant to improvement of modern assessment for ICES/GFCM stocks. Facilitate a closer link between data providers and data end-users.
e	Address requests for technical and statistical recommendations /advice related to biological parameters and indicators	Filled templates for requests send to WGBIOP before a specified deadline will be the basis for this ToR	25, 26, 30	Generic ToR	Each received request for technical and statistical recommendations related to biological parameters and indicators will be addressed and included in the WGBIOP work plan where appropriate
f	Update and further develop tools for the exchanges and workshops (e.g. SmartDots and statistical tools.)	Based on feedback from users of these tools, improvement/alterations will be evaluated	27, 28	Generic ToR	Potential improvement/alteration of the tools on a yearly basis.

Summary of the Work Plan

Year 1	Continue the collation of ToR d) information related to biological parameters; c) benchmark issue lists and guidelines; ToR a, b, e and f are generic tors and will be dealt with on a yearly basis in WGBIOP. Begin the process of realigning the scheduling of WGBIOP exchanges/Wks with the benchmark cycle.
Year 2	Continue the collation of ToR d) information related to biological parameters; c) benchmark issue lists and guidelines; ToR a, b, e and f are generic tors and will be dealt with on a yearly basis in WGBIOP. Devise and implement best practice guidelines for quality assurance on a regional level under ToR b.
Year 3	Review the current status of issues, achievements and developments that falls under the remit of WGBIOP, identify future needs in line with the ICES objectives and Science Plan and the wider marine environmental monitoring and management within Europe and propose a future/alternative work plan

Supporting information

Priority	A main objective of WGBIOP will be to support the development and quality assurance of regional and national provision of biological parameters as reliable input data to integrated ecosystem stock assessment and advice, while making the most efficient use of expert resources. As biological parameters are among the main input data for most stock assessment and mixed fishery modelling, these activities are considered to have a very high priority.
Resource	None.
Participants	All National Age Reader/Maturity Stager Coordinators (ICES and GFCM) will be invited. Experts relevant to the current Benchmark of the year of WGBIOP will be invited as well as relevant external experts such as statisticians or specific EG members.
Secretariat facilities	None.
Financial	None.
Linkages to ACOM and groups under ACOM	WGBIOP supports ACOM and SCICOM by promoting improvements in quality of biological parameters from fishery and survey data underpinning the integrated ecosystem assessment approach.
Linkages to other committees or groups	WGBIOP links with the SCICOM/ACOM Steering Group: Ecosystem Observation Steering Group (EOSG). It links to stock assessment EGs and benchmark assessment groups by providing input on the data quality. WGBIOP also links with, the Regional Database Steering Group
Linkages to other organizations	Regional Coordination Groups and PGMed

WKASMSF – Workshop for Advancing Sexual Maturity Staging in Fish

2017/2/EOSG18

The **Workshop for Advancing Sexual Maturity Staging in Fish** (WKASMSF), chaired by Maria Cristina Follesa, Italy, and Cindy van Damme, The Netherlands, will meet in Copenhagen, Denmark, **30 April–4 May 2018** to:

a) Prepare a historical overview of (national) maturity scales used for uploading sexual maturity staging data into the ICES and GFCM databases;

b) Create an overview, or prepare new, conversion tables from national maturity scales to the international agreed maturity scales;
c) Establish an implementation plan for the international agreed maturity scales of WKMATCH and MEDITS, as the only scales for reporting to ICES and GFCM databases, respectively.
d) Expand general histological criteria, for validation of macroscopic maturity staging, as established by WKMATHIS for the different reproductive strategies in teleosts.

WGASMSF will report by **15 June 2018** for the attention of the WGBIOP, SCICOM, ACOM, EOSG and DIG.

Supporting information

Priority	Macroscopic stages of gonadal development are an essential feature in fish stock assessment to estimate the maturity ogive and Spawning-stock biomass (SSB). In 2012 WKMATCH has prepared a general international agreed maturity staging scale for macroscopic mturity staging. Subsequent maturity staging workshops have used this scale for calibration. However, this scale has never been introduced and implemented into the ICES databases. As a results the current maturity data uploaded to the international databases are based on various (national) maturity scales. Also data uploaded on the GFCM database are sometimes subject to confusion, due to a mismatch between the MEDITS agreed scale and the national scale. It is vital that a historic overview is created of the scales used to uplaod data by the individual institutes. Together with conversion tables to convert the historic maturity data to the international agreed maturity scale (WKMATCH and MEDITS). A convertion table between WKMATCH and MEDITS scales is also auspicable in order to harmonize the maturity staging between ICES and GFCM. Secondly, an implementation plan for the international agreed maturity scale in the internatinal databases with restricted uploading needs to be developed. For validation of macroscopic maturity staging, histology is essential. WKMATHIS has prepared general histological descriptions for teleosts to go with the maturity staging scales. However, these general descriptions need to be expanded for the various reproduction strategies in teleosts.
Scientific justification	Term of Reference a) A historical overview of the scales used by each institute for uploading data into the ICES and GFCM databases is necessary. Currently data are uploaded in the ICES M6 scale, but the actual scale used by national institutes does not always correspond to the the ICES and/or GFCM vocabulary. As a result the maturity data in the ICES and/or GFCM databases is misinterpreted. Term of Reference b) Conversion tables are necessary to be able to convert the historic maturity data to the new agreed international maturity staging scale. A specific conversion from WKMATCH and MEDITS is also essential. This should include an interpretation of which stages are immature and mature. Term of Reference c) An implementation plan needs to be prepared so that all parties concerned (i.e. ICES, GFCM, national institutes, survey groups, assessment groups) are aware that the international agreed maturity scale is implemented in the ICES and GFCM databases respectively and that new uploaded data can only be uploaded in the new scale. Term of Reference d) The generic histological descriptions of the international maturty scale need to be expanded to the different reproductive straregies.
Resource requirements	No specific resource requirements beyond the need for members to prepare for and participate in the meeting.
Participants	Participants should include an expert from the ICES and GFCM data centre and a mixture of scientists and key technicians with expertise in maturity scales used at the national institutes,

	macroscopic stages of gonadal development and histological methods, as well as stock assessment. The implementation plan needs to be developed in close cooperation with the ICES and GFCM data centre.
Secretariat facilities	None.
Financial	Travel costs will be eligible for participants from Member States of the European Union through the EU Data Collection MAP (DCMAP).
Linkages to advisory committees	ACOM
Linkages to other committees or groups	WGBIOP
Linkages to other organizations	There is a direct link with the EU DCF.

WKSEATEC2 – Workshop on Technical Development to Support Fisheries Data Collection 2

2017/2/EOSG19

The **Workshop on Technical Development to Support Fisheries Data Collection 2 (WKSEATEC 2)**, will make recommendations on technical solutions for the collection and quality assurance of fisheries data at sea and in ports. The workshop will be co-chaired by Dave Stokes, Ireland, and Marcellus Rödiger, Germany, will meet on **27–29 November** 2**018**, in ICES Headquarters, specifically to:

a) Review and support progress on electronic measuring board projects underway and presented at WKSEATEC2017;

b) Review additional electronic data capture technologies such as electronic callipers, scanners beyond scope of WKSEATEC2017;

c) Address the key recommendation from WKSEATEC2017 by agreeing on a roadmap to defining a common Fisheries Data Language (FDL) and the development of an Application Program Interface (API).

WKSEATEC will report by **10 January 2019** to the attention of the EOSG Committee.

Supporting information

Priority	Substantial resources are expended on fisheries data collection annualy with much of the data screening occuring often weeks or months after sampling is complete. Electronic data capture provides the opportunity to review data in realtime while samples are still available thus facilitating the correction of data rather than its removal after the fact where issues arise. It is critical therefore that fisheries data collection be supported to utilize the technologies avaialble to maximise quality assurance during the narrow window where sampling process is actually live.
Scientific justification	**Justification by topic area** **a) – Update on Board Development** Several countries are in the process, or recently completed electronic measuring board development and would benefit from updates following significant exchange of ideas at WKSEATEC2017. **b) – Review of additional data capture technologies** The 2017 workshop ostensibly limited itslf to measuring board technologies in the first year to ensure this multi-disciplenary and multi-project topic was addressed in reasonable detail. Application of a number of other data capture technologies such as electronic callipers, scanners, various tags, cameras for example is being actively pursued by many member

	states. The effectiveness and application of these in both teleost and non-teleost sampling programs is of equal relevance to data quality management and would therefore benefit from a comparative review. **c) – FDL & API** The ambitious, but key outcome from the 2017 workshop was the concept of a common Fisheries Data Language (FDL) in conjunction with an Application Program Interface (API). Both concepts are proven in other fields, but were seen as potential 'game changers' in supporting the integration of technology and open source "data tool boxes" for fisheries data collection. An FDL in itself would enhance technology integration and data exchange by extending the familiar concept of exchange files to include additional data types not already covered by DATRAS, RDB for example. An API would operationalise this static format so incoming data from a range of hardware could be automatically recognised through this common language, once hardware and software are connected through the API. Both of these concepts need further development - the workshop will agree on the specific outcomes and milestones that are required, who will be involved in this development, and a timeline. If possible, simple implementations could be developed or presented during the 2018 workshop.
Resource requirements	A 3 day workshop to work on TORs and report recommendations.
Participants	The Group is normally attended by some 15–20 members and guests.
Secretariat facilities	Admin support and communication with other relevant groups/meetings where sampling data quality and planning is a term or reference.
Financial	No financial implications.
Linkages to advisory committees	EOSG (SGIEOM), SCICOM, ACOM.
Linkages to other committees or groups	Members of IBTS, MEDITS, ICES Data Center/DIG, PGDATA and WKINVITED, FishPi2.
Linkages to other organizations	TBC.

WKDATR-NSCS: Workshop on DATRAS surveys- Greater North Sea Celtic Sea

2017/2/EOSG20

The **Workshop on DATRAS surveys- Greater North Sea Celtic Sea** (WKDATR-NSCS), Co-Chaired by David Stokes (Ireland), and Vaishav Soni, ICES, will be established and will meet at ICES Headquarters, Copenhagen, 11-13 June 2018 to:

a) Incorporate new trawl surveys into DATRAS including checking procedures to be applied during uploading/reloading processes, targeting:
   i) Review the reporting format
   ii) Agree on errors and warnings that should apply to the new datasets
   iii) Produce test files for uploading

b) Incorporate missing data submissions to the existent surveys already hosted within DATRAS. The missing data can relate to:
   i) Historical data (to achieve full time series)
   ii) Biological data for all analysed species (length and age)

c) Incorporate missing data products to existent surveys already hosted within DATRAS. The missing products can relate to CPUE products, indices, etc. The main objectives would be to:

i) Prepare data product calculation documentation

WKDATR- NSCS will report by 1 September 2018 to the attention of SCICOM, ACOM, and DIG.

Supporting information

Priority	Currently DATRAS provides survey data products for advice and science working groups. Significant added value by the database is that quality control procedures are used regularly to check data as they are uploaded to the database. Including complete survey data to stock assessments and science working groups through a quality controlled pipeline will prevent the use of erroneus data.
Scientific justification	Errors in input data to stock assessments from surveys, which at present are not part of the DATRAS system or where not all required variables are provided, have been recently reported. Incorporating complete datasets and products for these surveys in DATRAS will increase options for quality control and transparency/traceability of assessment outcomes. Targeted surveys will be

UK-WEC-BTS, Western English Channel Beam Trawl Survey	UK-England
Q1 South West Ecosystem Beam Trawl Survey	UK-England
Norwegian surveys	Norway
IE-IGFS	Ireland
IAMS	Ireland
BTS	Belgium, Germany

Resource requirements	This workshop is supported through an EU special request on Quality assuring DCF gathered data.
Participants	4 persons from member countries responsible for data submisisons of trawl survcey data In addition, an WG co-chair from the ICES Secretariat and two support persons from the ICES Data Centre and Advisory Department will participate.
Secretariat facilities	A meeting room at ICES HQ will be facilitated for the dates of the workshop. In addition assistence from the ICES Data Centre and Advisory Department will be provided.
Financial	This workshop is supported through a EU special request on Quality assuring DCF gathered data.
Linkages to advisory and science committees	There are linkages to SCICOM, ACOM, and DIG.
Linkages to other groups	EGs coordinating surveys in DATRAS (IBTSWG, WGBEAM), assessment WGs (WGNSSI WGCSE).
Linkages to other organizations	JRC, OSPAR

WKDATR-BoB: Workshop on DATRAS surveys- Bay of Biscay and Iberian Coast

2017/2/EOSG21

The **Workshop on DATRAS surveys- Bay of Biscay and Iberian Coast** (WKDATR-BoB), Co-Chaired by Corina Chaves (Portugal), and Vaishav Soni, ICES, will be established and will meet at ICES Headquarters, Copenhagen, 4-6 July 2018 to:

d) Incorporate new trawl surveys into DATRAS, including checking procedures to be applied during uploading/reloading processes, targeting:

i) Review the reporting format

ii) Agree on errors and warnings that should apply to the new datasets

iii) Produce test files for uploading

e) Incorporate missing data submissions to the existent surveys already hosted within DATRAS. The missing data can relate to:

iii) Historical data (to achieve full time series)

iv) Biological data for all analysed species (length and age)

f) Incorporate missing data products to existent surveys already hosted within DATRAS. The missing products can relate to CPUE products, indices, etc. The main objectives would be to:

i) Prepare data product calculation documentation

WKDATR- BoB will report by 1 September 2018) to the attention of SCICOM, ACOM, and DIG.

Supporting information

<table>
<tr><td>Priority</td><td>Currently DATRAS provides survey data products for advice and science working groups. Significant added value by the database is that quality control procedures are used regularly to check data as they are uploaded to the database. Including complete survey data to stock assessments and science working groups through a quality controlled pipeline will prevent the use of erroneus data.</td></tr>
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Targeted surveys will be

<table>
<tr><th>PT-IBTS</th><th>PORTUGAL</th></tr>
<tr><td>SP-ARSA</td><td>Spain</td></tr>
<tr><td>SP-NORTH</td><td>Spain</td></tr>
<tr><td>BTS</td><td>France, Italy</td></tr>
<tr><td>FR-CGFS</td><td>France</td></tr>
<tr><td>EVHOE</td><td>France</td></tr>
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</td></tr>
<tr><td>Resource requirements</td><td>This workshop is supported through an EU special request on Quality assuring DCF gathered data.</td></tr>
<tr><td>Participants</td><td>4 persons from member countries responsible for data submisisons of trawl survcey data. In addition, an WG co-chair from the ICES Secretariat and two support persons from the ICES Data Centre and Advisory Department will participate.</td></tr>
<tr><td>Secretariat facilities</td><td>A meeting room at ICES HQ will be facilitated for the dates of the workshop. In addition, assistance from the ICES Data Centre and Advisory Department will be provided.</td></tr>
<tr><td>Financial</td><td>This workshop is supported through an EU special request on Quality assuring DCF gathered data.</td></tr>
<tr><td>Linkages to advisory and science committees</td><td>There are linkages to SCICOM, ACOM, and DIG.</td></tr>
<tr><td>Linkages to other groups</td><td>EGs coordinating surveys in DATRAS (IBTSWG, WGBEAM), assessment WGs (WGBIE, WGEF, WGHANSA, WGWIDE)</td></tr>
<tr><td>Linkages to other organizations</td><td>JRC, OSPAR, HELCOM</td></tr>
</table>

WKMESOMeth – Workshop on the development of practical survey methods for measurements and monitoring in the mesopelagic zone

2017/2/EOSG22

The **Workshop on the development of practical survey methods for measuring and monitoring in the mesopelagic zone** (WKMESOMeth), chaired by Ciaran O'Donnell*, Ireland, and Gavin Macaulay, Norway* will meet in Galway, Ireland, 27-28 April 2019 to:

a) Catalogue current open ocean surveys, in a global context that undertake, or have the capacity to undertake, acoustic measurements and biological sampling of animals within the mesopelagic zone.
b) Report on example data and research findings for discussion to determine what is achievable from described vessel, platform and vehicle based surveys for the development of mesopelagic biomass monitoring programs.
c) Examine and report on the opportunities and limitations associated with measurements of abundance including acoustic detection criteria, species discrimination and biological sampling, in the context of existing routine acoustic surveys.
d) Evaluate and report on the potential to develop methods to establish abundance monitoring of mesopelagic fishes during open ocean surveys within ICES coordinated surveys, including, WGIPS and WGMEGS, given the complexity involved and equipment currently in use.
e) Determine the minimum requirements in terms of resources, hardware and sampling equipment required for meaningful abundance measurements, and determine the components of the mesopelagic zone to which this applies.

WKMESOMeth will report by 30 November 2019 for the attention of the EOSG Committee.

Supporting information

Priority	Mesopelagic resources represent a major untapped food resource. There is considerable interest in commercial exploitation. But, little is known about the species present in the mesopleagic zone, their abundance distribution, food web linkages and biodiversity. Specialised methods exist to examine the mesopleagic zone, but these would be experimetal and research based. There are a number of existing routine survey series that could contribute strongly to mapping the abundance distribution of the key mesopelagic species. However, this potential needs exploration, technology and methodology requires consideration, and the limits of these standard surveys needs to be established. WKMESO conducted a similar analysis for blue whiting and redfish surveys but it became apparent that these are not the only surveys that represent an opportunity to monitor mesopelagics. This workshop aims to consider a wider range of existing surveys. The activities of this workshop will respond to the need to the Working Group on International Pelagic Surveys (WGIPS) concerning data quality insurance and expansion from individual species towards ecosystem oriented surveys. Provision of reliable data to for the development of a montoring idex and to support ecosystem integrated assessment that are considered to have a very high priority.
Scientific justification	Scientific justifcation by ToR Term of Reference a) To determine the extent and distribution of ongoing survey effort and collate information on current survey practices within the community to highlight the potential for future monitoring opportunities. Term of Reference b) Determine through data sharing and practical experience the limitiations associated with acoustic measurement and biological sampling within the mesopelagic layer. This ToR will synthesise the strengths and weaknesses of different methodological approaches for monitoring living resources in the mesopelagic layer.

	ToR a and b will determine the current extent of research effort currently underway and will be used as a basis for the development of reliable biomass monitoring methods in the future through ToR c-e. Term of Reference c) Determine the current limitiations associated with relaible measurements of animals within the mesopelagic zone and identify potential opportunities using exisiting survey series. Term of Reference d) New methods that are in the development process may not be readily available for implementation but offer promising avenues for future observations and data collection. This ToR will identify such methods and evaluate how these may be tested and developed to match the requirements of WGIPS. Term of Reference e) Determine the minimum requirements in terms of equipment for meaningful acoustic measurements and biological sampling within the mesopelagic zone as a guide for routine surveys to develop monitoring programs.
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 workshop is expected to be attended by 10–20 participants.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to advisory committees	There are currently no obvious linkages with the advisory committees. However abundance based advice would be helpful to ACOM in its provision of single species and ecosystem advisory advice.
Linkages to other committees or groups	**WKMESOMeth** was established through a call within WGIPS and is supported by WGFAST and has connections to other groups in the EOSG. It was proposed within the WKMESO workshop held in Bergen in October 2017. Also potentially relevant to to Working Group on Fishing Technology and Fish Behaviour (WGFTFB) and Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR).
Linkages to other organizations	

EOSG Expert Groups Dissolved in 2017

2013/MA2/SSGESST02	**WGTC –** Working Group on Target Classification [to be dissolved after the publication of the CRR]	Rolf Korneliussen, Norway
2016/2/SSGIEOM05	**WKSEATEC –** Workshop on Technical Development to Support Fisheries Data Collection [wait until decided if WK will repeat in 2018]	Dave Stokes and Marcellus Rödiger, Germany
2016/MA2/SSGIEOM06	**WKQUAD –** Workshop on Collecting Quality Underwater Acoustic Data in Inclement Weather	Matthias Schaber, Germany, and Mike Jech, USA
2016/2/SSGIEOM07	**JFATB –** Joint Workshop of WGFTFB and WGFAST	Paul Winger, Canada, and Alex de Robertis, USA
2016/2/SSGIEOM12	**WKMESO –** Workshop on monitoring technologies for the mesopelagic zone [to be dissolved after report – delay to Feb 2018]	Kristjan Kristinsson, Iceland, Norway, and Dave Reid, Ireland
2016/2/SSGIEOM14	**WKEELDATA –** Workshop on designing eel data call	Caroline Durif, Norway
2016/2/SSGIEOM15	**WKBIOPTIM –** Workshop on Optimization of Biological Sampling at Sample Level	Ana Cláudia Fernandes, Portugal and Julie Coad Davies, Denmark

2016/2/SSGIEOM16	**WKSDECC I –** Workshop on Sampling Design and Estimation of Commercial Catches: Cod.27.21 and sol.27.4	Katja Ringdahl, Sweden and Kirsten Håkansson, Denmark
2016/2/SSGIEOM19	**WKMATHIS -** Workshop on Sexual Maturity staging from histological tools [to be dissolved after October 2017]	Cindy Van Damme, The Netherlands and Maria Cristina Follesa, Italy
2016/2/SSGIEOM20	**WKSEL3 -** Workshop on Elasmobranchs maturity [to be dissolved after October 2017]	Maria Cristina Follesa, Italy and Pierluigi Carbonara, Italy
2016/2/SSGIEOM21	**WKVALMU -** A Workshop on Ageing Validation methodology of Mullus species	Kélig Mahé, France, Pierluigi Carbonara, Italy and Chryssi Mytilineou, Greece
2015/2/SSGIEOM10	**WKARBLUE2 –** Workshop on Age estimation of Blue Whiting (Micromesistius poutassou)	Patrícia Gonçalves, Portugal, and Jane A. Godiksen, Norway
2015/2/SSGIEOM16	**WKMIAS2 –** Workshop on Micro increment daily growth in European Anchovy (*Engraulis encrasicolus*) and Sardine *(Sardina pilchardus*) [to be dissolved after October-November 2017]	Carmen Piñeiro, Spain
2015/2/SSGIEOM18	**WKMSHS2 –** Workshop on Sexual Maturity Staging of Herring (*Clupea harengus*) and Sprat (*Sprattus sprattus*) [to be dissolved after November 2017]	Cindy van Damme, The Netherlands and Joanne Smith, United Kingdom

EOSG 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	TBD	TBD	Interim report by Date Month 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	TBD	TBD	Final report by Date Month 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	Implementation plan topics addressed	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).	20, 25, 26, 27, 28	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.	20, 25, 26	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).	20, 25, 30, 31	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		26, 28, 30	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.

WGFAST – Working Group on Fisheries Acoustics Science and Technology

2016/MA2/SSGIEOM02

The **Working Group on Fisheries Acoustics Science and Technology (WGFAST)**, chaired by Richard O'Driscoll, New Zealand, will work on ToRs and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2017	4-7 April	Nelson, New Zealand	Interim report by 30 June 2017 to ACOM-SCICOM	New chair from 2017
Year 2018	18-23 March	Seattle, USA	Interim report by 30 June 2018 to ACOM-SCICOM	
Year 2019	TBD	TBD	Final report by 30 June 2019 to ACOM-SCICOM	

ToR descriptor

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Collate information on acoustic related research and surveys by Country represented in WGFAST.	a) Science Requirements b) Advisory Requirements	27	3	Filled in template for WGFAST report
b	Present recent work within the topics "Applications of acoustic methods to characterize ecosystems", "Acoustic properties of marine organisms", "Behaviour", and "Emerging technologies, methodologies, and protocols".	Create a venue for informing the group members on recent activities and seeking input to further development. An overview of the different contributions will be presented in the annual report	1, 11, 13, 27, 28	1, 2, 3	Report
c	Organize training session on use of acoustics for biomass estimation	Introductory course on use of acoustic for abundance estimation, including survey design and data analysis	31	1	ICES training course
d	Provide guidance for calibrating echosounders on fishing	Fishing vessels increasingly collect acoustic data. To allow quantitative use of these	31	1 or 2	Report

	vessels (topic group)	data, suitable calibration procedures for fishing conditions are needed.			
e	Organize joint sessions at ICES ASC		31	2 or 3	Topic session at ICES ASC
f	Define a commercial data format for omni fisheries sonars.	Increasingly use of omni fisheries sonars in research requires a data format defined by the scientific community. Format definition will involve also software producers and equipment manufacturers.	31	1, 2	ICES CRR
g	Work towards developing and recommending procedures for collecting and processing quality acoustic data in inclement weather.	Acoustic data are collected from a variety of vessels that respond to inclement weather in diverse ways. Procedures are needed to provide quality control for data collected in inclement weather to stock assessment.	27, 31	2, 3	Review paper(s) and/or CRR; updates of relevant SISP manuals (to be produced in the first year of the next WG cycle)

Summary of the Work Plan

Year 1	Produce the annual overview of recent developments within the field; organize training session on use of acoustics for biomass estimation; provide guideance for calibrating echosounders on fishing vessels; provide guideance for calibrating echosounders on fishing vessels; collate information on acoustic related research and surveys by country to which WGFAST contributes. Establish a Topic Group to define a data format for acoustic data from omni fisheries sonars.
Year 2	Produce the annual overview of recent developments within the field; provide guideance for calibrating echosounders on fishing vessels; collate information on acoustic related

	research and surveys by country to which WGFAST contributes. Produce an ICES CRR with the final description of the omnidirectional sonar data format. Establish a topic group to evaluate the impact of inclement weather on acoustic data quality.
Year 3	Produce the annual overview of recent developments within the field; collate information on acoustic related research and surveys; collate information on acoustic related research and surveys by country to which WGFAST contributes. Develop and test procedures and methods for identifying and selecting quality data for stock assessments.

Supporting information

Priority	Fisheries acoustics and complementary technologies provide the necessary tools and methods to implement the ecosystem approach to fisheries management within ICES and research into their application and further development is vital.
Resource requirements	No new resources will be required. Having overlaps with the other meetings of the Working, Planning, Study and Topic Groups increases efficiency and reduces travel costs.
Participants	The Group is normally attended by some 60-70 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	Stock assessment groups using acoustic abundance indices.
Linkages to other committees or groups	The work in this group is closely aligned with complementary work in the FTFB Working Group. The work is of direct relevance to the survey planning groups within EOSG and WGISUR.
Linkages to other organizations	The work of this group is closely aligned with similar work in FAO, the Acoustical Society of America, the South Pacific Regional Fisheries Management Organization and the American Fisheries Society.

WGFTFB – Working Group on Fishing Technology and Fish Behaviour

2016/MA2/SSGIEOM03

The ICES-FAO **Working Group on Fishing Technology and Fish Behaviour** (WGFTFB), chaired by Haraldur A. Einarsson, Iceland, and FAO chair Pingguo He*, will meet to work on the following Terms of References (ToRs) and produce deliverables as listed in the following table for the years 2017 through 2019. This multi-year ToRs will be updated annually. WGFTFB will report on the activities and findings by 25 June each year to EOSG.

Year	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2017	3-7 April	Nelson, New Zealand	Interim report by 25 June to ACOM-SCICOM	Petri Suuronen (outgoing FAO chair)
Year 2018	4–8 June	Hirtshals, Denmark	Interim report by 13 July to ACOM-SCICOM	Incoming FAO chair in replacement of Petri Suuronen
Year 2019	TBD	TBD	Interim report by 25 June to ACOM-SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	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, multi-year 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.	28,29, 30, 31primarily; others are possible (e.g. 11,12, 27)	3 Years	ICES report
B	Organize a FAO-hosted 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.	29, 30	Year 3	FAO report, ICES report
C	Deliberate, discuss and synthesize recent research on topics of mutual interest between WGFTFB and WGFAST	Every three years, WGFAST and WGFTFB meet for one day to share information on topics of mutual interest (JFATB).	27, 30, 31	Year 1	JFATB report
D	Help organize an ICES-sponsored international fishing technology and fish behaviour symposium	The last similar symposium was ten years ago (2006).	28, 29, 30, 31	Fall 2020 (outside of scope of this Multiannual ToR)	Symposium and special issue in ICES JMS
E	Support survey working group with gear expertise support upon request	EOSG has identified gear expertise gaps in survey working groups.	31	Year 1,2	Including possible survey trawl 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 EGs
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. The additional resource required to undertake activities in the framework of this group is negligible. However, each institution is encouraged to support participation of experts from their institution.
Participants	The group is normally attended by about 40–50 regular members and chair-invited members. Participation is about 70 - 90 in the year when FAO-ICES mini-symposium is held.
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 survey groups.
Linkages to other organizations	The WG is jointly sponsored with the FAO.

WGIDEEPS –Working Group on International Deep Pelagic Ecosystem Surveys

2016/MA2/SSGIEOM04

The **Working Group on International Deep Pelagic Ecosystem Surveys** (WGIDEEPS) chaired by Kristján Kristinsson, Iceland and Benjamin Planque, Norway, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	ToRs	Comments (change in Chair, etc.)
Year 2017	25-27 April	ICES HQ, Denmark	Interim report by 29 May to ACOM-SCICOM	a, b, c	
Year 2018	13-15 February	ICES HQ, Denmark	Interim report by 29 March to ACOM-SCICOM	d	Benjamin Planque outgoing as chair
Year 2018	6-8 August	Bremerhaven, Germany	Interim report by 19 September to ACOM-SCICOM	e	
Year 2019	XX-XX January	Town, Country	Interim report by 1 March to ACOM-SCICOM	f	
Year 2019	xx-xx September	Town, Country	Interim report by 10 September to ACOM-SCICOM	g	
Year 2019	By correspondence		Final report by 15 September to ACOM-SCICOM	a, b, c, d, e, f, g	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Finalise transfer of trawl survey data from international deep pelagic ecosystem surveys coordinated by the group to ICES DATRAS databases September/2017)	Data is now stored by individual nations/participants. It is important to have the data within common database system for coordinated archiving and extraction.	25	Year 1 (2017)	WGIDEEPS 2017 – 1 report chapter database (ICES DATRAS) 15 September 2017
b	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.	25; 30	Year 1 (2017)	WGIDEEPS 2017 – 1 report chapter 15 September 2017 EOSG
c	Set up a formal procedure for the use and transfer of Norwegian 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.	25: 30	Year 1 (2017)	WGIDEEPS 2017 – 1 report chapter 15 September 2017
d	Plan 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 2018 (January 2018 meeting)	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 corresponding reports on the survey results.	1, 9, 27, 30, 31	Year 2 (2018)	WGIDEEPS 2018 – 2 report chapter 15 March 2018
e	Prepare the report on the outcome of the 2018 Irminger Sea survey (August 2018 meeting)	a) Provide 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.	1, 9, 30, 31	Year 2 (2018)	WGIDEEPS 2018 – 3 report 1 September 2018

f	Plan the international deep pelagic ecosystem survey with special emphasis on redfish to be carried out in the Norwegian Sea and adjacent waters in August 2019 and write SISP (January 2019 meeting)	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.	1, 9, 27, 30, 31	Year 3 (2019)	WGIDEEPS 2018 – 4 report chapter SISP document 15 March 2019
g	Prepare the report on the outcome of the 2019 Norwegian Sea survey (September 2019 meeting)	a) Provide 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.	1, 9, 30, 31	Year 3 (2019)	WGIDEEPS 2019 – 5 report 1 October 2019 EOSG

Summary of the Work Plan

Year 1	Carry out ToR a-c.
Year 2	Standard outputs for d and e.
Year 3	Carry out ToR f and 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	<12 (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, WKFAST, WGOH, WGISDAA, WGBIODIV
Linkages to other committees or groups	EOSG
Linkages to other organizations	NAFO, NEAFC.

WKSEATEC – Workshop on Technical Development to Support Fisheries Data Collection

2016/2/SSGIEOM05

The **Workshop on Technical Development to Support Fisheries Data Collection (WKSEATEC)**, will make recommendations on technical solutions for the collection and quality assurance of fisheries data at sea and in ports. The workshop will be co-chaired by Dave Stokes* and Marcellus Rödiger*, Germany, will meet in on 11-15 September 2017 at ICES HQ, specifically to:

a) Review data QC utilised by data managers, advisory groups and recommended by relevant projects such as fishPi (MARE2014-19). Where relevant, recommend how best these could be implemented efficiently and effectively during sea/port sampling with the use of electronic data capture.

b) Review current and potential electronic data capture solutions applicable to fisheries data collection at sea and in ports. Recommend a shortlist of approaches to reflect the resources and technical support that may be available.

c) Review the applicability of open source and General Public License (GNU/GPL) software to promote the affordability, flexibility and uptake of technical solutions to fisheries data collection. Recommend a structured approach to collaborative maintenance, development and support of an open source system.

WKSEATEC will report by 13 October 2017 for the attention of ACOM-SCICOM.

Supporting information

Priority	Substantial resources are expended annually on fisheries data collection for a number of programs under the CFP. Significant data quality checks are often being made at Institutes and expert groups maybe weeks or months after the fact which is inefficient. It is a high priority therefore that fisheries data collection be supported in terms of optimizing efficiency and data quality in the field, within and across data collection programs.
Scientific justification	Many member states (MS) are independently working on electronic systems to collect fisheries data with the resources required often being onerous if not prohibitive to other MS. The proposal is to fomulate recommendations that can guide future development of existing systems or collaboration with those who are starting from scratch. Much work has also been done by EGs who carry out and recommend QC of data as well as by targeted projects such as fishPi. The strength of this work however should be greatly enhanced where samplers are facilitated to interact with their own data before "*finalising*" the sample. Both in terms of what has been collected and what might be missing. In that context availability of affordable technology and standardized QC code as a minimum across a data collection program is required. **Term of Reference a) – Hardware** Collate the experience of new and tested solutions to advise on what works in the field and costs involved for various scenarios. This should include simple to complex hardware solutions with a view to the range of resources and technical support that may be available to users. An important consideration of any hardware is how it interfaces to other systems (e.g. is specialist or proprietary software required) and this will also be considered. **Term of Reference b) - Software** Review the meirt and cost of existing software vs potential and cost of developing in open source software. Whether open source or licensed the potential to map to a common flexible data structure should be investigated for the QC aspect at least, if alternate capture system

	already in place. For example the exchange format for a genreal data collection progam such as DATRAS, InterCatch or COST in terms of the DCF. Maintenance/support of an open source solution will need to be investigated also. **Term of Reference c) – Data Visualization** The user interface of any solution is a critical component in the communication between data sampler and data end user. Therefore review examples of common informative graphical approaches used by data managers and users to trap common errors in raw sampling data. Recommend what data visualiztion could effectively be implemented in Real or close to Real-Time to support trapping errors and outliers as well as routine monitoring of sampling targets, precision and bias in the field.
Resource requirements	A 3-day workshop to work on TORs and report recommendations.
Participants	Members of IBTS, MEDITS, ICES Data Center/DIG, other experts/partners affiliated with existing EU data collection participants.
Secretariat facilities	TBC.
Financial	No financial implications.
Linkages to advisory committees	ACOM and SCICOM via EOSG
Linkages to other committees or groups	WGCSE, IBTS, MEDITS, PGDATA, WGBEAM, WGBIOP, PGCCDBS, WGCATCH, WKPICS, RCMs.
Linkages to other organizations	TBC

WGRFS – Working Group on Recreational Fisheries Surveys

2016/2/SSGIEOM10

The **Working Group on Recreational Fisheries Surveys** (WGRFS), chaired by Kieran Hyder, UK, and Keno Ferter*, Norway, will work on ToRs and generate deliverables as listed in the Tables below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2017	12–16 June	Azores, Portugal	Interim report by 1 September 2017 to ACOM-SCICOM	Harry Streholow's 3 year term as chair ends
Year 2018	11–15 June	Faro, Portugal	Interim report by 1 September 2018 to ACOM-SCICOM	Keno Feter's replaces Harry Strehlow as chair. Kieran Hyder's 3 year term as chair ends
Year 2019	To be confirmed		Final report by 1 September 2019 to ACOM-SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Collate and review quality of national estimates of recreational catch, post-release mortality, activity, and socio-economic values for candidate stocks, and identify significant data gaps in coverage and species.	Advisory need and requests by other WGS.	27, 30	Regular activity in each year	Reported in annex to interim report each year
b	Assess the validity of new survey designs for data collection, including the sampling efficiency, cost of delivery, and levels of accuracy and precision.	Scientific need for efficient evidence production and feed to other working groups	25, 26, 28, 31	Regular activity in each year	Reported in annex to interim report each year
c	Provide guidance to ICES and European Commission on the availability of data, use of data in assessments, and design of future data collection programs as requested.	Advisory need and response to specific requests from the EC.	25, 26, 28, 31	Regular activity in each year, and reponse to ad hoc requests	Reported in annex to interim report each year
d	Review and assess regional data collection programmes for the Regional Coordination Groups to deliver end-user needs and provide recommendations for additional data collection (e.g. species, areas, sectors, uses).	Advisory need and response to specific requests from the RCGs and ACs.	25, 26, 28, 31	Regular activity in each year	Report in annex to interim report each year

Summary of the Work Plan

Year 1	1) Critically review the potential of novel survey methods to deliver recreational fisheries data (e.g. citizen science approaches using smartphone apps). 2) Identify new post-release mortality estimates, potential sublethal effects, and reasonable extrapolations across species and fisheries for inclusion in stock assessments. 3) Mini workshop on human dimension: reviewing and collecting available information on the compliance and response of recreational fishers to different management measures. 4) Review the treatment of outliers in survey data analysis.

Year 2	1) Agree an approach for the collection and storage of recreational fisheries survey data by ICES. 2) Develop a cost benefit analysis for the implementation of multispecies surveys, including how this might be implemented at a regional level. 3) Assess proposals for standards in smartphone apps and critically review studies that have compared traditional and app based approaches. 4) Review the use of choice experiments to value marine recreational fisheries and assess if standard approaches could be implemented across Europe. 5) Develop a proposal for a specific workshop on human dimensions in recreational fisheries..
Year 3	1) Design approaches for the treatment of outliers in the analysis of survey data. 2) Review methods for inclusion of recreational fisheries removals in stock assessment and provide recommendations for reconstruction. 3) Develop approaches for the extrapolation of post-release mortality across species and fisheries. 4) Review the potential for impact of climate change on species caught by recreational fisheries and how that shoud impact on species lists for collection under the DCF. 5) Review approaches for catch allocation and develop recommendations for appropriate methods.

Supporting information

Priority	High – Because recreational catches can be high for some stocks
Resource requirements	Expertise on recreational fisheries surveys from areas outside Europe would be beneficial
Participants	The Group is normally attended by some 20–25 members and guests.
Secretariat facilities	Normal backstopping support in the organization of the group.
Financial	None
Linkages to ACOM and groups under ACOM	ACOM, WGBFAS, WGEEL, WGBAST, WGCSE, WGNSSK, WGBIE, WKMEDS, WKBASS, WGCATCH
Linkages to other committees or groups	PGDATA, STECF, EU Regional Coordination Groups, Advisory Councils
Linkages to other organizations	WECAFC/OSPESCA/CRFM/CFMC/MEDAC Working Group on Recreational Fisheries Many linkages to (inter)national angling associations, since WGRFS members estimate national marine recreational catches. Links to broader organizations with interests in angling and fisheries management including EIFACC and FAO.

WGBEAM – Working Group on Beam Trawl Surveys

2016/MA2/SSGIEOM11

The **Working Group on Beam Trawl Surveys** (WGBEAM), chaired by Holger Haslob, 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 2017	4-7 April	Galway, Ireland	Interim report by 1 June 2017 to ACOM-SCICOM	New chair
Year 2018	10-13 April	IJmuiden, The Netherlands	Interim report by 25 May 2018 to ACOM-SCICOM	

Year 2019	1-5 April	ICES HQ, Copenhagen, Denmark	Final report by 17 May 2019 to ACOM-SCICOM

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
	This should capture the objectives of the ToR	Provide very brief justification, e.g. advisory need, links to Science Plan and other WGs	Use codes	1, 2 or 3 years	Specify what is to be provided, when and to whom
a	Tabulate, report and evaluate population abundance indices by age-group for sole, plaice and dab and other species if required in the North Sea, Division VIIa, Divisions VIId-g, Divisions VIIIab and the Adriatic taking into account the key issues involved in the index calculation.	a) Science Requirements Length-at-age analysis b) Advisory Requirements Required to support indices for assessements c) Requirements from other EGs Specific questions from other EGs possible	xxx	Annually	WG report chapter
b	Further coordinate and standardize offshore and coastal beam trawl surveys in the North Sea and Divisions VIIa, VIId-g, VIIIa-b and the Adriatic, and update and publish athe standard as a SISP protocol.	a) Science Requirements b) Advisory Requirements Required to ensure consistent approach within and between areas to meet EU directives.	xxx	Annually	WG report chapter inshore manual offshore manual database (DATRAS)
c	Analyse the changes in mean length-at-age for sole in the North Sea, English Channel, Bristol Channel and Irish Sea. (continuation of WGBEAM work in 2014-2016)	a) Science Requirements The large WGBEAM dataset has the potential to elucidate temporal and spatial changes in population parameters. b) Advisory Requirements Indices are being used by assesements working groups and any changes to age structure of species of interest need to be investigated.	xxx	Expected output in 2017	WGBEAM 2017 update and ultimately ASC presentation
d	Provide index calculations based on DATRAS for dab in the North Sea, and plaice and sole in Divisions VIIa, VIId-g, VIIIa-b and the Adriatic.	Required to support indices for assessements	xxx	3 years	Provision of new index series to relevant WGs
e					

Summary of the Work Plan

Year 1
Year 2
Year 3

Supporting information

Priority	The current activities of this Group will lead ICES into issues related to the ecosystem affects of fisheries, especially with regard to the application of the Precautionary Approach. Several indices produced by WGBEAM are already included in Category 1 stock assessments (NS sole, NS plaice, Biscay sole, NS dab since 2016) and data collected on beam trawl surveys are increasingly used to produce indices for Category 3 stock assessments. 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.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	As WGBEAM directly calculates and discusses survey indices for stock assessments, and coordinates surveys from which data are used in other stock assessments, there is a clear linkage to ACOM and some of the stock assessment WGs under is coordination (WGNSSK, WGCSE, WGBBI, WGEF).
Linkages to other committees or groups	There is a very close working relationship with all the groups of the EOSG. Joint sessions are sometimes organised (e.g. with WGCRAN in 2014). It is also very relevant to the Working Group on Ecosystem Effects of Fisheries.
Linkages to other organizations	The work of this group is closely aligned with similar work in FAO.

WKMESO – Workshop on monitoring technologies for the mesopelagic zone

2016/2/SSGIEOM12

The **Workshop on monitoring technologies for the mesopelagic zone** (WKMESO), chaired by Kristjan Kristinsson, Iceland, Norway, and Dave Reid, Ireland will meet in Bergen, Norway, 6–10 November 2017 to:

a) review and evaluate the strength and limitations of the approach currently used to monitor the abundance of commercial fish and other species in the mesopelagic zone of the Irminger and Norwegian Seas.

b) evaluate the potential of trawls, nets, acoustic, optical and other techniques to monitor the abundance of commercial fish and other species in the mesopelagic zone of the Irminger and Norwegian Seas.

c) recommend additions or modifications in the observation method used by the ongoing WGIDEEPS survey, within the 3-year term of the group.

d) recommend further developments in the observation method used by the WGIDEEPS survey, beyond the 3-year term of the group.

WKMESO will report by 31 December 2017 for the attention of ACOM-SCICOM.

Supporting information

Priority	The activities of this workshop will respond to the need to the Working Group on International Deep Pelagic Surveys (WGIDEEPS) concerning data quality insurance and expansion from individual species towards ecosystem oriented surveys. Provision of reliable data to support redfish stock assessment and to support ecosystem integrated assessment are considered to have very high priority.
Scientific justificatior	Term of Reference a) Within ICES, WGIDEEPS surveys are the only surveys with targeted monitoring of fish and other species deep in the mesopelagic zone. Yet the observation methodology has not been evaluated externally. This ToR will directly address this lack of evaluation. Term of Reference b) To overcome current observational limitations in the mesopelagic layer, existing or new methodologies should be considered. This ToR will synthesise the strengths and weaknesses of different methodological approaches for monitoring living resources in the mesopelagic layer. Tor a and b will provide the basis for reliable observations in the mesopelagic layer in the future. Term of Reference c) Based on ToRs a and b, alternative observations methods might be readily implemented during the WGIDEEPS surveys. This ToR will identify these methods, how they can be integrated into th survey design and how they will improve nature and quality of the data provided by WGIDEEPS Term of Refernce d) New methods that are in the development process may not be readily available for implementation but offer promising avenues for future observations and data collection. This ToF will identify such methods and evaluate how these may be tested and developed to match the requirements of WGIDEEPS.
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 workshop is expected to be attended by 10–20 participants.
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 group	WKMESO has a very close working relationship with the WGIDEEPS and direct connections to other groups in the EOSG Committee. In particular Working Group on Fishing Technology and Fish Behaviour (WGFTFB), Working Group on Fisheries Acoustics Science and Technology (WGFAST) and Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR).
Linkages to other organizations	

WKAMDEEP2 - Workshop on Age Estimation Methods of Deep Water Species

2016\2\SSGIEOM17

The **Workshop on Age Estimation Methods of Deep Water Species 2** (WKAMDEEP2), chaired by Albert Ole Thomas, Norway, Kélig Mahé, France, and Juan Gil Herrera, Spain will meet from 17–21 September 2018 in Cadiz, Spain to:

a) Collect and review the consistency of age data used in stock evaluations of deep water fish, including, but not restricted to, tusk (*Brosme brosme*), ling (*Molva molva*), blue ling (*Molva dypterygia*), roundnose grenadier (*Coryphaenoides rupestris*), greater silver smelt (*Argentina silus*), black scabbardfish (*Aphanopus carbo*), black-spotted sea bream (*Pagellus bogaraveo*), greater forkbeard (*Phycis blennoides*) and orange roughy (*Hoplostethus atlanticus*);

b) Review new information on precision and accuracy of age estimation of the seven first species

listed above, for which WKAMDEEP1 agreed on individual ageing protocols, and revise those protocols as appropriate;

c) Review age estimation procedures, and propose new ageing protocols for deep water species not considered by WKAMDEEP1;

d) Assemble age reading experts on deep water species for training on age reading of several species, following the recommendation from WKAMDEEP1 to conduct age reading comparisons collectively for the whole group of slow-growing deep water fish;

e) Estimate the bias for the long-life species.

WKAMDEEP2 will report by TBD for the attention of SSGIEOM and WGBIOP.

Supporting information

Priority:	Essential. Age data are essential in evaluation of fish stocks. Age data are provided by different countries and are estimated using standard ageing criteria. These are generally not fully validated, and regular workshops are needed to increase the knowledge base, harmonizing interpretations and estimating precision and relative bias. A basis was established in 2013 by the previous WKAMDEEP. Therefore, a WKAMDEEP-2 should be carried out in order to update the methodology, and evaluate new information on otolith growth and age determination issues for commercially harvested deep water fish species. And as well for the purpose of bringing scattered experts together to develop a coherent approach to age estimation of these typically hard-to-interpret otoliths.
Scientific justification:	The necessity of accurate and precise age data for all species assessed in WGDEEP is massive. The stock-assessment is severely hampered by the lack of valid age-structured data and the fact that the agreement in the age-data supplied to the assessment is very low (as seen in previous exchanges). The aim of the workshop is to establish or update age reading protocols for each species based on recent validation and corroboration studies, and based on these protocols conduct an age reading comparison across labs and for each species in order to increase the reliability of age estimates to be used in stock assessments.
Resource requirements:	No specific resource requirements beyond the need for members to prepare for and participate in the meeting.
Participants:	Participants should include a mixture of scientists and key technicians with expertise in age determination methods, deep water species biology and assessment, as well as data analyses and scientific publication.
Secretariat facilities:	None.
Financial:	Travel costs will be eligible for participants from Member States of the European Union through the EU Data Collection Framework (DCF). Funding for external experts on the age determination methods may be required.
Linkages to advisory committees:	ACOM
Linkages to other committees or groups:	WGDEEP,WGBIOP
Linkages to other organizations:	There is a direct link with the EU DCF.

WKARHOM3 - Workshop on Age reading of Horse Mackerel, Mediterranean Horse Mackerel and Blue Jack Mackerel

2016/2/SSGIEOM18

The **Workshop** on **Age reading of Horse Mackerel, Mediterranean Horse Mackerel and Blue Jack Mackerel (*Trachurus, T. mediterraneus* and *T. picturatus*) [WKARHOM3]**, chaired by Alba Jurado, Spain, Pierluigi Carbonara, Italy and Kélig Mahé, France, will meet in Livorno (Italy), 5-9 November 2018, to:

a) Review information on age determination, otolith exchanges and validation study on these species
b) Clariy the position of the first annulus with the images analysis for three species
c) Evaluae the effect of different schemes of ageing particularly the date of birth for *Trachurus mediterraneus*
d) Cotinue the guidelines and common ageing criteria;
e) Develop existing reference collections of otoliths;
f) Address the generic ToRs adopted for workshops on age calibration (see 'PGCCDBS Guidelines for Workshops on Age Calibration').

WKARHOM3 will report by 13 June 2018 for the attention of ACOM-SCICOM.

Supporting information

Priority:	Essential. Age determination is an essential feature in fish stock assessment to estimate the rates of mortalities and growth. Age data are provided by different countries and are estimated using international ageing criteria. It is necessary to continue to clarify this guideline of age interpretation. Therefore, an appropriate otolith exchange programme will be carried out in 2017 for the purpose of inter-calibration between ageing labs. Results of this otolith exchange will be discussed during WKARHOM3.
Scientific justification and relation to action plan:	The aim of the workshop is to identify the current ageing problems between readers and standardize the age reading procedures in order to improve the accuracy and precision in the age reading of this species.
Resource requirements:	No specific resource requirement beyond the need for members to prepare for and participate in the meeting.
Participants:	In view of its relevance to the DCF, and ICES WG, the Workshop try to join international experts on growth, age estimation and scientists involved in assessment in order to progress towards a solution. Participants should announce their intention to participate in the WK no later than two months before the meeting.
Secretariat facilities:	None
Financial:	
Linkages to advisory committees:	ACOM/WGBIOP
Linkages to other committees or groups:	WGBIOP
Linkages to other organisations:	There is a direct link with the EU DCF.

WKMATHIS - Workshop on Sexual Maturity staging from histological tools

2016/2/SSGIEOM19

The **Workshop on Sexual Maturity staging from histological tools** (WKMATHIS), chaired by Cindy Van Damme, The Netherlands and Maria Cristina Follesa, Italy, will meet in Caen, France, 19-21 September 2017 to:

a) Review the histological studies applied to validate macroscopic stages,

b) Explore the classification criteria and prepare an international description of histological criteria to validate macroscopic maturity stages;

c) Identify the limits of macroscopic staging for the use of gonadal development studies

d) Identify the needs for histological studies to improve the quality of the macroscopic maturity staging.

WKMATHIS will report by 20 October 2017 for the attention of ACOM and SCICOM.

Supporting information

Priority:	Macroscopic stages of gonadal development are an essential feature in fish stock assessment to estimate the maturity ogive and Spawning-stock biomass (SSB). Past maturity staging wk's have brought to light that there is no international agreement on the use of histological criteria to validate macroscopic maturity staging. Limits of the maturity stages are difficult to identify. Consequently, these data provided by different countries present a large bias. Therefore, a WK should be carried out in order to make a general review of the histological studies applied to macroscopic stages, compile international agreed histological descriptions for the different maturity stages, compile an overview of available histological information and to identify the need for further studies on histological tools to validate the macroscopic stages of gonadal development.
Scientific justification:	The necessity to clarify the ogive of maturity is identified during a lot of benchmarks and stocks assessments groups. When the macroscopic stages of maturity are not clearly identifiable, the histological studies are necessary to help to increase the precision of these data. The aim of the workshop is to identify the state of art of histological studies to applied to sexual maturity staging, compile an international agreed histological descriptions of maturity stages and to identify the need for further studies on histological tools to validate the macroscopic stages of gonadal development.
Resource requirements:	No specific resource requirements beyond the need for members to prepare for and participate in the meeting.
Participants:	Participants should include a mixture of scientists and key technicians with expertise in macroscopic stages of gonadal development and histological methods, as well as stock assessment.
Secretariat facilities:	None.
Financial:	Travel costs will be eligible for participants from Member States of the European Union through the EU Data Collection MAP (DCMAP). Funding for external experts on the age determination methods may be required.
Linkages to advisory committees:	ACOM
Linkages to other committees or groups:	WGBIOP
Linkages to other organizations:	There is a direct link with the EU DCF.

WKSEL3 - Workshop on Elasmobranchs maturity

2016/2/SSGIEOM20

The **Workshop on Elasmobranchs maturity** (WKSEL3) chaired by Maria Cristina Follesa, Italy and Pierluigi Carbonara, Italy, will meet in Cagliari, Italy, 19–22 of February 2018 to:

a) Update the international maturity scales based on macroscopic features both for oviparous and viviparous species
b) Validate both maturity scales based on macroscopic features through histological analysis
c) Update the conversion tables both for oviparous and viviparous species;
d) Compile an Atlas using both macroscopical and histological gonad pictures
e) Increase the number of case studies with particular attention for viviparous species

WKSEL3 will report by **29 June 2018** for the attention of ACOM-SCICOM.

Supporting information

Priority:	According to the most recent data of the IUCN red list , a quarter of the world's sharks and rays are threatened and more are considered to become **extinct** in the near future, with ray species found to be at a higher risk than sharks. Close to 40% of the species are classified as Data Deficient. In the last years, worldwide chondrichthyan fisheries have expanded in response to growing demand and the utilization of more technically equipped fishing vessels. These developments, together with the decline in several elasmobranch stocks, have led to a call for an improvement in international actions for the management of sharks and related species to ensure sustainable elasmobranch fisheries. One of the most important parameters used in stock assessment is the maturity of a species. The maturity is used in the calculation of maturity ogives (and therefore of Spawning-stock biomass), for defining the spawning season of a species, for monitoring long term changes in spawning cycle, and for many other research needs related to the biology of fish.
Scientific justification and relation to action plan:	This workshop will provide the opportunity to regroup the ICES/GFCM community working on this field. During the 2012 WGSEL2 workshop a common maturity scale with objective of common criteria was proposed both for oviparous and vivparous elasmobranchs species. Laboratories involved in the collection of maturity data agreed to use the common scale for reporting. This new workshop (WGSEL3) has the objective of updating the common scales to be used, but also to define new objective criteria to classify the maturity stages in those scales. The expectations of TORs are: Update the international maturity scales based on macroscopic features both for oviparous and viviparous species validate both maturity scales based on macroscopic features through histological analysis Update the conversion tables both for oviparous and viviparous species; Compile an Atlas using both macroscopical and histological gonad pictures Increase the number of case studies with particular attention for viviparous species
Resource requirements:	Before the Workshop, the chairs will setup a plan for collecting samples to be used during the workshop. For all species, the sampling parameters to be recorded are: total length; gonad visual inspection - maturity stage using the new common maturity scale; total weight; gonad weight; liver weight; gutted weight; gonad photo; age; histological maturity stage; histological photos. This workshop will be based on the analysis of both digital photos of gonads and fresh gonads. Therefore facilities suitable to examine fresh biological material must be available during the workshop. It would be necessary to have a web server for storage and easy access to the photos collected by the participants before the workshop.
Participants:	In view of its relevance to the DCF, the Workshop is expected to attract wide interest from ICES Member States and Mediterranean countries participating in biological sampling of Elasmobraches species. Participants should include a mixture of scientists and technicians with expertise in maturity staging, biology and stock assessment of fish.
Secretariat facilities:	ICES
Financial:	To obtain all biological data before the Workshop, funding is needed for buying fresh ungutted

	fish and for processing gonads histology. To ensure wide attendance of relevant experts, additional funding will be required, preferably through the EU, e.g. by making attendance to the Workshop eligible under the DCF
Linkages to advisory committees:	ACOM/WGBIOP
Linkages to other committees or groups:	This workshop is proposed by WGBIOP. Outcomes from this Workshop will be of interest to all Working and Study Groups working on assessment as well as to survey groups like the IBTSWG, WGMEGS, WGEF and MEDITS-WG.
Linkages to other organisations:	There is a direct link with the EU DCF.

WGELECTRA - Working Group on Electrical Trawling

2016/2/SSGIEOM22

A **Working Group on Electrical Trawling (WGELECTRA)**, chaired by Maarten Soetaert, 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			Interim report by end of April 2019 to ACOM-SCICOM	Change in chair (Adriaan Rijnsdorp will step back)
Year 2020			Final report by end of June 2020 to ACOM-SCICOM	

ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN TOPICS ADDRESSED	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	14,19,20,27,29	Yearly update	Review report to SCICOM
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	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.	14,20,26,29,30	Year 1	Relevant section of the WGELECTRA report must be made available for independent external review by 30 April 2018.

	of the benthic ecosystem; and to assess (v) the impact of repetitive exposure to the two gear types on marine organisms..				
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	11,12,14,17,19, 20,27	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	17,29	Year 1, 2 & 3	Joint projects and publications among participants and others Collaboration with other related WG's such as WGNSSK, WGCRAN

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	/

WGCATCH - Working Group on Commercial Catches

2016/2/SSGIEOM23 - A **Working Group on Commercial Catches (WGCATCH)**, chaired by Kirsten Birch Hakansson*, Denmark, and Ana Ribeiro Santos*, United Kingdom, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2017	06-10 November	Kavala, Greece	Interim report by 15 January to ACOM-SCICOM	Ana Ribeiro Santos (UK) is new co-chair for 2017-2019; Nuno Prista (SWE) ends 3-yr term as chair; new co-chair will be appointed
Year 2018	5– 9 November 2018	Nicosia, Cyprus	Interim report by (TBD) to ACOM-SCICOM	Kirsten Birch Hakansson, Denmark new co-chair
Year 2019	To be determined	To be determined	Final report by (TBD) to ACOM-SCICOM	Ana Ribeiro Santos (UK) ends 3-yr term as co-chair; new chair will be appointed

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Review current and emerging statistical and technical developments in sampling, estimation and quality control of commercial catch data, focusing on total catches, length and age distributions and other biological parameters of ICES stocks	WGCATCH is the most recent of a long series of EGs that have addressed different aspects of sampling of commercial catches in ICES waters [e.g., WKACCU, WKMERGE, PGCCDBS, SGPIDS, and WKPICS], but less attention was put on estimation. The recast of DCF and implementation of EU-MAUP is intented to improve the quality of data collected. WGCATCH will provide guidance for monitoring the sampling levels and data quality, documentation of changes on sampling design and guidelines for estimation procedures. Guidelines also needed for development of the optimization methods for data collection that meet end-users needs and facilitate the multi-purpose and resource limited of the national insitutes. In 2016 a request to evaluate how foreign landings in national ports are being sampled	25, 26, 27, 31	3 years	Documentation of sampling designs and estimation methods R-Scripts for within-sample optimization of length and age sampling Best practice guidelines for sampling national landings in foreign ports Best practice guidelines in data request and provision for frequency data Best practice guidelines for chosing methods and variables used to expand commercial sampling data Theme Session in ICES ASC Peer-reviewed publication on statistically sound sampling design

		was sent by LM 2016 to WGCATCH that will now be addressed.			Book on best practices for sampling commercial catches
b	Review developments in sampling and estimation practices of catch, effort, length and age distributions and other biological parameters of small scale fisheries	SSF data is still highly biased(e.g., lack of coverage) and lacking on standardized concepts (e.g., fishing day, see WKTRANSVERSAL2, 2016) that jeopardize recognition of their significance and use in stock assessments. WGCATCH has previously compiled information on SSF and drafted best practice guidelines for data collection on these fisheries WG effort is now needed in a) monitoring the implementation of those guidelines and advise on regionalization of data collection, b) standardize reporting and RDB formats, c) define quality indicators for SSF sampling and census, d) improve knowledge-sharing on new data collection technologies useful for SSF.	25, 27, 28, 31	3 years	Best practice guidelines for standardized reporting of fishing effort Peer-reviewed publication on SSF
c	Review developments in sampling and estimation of incidental by-catch, including Protected, Endangered and Threatened Species (PETS) and other rare fish species	The sampling and estimation of incidental catches of PETS and other rare species in commercial fisheries has been a long-term ICES concern and is now mandatory under the new EU MAUP. WGBYC and WGCATCH have been collaborating to develop sampling protocols and design and estimation of rare events, to ensure that by-catch is properly sampled and estimated in DCF and EU-MAUP at-sea programmes.	25, 27, 28, 31	3 years	Report from WK on sampling of incidental bycatch (2018) Report from WK on estimation of incidental bycatch (2019) Theme Session in ICES ASC (2019)
d	Document and review changes in legislation that affect data collection and data quality and evaluate their impacts	The landing obligation has brought changes in reporting all catches and have implications on sampling of commercial catches. . Furthemore in 2017 the first EU-MAUP will be implemented and the pace of transition to statistically sound sampling is expected to increase. The complexity of these processes has been followed up closely by WGCATCH through routine ToRs with the group meetings acting as fora where difficulties and changes can be reported, advice for sampling and estimation obtained and recommendations on best practice or data quality issues to	25, 27, 31	Routine ToR	Forum to discuss specific problems and find appropriate solutions and recommendations of best practice

		both national laboratories and end-users.			
e	Review and suggest developments of the Regional Database (RDB) from a design-based sampling and estimation perspective	WGCATCH have been involved in the support of the RDB and advising its development. The development of the new RDB will encompassstatistically sound sampling and estimation of commercial catches and can be used to provide data for assessment EGs. The ICES Data Centre and SC-RDB have requested WGCATCH to continue advising RDB development and ensuring the development encompasses statistically sound sampling schemes and proper methods of estimation.	25, 31	Routine ToR	Report to ICES Data Centre and SC-RDB.
f	Liaise with other ICES groups (e.g., WGBIOP, WGRFS, PGDATA and EOSG), RCMs/RCGs, the LM and research projects	WGCATCH links with ACOM, SCICOM, EOSG, EGs under EOSG (e.g. PGDATA, WGBIOP) and the ICES secretariat to inform ICES policies and guidelines on quality and quantity of catch data. WGCATCH further links and obtains information from research projects that address sampling and estimation of commercial catches	25, 26, 27, 28, 30, 31	Routine ToR	Report liason initiatives
g	Collaborate in the advisory process, informing assessment groups and benchmarks on commercial catch data issues.	The accuracy of commercial catch data is dependent on the quantity and quality of the sampling and estimation carried by at national level and stock coordination level. WGCATCH can advise on the quality of the time series used and suggesting improvements for sampling and estimation methods. Over 2017-2019, WGCATCH will phase-in a more active participation in the assessment and benchmark processes.	25, 26, 27, 30, 31	Routine ToR	Report relevant findings to benchmark steering group.

Summary of the Work Plan

Year 1	ToR a) • Draft templates for description of sampling schemes and estimation methods; test the templates in selected stock(s) (note: in separate WK: WKSDECC I) and review results at the meeting; • Compile information on the importance of foreign landings in national ports and discuss and draft best practice guidelines for their sampling and estimation at the meeting; • Produce R-script for within-sample optimization of length and age data (note: in separate WK: WKBIOPTIM) and review results at the meeting ToR b)

	• Interssessional work quality indicators and data quality checks using case-studies; Compilation information of the quality indicators used in different member countries; • Interssessional work on documentation of fishing effort definitions used in different member countries; discussion at the meeting; • Compile list of FAQs on implementation of best practice and guidelines on SSF data collection. ToR c) • Intersessional liaison with WGBYC and draft ToRs for a WK that addresses sampling of incidental by-catches and rare species; discussion of ToR proposal at the meeting. Routine and generic ToRs that will be dealt with on a yearly basis by WGCATCH
Year 2	Topics planned to be addressed include: i) quality of length frequency data (under ToR a), ii) extension of historical documentation of sampling and estimation to additional stocks (under ToR a), iii) proposals for quality indicators and definitions of fishing effort (under ToR b), and iv) sampling of incidental by-catches and rare species (under ToR c). Routine and generic ToRs that will be dealt with on a yearly basis by WGCATCH
Year 3	Topics planned to be addressed include: i) choice of methods and variables used to expand commercial sampling data (under ToR a), ii) extension of historical documentation of sampling and estimation to additional stocks (under ToR a), iii) regional database requirements to hold and estimate SSF data (under ToR b), and iv) estimation of incidental by-catches and rare species (ToR c) Routine and generic ToRs that will be dealt with on a yearly basis by WGCATCH

Supporting information

Priority	WGCATCH supports the development and quality assurance of regional and national catch sampling schemes and estimation procedures that can provide reliable quality input data to stock assessment and advice, while making the most efficient use of sampling resources. As catch data are the main input data for most stock assessments and mixed fisheries modelling and an essential component of analysis of ecosystem effects of fisheries, especially with regard to the application of the Precautionary Approach, 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. WGCATCH builds extensively on experiences gained within PGCCDBS, WKACCU, WKPRECISE, WKMERGE, WKPICS, SGPIDS, WGRFS and previous WGCATCH work in period 2014-2016. European countries are encouraged to provide the WG with any requested documentation of their sampling programmes and manuals, estimation methods, quality assurance procedures, for review and feedback by the WG, and to ensure that their national members of WGCATCH have sufficient resources to conduct the necessary intersessional work to address the ToRs. 1-2 top-level experts in the area of statistically sound sampling and estimation will be invited to attend the meeting and review the quality of final outputs of WGCATCH.
Participants	The Group is normally attended by some 30–40 participants, including members, invited guests and 1-2 external experts.
Secretariat facilities	None.
Financial	Member States may fund this through their EMFF programme. ICES funding (travel funds, per-diem) are required to ensure the participations of 1-2 external experts.
Linkages to ACOM and	WGCATCH falls under the Ecosystem Observation Steering Group (EOSG), and supports the ICES advisory process by promoting improvements in quality of fishery data under-pinning stock-based and mixed fishery assessments, and ecosystem indicators related to fishery affects,

groups under ACOM	and in developing data quality indicators and quality reports for use by assessment EGs and benchmark assessments.
Linkages to other committees or groups	There is a very close working relationship with all catch-related EGs and end-users including WGBIOP (in relation to collection of stock-based biological variables from fishery catches), PGDATA (in relation to data requirements of stock assessment EGs and benchmark assessment groups, optimization of catch sampling programmes and communication of quality information on commercial catch data), WGBYC (in relation to the sampling design and estimation of PETS and other incidental by-catches), RCM/RCGs and the Liaison Meeting (e.g., in relation to data requirements and regional sampling designs), the SC-RDB and the ICES Data Centre (in relation to RDB issues), STECF EWGs dealing with EU-MAP and other legistalitive changes that impact catch sampling and JRC (in relation to data provision from commercial catch sampling programmes).
Linkages to other organizations	The work of this group is closely aligned with similar work in FAO, GFCM, CECAF, NAFO/NEAFC and in the Census of Marine Life Programme.

EOSG Resolutions approved in 2015

IBTSWG – International Bottom Trawl Survey Working Group

2015/MA2/SSGIEOM02

The **International Bottom Trawl Survey Working Group** (IBTSWG), co-chaired by Kai Wieland, Denmark, and Corina Chaves, Portugal, 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 2016	4–8 April	Sète, France	Interim report by 5 June 2016 to ACOM-SCICOM	
Year 2017	27–31 March	ICES HQ	Interim report by 8 May 2017 to ACOM-SCICOM	
Year 2018	19–23 March	Oranmore, Ireland	Final report by 18 April 2018to ACOM-SCICOM	

ToR descriptors

ToR	Description	Background	Science plan topics addressed	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	Intersessional planning of Q1- and Q3- surveys; communication of coordinator with cruise leaders; combing the results of individual nations into an overall survey summary.	30	Recurrent annual update	1) Survey summary including collected data and description of alterations to the plan, to relevant assessment-WGs (WGHMM, WGCSE, WGNEW, WGNSSK, HAWG, WGDEEP, WGEF, WGEEL, WGCEPH, WGHANSA) 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.
b	Review IBTS SISP manuals and consider additional updates and improvements in survey design and standardization	Intersessional activity, ongoing in order to improve survey quality	31	Permanently ongoing	Updated version of survey manual, whenever substantial changes are made (intersessionally)
c	Address DATRAS-related topics in cooperation with DUAP: data quality checks and	Issues with data handling, data requests or challenges with re-uploading of historical or corrected data to DATRAS have	30	Multi-annual activity, supported by WKDATR	Prioritized list of issues and suggestion for solutions and for quality checking

	the progress in re-uploading corrected datasets, quality checks of indices calculated, and prioritizing further developments in DATRAS.	been identified and solutions are being developed		workshop in January of 2013 to solve issues with highest priorities;	routines, as well as definition of possible new DATRAS products, submitted to DATRAS group at ICES (Compare Action List in 2013 report). Once data quality control routines are estabished, annual check of recent survey data.
d	Produce a swept-area-based index (instead of haul time-based index) to be explored in collaboration with the WGISDAA	Swept-area is suggested as an alternative to haul time, because it would remove possible bias resulting from different riggings or gear specifications. In order to evaluate the effect changing to new indices, IBTSWG intends to liase with relevant stock coordinators or assessment groups at ICES.	28	1 year	Manuscript for paper or CRR, analysing the potential advantages of moving to swept-area-based standardization. To be presented to assessment groups for evaluation by 2016. The swept-area based cpue product for the NS-IBTS has been delayed due to missing interpolations routines for some countries and surveys and some outstanding revisions of input data on net geometry. The product is now expected to be delivered in year 2.
e	Analyse and report on the effect of variable sweep length, groundgears and GOV riggings between the participating countries	Some aspects of the gear applied in the surveys are not required to be standardized. The effect of these variations are to be evaluated. Partly, different standards for sweep lengths have been applied in Q1 vs. Q3 surveys, and different groundgears and riggings are applied. (For this ToR, the IBTS WG seeks support from gear technology experts and welcomes their contribution, in particular for advice on a potential change of the survey gear.)	28	2 years	Working document(s) by 2016, Manuscript or CRR by 2017

f	Evaluate the present scheme of collection of age and other biological data	Analysis of spatial distribution of sampling of age and other biological data, options to increase efficiency and minimum required sample sizes		2 years	Working document(s) by 2016, Manuscript by 2017
g	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.	Specific issues to be addressed include: Effect of tow duration; Suitability of species-specific index areas; Stratification and optimal spatial distribution of effort.		3 years	Paper on tow duration experiment in NS-IBTS 3Q 2015 by 2016, Manuscript for paper or CRR by 2018.
h	Data overviews	ICES is building an overview of the different data products and how the information flows from survey to advice, and input is needed from the survey groups in this process.	25, 27	Sept 2016	Quality assure the data product overviews
i	Give input to WKSUREP on data reporting guidelines.	The information flow between data users and the data providers needs to be strengthened	31	Sept 2016	Comment on WKSUREP draft data reporting guidelines.

Summary of the Work plan

Year 1 (2016)	Evaluate the effect of changing to swept-area-based indices for additional examples/ stocks, particularly linked to WGISDAA and benchmark process (ToR d). Evaluate the results of the tow duration experiment from the NS-IBTS 3Q 2015 survey.
Year 2	Continue analyses of different GOV configurations (ToR e).
Year 3	Complete the evaluation of the current survey design and explore modifications or alternative survey designs (ToR g), Update survey manuals if necessary (ToRs e, f and g)
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 firts quarter of the ongoing year. IBTSWG will continue to review feedback and implement modifications, including coordination and implementing new requirements of the EU DCF. **ToR b)** 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 have to be made available via the ICES webpage. **ToR c)** 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 the forum to discuss with ICES Data Centre and agree on the priority of desired further

	developments. **ToR d)** The change from an index based on haul duration as effort unit to a swept-area-based index will be explored to improve robustness of the indices (considered as adequate for multiannual ToR) **ToR e)** Further efforts to standardize gears due to the concerns on availability of materials used, and "technological creep" (considered also multianual). **ToR f)** Actually, a large number of age samples are taken. Many of the samples originate in clusters and do therefore not provide the most appropriate information. An alteration of the current sampling scheme could improve the quality of the resulting ALK's being more efficient in respect of utilizing available resources. **ToR g**) The number of days at sea are limited and in several cases in particular poor weather conditions have caused an unbalanced sampling of the survey area. National interests to extend sampling may result in conflicts with the available time for fishing in the core areas. If survey design issues such as tow duration can be changed without affecting the quality of the data provided for stock assessments new task could be included in the survey, the survey could better follow changes in the distribution of target species and a general higher degree of flexibility and efficiency e.g. for ensuring an appropriate area coverage despite of poor weather or technical problems can be achieved.
Resource requirements	A five day IBTS meeting. Prepared documents from members following ToR Leaders identified above. Eight days Chair's time to edit. It is estimated that each ToR will require at least 8 hours 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 botttom trawl surveys (WGBEAM, WGBIFS) that also use DATRAS as the international repository for its data (WGDIM, DUAP). There are also a linkages with Assessment WGs using IBTS indices. Also relevant to the Working Group on Ecosystem Effects of Fishing Activities (WGECO) and the Working Group on Improving use of Survey Data for Assessment and Advice (WGISDAA).
Linkages to other organizations	IOC, GOOS.

WGEGGS2 – Working Group on North Sea Cod and Plaice Egg Surveys in the North Sea

2015/MA2/SSGIEOM03

The **Working Group 2 on North Sea Cod and Plaice Egg Surveys in the North Sea** (WGEGGS2), chaired by Matthias Kloppmann, Germany, 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 2016	25–26 October	Hamburg, Germany	Interim report by 1 December 2016 to ACOM-SCICOM	New Chair
Year 2017	10-11 October	Boulogne sur Mer, France	Interim report by 17 November to ACOM-SCICOM	
Year 2018	3-7 December	Ijmuiden, the Netherlands	Final report by 18 January 2019 to ACOM-SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Review results of the 2016-2018 surveys and plan for the 2017-2019 Survey	In 2017-2019, the MIKey-M net sampling will be conducted during the IBTS-MIK sampling	4.28, 4.30	Year 1, 2, 3	Report: reviewing survey results, need for improvement and plan for potential collaborative publications
b	Study the spatio-temporal distribution of winter spawning habitats	Spawning grounds are of primary relevance for fish stock renewal. They experienced inter-annual and long-time spatial variations that need to be quantified and related to environmental/biotic variations.	1.1, 4.28, 4.30	Year 3 : Samples will be collected every year, but will be analysed every three years.	Report: review current and past spatial distribution of winter spawning grounds in the North Sea.
c	Write the MIKey-M Net manual	In 2012, a new net called the MIKey-M net was developped to collect fish eggs alongside the MIK sampling during the IBTS. Since 2012 it has been used each year, there is a need for a standard manual as recommended by ICES.	4.28, 4.30	Year 1	SISP: describe the MIKey-M Net, its implementation during the IBTS since 2012 and instructions for sampling
d	Prepare WGEGGS2 data for archiving	WGEGGS2 data need to be prepared and uploaded in the ICES Eggs and Larvae database	4.28, 4.30	Yearly, once the data is published	Data uploaded to the ICES Eggs and Larvae database by the ICES data centre and WGEGGS2 coordinator
e	Review results on molecular identification of eggs	There is a potential problem in the visual identification of stage I gadoid eggs and in some areas it will be necessary to utilise genetic techniques for species identifications where spawning locations of gadoids exist. The means to undertake genetic identifications should be sought were possible	4.28, 4.30	Year 1, 2, 3	Report: review methods for genetically identifying eggs
f	Publish first results of 2012-2015 surveys	MIKey-M net samples represent a huge amount of data and scientific insights on winter fish spawning grounds in the North Sea that need to be published.	4.28, 4.30	Year 3	Report: list of scientific publications based on 2012-2015 surveys
g	Coordinate the timing, area, and methodologies for the international herring larvae	The International Herring Larvae Surveys delivers abundance data of recently hatched herring larvae that allow for SSB estimates at spawning component level for North Sea	1.1, 4.28, 4.30	Year 3	Report : reviewing survey results, needs for improvement and plan for potential collaborative

	surveys in the North Sea and adjacent waters (IHLS)	herring.			publications
h	Periodically review and update the IHLS manual to address and maintain monitoring requirements in the surveys.	A survey manual is in place for many years but needs permanent reviewing in order to cope with changing environmental and technical circumstances	4.28, 4.30	Year 3	Report: reviewing survey strategies and methods and preparation for SISP manual

Summary of the Work Plan

Year 1	Discuss results of the 2016 survey and plan for the 2017 survey
Year 2	Discuss results of the 2017 survey and plan for the 2018 survey
Year 3	Discuss results of the 2018 survey and plan for the 2019 survey

Supporting information

Priority	The surveys are important in that they provide information on spawning locations of cod, plaice and other commercial (e.g. saithe and Norway pout) and non-commercial species. These results are important in relation to ongoing ecosystem based management issues. Consequently, these activities are considered to have a high priority. Objectives: • Describing spawning habitat, in terms of environmental parameters (e.g. temperature, salinity, density) and geographical position, of winter spawning fish species in the North Sea. • Changes in ecosystem functioning: Describing temporal variation in the spawning habitats and early detection of changes. • Added value to routine surveys: Collecting extra information on ichthy-oplankton on the existing IBTS and IHLS surveys. WGEGGS2 recommends the continuance of the survey time-series by future surveys through incorporation into the IBTS and IHLS surveys, following the ICES ecosystem appraoch based surveys plan. The survey can be conducted in accordance with IBTS and IHLS surveys and WGEGGS2 recommends undertaking regular surveys for monitoring spawning areas of main fish species, which has been recommended as a high priority for Ecosystem Based Approach to Management by the Bergen Declaration Meeting of Scientific Experts.
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. ICES secretariat support for WGEGGS2 reports only and advice from the ICES Data Centre is required archival of the survey data.
Participants	The Group is normally attended by 5-7 members and guests.
Secretariat facilities	ICES secretariat support for WGEGGS2 reports only.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	Data are required by the ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
Linkages to other committees or groups	There is a very close working relationship with the IBTSWG and WGALES.
Linkages to other organizations	No formal linkages.

WKARNSSH – Workshop on Age estimation of Norwegian Spring Spawning Herring (*Clupea harengus*)

2015/2/SSGIEOM13

A **Workshop on Age estimation of Norwegian Spring Spawning Herring (*Clupea harengus)*** (WKARNSSH), chaired by Jane A Godiksen*, Norway and NN*, XX) will be established and will meet in Bergen, Norway, XX 2017 to:

a) Review information on age estimations and validation work done so far;
b) Analysis of the results of the exchange programme between ageing labs, using a collection of otoliths and scales (images);
c) Clarify the interpretation of annual rings in particular during summer:
d) Improve the guidelines on age estimation for both of the applied structures (otolith or scale);
e) Create a reference collection of agreed aged otoliths and scales;
f) Address the generic ToRs adopted for workshops on age calibration (see 'WGBIOP Guidelines for Workshops on Age Calibration').

WKARNSSH will report by **date month 2017** for the attention of ACOM, SCICOM and WGBIOP.

Supporting information

Priority:	Age determination is an essential feature in fish stock assessment to estimate the rates of morality and growth. In order to arrive at appropriate management advice ageing procedures must be reliable. Otolith processing methods and age reading methods might differ considerably between countries and laboratories. Therefore, otolith exchanges should be carried out on a regular basis, and if serious problems exist age reading workshops should be organised to solve these problems.
Scientific justification and relation to action plan:	The aim of the workshop is to review the available information on age determination, and validation for Norwegian Spring Spawning herring, to identify potential problems in age determination for this species, improve the accuracy and precision of age determinations and and and share the methods and procedures used in different ageing laboratories. 150 samples of images of otoliths and scales will be uploaded to WebGR and annotated by the different laboratories to assess the precision of age readers during 2015 (WKNSSAGE). The otoliths and scales will also be excahnged among the readers in 2016. Readers will only read the struture they usually read at their laboratory. At the workshop, in 2017, results from the exchange will be presented and discussed.
Resource requirements:	150 samples of images of otoliths and scales will be uploaded to WebGR None.
Participants:	Age readers experts working on Spring Spawning Herring.
Secretariat facilities:	None.
Financial:	
Linkages to advisory committees:	ACOM
Linkages to other committees or groups:	WGBIOP, WGWIDE, SCICOM, RCM
Linkages to other organisations:	None.

WKARMAC2 – Workshop on Age estimation of Mackerel (*Scomber scombrus*)

2015/2/SSGIEOM17

A **Workshop on Age Estimation of Atlantic Mackerel (*Scomber scombrus)*** (WKARMAC2), chaired by Jens Ulleweit*, Germany and Maria Rosario Navarro*, Spain, will be established and take place on 22–26 October 2018 in San Sebastian, Spain to:

a) Review information and results on age estimations and recent otolith exchanges, follow up on the previous workshop in 2010 (WKARMAC) and validate the work done so far.

b) Summarize the ageing protocols currently in use and improve them where possible.

c) Address the low agreement between age readers of this species, particularly in fish over the age of 6 years, with group exercises and reading sample sets.

d) Create a reference collection of agreed age otoliths.

e) Address the generic ToRs adopted for workshops on age calibration (see 'WGBIOP Guidelines for Workshops on Age Calibration')

WKARMAC2 will report by 8 December 2018 for attention to ACOM, SCICOM and WGBIOP.

Supporting information

Priority:	Essential. Age determination is an essential feature in fish stock assessment to estimate the rates of mortality and growth. In order to arrive at appropriate management advice ageing procedures must be reliable. Otolith processing methods and age reading methods might differ considerably between countries and laboratories. Therefore, otolith exchanges should be carried out on a regular basis, and if serious problems exist age reading workshops should be organised to solve these problems.
Scientific justification:	To identify the present problems in age determination for this species (i.e. low agreement between age readers particularly for fish over the age of 6 years), to improve the accuracy and precision of age determinations and to share information of the methods and procedures used between different ageing laboratories.
Resource requirements:	Institutes to supply otolith samples for potential inclusion in a reference set.
Participants::	The Workshop will include international experts on growth and age estimation In view of its relevance to the ICES quality assurance, the Workshop is expected to attract interest from ICES Member Countries.
Secretariat facilities:	None
Financial:	None
Linkages to advisory committee:	ACOM
Linkages to other committees or groups:	WGBIOP, SCICOM, RCM
Linkages to other organizations cost:	None.

WKMSHS2 – Workshop on Sexual Maturity Staging of Herring (Clupea harengus) and Sprat (*Sprattus sprattus*)

2015/2/SSGIEOM18

A **Workshop on Sexual Maturity Staging of Herring (*Clupea harengus)* and Sprat** (***Sprattus sprattus)*** (WKMSHS2), chaired by Cindy van Damme*, The Netherlands and Joanne Smith*, United Kingdom, will be established and take place in Göteborg, Sweden, on **23–27 October 2017** to:

a) has the goal of assessing the usefulnes of the maturity scale agreed in 2011 and the conversion to and from other scales used in the different labs/institutes;

b) to validate the criteria and descriptions to classify maturity stages of the 2011 scale which takes into account the difficulties and / or inconsistencies of the maturity scales in use in different labs;

c) to calibrate staging of herring and sprat using fresh fish between the different laboratories;

d) to calibrate staging of herring and sprat following the pattern of trial-discussion-retrial using photographs, following the pattern of trial-discussion-retrial;

e) to validate with histological analysis the macroscopic maturity stage, mainly the resting stages that are incorrectly classified as immature.

f) to address the generic ToRs adopted for maturity staging workshops (see 'WGBIOP Guidelines for Workshops on Maturity Staging').

WKMSHS2 will report by **15 December 2017** for the attention of ACOM, SCICOM and WGBIOP.

Supporting information

Priority:	The maturity stage is an important biological parameter to be used in the calculation of maturity ogives (and therefore of Spawning Stock Biomass), for the definition of the spawning season of a species and for the monitoring of long-term changes in the spawning cycle. Moreover these parameters are essential input data for the model of fish stocks-assessment ussualy used to establish a diagnosis on stock status.
Scientific justification and relation to action plan:	During the 2011 workshop a common maturity scale with the objective of defining common criteria was proposed for herring and sprat. Laboratories involved in the collection of maturity data agreed to use the common scale for reporting.
Resource requirements:	Before the Workshop the chairs will setup a sampling plan for collecting samples for to be used during workshop. The sampling will be carried out during 2016. For the two species, the sampling parameters are: total length; gonad visual inspection - maturity stage by the new common maturity scale; total weight; gonad weight; liver weight; gutted weight; gonad photo; age; histological maturity stage; microscopic preparation photo. This workshop will be based on the analysis of both digital photos of gonads and fresh gonads. Therefore facilities suitable to examine fresh biological material must be available during the workshop. It would be necessary to have a web server for storage and easy access to the photos collected by the participants before the workshop.
Participants:	In view of its relevance to the ICES data assurance, the Workshop is expected to attract interest from ICES Member Countries. The Workshop will include international experts on maturity staging.
Secretariat facilities:	None.
Financial:	None.
Linkages to advisory committees:	ACOM

Linkages to other committees or groups:	WGBIOP, SCICOM, RCM, HAWG, WGIPS, IBTSWG
Linkages to other organisations:	None.

WGNEPS – Working Group on *Nephrops* Surveys

2015/MA2/SSGIEOM19

A **Working Group on *Nephrops* Surveys** (WGNEPS), chaired by Adrian Weetman, Scotland, and Kai Wieland, Denmark, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2016	7-11 November	Reykjavík, Iceland	Interim report by 31 January 2017 to SSGIEOM	
Year 2017	28 November-1 December	Heraklion, Greece	Interim report by 26 January 2018 to EOSG	
Year 2018	6-9 November	IFREMER, Lorient, France	Final report by 14 December 2018 to EOSG	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
	Review SISP guidelines	EOSG have developed guidelines for the SISPs, and it is important to update those guidelines to reflect the use of the protocol by the EGs	28,31	Year 1	Review the current SISP guidelines.
a	To review any changes to design, coverage and equipment for the various *Nephrops* UWTV surveys.	To ensure surveys used by WKNEPH, WGCSE, and WGNSSK are fit for purpose.	28,31	Recurrent annual update	Survey summary including and description of alterations to the plan, to relevant assessment-WGs (WKNEPH, WGCSE, WGNSSK,) and SCICOM. Planning of the upcoming surveys for the survey coordinators and cruise leaders, and update the SISP accordingly.

b	To review the design, coverage, results and uses of *Nephrops* trawl surveys in consultation with WGISDAA.	There are trawl surveys for *Nephrops* in some area and trawling activity also takes place with UWTV surveys. These activities need rewiew and co-ordination.	28,31	Recurrent annual update	Survey summary including and description of alterations to the plan, to relevant assessment-WGs (WKNEPH, WGCSE, WGNSSK, WGHMM,) and SCICOM. Planning of the upcoming surveys for the survey coordinators and cruise leaders, and update the SISP accordingly.
c	To review video enhancement, video mosaicking, automatic burrow detection and other new technological developments.	WGNEPS should periodically review emerging technologies that might improve survey methodologies.	28	Recurrent annual update	To update the SISP based on conslusions. Other publications when appropriate.
e	Discuss the utility of UWTV and trawl *Nephrops* surveys as platforms for 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.	9	Year 2	To update the SISP based on conclusions
f	Develop an international database which will hold burrow counts, ground shape files & other data associated with UWTV surveys. Develop an international database on trawl surveys.	There is a need to centralize UWTV data in a single international database. Ensure data is avaibale externally.	25	Year 2/3	ICES database
g	Review of existing datasets to evaluate possible factors affecting (i.e. currents, light, etc.) burrow emergence.	Recent behaviour aspects have been investigated in the laboratory. Important to investigate correlation with field data.	25	Year 2/3	Review paper
h	Developing R scripts for UWTV survey data processing including functions to QC, analyze and visualize data, and interface the tools with the data base (ToR f).	Improving standarisation of data QC and data processing. Support new developing surveys on data analysis.	25,27	Year 3	Document and R packages for UWTV survey data.

Summary of the Work Plan

Year 1	The main task will be to carry out a burrow counting training workshop at a European level, this will take place in Reykjavík, Iceland. This WG will be extended for 1 day to accommodate the training course in the same week. Around 2 days will be allocated to review any changes to design, coverage and equipment for the various Nephrops UWTV/trawl surveys and to review video en-hancement, video mosaicking, automatic burrow detection and other new technolog-ical developments and the remaining 3 days will be allocated to the burrow counting training workshop. The facilities and equipment will be provided by the Marine Research Institute in Iceland; additional equipment might be provided by other Institutes if required.
Year 2	TOR a, b and c will be addressed annually. This year will focus on exploring the utility of UWTV and trawl *Nephrops* surveys as platforms for the collection of data for OSPAR and MFSD indicators (ToR e). Additionally ToRs f and g will also be addressed and plans for ToR h will be made. Decision will be made in relation to the need of further training on burrow counting. If necessary this will take place on year 3.
Year 3	TOR a, b and c will be addressed annually. Work will focus on ToRs f, g and h as well as reviewing any relevant changes to survey procedures. SISP will be updated accordingly.

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	None.
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
Linkages to other committees or groups	There is a very close working relationship with all the groups of WKNEPH. It is also very relevant to stock assessment experts groups that used the survey results i.e. WGCSE and WGNSSK Links with WGISDAA to address ToR b and WGISUR to address ToR e.
Linkages to other organizations	None

EOSG Resolutions approved in 2014

WGIPS – Working Group of International Pelagic Surveys

2014/MA2/SSGIEOM22

The **Working Group of International Pelagic Surveys** (WGIPS), chaired by Matthias Schaber, Germany, and Bram Couperus, the Netherlands, 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 2016	18–22 January	Dublin, Ireland	Interim report by 5 March 2016 to SSGIEOM, SCICOM & ACOM	
Year 2017	16–20 January	Reykjavik, Iceland	Final report by 6 March 2017 to SSGIEOM, SCICOM & ACOM	
Year 2018	15–19 January	Amsterdam, the Netherlands (tbc)	Final report by 2 March 2018 to EOSG, SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	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	Goal 3	years 1–3	Survey reports containing indices of stock biomass and abundance at age, spatial distributions, zooplankton biomass, and hydrographic conditions. HAWG WGWIDE
b	Coordinate the timing, area and effort allocation and methodologies for individual and multinational acoustic and larvae surveys on pelagic resources in the Northeast Atlantic waters covered (Multinational surveys: IBWSS, IESNS, IESSNS, HERAS, IHLS and individual surveys: CSHAS, BFAS, ISAS, PELTIC, GERAS).	a) Science Requirements b) Advisory Requirements c) Requirements from other EGs	Goal 1 & 3	years 1–3	Cruise plans for international and individual surveys. HAWG WGWIDE

c	Adopt standardized analysis methodology and data storage format utilizing the ICES pelagic database repository for all acoustically derived abundance estimates of WGIPS coordinated surveys	a) Science Requirements b) Advisory Requirements	Goal 3, 4 & 5	years 1–3	Common acoustic database for WGIPS coordinated surveys; Common analysis tools for acoustic and trawl data from WGIPS coordinated surveys including software scripts to produce results in common formats WKEVAL
d	Periodically review and update the WGIPS acoustic survey manual to adress and maintain monitoring requirements for pelagic ecosystem surveys	a) Science requirements b) Advisory requirements	Goal 3	years 1–3	Updated WGIPS survey manual.
e	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 from other EGs	Goal 3	years 1–3	Optimal sampling designs and precision estimates for the different surveys as a measure of survey quality. HAWG WGWIDE
f	Assess and compare scrutinisation procedures employed for the analysis of raw acoustic data from WGIPS coordinated surveys	a) Science requirements b) Advisory requirements	Goal 3	year 1	Documented standardized scrutinisation recommendations; Update of survey manual to adress and maintain monitoring requirements for pelagic ecosystem surveys. WKSCRUT
g	Develop alternative analysis methods (e.g. using geostatistics) to monitor the pelagic ecosystem by extracting metrics from the collected survey data other than those requirted for single-species stock assessments	a) Science requirements b) Advisory requirements	Goal 1 & 3	years 1–3	Manuscripts and working documents.
h	Assess auxilliary pelagic ecosystem surveying technology (e.g. optical technology, multibeam and wideband acoustics) to: (i) achieve monitoring of different ecosystem components, and/or (ii) derive ecosystem indicators from surveys covered by WGIPS	a) Science Requirements b) Advisory Requirements c) Requirements from other EGs	Goal 1 & 3	years 1–3	Overview of possible ecosystem indicators that can be derived from WGIPS surveys; and protocols/recommendations for practical implementation of auxiliary pelagic surveying technoologies.

i	Develop and refine methods to derive stock- or spawning component-specific survey indices for herring based on biological criteria (e.g. otolith shapa analysis or morphometric measurements)	a) Science Requirements b) Advisory Requirements c) Requirements from other EGs	Goal 1 & 3	years 1–3	Provide survey indices of stock biomass and abundance at age for herring in the North Sea and areas 3a and 6a, separated by spawnign component/stock based on biological criteria.

Summary of the Work Plan

Year 1	General meeting, preceded by 3 post-cruise meetings which collate data of multinational surveys. Workshop to evaluate and develop joint methods from current participant-specific acoustic abundance estimation methods used in the HERAS surveys (WKEVAL). Workshop to standardize scruitinisation procedures for pelagic ecosystem surveys covered by the WG (WKSCRUT). Session to familiarise WG members with the use of the new standardized acoustic survey analysis tool (StoX) and data storage format from the ICES pelagic database repository. 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 review and provide possible updates for the WGIPS acoustic survey manual. Session to: (i) explore alternative analysis methods (e.g. geostatistics); and (ii) assess and document auxillary pelagic ecosystem surveying methodology (e.g. optical technology, multibeam and wideband acoustics), in order to monitor components of the wider ecosystem and derive ecosystem indicators from surveys covered by WGIPS. Session to review and adapt stock and spawning component splitting methods applicable to herring in the North Sea, and areas IIIa and Via; and plan methods used on surveys in Year 2 accordingly. Contributing to Session C "Ecosystem Monitoring in Practice" at the 2015 ICES ASC through active involvement of WG members as session convener and presenters. Contributing a paper analysing the HERAS survey time-series to the ICES Symposium on "Marine Ecosystem Acoustics (SOMEACOUSTICS). Submission of a manuscript on blue whiting distribution from the WGIPS survey time-series to a peer reviewed Journal.
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. Session to exchange experiences and analyse progress with the use of the new standardized acoustic survey analysis tool (StoX) and data storage format from the ICES pelagic database repository. Session to compare and evaluate scrutinisation of Year 2 survey databased on the standardized procedures developed in WKSCRUT. Session to review and provide possible updates for the WGIPS acoustic survey manual. Session to review and adapt stock and spawning component splitting methods applicable to herring in the North Sea, and areas IIIa and Via; and plan methods used on surveys in Year 3 accordingly. Session to draft a manuscript on an example of alternative analysis methods (e.g. geostatistics) used with WGIPS survey data. Session to analyse progress and draft recommendations for auxiliary pelagic ecosystem surveying methodology (e.g. optical technology, multibeam and wideband acoustics) for monitoring components of the wider ecosystem in surveys covered by WGIPS. Session to draft a list of potential ecosystem indicators to be measured during WGIPS surveys.

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. Session to analyse progress with the use of the new standardized acoustic survey analysis tool (StoX) and data storage format from the ICES pelagic database repository. Session to review and provide possible updates for the WGIPS acoustic survey manual. Session to review and adapt stock and spawning component splitting methods applicable to herring in the North Sea, and areas IIIa and Via used on surveys in Years 1–3. Session to evaluate progress to draft a manuscript on an example of alternative analysis methods (e.g. geostatistics) used with WGIPS survey data. Session to update recommendations for auxiliary pelagic ecosystem surveying methodology (e.g. optical technology, multibeam and wideband acoustics) for monitoring components of the wider ecosystem in surveys covered by WGIPS. Session to evaluate progress in listing potential ecosystem indicators to be measured during WGIPS surveys.

Supporting information

Priority	The Group has a very high priority as its members have expertise in design and implementation of larval and 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 Groups core task is the standardization, planning, coordination, implementation, and reporting of acoustic and larvae surveys for main pelagic fish species 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'

EOSG Resolutions approved in 2012

WGALES – Working Group on Atlantic Fish Larvae and Eggs Surveys

2012/MA2/SSGESST17

The **Working Group on Atlantic Fish Larvae and Eggs Surveys (WGALES)**, chaired by Maria Manuel Angélico, Portugal, and Richard D. M. Nash, Norway, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2013	Correspondence	Intersessional	Interim report by 5 January 2015 May 2013 to SSGIEOM	Group is planning to meet face to face in 2nd year – see below.
Year 2014	1–5 December	San Sebastian, Spain	Interim report by 5 January 2015 to SSGIEOM	Cindy Van Damme to be replaced by Richard Nash for the next meeting of WGALES
Year 2016	17–21 October	Thessaloniki, Greece	2nd Interim report by 1 December 2016 to SSGIEOM, SCICOM	Group is completing their second year of work, Maria Manuel Angélico was to be replaced in 2017 but will continue 1 year more.
Year 2018	22-26 October	DTU, Denmark	Final report by 1 December 2018 to EOSG	***This group will be finalizing their third year in 2018 as every second year the group is doing fieldwork***

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Present current ichthyoplankton surveys in the light of their original purposes, with respect to design, estimation methods and challenges (including their potential as ecosystem surveys);	The activities of WGALES are vital for the delivery of state-of-the-art ichthyoplankton surveys, ensuring high standards and incorporating new techniques and developments for the future. WGALES will lead to the cross fertilization of ideas, methodologies, developments and standardization of ichthyoplankton surveys in the ICES area. Hence providing a platform from which to improve the assessments based on the ichthyoplankton surveys. WGALES fits into the ICES science plan sections 5.1 and 5.2.	5.1, 5.2	Years 1, 2, 3 (2014, 2016, 2018)	Report in 2014, 2016, 2018
b	Present current understanding and future research needs of natural mortality of fish eggs and	Use of natural mortality in egg production and larvae abundance estimates is limited.	5.1, 5.2	Year 1 (2014)	Report with review of developments and needs for future research of natural

	larvae in order to improve accuracy and precision of egg production and larvae abundance estimates of the ichthyoplankton surveys;	Current developments and use of natural mortality estimates to improve accuracy and precision of ichtyoplankton survey estimates.			mortality of fish eggs and larvae. Suggestions on how natural mortality can be incorporated in egg production and larvae abundance estimates of the ichthyoplankton surveys.
c	Prepare a template for the ICES ichthyoplankton survey protocols	A new publication series of survey protocols on ICES surveys has been initiated. No template exists for the ichthyoplankton survey protocols.		Year 1 (2014)	Survey protocol template for ICES ichthyoplankton surveys.
d	Receive and act upon ToRs from Working Groups within the umbrella of ichthyoplankton surveys e.g. IBTSWG, WGACEGG, WGIPS, WGMEGS, WGEGGS2.	The activities of WGALES are vital for the delivery of state-of-the-art ichthyoplankton surveys, ensuring high standards and incorporating new techniques and developments for the future. WGALES will lead to the cross fertilization of ideas, methodologies, developments and standardization of ichthyoplankton surveys in the ICES area. Hence providing a platform from which to improve the assessments based on the ichthyoplankton surveys.	5.1, 5.2	Years 1, 2, 3).If necessary WGALES can react by correspondence on urgent ToR's from other ichthyoplankton surveys groups in 2013, 2015 and 2017. During the meeting in 2014 ToR's from ichthyoplankton survey groups from 2013 and 2014 will be addressed and reported on.	Report in 2014, 2016, 2018. Responses to specific requests from the ichthyoplankton Working Groups.
e	Present current understanding and future research needs for integrating ichthyoplankton data and methodologies into methodologies for assessing population sizes. Undertake investigations on streamlining and cost effective surveys and methodologies for the implementation of Egg Production Methods for estimating Spawning Stock Biomass	Ichthyoplankton surveys are often part of a larger and more encompassing set of studies which are aimed at determining population size e.g. Egg Production Methodologies. There is a need to review the various aspects of such research, as a complete study, to ensure the correct data are collected and there is a general understanding of how all the parts fit together to ensure complete and as accurate and precise as possible estimates of	5.1, 5.2	Year 2, 3 (2016, 2018)	Report with review of methodologies and potential 'pitfalls' for undertaking multidisciplinary estimations of stock size which involve the use of ichthyoplankton surveys, and needs for future research for a better integration of fish egg and larvae data.

		stock size are realised.			
f.	Present and report on fish eggs and larval development and early life strategies in boreal and tropical regions.	The timing and type of ichthyoplankton survey needs to be tailored over spatial and temporal scales. Consideration also needs to be made for the taxonomy, egg and larvae mortality and development, stage duration (e.g. in relation to temperature, salinity, start of spawning season etc.). Other basic information needs to be also considered such as strategies of foraging larvae to cope with ambient conditions in different regions of the marine environment. Some of this information can also be obtained from the surveys providing an appropriate survey design is implemented.	5.1, 5.2	Year 3 (2018)	Report in 2018 on the life history strategies of fish eggs and larvae over a range of ecosystems. The report will suggest optimal sampling strategies for determining abundance, mortality, distribution and ecology of the early life history stages of fish.

Summary of the Work Plan

Year 1 (2013/14)	WGALES will communicate by correspondence to act upon urgent Tor's from ichthyoplankton survey groups (ToR d) and then meet to address ToRs a, b, c and d.
Year 2 (2015/16)	WGALES will communicate by correspondence to act upon urgent Tor's from ichthyoplankton survey groups (ToR d) and then meet to address ToRs a, d and e.
Year 3 (2017/18)	WGALES will communicate by correspondence to act upon urgent Tor's from ichthyoplankton survey groups (ToR d) and work on developments in methodology in adult reproductive parameters (ToR e). The WG will then meet to address ToRs a, d, e and f.

Supporting information

Priority	The activities of WGALES are vital for the delivery of state-of-the-art ichthyoplankton surveys, ensuring high standards and incorporating new techniques and developments for the future. WGALES will lead to the cross fertilization of ideas, methodologies, developments and standardization of ichthyoplankton surveys in the ICES area. Hence providing a platform from which to improve the assessments based on the ichthyoplankton surveys. WGALES fits into the ICES science plan sections 5.1 and 5.2.
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 is ICES secretariat support for reports.
Participants	The Group will be attended by members of ICES groups, WGMEGS, WGEGGS2, WGIPS, IBTSWG, WGACEGG and guests carrying out ichthyoplankton surveys in the non-ICES areas.
Secretariat facilities	ICES secretariat support for reports.
Financial	DCF funding is required to support the attendance of the meetings.

Linkages to ACOM and groups under ACOM	There are linkages with the advisory committees through the individual ichthyoplankton surveys groups. Through the review and standardization of the ichthyoplankton surveys the quality of the data for the assessments is ensured.
Linkages to other committees or groups	SCICOM and there is a very close working relationship with the all the groups of ichthyoplankton surveys, WGMEGS, WGEGGS2, WGIPS, IBTSWG, WGACEGG and their assessment groups, WGWIDE, HAWG, WGHANSA.
Linkages to other organizations	No formal linkages.