# Ecosystem Observation Steering Group EGs Resolutions

## Resolution approved in 2019

**WKBioArc – The Workshop on Scale, Otolith Biochronology Archives**

**2019/WK/EOSG01**            The **Workshop on Scale, Otolith Biochronology Archives** (WKBIOARC), chaired by Deirdre Brophy\*, Ireland, and Martha Robertson\*, Canada, will be established and meet in Galway, Ireland, 11–12 February 2020 to:

  a)  Review and report on issues and solutions for establishing, maintaining and managing biochronology archives of biomineral samples (scales, otoliths and other bones, etc.) to ensure protection and access of these valuable archives for future scientific use ([Science Plan codes](): 3.1, 3.3, 3.5);

  b)  Establish common database designs that facilitate the sharing and co use of the archives across national boundaries ([Science Plan codes](): 3.1, 3.5);

  c)  Promote and report on international collaboration opportunities and potential new projects using archive material and data in order to address regional scale questions and to develop new scientific understanding and quality advice ([Science Plan codes](): 3.1).

WKBIOARC will report by April 2020 for the attention of the HAPISG, WGNAS, WGBAST and WGDIAD.

## Supporting information

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| Priority | ICES Working Group on North Atlantic Salmon (WGNAS) and NASCO's International Salmon Research Board (IASRB) have recognised the high value of archival scale collections that, as a result of advances in analytical methods, can now be used for genetic, stable isotope and growth studies. Additional information may be obtained in the future in response to further advances in analytical methods. There is some concern that these collections may be lost unless appropriate arrangements are in place to archive them and ensure their safe storage so that they may be available for analysis. It was recognised that even if the samples themselves are not lost, the information (metadata) accompanying them could be lost or damaged while in storage. As consequence, there is a very high priority for this workshop. |
| Scientific justification | There are several new initiatives with regard to biomineral archive collections (fish scales and otoliths) and the establishment of permanent and secure repositories, which are being developed by individual parties.  (Unlocking the Archive, Ireland, National Funding 2017 to 2020):  SAMARCH (EU Interreg UK/France, 2017 to 2022): Norwegian Research project (National Funding 2016 to 2018): (AST/Freshwater Biological Association (FBA)). Individuals who are leading these projects have encountered common issues such as, sample degradation, missing data, database scalability, etc.  Issues to be considered in this workshop:  Recognising there is a century or more of samples in some institutes with various recording methods, solutions surrounding sample/data storage methods from the workshop attendees need to be reviewed and reported in the context of: <br>• Preservation and restoration of older samples. |

- Physical housing (rehousing) and storage of large and old archives.

In order to coordinate the shared use of scale archives and data between institutions for the future, current scale/otolith preparation, mounting, and data recording practices need to be reviewed and a standardised approach outlined with respect to:

- Aligning approaches and work flows for scale/otolith processing and reading efficiency.
- Standardizing procedures for logging samples, including guidance on best practices and use of standard nomenclature that is universally accepted among the scientific community (inter-operability).
- Cataloguing geographic descriptions of source or origin: uniform spatial data recording methods for samples will aid in identifying samples spatially and provide an overview of data across national sampling programs.
- Improving data extraction methods and exchange of data across various databases to aid interoperability and ease of analysis of data across workers and jurisdictions.
- Improving comparability of datasets for cross calibration.
- Standardising database platforms if possible.
- Describing procedures for storing images that can reduce space and cost, and improve identification and management of archives samples for contribution to studies requiring destructive sampling (isotope analyses, genetic analyses, etc.).
- Documenting attribution to ensure credit to many workers involved in collecting and maintaining archives.
- Ensuring data integrity after funded projects are complete.

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| Resource requirements | None. |
| Participants | This workshop is open to scientific and technical users of biochronocology material, particularly those who have archives or long term (>20 years) of material and data. |
| Secretariat facilities | None. |
| Financial | No financial implications |
| Linkages to advisory committees | ACOM, Various fish stock assessment groups |
| Linkages to other committees or groups | SCICOM, HAPISG, IEASG, Working Group on Diadromous Fishes, Workshop on Optimization of Biological Sampling (WKBIOPTIM) |
| Linkages to other organizations | NASCO |

**SCRDB - Steering Committee for the Regional Database and Estimation System**

**2019/WK/EOSG02**      The meeting of the Steering Committee for the Regional Database and Estimation System (SCRDB), chaired by David Currie, Ireland, and Katja Ringdahl, Sweden, will meet in ICES Secretariat HQ, Denmark , 3–5 December 2019 to:

a) Review the status of the development of the new RDBES and its project plan for implementation, including the funding of the outstanding development.  Review feedback summaries from workshops.
b) Respond to recommendations put forward to the SCRDBES by the Regional Coordination Groups (RCGs) via the Liaison Meeting, and ICES expert groups.
c) Summarize how the RDB has been used in the RCGs, along with any other uses.  Discuss how the code is being shared from these different uses.
d) Review the RDB/RDBES Data Policy.
e) Discuss how to setup a testing group of persons from the Core Group and from all countries for testing the RBDES system functionalities with national data. This could be combined with discussions on how to make the countries more engaged in preparing for the format.

SCRDB will report by 10 January 2020 for the attention of EOSG, SCICOM and ACOM

**WGNAEO - Working Group on Northwest Atlantic Ecosystem Observations**

**2019/FT/EOSG03**      A **Working Group on Northwest Atlantic Ecosystem Observations** (WGNAEO), chaired by Philip Politis\*, USA, and Don Clark\*, Canada, will work on ToRs and generate deliverables as listed in the Table below.

|  | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2020 | 11-13 February | Halifax, Canada | Interim report by 12 March 2020 to Ecosystem Observation Steering Group | |
| Year 2021 | TBD | USA | Interim report by June 2021 to Ecosystem Observation Steering Group | |
| Year 2022 | TBD | Canada | Final report by June 2022 Ecosystem Observation Steering Group | |

## ToR descriptors[1]

| ToR | Description | Background | Science Plan Codes | Duration | Expected Deliverables |
|---|---|---|---|---|---|
| a | Coordinate US and Canadian resource and ecosystem survey strategies for enhanced regional evaluation in the Northwest Atlantic. | Canada and the U.S. have begun discussions of trawl survey coordination on Georges Bank, which would entail addressing differences in strata design, gear, and ecosystem observations. The main product of this ToR would be an operational plan to coordinate surveys, subject to review by DFO and NEFSC leadership. After implementation of the Plan, the WG would review the first year of coordinated survey activities. | 3.1, 3.2 | 3 years | Draft Plan for coordination in June 2020. Final Plan for Coordination in Jan 2021 |
| b | Coordinate and develop access, metadata, and methods for integrating historical Canadian and U.S. trawl survey data to facilitate scientific analyses | With ongoing concerns over the changes in species distribution and changes in species productivity on the Northwest Atlantic shelf, approaches for combining the two nation's datasets would be extremely valuable to regional science and management entities. The purpose here would be to develop data sharing methods and methods for analyzing combined data. | 3.1, 3.2, 3.3 | Year 2 and 3 | |

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

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|---|---|---|---|---|---|
| c | Collate and review ocean observations collected in the Northwest Atlantic Ocean and conduct gap analyses to inform integrated ecosystem assessments and ecosystem science activities. | There are numerous ocean observing activities underway in the Northwest Atlantic Ocean. These data are critical to a number of users. Under this ToR, the WG will bring the different activities together, document variables measured and methods used, consider mechanisms to combine data across activities, and conduct gap analyses relative to variables useful for marine resource management. | 3.1, 3.2 | 3 years | Review paper |

## Summary of the Work Plan

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

## Supporting information

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

**WGIDEEPS - Working Group on International Deep Pelagic Ecosystem Survey**

**2019/FT/EOSG04**      A **Working Group on International Deep Pelagic Ecosystem Surveys** (WGIDEEPS), chaired by Hannes Höffle, Norway, and Matthias Bernreuther, Germany, will work on ToRs and generate deliverables as listed in the Table below.

|  | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2020 | 25-27 August | By Correspondence | Interim report by 24 September 2020 to ACOM-SCICOM | Kristján Kristinsson as outgoing chair. |
| Year 2021 | TBD January | To be decided | Interim report by 1 March 2021 to ACOM-SCICOM | |
| Year 2021 | TBD August | To be decided | Interim report by 10 September 2021 to ACOM-SCICOM | |
| Year 2022 | TBD January | To be decided | Interim report by 1 March 2022 to ACOM-SCICOM | |
| Year 2022 | By correspondence | | Final report by 15 September 2022 to ACOM-SCICOM | |

## ToR descriptors[2]

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Evaluate calculation of biomass and abundance indices derived from the trawl method in the Irminger Sea. | The mehtod of calculating biomass and abundance indices from the trawl data has been based on convertion of the trawl data into acoustic values. This method needs to be evaluated and other methods to be explored. | 3.2 | Year 1 (2020) | Datras data product developed in cooperation with Data Centre and TAF |

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

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| b | Finalise transfer of trawl survey data from international deep pelagic ecosystem surveys coordinated by the group to ICES DATRAS databases | Data is now stored by individual nations/participants. ICES has committed to a fully transparent and documented quality assurance framework for all data products and assessment results derived from data collated within the ICES working groups, this underpins agreements with all the recipients of ICES advice. | 3.2 | Year 1 (2020) | Inclusion of data in datras |
| c | Set up a formal procedure for the use and transfer of Norwegian Sea survey data to AFWG and WGINOR expert groups | There is currently no agreed format and standard on how the data collected by WGIDEEPS should be transfered to relevant assessment EGs. | 3.1, 3.2 | Year 1 (2020) | TAF proceedure for formally including survey data in assessments. |
| d | Coordinate the international deep pelagic ecosystem survey with special emphasis on redfish to be carried out in the Irminger Sea and adjacent waters in June/July 2021 | The WG has been responsible for the planning of the international trawl/acoustic surveys on pelagic redfish (*Sebastes mentella*) in the Irminger Sea and adjacent waters since 1994 and producing reports on the survey results and outcomes. | 3.1, 3.2 | Year 2 (January meeting) | |
| e | Report on the outcome of the Irminger Sea survey | 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. | 3.1, 3.2 | Year 2 (August meeting) | WGIDEEPS 2021 – 2 report chapter 1 September 2021 SCICOM |
| f | Coordinate the international deep pelagic ecosystem survey with special emphasis on redfish to be carried out in the Norwegian Sea and adjacent waters in August 2022 | The WG has been responsible for the planning of the international trawl/acoustic surveys on pelagic redfish (*Sebastes mentella*) in the Norwegian Sea since 2008 and corresponding reports on the survey results. | 3.1, 3.2 | Year 3 (January meeting) | WGIDEEPS 2022 – 1 report 1 March 2022 SCICOM |

| g | Report on the outcome of the 2022 Norwegian Sea survey | a) 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. | 3.1, 3.2 | Year 3 | WGIDEEPS 2022 – 2 report chapter 15 September 2022 SCICOM |
|---|---|---|---|---|---|

### Summary of the Work Plan

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

### Supporting information

| Priority | Essential, primary basis for the advice on the stock status of pelagic redfish in the Irminger Sea and adjacent waters and in the Norwegian Sea. |
|---|---|
| Resource requirements | N/A |
| Participants | Less than 12 participants (incl. the cruise leaders of each vessel and the principle experts involved in abundance and biomass calculations and deep sea ecology). |
| Secretariat facilities | N/A |
| Financial | No financial implications. |
| Linkages to ACOM and groups under ACOM | NWWG, AFWG, WGDEC |
| Linkages to other committees or groups | SCICOM, WGOH, WGBIODIV, WKFAST, WGISDAA, ICES data centre |
| Linkages to other organizations | NAFO, NEAFC |

**WKIDCLUP2 - Workshop 2 on the identification of clupeid larvae**

**2019/WK/EOSG05**       The **Workshop 2 on the identification of clupeid larvae** (WKIDCLUP2), chaired by Matthias Kloppmann*, Germany, will meet in by correspondence,  1 – 2 September 2020 and a physical meeting, (TBD) 2021 to:

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

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

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

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

WKIDCLUP2 will report by Summer (TBD) 2021 for the attention of EOSG, SCICOM, WGSINS, WGALES, WGBIOP and HAWG.

## Supporting Information

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

### WGDG – Working Group on DATRAS Governance

**2019/FT/EOSG06** The **Working Group on DATRAS Governance** (WGDG), chaired by Ingeborg de Boois, Netherlands, will meet by web conference, four times per year and may also meet physically once per year, to work on ToRs and generate deliverables as listed in the Table below.

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2020 | 26-28 May | By correspondence Copenhagen, Denmark (during DIG) | E-evaluation | |
| Year 2021 | May | By correspondence Copenhagen, Denmark (during DIG) | E-evaluation | |

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|---|---|---|---|---|
| Year 2022 | May | By correspondence Copenhagen, Denmark (during DIG) | | Final report by Date Month May to DSTSG and DIG |

## ToR descriptors

| TOR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Further evolve the framework on the governance of DATRAS | DIG had provided a governance framework to review a database in the broadest sense of the word. Transparency about the status of the ICES databases is crucial to maintain and improve the quality of the databases and the data. | 3.2, 4.1, 4.2 | Generic ToR | A functional and efficient framework with clear responsibilites and taks for the governance of DATRAS. |
| b | Oversee and advise on the interpretation and prioritisation of recommendations from expert groups addressed to DATRAS | Three different groups (IBTSWG, WGBIFS, WGBEAM) currently provide the survey information directly to DATRAS, and some groups use the DATRAS format as a starting point for datasubmission (e.g. WGIPS). Overview of the general issues and developements is crucial to maintain the system effectively. | 3.2, 4.1, 4.2 | Generic ToR | A table of prioritised requests from data providers and data users for consideration by the data centre for improvements and updates to the data services on trawl and litter data based on the ICES data infrastructure. |
| c | Facilitate common functionality in terms of data providers and data user across different surveys to improve upload efficiency and allow broader perspectives (covered by more than one survey) can be effectively addressed. | Alignment over the surveys will facilitate automation processes at the submitter's side, and provide the opportunity to increase the information provided in the sets that have been in DATRAS from the start. | 3.2, 4.1, 4.2 | Generic ToR | |
| d | Provide a platform for end user feedback to the DATRAS system, as well as feedback on the outcomes of those suggestions. | A database filled by a significant number of institutes and used by many people and (stock) assessment groups needs to be kept up to date with respect to user requirements without ad-hoc solutions for everyone. | 3.2, 4.1, 4.2 | Generic ToR | Links to TOR b providing the input for that task in future. |

**Summary of the Work Plan**

| YEAR 1 | WORK ON ALL TERMS OF REFERENCE IN FOUR 1.5 HOUR SKYPE MEETINGS, PROVIDE ORAL REPORT TO DATA AND INFORMATION GROUP (DIG) |
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| Year 2 | Work on all terms of reference in four 1.5 hour skype meetings, provide oral report to data and information group (DIG) |
| Year 3 | Work on all terms of reference in four 1.5 hour skype meetings, provide oral report to data and information group (DIG), evaluate the relevance and functioning of the group |

**Supporting information**

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| Priority | High.  WGDG works to align DATRAS for the different surveys, evaluate the database for the Data and Information Group (DIG) and oversee future development of DATRAS.  These tasks are well aligned with ICES strategic plan to continue to build our capacity and expertise in managing, analysing, and interpreting data to support science and advice. |
| Resource requirements | A commitment of time from the members of the group consistent with progressing actions identified in the quarterly meetings |
| Participants | Members of ICES Data Centre involved in DATRAS developments, chair with a direct link with (=participating in) DIG, representatives of survey groups submitting data to DATRAS (currently WGBIFS, IBTSWG, WGBEAM) |
| Secretariat facilities | Community Sharepoint site, Remote meeting facilities. |
| Financial | No financial implications. |
| Linkages to ACOM and groups under ACOM | This is an integral component to the overall Quality Assurance framework (of Advice) that ACOM together with the Coordination group are describing |
| Linkages to other committees or groups | There is a very close working relationship with the fish trawl survey groups. There is a strong linkage to DIG as the main umbrella for data/software governance structures. |
| Linkages to other organizations | No |

**WGRFS – Working Group on Recreational Fisheries Surveys**

**2019/2/EOSG07**    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 Table below.

|  | MEETING DATES | VENUES | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2020 | 15-19 June 2020 | By correspondence | Interim report by 01 November 2020 to EOSG | Keno Ferter's 3 year term as chair ends |
| Year 2021 | 14-18 June 2021 | TBC | Interim report by 01 November 2021 to DSTSG | Kieran Hyder's 3 year term as chair ends |
| Year 2022 | 13-17 June 2022 | TBC | Final report by 01 November 2022 to DSTSG | |

**ToR descriptors**

| TOR | DESCRIPTION | BACKGROUND | Science plan codes | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Collate and review quality of national estimates of recreational catch and effort, catch-and-release impacts, and socio-economic benefits for candidate stocks, identify significant data gaps in coverage and species, and support the ICES TAF. | Most coutnries are engaged in data collection. This activity collates national participation, catch and socio-economic data sets together, understands the quality of data, and highlights where new data are needed. This is important for supporting the ICES TAF. | 5.4 | Regular activity in each year, with specfic intersessional tasks to develop new approaches. | Report WG perspectives and publication of scientific papers |
| b | Assess the validity of traditional knowledge, new survey designs, novel methods (e.g. citizen science, apps), and innovative statistical methods for data provision. | Recreational data can be collected in many ways, with different associated biases. This supports improvement of analysis of existing surveys and understanding the utility of new methods. This will lead to the most robust and broad evidence-base to underpin asessment and advice. | 3.1, 3.2, 3.3, 3.6, 4.1, 4.3, 5.4 | Regular activity in each year | Report WG perspectives and publication of scientific papers |
| c | Provide guidance to ICES and respond to ad hoc requests from ACOM on the availability of data, design of data collection programs, data storage systems, use of data in assessments, and catch allocation. | Recreational catche are not included in many assessments and data collection is limited to a few species. This activity suports data collection requirements, access to data and methods needed. This will facilitate embedding recreational fisheries into fisheries management. | 3.1, 3.2, 3.3, 3.6, 5,1 | Regular activity in each year, with specfic intersessional tasks to develop new approaches. | Report WG perspectives and publication of scientific papers |

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| d | Develop approaches for regional data collection programmes that generate robust data for end users and suport the ICES TAF. | Regionalisation is an important goal, but implementation is unclear This is a challenge for recreational fisheries due to the different actors, gears and survey instruments. This will underpin generation of transparent and robust regional data to support end users needs. | 3.1, 3.2, 3.3, 3.6, | Regular activity in each year. | Report WG perspectives and publication of scientific papers |
| e | Evaluate the use of economic (e.g. impact, valuation), social (e.g. governance, behaviour, welfare, health), and communication (e.g. participatory process, messaging) to support the assessment and management of recreational fisheries. | Recreation fisheries have broad benefits and behavioural responses are difficult to predict due to diverse motivations. Hence, understanding of the human dimension is needed. This develops understanding of the data and methods needed for comanagement to ensure enagement in the process. | 7.1, 7.4, 7.6 | Regular activity in each year, with specfic intersessional tasks to develop new approaches. | Report WG perspectives and publication of scientific papers |
| f | Review outcomes of the workshops organized by the group. | Recreational fisheries is a diverse topic, so not all aspects can be adressed at WGRFS. A number of workshops on specific topic have been done (e.g. WKHDR) or are in the workplan (e.g. inclusion in assessment). This reviews outcomes of the workshops and the implications for recreational fisheries. | 5.4, 7.1, 7.4 | Activity-dependent on workshop | Report WG perspectives and publication of scientific papers |

**Summary of the Work Plan**

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|---|---|
| **Year 1** | 1) Establish intersessional groups and leads within WGRFS to progress key tasks including governance, survey design, quality and analysis, regional coordination, data storage, catch-and-release impacts, novel methods, assessment and catch allocation, human dimensions, and communication. (a, b, c, d, e) |
| | 2) Plan at least three WGRFS publications within the period 2020-22. (a, c, e, f) |
| | 3) Update the existing quality assessment tool (QAT) and embed this in the TAF (a,d). |
| | 4) Evaluate the quality of up to three national survey programmes using the QAT. (a) |
| | 5) Investigate animal welfare issues realted to recreational fisheries (e.g. catch and release) and identify how these could impact management. (a) |
| | 6) Assess the impact of recreational fisheries on a broad range of stocks using data from the pilot studies. (a, c, d) |
| | 7) Create a framework for inclusion of recreational data in stock assessments and scope a workshop to design approaches. (a, c, d) |
| | 8) Collate advances in survey methods that could be used to improved national approaches. (b) |
| | 9) Develop a solution for storage of data within RDBES and agree with ICES. (c, d, f) |
| | 10) Review existing governance structures and develop understanding of 'world class' recreational fisheries management that could be embedded in a future revision of the CFP. (e) |
| | 11) Review outcomes from WKHDR and agree approach for inclusion of angler behaviour in future surveys. (f) |
| **Year 2** | 1) Evaluate the outcomes form the intersessional work and agree approach for the next year. (a, b, c, d, e, f) |
| | 2) Review national programmes including assessment of quality of up to three programmes and provide feedback on tasks requested by ICES. (a) |
| | 3) Assess the potential of novel survey methods to deliver recreational fisheries data (e.g. citizen science approaches, smartphone apps, traditional knowledge). (b) |
| | 4) Develop a framework for allocation of catches between sectors based on a review of existing systems and provide best-practice guidance. (c,d) |
| | 5) Develop MSE approaches to assess the impact of uncertainty in recreational catches on assessment and regional samplin programme. (d). |
| | 6) Review and share methods for engaging with stakeholders and the potential for particpatory approaches. (e) |
| | 7) Assess outcomes of workshop on inclusion of recreational data in stock assessments. (f) |
| **Year 3** | 1) Evaluate the outcomes form the intersessional work and agree approach for the next year. (a, b, c, d, e) |
| | 2) Review national programmes including assessment of quality of up to three programmes and provide feedback on tasks requested by ICES. (a) |
| | 3) Evaluate post-release mortality estimates, potential sublethal effects, and reasonable extrapolations across species and fisheries for inclusion in stock assessments. (a) |
| | 4) Assess novel approaches for surveys (e.g. combining probabilistic and non-probabilistic sampling) and analysis methods (e.g. treatment of outliers, machine learning). (b) |
| | 5) Assess the potential for impact of climate change on species caught by recreational fisheries and how that coud impact on DCF and regional species requirements. (c, d) |
| | 6) Review the potential for food safety and human health issues from consumption of recreational caught fish (e.g. environmental toxins). (e) |
| | 7) Evaluate progress against three year plan and develop new ToRs. (a, b, c, d, e, f) |

**Supporting information**

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| Priority | High – the biological, social and economic impact of recreational fishries is becoming increasing recognised and needs to be included in the fisheries assessment and management processes. |
| Resource requirements | |
| Participants | The Group is normally attended by around 40 members and chair-invited experts. |

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| 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, WGMEDS, and benmarks workshops for stocks that have recrational catches. |
| Linkages to other committees or groups | PGDATA, WGCATCH, |
| Linkages to other organizations | EC, STECF, Regional Coordiantion Groups, Advisory Councils 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. |

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

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

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2020 | By correspondence | | Interim report by 22 May to EOSG | Incoming Chair Daniel Stepputtis, and Antonello Sala |
| | | | | Pingguo He Chair on behalf of FAO |
| Year 2021 | 19-23 April | Bergen, Norway | Interim report by 25 June to EOSG | |
| Year 2022 | To be determined | Potentially Turkey | Final report by 25 June to EOSG | Sponsored by FAO |

### ToR descriptors

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Deliberate, discuss and synthesize recent research on topics related to: i) Designing, planning, and testing of fishing gears used in abundance estimation; ii) Selective fishing gears for the reduction of bycatch, discard and unaccounted mortality, especially as they relate to EU Landing Obligation; iii) Environmentally benign fishing gears and methods, iv) Improving fuel efficiency and reduction of emission from fisheries, and v) Summaries of research activities by nation | Through open sessions and focused, multiyear topic groups, the Working Group provides opportunities for collaboratively developing research proposals, producing reports and manuscripts, and creating technical manuals on current developments and innovations. | 3.3, 4.5, 5.4 | 3 Years | ICES report |
| b | Organize a FAO-sponsored FAO-ICES mini-symposium with thematic issues. Symposium themes will be determined at Year 2, and included in the updated ToR. | Under mutual agreement between ICES and FAO, FAO develops and leads a mini-symposium of relevant topics, while also continuing ICES commitments. | 2.1, 4.5, 5.4 | Year 3 | FAO report, ICES report |

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| c | Organize a Joint Workshop on Fishing Technology, Acoustics and Behavior (JTFAB) to review research topics of mutual interest to both the Working Group on Fishing Technology and Fish Behaviour (WGFTFB) and the Working Group on Fisheries Acoustics, Science and Technology (WGFAST). | Every three years, WGFAST and WGFTFB meet for a one-day Joint workshop on Fishing Technology, Acoustics and Behaviour (JFTAB) to review and share information on topics of mutual interest. | 3.2, 4.5, 5.4 | Year 1 | JFATB report |
| d | Help organize an international fishing technology and fish behaviour symposium or workshop | The last similar symposium was 13 years ago (2006). | 2.1, 4.5, 5.4 | Fall 2020 | Symposium or workshop with proceedings published in a special issue in ICES JMS |
| e | Support survey working groups with fishing gear expertise upon request | EOSG has identified gear expertise gaps in survey working groups. | 3.2 | Year 1,2,3 | Report of relevant survey trawl working groups or associated workshop |

## Summary of the Work Plan

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

## Supporting information

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

**WGFAST – Working Group on Fisheries Acoustics, Science and Technology**

**2019/FT/EOSG09**          A **Working Group on Fisheries Acoustics, Science and Technology** (WGFAST), chaired by J. Michael Jech\*, USA, will work on ToRs and generate deliverables as listed in the Table below.

|  | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2020 | 22 April | By correspondence | Interim report by 22 May 2020 to ACOM-SCICOM | Michael Jech takes over as chair |
| Year 2021 | 19-23 April | Bergen, Norway | Interim report by 30 June 2021 to ACOM-SCICOM | |
| Year 2022 | TBD | TBD | Final report by 30 June 2022 to ACOM-SCICOM | |

**ToR descriptors[3]**

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Collate information on acoustic related research and surveys, and interactions with ecosystem and assessment expert groups. | a) Science Requirements b) Advisory Requirements A summary of the information will be presented in the final report | 3.1, 3.2, 3.4 | 3 | |
| b | Review presented recent work within the topics: "Acoustic methods to characterize populations, ecosystems, habitat, and behaviour"; "Acoustic characterization of marine organisms"; and "Emerging technologies, methodologies, and protocols". Provide guidance by identifying: (1) where training opportunities could be developed; and (2) gaps in knowledge and challenges that should be prioritized by the community. | Create a venue for informing the group members on recent activities and seeking input to further development. An overview of the different contributions and guidance will be presented in the annual report | 3.3, 4.1, 4.4 | 1, 2, 3 | |

| | | | | | |
|---|---|---|---|---|---|
| c | Organize a conference session on integrating fisheries acoustics with ecosystem assessment and monitoring at an international scientific meeting such as ASC. | | 3.1, 3.2, 4.1 | 2 or 3 | |
| d | Develop, and maintain acoustic metadata and data format conventions and coordinate with acoustic survey groups. | Data format conventions for acoustic metadata and data are required for efficient data interchange and processing of acoustic data, but are lacking in the fisheries acoustics field. CRR 341 (2018) and SISP 4 (2016) have partially addressed this need, but further types of data and acoustic equipment need to be supported. | 3.2, 3.5, 4.2 | 1, 2, 3 | Updated metadata convention publication (new guide/handbook series) <br><br> Revised sonar-netcdf4 convention publication that includes echosounder data (new guide/handbook series |
| e | Develop and recommend 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. | 3.3, 3.6 | 1 | CRR; recommendations on methodology improvements to acoustic survey coordination groups to implement on surveys and update SISPs |

## Summary of the Work Plan

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|---|---|
| **YEAR 1** | Produce the annual overview of recent developments within the field. Produce an ICES CRR recommending procedures for collecting and processing quality acoustic data in inclement weather.   Develop and maintain metadata and acoustic data formats. |
| **Year 2** | Produce the annual overview of recent developments within the field. Propose a conference session at an international scientific meeting. Develop and maintain metadata and acoustic data formats. |
| **Year 3** | Produce the annual overview of recent developments within the field. Collate information on acoustic related research and surveys. Develop and maintain metadata and acoustic data formats. Publish new guides with updated metadata convention and revised sonar-netcdf4 convention publication that includes echosounder data. |

## Supporting information

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|---|---|
| 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 60-100 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 a number of data collection and coordination groups within EOSG (e.g. WGIPS, WGBITS, 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, the Commission for the Conservation of Antarctic Marine Living Resources, and the American Fisheries Society. |

## WGBEAM – Working Group on Beam Trawl Surveys

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

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 1 | 24-26 March 2020 | By correspondence/Skype | The first interim report by 30 April 2020 to SCICOM and ACOM | **Incoming Chair:** Ingeborg de Boois |
| Year 2 | 23-26 March 2021 | Hafnarfjörður, Iceland | The second interim report by 30 April 2021 to SCICOM and ACOM | |
| Year 3 | 2022 | Town, Country | Final report by XX YYYY 20XX to SCICOM and ACOM | |

## ToR descriptors[4]

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Evaluate the combined offshore and inshore beam trawl surveys data by region data in a reproduceable manner for the species used in fish stock assessment, including elasmobranchs and brown shrimp. Compare internal and external consistency of indicies age based indices where provided. Document inconsistencies or correct errors or omissions where identified. | Evaluation by region will ensure that patterns in the data (e.g. time-series, cohort strength) are consistent and sampling artefacts including year effects are identified, even when inter survey trends contradict. | 3.1, 3.2 | annually | (a) Updated, consistent and quality controlled beam trawl survey data are available in DATRAS; (b) R script to evaluate the results by region |

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

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| b | Evaluate the cross regional offshore beamtrawl data in a reproduceable manner for the overlapping species used in fish stock assessment in multiple regions (e.g. sole, elasmobranch species). Document inconsistencies and correct errors or omissions where relevant. | Evaluation of species that are assessed in multiple regions cross-regionally will provide insight in the commonalities and differences in stock dynamics in different regions. | 3.1, 3.2 | annually | (a) Updated, consistent and quality controlled beam trawl survey data are available in DATRAS; <br>(b) R script to evaluate the results cross-regionally |
| c | Evaluate the combined survey results of the offshore and inshore beam trawl surveys by region on consistency, including litter data in a reproduceable manner. | Evaluation of e.g. species composition and litter registrations will ensure that patterns in the data (e.g. time-series non-commercial species, litter, species composition, length frequencies) are based on correct data and not due to artefacts, even when the signals contradict. <br>By doing this in a reproduceable manner (R script), the focus can be shifted or extended over the years without re-inventing the wheel. Moreover, traceability of analyses increases. | 3.1, 3.2 | annually | (a) Updated, consistent and quality controlled (e.g. species composition, litter coding, consistent species identification in overlapping survey areas) beam trawl survey data are available in DATRAS. <br>(b) R script to evaluate the results by region |
| d | Coordinate and evaluate the data delivery into the ICES database for offshore and inshore beam trawl surveys of (at least) the last two years and document gaps. | Unaggregated beam trawl survey data are stored in DATRAS up and until the survey of the year previous to the meeting year. Data from the year(s) before that, should be checked for completeness (final data submitted). | 3.1 | annually | (1) Achievable deadlines for data delivery of the next survey <br>(2) Updated ICES database for inshore and offshore beam trawl surveys. |

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|---|---|---|---|---|---|
| e | Coordinate and plan inshore and offshore surveys including overlapping tows | Dates, sampling areas and contact details of key persons are shared in order to<br>(a) identify opportunities for tows on the same location, to support the deltaGAM methodology for index calculation in combining different survey gears.<br>(b) coordinate effort in case of unforeseen circumstances hampering one of the surveys, primarily North Sea | 3.1 | annually | Finalized planning for the inshore and offshore beam trawl surveys, including areas where overlappinig tows may occur. |
| f | Report on the performance and abnormalities in the inshore and offshore surveys in the past year | For interpretation of the results, information on the performance of the sampling has to be provided to end-users | 3.1 | annually | Survey summary sheet by region. |
| g | Review and update the manual for offshore beam trawl surveys (SISP 14) | Review and update the survey manual. | 3.1, 3.2 | Year 3 | Updated BTS manual (SISP 14) |
| h | Review and update the manual for inshore beam trawl surveys (DYFS, SNS) | Finalize the current draft manual in line with SISP 14 and hand in for review. | 3.1, 3.2 | Year 2 | Manual for inshore beam trawl surveys |
| i | Provide indices for plaice, sole and if necessary other species if not yet derived directly from DATRAS | Indices are needed for the stock assessments. Especially for the Q1SWECOS survey, North Sea inshore surveys and offshore surveys outside the North Sea where indices are not (always) yet derived from DATRAS directly | 3.1, 3.2 | annually | Indices for plaice and sole if needed |

## Summary of the Work Plan

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

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

## Supporting information

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

**WKOISS – Workshop on Operational Implementation of Stomach Sampling**

**2019/WK/EOSG11**     The **Workshop on Operational Implementation of Stomach Sampling (WKOISS),** chaired by Pierre Cresson*, France and Maria Valls*, Spain, will be established and will meet in (TBD) ~~Cagliari, Italy, 25-29 May 2020~~ to:

*This meeting is postponed due to the outbreak of corona virus.*

a)   Review the outcomes of  two stomach content data collection pilot studies established under WKSTCON (*Merluccius merluccius* for Mediterranean and *Psetta maxima* for Black sea); (Science Plan codes: 1.7);

b)   Determine the most appropriate method / indices to derive from stomach content studies focusing on gaps in currently available information use in ecosystem modelling approaches.; (Science Plan codes: 5.2);

c)   Characterize and prioritise the influence of ontogeny, space and time on the variability in diet composition and propose sampling plans that account for this variability in the sampling design to reduce uncertainty in ecosystem model outputs; (Science Plan codes: 1.7; 3.2; 3.3);

d)   Building on WKBECOSS and WGSAM results, develop standardized selection methods to determine species and species grouping to be identified in stomach contents considering species distributions within and between ecosystems.; (Science Plan codes: 1.9; 3.1;

e)   Evaluate stomach content database formats (e.g. ICES, DAPSTOM as listed in WKBECOSS)  for their regional appropriateness for ecosystem modelling purposes; (Science Plan codes: 3.1);

f)   Describe options for  intercalibration approaches that would aid the suitable integration of data across partners at the regional scale; (Science Plan codes: 3.1; 3.4; 6.3);

This workshop has to be considered as a follow up of the previous WKSTCON workshop held in Palma de Mallorca, Spain, in April 2018 and WKBECOSS, held in Santander, Spain, in September 2019.

WKOISS will report by 22 June 2020 for the attention of the EOSG.

**Supporting information:**

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| Priority: | Integrated vision of marine ecosystems functioning is now considered as a crucial research pathway and also as a need to better manage exploited systems. Stomach content is a powerful tool to explore fundamental questions and manage marine systems, notably when large datasets, covering large geographical areas, can be produced. After the Workshop on Better Coordinated Stomach Sampling (WKBECOSS) in 2019, this meeting on the operational aspects for stomach contents is needed and is urgently to begin to organize the sampling of new biological data from 2020. Therefore, these activities are considered to have a high priority. |
| Scientific justification | Data resulting from stomach content analyses are acknowledge as powerful, as they can provide information about predator prey relationship at very fine taxonomic scale. They are also crucial for ecosystemic models, as dietary matrices are key input data. To ensure a homogeneous data set with suitable spatio-temporal coverage and make effective and efficient use of available resources, coordination of stomach sampling studies is essential. Stomach sampling is necessary to ensure that multi-species and ecosystem models remain relevant and to support  analyses of the structure and functioning of food webs. This work could benefit to the new research on the food web from the ecosystem models. |
| Resource requirements: | None |

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| Participants: | In view of its relevance to the ICES quality assurance, the Workshop is expected to attract interest from Mediterranean and Atlantic areas, ICES and GFCM. |
| | Participants will be experts from leading labs and universities working in stomach contents. The workshop will work closely with the newly formed RCG Intersessional subgroup on Stomach Sampling. |
| Secretariat facilities: | None |
| Financial: | None |
| Linkages to advisory committee: | ACOM |
| Linkages to other committees or groups: | WGBIOP, SCICOM, RCGs, WGSAM |
| Linkages to other organizations: | GFCM |

## WKING – Workshop on Innovative Fishing Gear

**2019/WK/EOSG12**      **The Workshop on Innovative Fishing Gear (WKING)**, in response to the EU DG-MARE request for ICES advice on the progress and impact that has been made in innovative gear use within EU waters, chaired by Antonello Sala (Italy) and Manu Sistiaga (Norway) will work by correspondence 20-22 May 2020 and meet again by correspondence 10 June 2020 and 7 September to address the request:

a) Develop a suite of criteria to objectively define what an 'innovative gear' is.
b) Develop a catalogue of gears considered 'innovative', including their objectives, technical specificities and known impacts/benefits (in terms of selectivity on target and non-target species and environmental impact in terms of benefits for, or negative effects on, marine ecosystems and sensitive habitats).
c) Produce a report detailing the process taken and presenting the results.
d) Draft a summary advice on the basis of the report produced.

To do so, a Core Group of members from the ICES Working Group on Fishing Technology and Fish Behaviour (WGFTFB) will work by correspondence in advance of the WKING meeting 7 September 2020. The Core Group will collect preliminary information on the types of innovative gears that have been used in EU fisheries in recent years. The first meeting of WKING will be held by correspondence during 20-22 May 2020 and 10 June to discuss criterion and definition of "innovative fishing gear" in EU context and review candidate gears.

At WKING in 7 September 2020, the Core Group will review and deliberate the findings to date, and draft the report and associated advice. WKING will report by 30 September 2020 for the attention of EOSG, HAPISG, ACOM and SCICOM.

## Supporting Information

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| Priority | High, in response to a specific request from the EU Commission to ICES to prepare the report described in Art. 31.1 of the EC Regulation 2019/1241. |
| Scientific justification | The EU Commission seeks ICES advice on the progress that has been made, or impact arising from innovative gear within EU waters. This advice should provide the scientific knowledge basis to assess the benefits for, or negative effects on, marine ecosystems, sensitive habitats and selectivity. |

| Resource requirements | ICES Secretariat support, meeting facilities at ICES HQ, Copenhagen and Advisory process. |
|---|---|
| Participants | The Core Group is expected to comprise 5-6 members. Other members of WGFTFB will be consulted during their annual meeting. Where relevant, stakeholder (NGO, fishing industry, gear industry) input will be sought during the process. Stakeholders will be invited to the final workshop. DG MARE will also be consulted for feedback on the initial suite of criteria. The requestors should be also engaged in the process through Webexes towards the end of the scoping and final meetings to ensure the product is fit for purpose. |
| Secretariat facilities | Secretariat support, web conference and meeting rooms |
| Financial | Covered by DG MARE special requests to ICES |
| Linkages to advisory committees | ACOM. |
| Linkages to other committees or groups | WGFTFB, WGBYC, WGECO, SCICOM, EOSG, FRSG, HAPISG |
| Linkages to other organizations | Potentially GFCM, EU DG-MARE, STECF |

**WKBIOPTIM4 - The Fourth Workshop on Optimization of Biological Sampling**

**2019/2/EOSG13** The **Fourth Workshop on Optimization of Biological Sampling (WKBIOPTIM 4)** chaired by Gwladys Lambert (UK), Isabella Bitetto (Italy) and Patricia Gonçalves (Portugal) will meet in Bari, Italy, 15-19 November 2021 to:

*This meeting is postponed due to the outbreak of corona virus.*

a) Develop further indicators of length and age frequency data by i) testing the different indicators and quality thresholds using simulations and ii) preparing an R-package with the functions used to calculate them; (Science Plan codes: 3.3);

b) Consolidate and update existing open source code used in previous workshops (BIOPTIM 1-3) and generalize for wider use, , package code and document tools, and assess compatibility of tools with use of standard data formats and sources; (Science Plan codes: 3.2);

c) Continue to provide support on the use of WKBIOPTIM tools with the aim of a future optimization at national/stock/regional levels. (Science Plan codes: 3.2 and 3.3).

WKBIOPTIM 4 will report by 01 September 2020 for the attention of the Ecosystem Observation Steering Group, ACOM and SCICOM.

## 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 EU-MAP, or for any fisheries data collection schemes with similar scope, such as surveys or recreational fisheries. |
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| Scientific justification | Statistical sound sampling is very important, if not essential for any sampling scheme. One important component of a "statistically sound design" is that sampling effort is optimized and fit for purpose, i.e. that time and costs spent in sampling can be effectively justified in terms of quality of the information finally provided to end-users. |
| | The Workshops on Optimization of Biological Sampling (WKBIOPTIM 1, 2, and 3) developed, improved and tested a set of R-scripts (mostly based on the RBD exchange format) producing a range of statistical and graphical outputs to be used for discussion of appropriate levels of biological sampling of different stocks. This workshop aims to consolidate the new knowledge from those workshops into tools and start development on further analyses. |
| Resource requirements | No additional ICES resources required |
| 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-coding 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-MAP and regional sampling designs, it should include those involved in the annual planning of sampling and laboratory analysis. Members of survey groups located under EOSG should also be among the participants. |
| Secretariat facilities | Some secretarial support will be needed. |
| Financial | Member States may fund this through their EMFF programme |
| Linkages to advisory committees | ACOM |
| Linkages to other committees or groups | SCICOM, WGCATCH, WGBIOP, PGDATA, EOSG, Survey WGs (IBTS, IBAS, etc.) |
| Linkages to other organizations | RCGs. GFCM |

**WKRDB-POP2 - The Second Workshop on Populating the RDBES data model**

**2019/2/EOSG14** The **Second Workshop on Populating the RDBES data model (WKRDB-POP2)** chaired by David Currie, Ireland and Edvin Fuglebakk, Norway will work by correspondence on 2nd - 5th June 2020 to:

a. Describe and explain the Regional Database and Estimation System (for commercial fisheries data) data model to national data submitters using worked examples.
b. Provide practical guidance and assistance to national data submitters to write working data extraction scripts to convert national data formats to the Regional Database and Estimation System data format and identify incompatibilities or issues with conversion.
c. Encourage national data submitters to join the Regional Database and Estimation System testing group.

WKRDB-POP2 will report to ACOM and SCICOM by 31 August 2020.

## Supporting information

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| Priority | The activities of this workshop will promote the development of a Regional Database and Estimation System, RDBES at ICES. This workshop will help countries to correctly convert their national data formats to the RDBES format. The RDBES when it is implemented works as a commercial fisheries database for the Baltic Sea, North Sea & Eastern Arctic, North Atlantic and Long Distance Fisheries Regional Coordination Groups (RCGs). The RDBES will also function as a database and estimation system for ICES Fisheries Advice. The development will concentrate on harmonisation, quality assuring, documentation, approved estimation methods and transparency. Consequently, these activities are considered to have a high priority. |
| | ICES will issue a data call in 2020 for 2019 samples, landings and effort data in the new RDBES format from selected stocks. The ideal conclusion is that at the end of this workshop each person attending has developed working scripts to extract the data that will be requested by the RDBES data call |
| Scientific justification | The RDBES will be extensively used by ICES member states, the EU Regional Coordination Groups, and ICES expert groups to store detailed commercial fisheries sample data and use it for estimation - therefore it is essential that national data submitters are familiar with the RDBES format and confident in correctly converting their national data to this format. The first WKRDB-POP in 2019 started this process but it is necessary to hold a second workshop because (i) there have been some changes to the RDBES data model since that workshop, and (ii) not all data submitters were able to attend the previous workshop. |
| | **ToR a) – Describe and explain the RDBES data model to national data submitters using worked examples** |
| | The RDBES data format will be explained using its documentation, and a number of worked examples.  These worked examples will play an important role in illustrating the types of decisions that data submitters will need to make. |
| | **ToR b) – Provide practical guidance and assistance to national data submitters to write working data extraction scripts to convert national data formats to the Regional Database and Estimation System data format and identify incompatibilities or issues with conversion.** |
| | This is the most important part of the workshop and will occupy the majority of the workshop's time - it will entail the RDBES Core Group providing practical assistance to the attendees.  The workshop attendees must be familiar with their own national sampling programme designs, and must have made preparations necessary to provide real data sets of their national samples to the workshop.  The Core Group will then help them to convert their data to the new RDBES format.  The more work that attendees have done in trying to populate the RDBES format with their own data before the workshop the more value they will gain from this work. |
| | When new questions are identified and resolved they can be added to the RDBES "Frequently Asked Questions" so that other people can benefit from the answers. |
| | If it is not clear how particular data should be converted to the RDBES format then this will be recorded for future discussion and resolution. |
| | **ToR c) - Encourage national data submitters to join the RDBES testing group** |
| | Rigorous and in-depth testing needs to be done in 2020 to ensure RDBES can meet its deliverables and to ensure the system and all supporting facilities are functioning as envisioned and designed.  The current "RDBES Core Group" can do some of the testing, but a wider selection of contributors such as national data submitters is required to cater for all the tests required. |

| Resource requirements | Members of the "RDBES Core Group" will be requested to participate as hands-on instructors/demonstrators.<br>The ICES Data Centre will provide technical support for RDBES data uploading. |
|---|---|
| Participants | ~30 people |
| Secretariat facilities | SharePoint |
| Financial | No financial implications. |
| Linkages to advisory committees | There are no direct linkages with ACOM, but most of the stock assessment Working Groups will be impacted by the development of the RDBES and the work will significantly contribute to the fulfilment of the ICES TAF ambition |
| Linkages to other committees or groups | There is a link to WGCATCH and PGDATA. |
| Linkages to other organizations | The RDBES will support the work done by the RCGs under the European Commission, EC. The aim is also to allow the RDBES to support the countries in providing data for the data calls under the DC-MAP. |

## WGAcousticGov - Working Group on the Acoustic Trawl Data Portal Governance

**2019/FT/EOSG15** The **Working Group on Acoustic Trawl Data Portal Governance (WGAcousticGov),** chaired by Ciaran O'Donnell (Ireland), will meet by web conference, four times per year and may meet physically once per year, to work on ToRs and generate deliverables as listed in the Table below.

|  | Meeting dates | Venue | Reporting details | Comments (change in Chair, etc.) |
|---|---|---|---|---|
| **Year 2020** | 14 September & 10 Decmeber | By correspondance | E-evaluation |  |
| **Year 2021** | May | By correspondance | E-evaluation |  |
| **Year 2022** | May | By correspondance | Final report by September to DSTSG |  |

WGAcousticGov will report on its activities by the March ACOM and SCICOM meetings in the form of a business report the following year to DSTSG and WGFAST.

### ToR descriptors

| ToR | Description | Background | Science Plan codes | Duration | Expected Deliverables |
|---|---|---|---|---|---|
| a | Establish a governance framework setting out a forward looking plan, including objectives of the Acoustic Trawl Data Portal, responsibilities, processes and resources. | In order to succesfully develop and maintain a workplan for the Acoustic Trawl Data Portal, it is nessecary to first establish a vision for the future supported by guidelines on project management, handling of feedback, task prioritisation and expected resource availability. | 3.2, 4.1, 4.2 | 3 years/ Generic ToR | The WGAcousticGov manifesto:<br>Mission statement on the direction of the Acoustic Trawl Data Portal development and overarching short to medium terms goals.<br>Guidelines on how to prioritise<br>Definition of resources available<br>Definition of responsibilities. |

| | | | | | |
|---|---|---|---|---|---|
| b | Provide a platform for end user feedback to the the Acoustic Trawl Data Portal.according to the groups guidelines. | The Acoustic Trawl Data Portal should be develop to meet the requirements of end users and thus needs to be responsive to user feedback. To achieve a long-term stability, availability and quality, the Acoustic Trawl Data Portal development requires a workplan with clear objectives and milestones. This can only be sucessfully implemented when resource requirements have been estimated and the availability of resources in known. | 3.2, 4.1, 4.2 | 3 years/Generic ToR | A github site to allow users to submit feedback and requests. Provide an annual workplan, with an agreed and prioritised list of Acoustic related expert group recommendations along with suggested resource allocation , budget estimates and feasability estimates. |
| c | Coordinate and advise on the interpretation and prioritisation of recommendations, the groups guidlines and requests addressed to the Acoustic Trawl Data Portal. | The project planning cycle needs to be responsive (more than one meeting a year) in order to the Acoustic Trawl Data Portal development effectively.  Although there is an annual plan, short term priorities must be evaluated against resource availability and needs of the ICES advice processes that vary through the year. | 3.2, 4.1, 4.2 | 3 years/ Generic ToR | |
| d | Coordinate the development of user guidance and training for the Acoustic Trawl Data Portal. | As the Acoustic Trawl Data Portal develops over time a range of users will require various levels of training including step by step user manuals, tutorials and workshops. Documentation of guidelines and procedures will also be necessary. Outreach activities will be required. | 3.2, 4.1, 4.2 | 3 years/ Generic ToR | Annually updated training documentation. Workshops with specific goals proposed and planned where necessary. Relevant fora for dissemination investigated and outreach activities planned. |

**Summary of the Work Plan.**

| | |
|---|---|
| **Year 1** | First meeting to establish ToRs a) and b) will be conduct via WebEx and followed by subsequent quarterly WebEx meetings in 2020 dealing with ToR c) and d). First physical meeting has not been determined and will most likely not take place in 2020 due to COVID-19 travel restrictions. |
| **Year 2** | ToRs c) and d) will be addressed in quarterly WebEx meetings, with the potential annual meetings intended to coincide with WGFAST for prioritising ToR b), with potential review of ToR a). |
| **Year 3** | ToRs c) and d) will be addressed in quarterly WebEx meetings, with the potential annual meetings intended to coincide with WGFAST for prioritising ToR b), with potential review of ToR a). |

**Supporting information**

| | |
|---|---|
| **Priority** | High priority |
| **Resource requirements** | No additionaal resource requirement for ICES. A commitment of time from the members of the group consistent with progressing actions identified in the quarterly meetings |
| **Participants** | Survey planning groups; WGIPS, WGBIFS, WGACEGG, WGIDEEPS, expert groups WGFAST and WGFTFB and assesment working groups; WGWIDE, HAWG and WGHANSA. One or more members from each WG representing data providers, data users and relavant expert groups. ICES Secretariat and other related EG members as need be. |
| **Secretariat facilities** | Community Sharepoint site, Remote meeting facilities |
| **Financial** | No financial implications |
| **Linkages to ACOM and groups under ACOM** | This is an integral component to the overall Quality Assurance Framework (of Advice) that ACOM together with the Coordination group are describing |
| **Linkages to other committee or groups** | There is a strong linkage to DIG as the main umbrella for data/software governance structures. |
| **Linkages to other organizations** | NOAA via participation by members of WGFAST have expressed interest in joining the group system. |

**WKABM - Workshop on Acoustic Backscatter Models**

**2019/2/EOSG16** The **Workshop on Acoustic Backscatter Models (WKABM)**, chaired by Sven Gastauer, Germany, will be established and will meet in Bergen, Norway, 16-18 April 2021 in conjunction with WGFAST to:

a) Review and select commonly used acoustic scattering models and their application/relevance to fisheries acoustics in relation to various objectives; (Science Plan codes: 4.4).

b) Review and select methods to organize digital morphology and anatomical data of aquatic organisms (including data formats, segmentation processes, meshing techniques); (Science Plan codes: 4.4).

c )  Review / recommend software platforms and languages in which to develop and disseminate the open source acoustic scattering models (with respect to availability, processing speed, precision, transparency and simplicity); (Science Plan codes: 4.4).

d )  Recommend benchmark methodology to compare acoustic scattering models to canonical shapes and field data, including defining boundary conditions and providing clear guidance on the circumstances individual scattering models can be used; (Science Plan codes: 4.4).

e )  Develop a set of standardized shapes including a fish body, a fish swimbladder, a backbone, and a zooplankton (e.g., krill) to test and compare acoustic scattering models (including different resolutions and meshing techniques, where needed); (Science Plan codes: 4.4).

f )  Discuss the need for future training programmes on the subject of scattering models; Science Plan codes: 4.4).

WKABM will report by 30 June 2022 for the attention of WGFAST, WGIPS, and SCICOM Committees. Additionally, reports and data will be posted to the WKABM's ICES GitHub site.

## Supporting information

| | |
|---|---|
| Priority | This workshop will bring experts together to define and scope a coordinated effort to disseminate acoustic scattering models in  open-source fora. Workshop results and recommendations affect processing of acoustic data that are used in stock assessments of pelagic species and the wider pelagic ecosystem. Consequently, these activities are considered to have a very high priority. |
| Scientific justification | Terms of Reference a-e) |
| | The translation of acoustic energy to biologically meaningful metrics such as numeric density, abundance, and biomass relies on accurate knowledge of acoustic target strength. Acoustic scattering models provide a  theoretical foundation for empirical measures of target strength, but these models have been the purview of acousticians and mathematicians. Many of these models are now mature enough so that they can be used by the broader community. One way to bring these models to the community is through open source and open access software. WGFAST proposes to conduct a workshop to initiate this effort and scope strategies for effective development and provision of target strength models to the fisheries acoustics community. |
| 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 | Members of WGFAST and guests (15-20 participants expected). |
| Secretariat facilities | WKABM GitHub repository in the ICES GitHub repository. |
| Financial | No financial implications. |
| Linkages to advisory committees | There are no obvious direct linkages with the advisory committee. |
| Linkages to other committees or groups | There are linkages to SCICOM. There are linkages to all groups currently planning acoustic surveys or using acoustic survey data like WGIPS, WGACEGG,and WGBIFS. |
| Linkages to other organizations | The work of this group is of international interest to all countries conducting biomass estimation surveys, and to national and international acoustical societies like the Acoustical Society of America and the European Acoustics Association. |

**WGACEGG - Working Group on Acoustic and Egg Surveys for small pelagic fish**

**2019/FT/EOSG17** A **Working Group on Acoustic and Egg Surveys for small pelagic fish (WGACEGG)**, chaired by Jeroen van der Kooij*, United Kingdom and Maria Manuel Angélico*, Portugal, will work on ToRs and generate deliverables as listed in the Table below.

|  | Meeting dates | Venue | Reporting details | Comments (change in Chair, etc.) |
|---|---|---|---|---|
| Year 2020 | 16 -20 November | By Correspondence | Interim report by 11 December 2020 to EOSG | **Outgoing Chairs:** Maria Santos, Spain and Mathieu Doray, France<br><br>**Incoming Chairs:** Jeroen van der Kooij, U.K and Maria Manuel Angélico, Portugal |
| Year 2021 | November | TBA | Interim report by February to EOSG |  |
| Year 2022 | November | TBA | Final report by February to EOSG | Select new chairs for net term (2023-2025) |

**ToR descriptors[5]**

| ToR | Description | Background | Science plan codes | Duration | Expected Deliverables |
|---|---|---|---|---|---|
| a | Evaluate and provide echo-integration and/or Daily Egg Production Method (DEPM) estimates for sardine, anchovy horse mackerel, boarfish, herring, and sprat in ICES sub-Areas 6, 7, 8 and 9 | a) Data provide backbone of relevant stock assessments for key species at relevant WGs (Advisory Requirements) b) Requirements from other EGs | 3.1 | annually | Abundance and biomass estimates by age and/or length group . Fish spatial distribution will be provided to WGHANSA, WGWIDE, HAWG by the end of the WGACEGG meeting. Datasets will be published in the ICES repository when available. |
| b | Analyse sardine and anchovy (adults and eggs), spatial and temporal distribution and their habitats in European waters | a) Surveys collect additional data on the wider ecosystem; interannul variation in sardine and anchovy biomass and distribution will be studied in relation to ecological processes. Science Requirements b) Requirements from other EGs | 1.5 | Year 2 | Aim to publish results in a peer reviewed paper and/or CRR in 2021; with decision to be made following review of results and progress in 2020. |

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

| | | | | |
|---|---|---|---|---|
| c | Provide ecosystem data such as temperature, salinity, plankton diversity, top predators abundances, egg densities and backscattering for sardine, anchovy and other small pelagic fish for pelagic ecosystem monitoring (e.g. MSFD) | a) Combining the data from concurrent surveys (e.g. spring) provides improved insight into large scale features potentially affecting local survey observations and will ultimately help improve (understanding of both) the stock assessment and ecosystem dynamics. (Science Requirements) b) Requirements from other EGs | 1.4, 1.5 annually | Gridded maps updated every year. Datasets will be published in the ICES repository when available |
| d | Assess developments in the technologies and data analyses for the application of both acoustics and the DEPM (on egg production or adult parameters). | a) Ensure best practise is applied. Science Requirements b) Advisory Requirements c) Requirements from other EGs | 3.3 3 years | Report relevant new methodologies in annual WG report, available to the public one month after the meeting. |
| e | Improve and assess the suitability of CUFES data for anchovy and sardine egg production estimates in areas 8 and 9. | a) Science Requirements b) Advisory Requirements c) Requirements from other EGs | 3.3 3 years | |
| f | | | | |
| f | Develop and standardization of data processing methods for DEPM and acoustics for surveys in Atlantic and Mediterranean waters | a) Science Requirements b) Advisory Requirements c) Requirements from other EGs | 3.1, 3.2 3 years | Updated data processing protocols shared with the MEDIAS group (Mediterranean acoustic survey group) |
| g | Provide echo-integration estimates for other species (mainly blue whiting, mackerel, herring, sprat, horse mackerel, chub mackerel and boarfish) ICES sub-Areas 6, 7, 8 and 9 | a) Surveys collect additional distribution, abundance and biological data on pelagic fish species, that are not currently used in stock assessment – make available for studies and possible future inclusion in assessment. Advisory Requirements b) Requirements from other EGs | 3.5 3 years | Biomass per age group when available otherwise per length classes and spatial density distribution, provided to WGWIDE and HAWG before the WG annual meeting. Datasets will be published in the ICES repository when available. |
| h | Develop, coordinate and review survey protocols for WGACEGG surveys (DEPM: BIOMAN, SAREVA, PT-DEPM-PIL, BOCADEVA; Acoustic: PELAGO, PELACUS, PELGAS, ECOCADIZ, WESPAS, ECOCADIZ RECLUTAS, IBERAS-JUVESAR, JUVENA, PELTIC, CSHAS)in line with ICES QAQC proceedures | ICES aims to have a quality assurance process for data collections used in the provision of advice. One element of this is that all procedures describing the data collection are adequately described. | 3.1 annually | Publication of survey manual, TIMES (SISP) for the data collection and product specification conducted under the auspices of WGACEGG (2020); review document annually and, if required, submit new version in 2022 for publication.. |

| i | Compare acoustic and DEPM biomass estimates of anchovy and sardine and evaluate their respective bias and precision with a view to providing improved data to stock assessment WGs | a) Currently, DEPM and acoustic derived indices for anchovy and sardine are presented separately to stock assessment working groups. Data from either methods may be used to interpretate the other method and improve information provided to assessment WGs. Science Requirements<br>b) Advisory Requirements<br>c) Requirements from other EGs | - | 3 years | |
|---|---|---|---|---|---|
| j | Develop the use of image recognition techniques to characterise the distribution of surface mesozooplankton and possibly microplastics in areas 7, 8 and 9, based on CUFES and/or plankton nets. | a) Science Requirements<br>b) Requirements from other EGs | 1.2 | 3 years | |
| k | Collaborate with groups wishing to utilize available timeseries from WGACEGG coordinated surveys. | a) Science Requirements | 3.2 | Years 1-3 | Facilitate collaborative activities with WGSPF and other groups, by contributing expertise and data to large scale studies on small pelagic fish. |

## Summary of the Work Plan

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

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

**Supporting information**

| | |
|---|---|
| Priority | The current activities of this Group will ensure the provision and the quality of the data provided to ACOM advisory groups in charge of the assessment of anchovy, sardine, blue whiting, Atlantic and horse mackerels, boarfish, herring and sprat in ICES sub-Areas 6, 7, 8 and 9.<br><br>The activities of the group will also lead to the provision and analyses of a series of gridded maps of data on the hydrology, phytoplankton, small pelagic fish and megafauna of the North Eastern Atlantic pelagic ecosystem. Those spatially explicit data will be useful to any group interested in assessing the state of the North Eastern Atlantic pelagic ecosystem.<br><br>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 group under ACOM | WGACEGG is cooperating with the following advisory structures<br>a) ICES Assessment Working groups: WGHANSA, WGWIDE, HAWG together with related Benchmark WG and Workshops<br>b) Advice drafting Groups: ADGHANSA |
| Linkages to other committees or groups | There is a close working relationship with the following SCICOM groups: WGFAST, WGALES WGEAWESS and WGMEGS. Similarly, it is anticipated that close collaboration will be createdwith WGSPF, which will benefit from WGACEGG's expertise and data. |

| | |
|---|---|
| Linkages to other organizations | A joint session is held every two years during WGACEGG annual meeting with the survey group MEDIAS in charge of the coordination of acoustic surveys in the Mediterranean Sea. |

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

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

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

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

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

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

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

## Supporting Information

| | |
|---|---|
| Priority | High priority to ensure the quality of data provided to WGWIDE for the production of advice. |
| Scientific justification | Sorting fish eggs from plankton samples, their staging and identification to species remains one of the key proficiencies in the execution of the mackerel and horse mackerel egg surveys. As this is carried out by a number of different operators in many different countries, and then the data combined, it is vital that the process be standardized. WGMEGS strongly feels that this is best done through the mechanism of a regular workshop to compare results between survey participants. In the context of the triennial egg surveys, it proved appropriate to hold a workshop prior to every survey to standardize approaches and methodologies in the run-up to the surveys. This will have the advantage of training new operators as well as harmonizing the approach of experienced operators. Egg staging workshops were held since 2000, and were very successful in achieving these aims. It is recommended that experiences gathered during these be used for setting up the procedures for the proposed workshop in 2022. The workshop will use the proven method of carrying out a set of sorting trials, analysing the results and identifying problems, and then repeating the trials on the basis of the new understanding. <br><br> The workshop will also be tasked to update the descriptions and photographs given in the MEGS manual to assist in the plankton sample handling procedure. |

| Resource requirements | None |
|---|---|
| Participants | Mainly scientists and technicians (approximately 20) involved in the surveys. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to advisory committees | SCICOM, ACOM |
| Linkages to other committees or groups | WGMEGS, WGBIOP, WGALES and WGWIDE |
| Linkages to other organizations | None. |

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

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

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

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

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

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

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

## Supporting Information

| | |
|---|---|
| Priority | Data quality, used to provide fisheries advice through WGWIDE, will be impaired if this workshop is not conducted. |
| Scientific justification | Adult reproductive parameters estimation is fundamental for conversion of egg production into spawning stock biomass of western and southern mackerel and horse mackerel stock components. Both (batch) fecundity and atresia estimation as well as spawning fraction estimation are carried out using histological and image analysis methods, and the analysis and interpretation of these materials requires standardization across participating institutes. The standardization in this aspect is carried out in workshops since 2001 which have been extremely helpful for agreed practices among institutes and is recommended that experiences gathered during these workshops be extended during the consecutive workshop in 2021. It is expected that the workshop will refine the developed methodologies and clarify established calculations for these adult parameters estimation to obtain unbiased biomass output from the egg surveys. <br><br> The workshop will update the survey manual with regards to any new findings in the fecundity, atresia, and spawning fraction estimation from sampling as well as the evaluation procedures and final calculations, for appropriate quality assurance purposes. |
| Resource requirements | None |
| Participants | Mainly scientists and technicians (approximately 20) involved in the surveys. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to advisory committees | ACOM |
| Linkages to other committees or groups | SCICOM, WGMEGS, WGBIOP, WGALES WGISDAA and WGWIDE |
| Linkages to other organizations | None. |

**WKRDB-EST2 – Second Workshop on Estimation with the RDBES data model**

**2019/2/EOSG20**    The **Second Workshop on Estimation with the RDBES data model (WKRDB-EST2)** chaired by Nuno Prista, Sweden and Kirsten Birch Håkansson, Denmark, will meet through a web meeting from 14 to 18 September 2020 to:

a. Development and documentation R scripts for design based estimation for each hierarchy in the RDBES data model (supporting Advice Plan: Assuring Quality);
b. Identify and document issues problems with RDBES data model relating to design based estimation (supporting Advice Plan: Assuring Quality);
c. Develop roadmap for future improvements to the estimation proceedures within the RDBES;

WKRDB-EST2 will present a written report to ACOM by 18 December 2020.

## Supporting information

| | |
|---|---|
| Priority | This workshop is considered of very high priority. The activities of this workshop will promote the development of a Regional Database and Estimation System (RDBES) by developing the algorithms and code required for design based estimation within the upcoming RDBES.  The RDBES will be integrated in TAF and work as a database for both ICES and the Baltic Sea, North Sea & Eastern Arctic, and North Atlantic Regional Coordination Groups (RCGs), producing high-quality, transparent, estimates for ICES Fisheries Advice. |
| Scientific justification | Term of Reference a) |
| | The R-scripts started at  WKRDB-EST in 2019 will be further developed towards full implementation of design-based estimation and the production of point estimates of fisheries variables such as catch volumes, numbers-at-length and number-at-age. Development will be based on countries data from the different hierarchies uploaded during the upcoming RDBES data call (September 2019) and extracted from the system prior to the meeting. The R-code will be documented with associated statistical formulas and used in RDBES documentation. The development of scripts for other estimation methods (e.g., ALK-based estimation, Ratio-Estimation) will not be addressed during the WK but aspects like post-stratification and domain estimation will be included in the code if time allows. |
| | Term of Reference b) |
| | The development of R scripts for design-based estimation based on the RDBES data model is an important test point within the development of the RDBES. Issues identified during the WK that limit the application of design-based estimation in the RDBES will be documented and forwarded to the RDBES development group for further discussion. |
| | Term of Reference c) |
| | Design-based estimation is not the only type of estimation used to produce commercial catch estimates within the ICES community. Model-assisted and model-based estimation are two commonly used alternatives that require theoretical and code development in the context of RDBES and that are being explored by other EGs (e.g., WGCATCH). At the end of WKRDB-EST, based on the progress they have achieved in design-based estimation during the week, WK participants will jointly reflect on the best way forward for further development of RDBES estimation routines. Both SCRDB and WGCATCH will be informed on the conclusions of these discussions. |
| Resource requirements | The two co-chairs and the rest of the active members of the core group of RDBES development will be requested to participate and coordinate algoritm and code development ahead of the meeting. |
| Participants | Max 20 people. Participants should be proficient in writing own scripts and functions in R language and/or have good knowledge of survey sampling and estimation. |
| Secretariat facilities | None. |

| | |
|---|---|
| Financial | None. |
| Linkages to advisory committees | There are no direct linkages with the advisory committees, but there is a direct link to SCRDB and close links to activities of WGCATCH, WGBIOP, WGBYC, and PGDATA. Stock assessment Working Groups will ultimately use and benefit from quality estimates produced within the RDBES. |
| Linkages to other committees or groups | |
| Linkages to other organizations | The RDBES estimates are connected to regional data collection defined by the RCGs under the European Commission, EC. The RDBES will also support the ICES countries in providing data for assessment. In the case of EU MS, the RDBES is expected to facilitate and improve the quality of provision of commercial catch data requested under different data calls. |

# Resolutions approved in 2018

### WGSMART – Working Group on SmartDots Governance

**2018/MA2/EOSG01**     The **Working Group on SmartDots Governance**[6] (WGSMART), co-chaired by Julie Coad Davies* (Denmark) and Jane Aanestad Godiksen* (Norway), will meet intersessionally, 4 times per year via WebEx and may meet physically once per year, to work on ToRs and generate deliverables as listed in the Table below.

| | **WEBEX MEETING DATES** | **MEETING DATES AND VENUE** | **REPORTING DETAILS** | **COMMENTS (CHANGE IN CHAIR, ETC.)** |
|---|---|---|---|---|
| **Year 2019** | 1) 7 February 2) 25 April 3) 12 September 4) 14 November | 11-12 October Lisbon, Portugal (Venue as WGBIOP) | Interim report by 8th November to EOSG | |
| **Year 2020** | 1) 14 January 2) 21 April 3) 12 May 4) 23 October | 8 September and 26 November (by WebEx) | Interim report by 15 December to EOSG | Agreed upon at WGSMART October 2019 meeting that WGSMART will meet before WGBIOP 2020 and proposes that the first day of WGBIOP is dedicated to overlapping work of WGSMART and WGBIOP |
| **Year 2021** | 1) 12 January 2) 20 April 3) 7 September 4) 16 November | 8-9 October Venue as WGBIOP | Final report by TBD to DSTSG | If the approach taken in 2020 works then this will be followed in 2021 |

WGSMART will report on its activities by the March SCICOM meeting the following year to EOSG (DSTSG from 2021) and DIG.

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6 http://ices.dk/marine-data/tools/Pages/smartdots.aspx

**ToR descriptors**

| ToR | Description | Background | Science plan codes | Duration | Expected Deliverables |
|---|---|---|---|---|---|
| a | Oversee and advise on the interpretation and prioritisation of recommendations and requests addressed to SmartDots | SmartDots is an operational tool that aims to improve the overall quality of age data delivered to assessment EG's. The tool is now operational and an integral part of the ICES QAQC for aging many fish species for which ICES provides advice, procedure largely under the guidance of WGBIOP. However maintenance and future development of the platform are beyond the scope of the scientific WG's and WK's. | 3.1, 4.1 | 3 years/ Generic ToR | A prioritised list of SmartDots related expert group recommendations with a proposed annual work plan to address concerns and implement improvements to SmartDots. |
| b | Provide a platform for end user feedback to the SmartDots system. User feedback will be requested from the end users via the GitHub site, exchange/workshop reports, EG'S and committes. Feeback will be compiled by WGSMART and appropriate actions to be taken with assigned responsibilities will be listed and prioritised. | SmartDots will be further developed to meet the requirements of a broad range of end users and thus needs to be responsive to user feedback. This feedback system needs to be independent of WGBIOP as a greater responsiveness (more than one meeting a year) is required to manage the system effectively. | 3.1, 4.1 | 3 years/Generic ToR | |
| c | Elaborate a forward plan for the sustainability of SmartDots as a platform | To achieve a continous quality, SmartDots needs to be developed in line with end users needs. This development requires an input of resources; knowledge, expertise, manpower and funding over a period of time which extends beyond the initial phase. A workplan with clear objectives and milestones can only be sucessfully implemented when the availability of such resources is clear. | 4.4, 3.6 | 3 years/ Generic ToR | A workplan outlining what resources are required for development, support, training and dissenimation of relevant information. An estimated budget including identified funding resouces. |

| d | Oversee development of user guidance and training in SmartDots | As SmartDots develops overtime a range of users will require various levels of training including step by step user manuals, tutorials and possibly workshops. Documentation of guidelines and procedures in line with WGBIOP will also be necessary. Outreach activities will be required. | 3.1, 4.1 | 3 years/ Generic ToR | Annually updated training documentation. Workshops with specific goals proposed and planned where necessary. Relevant fora for dissemination investigated and outreach activities planned. |
|---|---|---|---|---|---|

**Summary of the Work Plan**

In addition to the ongoing maintenance and improvements by the end of year three we aim to have; the data output and reporting module fully operational, SmartDots maturity staging module fully operational and user manuals updated in line with all developments made.

| Year 1 | ToR a) and b) will be addressed in quarterly WebEx meetings, with the potential annual meetings intended to coincide with WGBIOP and prioritising ToRs c) and d). |
|---|---|
| Year 2 | ToR a) and b) will be addressed in quarterly WebEx meetings, with the potential annual meetings intended to coincide with WGBIOP and prioritising ToRs c) and d). |
| Year 3 | ToR a) and b) will be addressed in quarterly WebEx meetings, with the potential annual meetings intended to coincide with WGBIOP and prioritising ToRs c) and d). |

**Supporting information**

| Priority | |
|---|---|
| Resource requirements | A commitment of time from the members of the group consistent with progressing actions identified in the quarterly meetings |
| Participants | Chair of WGBIOP, one member from each country from the core development group (BE, DK, NO), ICES Secretariat as hosts of International SmartDots, other WGBIOP members as need be |
| Secretariat facilities | Community Sharepoint site, Remote meeting facilities |
| Financial | No financial implications |
| Linkages to ACOM and groups under ACOM | This is an integral component to the overall Quality Assurance framework (of Advice) that ACOM together with the Coordination group are describing |
| Linkages to other committees or groups | There is a very close working relationship with WGBIOP. There is a strong linkage to DIG as the main umbrella for data/software governance structures. |
| Linkages to other organizations | EU Commission has partially funded SmartDots and is therefore following its progress, GFCM in the Mediterranean also has interest in this system |

**WKHDR – Workshop on Integrating human dimensions into the management of marine recreational fisheries**

**2018/2/EOSG02** The **Workshop proposal: Integrating human dimensions into the management of marine recreational fisheries (WKHDR)**, chaired by Christian Skov, DTU-AQUA, Denmark, Harry V.

Strehlow, Thünen Institut, Germany, and Kieran Hyder, Cefas, UK, will meet in Rostock, on 5–7 November 2019 to:

a) Assess empirical findings that demonstrate the effect of angler heterogeneity in data collection and how this influences angler behavioural response to management measures (e.g. bag limits). (Science plan codes: 3.2, 5.4, 7.4)
*Background: Scientific need for efficient evidence production and feed to other working groups*

b) Identify methods used to measure angler heterogeneity and develop a framework that can be used in a standardized way to measure angler heterogeneity over a wide range of cultural diversity. (Science plan codes: 5.4, 7.4)
*Background: Scientific need for efficient evidence production and feed to other working groups*

c) Specify the data requirements (social, economic, psychological etc.) needed in existing national surveys that enable measuring angler heterogeneity. (Science plan codes: 3.2)
*Background: Scientific need for efficient evidence production and feed to other working groups*

d) Identify approaches to correct for heterogeneity in existing survey methods. (Science plan codes: 3.1, 3.2)
*Background: Scientific need for efficient evidence production and feed to other working groups*

WKHDR will report by 30 December 2019 for the attention of EOSG.

**Supporting Information:**

| | |
|---|---|
| **Priority** | High – because recreational catches can be high for some stocks and understanding the human dimensions of recreational fisheries is key to effective management. |
| **Scientific justification** | Management of fisheries is often thought to be more about managing people than fish, as it is predicated on behavioural responses to measures imposed (Hilborn, 2007). This is likely to be more important for recreational fisheries, where the individual's motivations for participation are very diverse (Fedler and Ditton, 1994; Arlinghaus, 2006; Beardmore *et al.*, 2011). For example, angler behaviour can affect harvest rates through the consumption orientation of the angler (e.g. Beardmore *et al.*, 2011). Moreover, understanding how anglers are affected by different regulations is crucial to sustain the recreational fisheries sector and ensure economic benefit to coastal regions. However, the average angler does not exist, i.e. responses to fishing regulations vary across angler populations. The clear importance of including angler heterogeneity in the management process for recreational fisheries has led to the identification of the need for developing social-ecological systems that can further understanding of optimal management strategies (Hunt, 2013; Arlinghaus *et al.*, 2016; 2017). Many aspects of human dimensions of recreational fisheries have primarily been studied in freshwater, systems including extensive research into how angler heterogeneity can impact on management (e.g. Arlinghaus *et al.*, 2017). However, understanding the human dimensions of marine recreational fisheries is limited, so there is need to increase focus on this topic to underpin successful management of fish stocks.

Here, we propose a new ICES workshop that aims to develop approaches for integrating the human dimensions into the management of marine recreational fisheries (WKHDR). This will bring together experts from across the globe to assess current state of the art, knowledge gaps, methodological approaches, and understand issues. Best-practice examples will be identified and used to demonstrate benefits. Proposals will be made of how to include human dimension research in existing national surveys. Finally, recommendations will be made for the integration in future management of marine recreational fisheries.

This is important to ICES in its role of providing advice on fish stocks generally and more specifically in delivery of quality evidence on the impacts of recreational fisheries.  It will |

| | contribute to the following science priorities: food from the sea (Code 1); impacts of human activities (Code 3); conservation and management (Code 6); and sea and society (Code 7). |
|---|---|
| **Resource requirements** | Expertise on recreational fisheries and human dimension from outside Europe would be beneficial, but this is not essential for success of the workshop. |
| **Participants** | A broad interdisciplinary approach is needed that brings together scientists from across the globe. This needs to include both natural and social scientists that utilise both qualitative and quantitative approaches. The aim is to invite around 30 scientists to meet for three days in September 2019 in Rostock (Germany) at Thünen Institut. |
| **Secretariat facilities** | Normal backstopping support in the organization of the group. |
| **Financial** | It would be beneficial to fund two key experts from outside of Europe, but this is not essential for success of the workshop. Opportunities for funding will be assessed if the workssshop proposal is successful. |
| **Linkages to other to groups** | ACOM, WGRFS, WGCCSE, SIHD |
| **Linkages to other committees or groups** | EOSG, IEASG, SCICOM, |
| **Linkages to other organizations** | WECAFC/OSPESCA/CRFM/CFMC/MEDAC Working Group on Recreational Fisheries STECF, EU Regional Coordination Groups, Advisory Councils<br>Many linkages to (inter)national angling associations, since WGRFS members estimate national marine recreational catches.<br>Links to broader organizations with interests in angling and fisheries management including EIFACC and FAO. |

## References:

Arlinghaus, R., Cooke, S.J., Lyman, J., *et al*. 2007. Understanding the Complexity of Catch-and-Release in Recreational Fishing: An Integrative Synthesis of Global Knowledge from Historical, Ethical, Social, and Biological Perspectives. Reviews in Fisheries Science 15, 75–167.

Arlinghaus, R. 2006. On the apparently striking disconnect between motivation and satisfaction in recreational fishing: the case of catch orientation of German anglers. North American Journal of Fisheries Management 26, 592–605.

Arlinghaus, R., Alós, J., Beardmore, B., *et al*. 2017. Understanding and Managing Freshwater Recreational Fisheries as Complex Adaptive Social-Ecological Systems. Reviews in Fisheries Science & Aquaculture 25, 1–41.

Arlinghaus, R., Cooke, S.J., Sutton, S.G., *et al*. 2016. Recommendations for the future of recreational fisheries to prepare the social-ecological system to cope with change. Fisheries Management and Ecology 23, 177–186.

Beardmore, B., Haider, W., Hunt, L.M. *et al*. 2011. The importance of trip context for determining primary angler motivations: are more specialized anglers more catch-oriented than previously believed? North American Journal of Fisheries Management 31, 861–879.

Fedler, A.J., and Ditton, R.B. 1994. Understanding angler motivations in fisheries management. Fisheries 19, 6–13.

Hilborn, R. 2007. Managing fisheries is managing people: what has been learned? Fish and Fisheries 8, 285–296.

Hunt, L.M., Sutton, S.G. and Arlinghaus, R. 2013. Illustrating the critical role of human dimensions research for understanding and managing recreational fisheries within a social-ecological system framework. Fisheries Management and Ecology 20, 111–124.

## IBTSWG – International Bottom Trawl Survey Working Group

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

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

**ToR descriptors**

| TOR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| A | Coordination and reporting of North Sea and Northeastern Atlantic surveys, including appropriate field sampling in accordance to the EU Data Collection Framework. Review IBTS SISP manuals in order to achieve additional updates and improvements in survey design and standardization. (ACOM) | Intersessional planning of Q1; Q3 and Q4 surveys; communication of coordinator with cruise leaders; combing the results of individual nations into an overall survey summary. Intersessional activity, ongoing in order to improve survey and manuals quality. | 3.1, 3.2 | Recurrent annual update | 1) Survey summary including collected data and description of alterations to the plan, to relevant assessment WGs and other EGs (WGCSE, WGNSSK, HAWG, WGHMM;,WGDEEP, WGWIDE, WGEEL, WGCEPH, WGML) and SCICOM. 2) Indices for the relevant species to assessment WGs (see above) 3) Planning of the upcoming surveys for the survey coordinators and cruise leaders 4) Updated version of survey manual, whenever substantial changes are made. |
| B | Address DATRAS-related topics in cooperation with DGG: data quality checks and the progress in re-uploading corrected datasets, quality checks of indices calculated, and prioritizing further developments in DATRAS. (ACOM) | Issues with data handling, data requests or challenges with re-uploading of historical or corrected data to DATRAS have been identified and solutions are being developed | 2.1, 3.1 | Multi-annual activity. | Prioritized list of issues and suggestion for solutions and for quality checking routines, as well as definition of possible new DATRAS products, submitted to DATRAS group at ICES. |

| | | | | | | Annual check of recent survey data. |
|---|---|---|---|---|---|---|
| C | Develop a new survey trawl gear package to replace the existing standard survey trawl GOV. (SCICOM) | The divergence in the GOV specification from the one given in the survey manual due to historical drift and technical creep has been acknowledged by the group (WGIBTS 2015). Furthermore, the deviation from the specification contained in the manual and between users has widened to the point where it will never be reversed. Therefore, the perefered option is to maintain the status quo of national GOV specifications and develop a new survey trawl package to replace the GOV. A number of IBTS members are due to replace vessels in the next few years and this provides an oppertunity to review time-series and undertake inter-calibration trials between the GOV and a new trawl. A further driver for a new gear has been highlighted by the Celtic Sea area where the necessity to optimize sampling oppertunities are not been provided by the GOV. In parellel with trawl development the process of replacing the GOV will need to be defined with reference to continuing the assessments and existing time-series. (For this ToR, the IBTS WG seeks support from gear technology experts and welcomes their advice and input into the development of the | 3.1, 3.2 | 2 years | Design specification (Working document) in 2020 |

| | | | | | |
|---|---|---|---|---|---|
| | | new survey gear package) | | | |
| D | Evaluate the current survey design and explore modifications or alternative survey designs, identifying any potential benefits and drawbacks with respect to spatial distribution and frequency of sampling, survey effort in terms of number of otoliths by species and number of trawl hauls. (SCIOCM) | Specific issues to be addressed include: Stratification and optimal spatial distribution of effort. | 3.2 | 1 - 3 years | CRR on effect of tow duration on catch rates and species richness by end of 2019 Paper on variance estimation of abundance indices in 2020 Paper on Stratification and distribution of survey effort in 2021. |

## Summary of the Work plan

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

## Supporting information

| Priority | Essential, The general need for monitoring fish abundance using surveys is evident in relation to fish stock assessments, and it has increasing importance in relation to MSFD GES descriptors biodiversity, foodwebs, and bottom integrity. Besides the relation of fish abundance with descriptor 3 Exploited stocks. |
|---|---|
| Scientific justification | **ToR a)** This is a core function of the IBTSWG, an important forum for coordination and evaluation of standardized bottom trawl surveys in the Eastern Atlantic Area, to ensure good survey coverage in relation to stocks and areas. inter-calibration work. and high quality of data. The group also provides a brief overview the result of the individual surveys undertaken during the previous year and in the first quarter of the ongoing year. IBTSWG will continue to review feedback and implement modifications, including coordination and implementing new requirements of the EU DCF. To ensure quality and traceability of sampling protocols, changes in the design and procedures used in the surveys coordinated by the IBTSWG have tobe implemented and documented in detail in the IBTS manuals, which are available via the ICES webpage under Series of ICES Surveys Protocols. <br><br> **ToR b)** DATRAS has become the core database containing the data obtained in the national IBTSurveys, the The development of DATRAS needs to be evaluated annually, and the group is also one of the forum to discuss with ICES Data Centre and agree on the priority of desired further developments. <br><br> **ToR c)** A number of IBTS members is due to replace vessels in the next few years and this provides an opportunity to review time-series and undertake inter-calibration trials between the GOV and a new trawl. <br><br> **ToR d**) Efficiency and effectiveness are important drivers in the implementation of high cost surveys. Evaluations of different implementation options and their consequences need to be reviewed at regular intervals, particularly as changes to the gear are being discussed at present. |
| Resource requirements | A 5-day IBTS meeting. Prepared documents from members following ToR Leaders identified above. 8-day Chair's time to edit. It is estimated that each ToR will require at least 8 hours of |

| | |
|---|---|
| | preparation. |
| **Participants** | The Group is normally attended by some 20–25 members and guests. All members will participate on the discussion of all ToRs, but ToRs leaders have been identified and appointed to intersessionally prepare the work and lead it in the meeting. |
| **Secretariat facilities** | SharePoint plus normal secretariat support. |
| **Financial** | No financial implications. |
| **Linkages to advisory committees** | ACOM. IBTS indices are used in the assessment of multiple stocks. |
| **Linkages to other committees or groups** | There are relations with other bottom-trawl surveys (WGBEAM, WGBIFS) that also use DATRAS as the international repository for its data (WGDIM, DGG). There are also linkages with Assessment WGs using IBTS indices. Also relevant to the Working Group on Ecosystem Effects of Fishing Activities (WGECO) , the Working Group on Improving use of Survey Data for Assessment and Advice (WGISDAA) and Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR). |
| **Linkages to other organizations** | IOC, GOOS, OSPAR, Regional Coordination groups (DCF). |

## WKBECOSS – Workshop on Better Coordinated Stomach Sampling

**2018/2/EOSG05** The **Workshop on Better Coordinated Stomach Sampling** (WKBECOSS), chaired by, Izaskun Preciado, Spain, and Stefan Neuenfeldt, Denmark, will meet in Santander, Spain, 3–6 September 2019 to:

a ) Review, update and disseminate existing best practice guidelines for stomach sampling programmes (e.g. spatio-temporal information, sampling sizes, taxonomic resolution of food items, data compatibility with ICES stomach database) (Science plan codes 3.1, 3.2, 3.3)

b ) Present and discuss recent findings from fish diet studies, including those using stable isotope analysis, relevant for advancing regional stomach sampling schemes (Science plan codes 1.9, 4.4)

c ) Summarize specific input data needs of end users of fish diet data and define the end products for the data collection (multi-species models, MSFD indicators, etc.) (Science plan codes 2.2, 4.3, 5.2, 6.3)

d ) Identify matches and mismatches between end user needs and current EU MAP (DCF) and national collection of diet data, and propose an Action Plan to improve regional stomach sampling schemes (involving species, methods, sampling design, databases etc.) (Science plan codes 3.1, 3.2)

WKBECOSS will report by 20 September 2019 for the attention of WGBIOP and EOSG.

### Supporting informaiton

| | |
|---|---|
| Priority | The EU Multi-Annual Programme (EU MAP) on Data Collection requests data on predator-prey relationships and planning for future data collection specific for each marine region, coordinated at marine region level and based on end-user needs. This means that pilot studies involving fish stomach sampling are needed. Currently there is variable sampling intensity on a national basis and the sampling and analyses of stomachs are not coordinated. Therefore, on-going and planned activities may not matc the needs of end-users of diet data. To realise the benefits of stomach sampling carried out by different Institutes better coordination is urgently needed. Therefore, these activities are considered to have a high priority. |
| Scientific justification | The EU MAP provides a unique opportunity for the regular collection of diet data withi fisheries research surveys. To ensure a homogeneous data set with suitable spatio- |

| | |
|---|---|
| | temporal coverage and make effective and efficient use of available resources, coordination of stomach sampling studies is essential. Stomach sampling is necessary to ensure that multi-species and ecosystem models remain relevant and to support MSFD descriptor 4 regarding the structure and functioning of foodwebs. This work could benefit from new research on genetic identification of food items and link to new research on the presence of marine litter in the food chain.

Term of References a) and b) Multiple international projects and national studies have been carried out, so it is important to share the advances from this work.

Term of Reference c) For sampling to be fit-for-purpose it must relate to the end user needs and this workshop will build links between data collectors and end users.

Term of Reference d) Present sampling can be optimised and sampling beyond present survey coverage may be required. Having a longer-term coordinated structure, for example a flexible rolling cycle of sampling, would provide benefits. |
| Resource requirements | None |
| Participants | A combination of experts on stomach contents analysis, multispecies and foodweb modelling. Marine litter and survey planning for each region will be required. Up to 25 participants are expected. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to advisory committees | ACOM, SCICOM. |
| Linkages to other committees groups | This workshop directly links to WGSAM andsurvey groups: IBTS, BITS. There are also links to work on microplastics in fish stomachs underway by WG on Marine Litter (WGML) |
| Linkages to other organization | Regional Co-ordination Groups, GFCM WKSTCON2 |

**WGMLEARN – Working group on machine learning in marine science**

**2018/MA2/EOSG06**    A **Working group on machine learning in marine science (WGMLEARN)**, chaired by Ketil Malde, Norway, and Jean-Olivier Irisson, France.  The group will work on ToRs and generate deliverables as listed in the Table below.

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2019 | 22-24 May | Ostend, Belgium | Interim report by 1 July, 2019 | |
| Year 2020 | 26 November & 1-2 Decmeber | By correspondence | Interim report by 14 January, 2021 | |
| Year 2021 | 19-23  April | TBD | Final report by 1 June, 2021 | |

**ToR descriptors[7]**

| ToR | Description | Background | Science plan codes | Duration | Expected Deliverables |
|---|---|---|---|---|---|
| a | Review 1) new method developments in machine learning, 2) current applications of machine learning methods in marine science, and 3) their implementations and deployments in advisory and scientific processes. | Machine learning holds great potential, but it is necessary for practitioners to keep up with new developments and to gain an understanding of the opportunities and challenges with new methods. | 4.1, 4.5, 3.2 | 1, 2, 3 | On-line (live) report |
| b | Invite presentations (externally and internally) and review data or analysis challenges in order to discuss possible methods, approaches and technologies. | ML experts need to meet with stakeholders and data collection efforts for mutual understanding of data analysis challenges. | 4.2, 4.3 | 1, 2, 3 | On-line list of challenges |
| c | Communicate with DIG and the ICES Data Centre on data organization and requirements related to machine learning analysis. | For effective deployment, ML has to be integrated with data collection and data management efforts. | 4.2 | 1, 2, 3 | |
| d | Summarize current and future needs in marine science and identify how machine learning methods can provide solutions. Work actively to promote adoption of relevant technologies. | Future developments in the marine sciences, including project proposals, need to have an informed and up to date view of the state of the art, in order to make optimal use of the technology. | 4.2, 4.3 | 3 | |

## Summary of the Work Plan

| | |
|---|---|
| Year 1 | Produce the annual overview of recent developments |
| Year 2 | Produce the annual overview of recent developments |
| Year 3 | Produce the annual overview of recent developments |

## Supporting information

| | |
|---|---|
| Priority | Machine learning is a prioritized topic by DIG, and was explored in the WKMLEARN workshop in April 2018, on an initiative by ACOM. The workshop highlighted a need for a centrally organized venue to share methods and best practices between researchers, to attract outside expertise, and to support publication and dissemination of results. Long term engagement is especially needed to support deployment and integration of the new methods. |

| | |
|---|---|
| Resource requirements | The research programmes which provide the main input to this group are already underway, and ressources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible. |
| Participants | Machine learning is a topic of considerable and broad interest, and is likely to attract participants from outside the traditioal ICES organization. We expect some 30 members, similar to the attendance of the WKMLEARN workshop. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to ACOM and groups under ACOM | DIG (Julie could you check does DIG sit under ACOM?, certainly they go to the SCICOM meetings), ICES Data Centre (also I think this sits under the secretariat rather than ACOM), could just be moved to the section below if we are not sure |
| Linkages to other committees or groups | Close working relationships with other groups that target data collection or analysis. Relevant examples are: WGFTFB (targets non-destructive fisheries sampling) WGNEPS (video surveys to monitor nephrops populations) WGFAST (analysis of acoustics data) WGBIOP and WGSMART A planned WG for electronic monitoring of vessels |
| Linkages to other organizations | |

**WKBIOPTIM3 - Third Workshop on Optimization of Biological Sampling**

**2018/2/EOSG07** The **Third Workshop on Optimization of Biological Sampling (WKBIOPTIM3)** chaired by Ana Cláudia Fernandes, Portugal and Eirini Mantzouni, Greece, will meet in Lysekil, Sweden, 27-31 May 2019 to:

a) R-Toolbox: Finalization and integrating the different developed scripts, including documentation

b) Quality Indicators: Discuss and conclude on a combination of indicators to evaluate the quality of data under different sample sizes, according to end users' needs

c) Produce a guide for adequate use of sampling optimization procedures at national level, taking into account the results obtained in the analysis of the presented case studies (WKBIOPTIM 1 and WKBIOPTIM 2) and on the ongoing national experiences.

WKBIOPTIM 3 will report by 5 July 2019 to the attention of EOSG.

**Supporting Information**

| | |
|---|---|
| Priority | This workshop is considered to have a high priority for already established and new commercial fishery and survey sampling programmes.. The expectation is that sampling resources (time and costs) will be saved by the development and implementation of the R-toolbox and it will be fundamental to increase data provision on data-limited stocks and environmental variables. The basic toolbox was developed by WKBIOPTIM 1 and further improved in WKBIOPTIM 2 by including different biological parameters and sampling procedures in scripts and testing them in a wide range of different scenarios. There is now the need to compile and document all the work developed to make it available in a more friendly format to the national institutes and end users. WKBIOPTIM 3 proposes to fulfil this goal. |
| Scientific justification | Statistical sound sampling is a requirement for a good sampling scheme and is also mentioned in the EU-MAUP by specifying that "where data are to be collected by sampling, Member States shall use statistically sound designs" (COM IMPL DEC 2016/1701). One important component of a "statistically sound design" is that sampling effort is optimized and fit for purpose, i.e. that time and costs spent in sampling can be effectively justified in terms of quality of the information finally provided to end-users. There is an increasing demand to determine MSY reference points for an increasing number of stocks, including many data-limited stocks, |

and, at the same time, to collect additional environmental and biological information. This makes optimisation of the number of length measurements, age and maturity estimation a priority since these tasks involve costs and time that could alternatively be spent in data collection of other stocks and/or variables. 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 optimise sampling in terms of time and costs savings. Several ICES EG's, including e.g. WKPRECISE 2009, PGCCDBS 2012, PGDATA 2015 and WKCOSTBEN 2016 have pointed out that clustering effects in multistage catch sampling programmes may lead to effective sample sizes much lower than the number of units sampled, e.g. fish caught during one trip or haul often have more similar characteristics then the general population of fish they came from. This effect highlights the likely existence of oversampling in the lower stages of many national catch sampling programmes (e.g. trips, hauls within trips, samples within hauls), where an excessive number of individuals may be being sampled and not accruing significant additional information to estimates provided to end-users.

The Workshop on Optimization of Biological Sampling (WKBIOPTIM 1 and 2) developed, improved and tested a set of R-scripts (based on the RBD exchange format) producing a range of statistical and graphical outputs 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 workshops were discussed and a roadmap for future discussions with end-users outlined. Given the positive feedback both from national labs, RCM's and other WGs it is recommended that a third workshop takes place to produce an R-Package including its documentation and a guide for adequate use of sampling optimization procedures. WKBIOPTIM is a joint workshop bringing together experts from WGCATCH and WGBIOP and the main results have been brought to further discussion by these two groups. WKBIOPTIM 3 pretends to: finalize and integrate the different sets of developed scripts, including documentation in an R-Toolbox (ToR a); Discuss and conclude on a combination of indicators to evaluate the quality of data under different sample sizes, according to end users' needs (ToR b) and provide a guide for implementation of the optimization at national level, taking into account the results obtained in the analysis of the presented case studies (WKBIOPTIM and WKBIOPTIM 2) and on the ongoing national experiences (ToR c).

| | |
|---|---|
| Resource requirements | None from ICES, and much of the work is already being carried out individually at the national level and the workshop aims to collate this at a higher level. |
| 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 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 SSGIEOM should also be among the participants. |
| Secretariat facilities | Some secretarial support will be needed. The WK should take place in 2019. Therefore it will need to be approved by ACOM and SCICOM in early 2019. |
| Financial | Member States may fund this through their EMFF programme |
| Linkages to advisory committees | ACOM and SCICOM |
| Linkages to other committees or groups | WGCATCH, WGBIOP, PGDATA, SSGIEOM, Survey WGs (IBTS, IBAS, etc.) |
| Linkages to other organizations | RCGs |

## WGTIFD – Working Group on Technology Integration for Fishery-Dependent Data

**2018/MA2/EOSG08**   The **Working Group** on **Technology Integration for Fishery-Dependent Data (WGTIFD)**, co-chaired by Brett Alger*, United States and Lisa Borges*, Portugal will work on Terms of Reference (ToRs) and generate deliverables as listed in the Table below.

|  | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2019 | 7-9 May | ICES HQ, Denmark | Interim report by 21 June to ACOM/SCICOM | |
| Year 2020 | 6-8 October | By correspondence | Interim report by 20 November to ACOM/SCICOM | |
| Year 2021 | Spring | T.B.D, EU | Final report by Date Month to ACOM/SCICOM | |

### ToR descriptors

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Inventory and review the various national fisheries dependent hardware and software applications and approaches highlighting synergies and similarities with an aim to improve cooperation and collaboration. Indicate readiness states, availability and development plan including scientific training dataset availability. | As a new WG, it is imperative to initially assess the technologies currently available and in development, the objectives of the schemes under which they are deployed in fisheries and scientific research, what data is being collected and by whom.  This TOR will build upon a forthcoming paper examining REM use around the globe, to include other technologies currently deployed in fisheries | 4.1, 4.5 | Year 1 | Draft a review paper for publication in a peer -reviewed journal. |
| b | Define consistent vocabulary across approaches and develop communication strategies for attracting participation in voluntary programs, and deploying and implementing electronic technologies for fisheries dependent observation. | There are a range of terms and perspectives on monitoring technologies, and a perception by some that cameras are on vessels for purely enforcement purposes.  While we do not need to standardize terms, this TOR will help us better understand one another's terms, appreciate challenges for gaining participants, and collectively communicate that the primary goal of monitoring technologies is fisheries data collection. | 4.1, 4.5 | Ongoing | Incorporate general terms and communication strategies for writing regulations, technical documents, and various forms media.<br><br>Include section in first working group report documenting use of terminology |
| c | Evaluate risks and benefits of technologies across different fisheries and data requirements to establish methodological | There are many choices in designing a monitoring program, including hardware, software, data transmission, and other | 3.5, 4.4 | Year 3 | ICES Cooperative Research Report on best practices |

| | | | | | |
|---|---|---|---|---|---|
| | acceptance for science and management. | technical aspects. Additionally, it can be challenging to incorporate data from new sources into existing monitoring programs and stock assessments. This TOR is a handbook for those designing/redesigning their programs that illustrates how to integrate new information of comparable accuracy/precision and quality with data collected through traditional means. | | | |
| d | Develop tools and innovative strategies for collecting, handling, processing and analysing fishery-dependent data from electronic technologies | Many technologies are being deployed alongside one another (e.g., VMS, electronic logbooks, and REM).  This TOR will examine how to integrate the many data collection technologies in a single approach to ease the reporting burdens and costs of data collection, reduce duplication of effort. | 4.2, 4.3 | Year 3 | Section of working group report providing technical guidelines on integration of fishery-dependent data from various sources in a consistent manner. |
| e | Report on developments in machine learning and computer vision technologies and their applications in fisheries dependent data collection and cooperate with WGMLEARN on methodological advances and communicate with WGMLEARN on the topic. | The field of computer vision and machine learning is rapidly advancing in fisheries.  This TOR will be examined at each working group meeting and other opportunities of engagement to ensure our working group products reflect current applications | 4.3, 4.4 | Ongoing | Produce a peer-reviewed paper summarising the state of the art in year 3. |
| f | Organize a session at ICES ASC | | | Year 2 | Topic session in 2020 |

**Summary of the Work Plan**

| | |
|---|---|
| Year 1 | Produce an annual overview of the working group's progress |
| Year 2 | Produce an annual overview of the working group's progress |
| Year 3 | Produce a final report on the working group's progress and completed TORs |

**Supporting information**

| | |
|---|---|
| Priority | Fisheries stakeholders and managers are looking to improve the timeliness, quality, cost effectiveness, and accessibility of fishery-dependent data by integrating innovative technology into monitoring programs.  Remote electronic monitoring (REM) has clear potential to meet these challenges by incorporating cameras, gear sensors, and electronic reporting (ER) into fishing operations.  We believe that ICES can provide a forum for exchanging information to share relevant technical applications and policy development to harmonize how data is collected and used for fisheries management and science. |

| Resource requirements | None to ICES, nationally the programs that will provide input to this group are established, there is no need for additional resources. |
|---|---|
| Participants | Electronic monitoring is a growing topic of interest, with programs in every Region in the United States and the EU. We expect an initial working group to consist of 20-30 people, with expansion into other parts of the globe growing the group to more than 50. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to ACOM and groups under ACOM | |
| Linkages to other committees or groups | WGMLEARN, WGCATCH, WGFAST, PGDATA WGSFD, WKSEATEC ICES Data Centre, DIG |
| Linkages to other organizations | |

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

**2018/MA2/EOSG09**      The **Working Group 2 on North Sea Cod and Plaice Egg Surveys in the North Sea (WGEGGS2)** will reconvene as the **Working Group on Surveys on Ichthyoplankton in the North Sea and adjacent Seas (WGSINS),** chaired by Norbert Rohlf, Germany, and will work on ToRs and generate deliverables as listed in the Table below.

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2019 | 22 – 25 October | Bremerhaven, Germany | Interim report by 15 December 2019 | |
| Year 2020 | 01 – 04 December | By Correspondence/Webex | Interim report by 15 January 2021 | |
| Year 2021 | TBD October | TBD | Final report by 15 December | |

**ToR descriptors**

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Planning and execution of North Sea and adjacent seas ichthyplankton surveys used for assessment and management purposes | Ichthyoplankton surveys in the North Sea and adjacent Seas deliver abundance data of early life history stages for fish SSB and/or recruitment for assessment of several fish stocks. | 3.1, 3.2, 5.2 | year 1, 2, 3 | Survey Plan |
| b | Provide quality assurance of the survey indices time series to assessment working groups | Consistency in generation of data is a cruicial prerequisite for the use of a time series in the assessment. | 3.1, 3.2, 5.2 | year 1, 2, 3 | |

| c | Prepare a manual for ichthyoplankton surveys in the North Sea and adjacent seas | A manual that describes the standard procedures of ichthyoplankton surveys and their necessary adaptations to the survey specific objectives needs to be in place and reviewed regularly. | 3.1, 3.2 | year 3 | SISP manual on standards in ichthyoplankton surveys |
|---|---|---|---|---|---|
| d | Provide quality assurance of ichthyoplankton identification, including molecular methods | The accurate identification of ichthyoplankton and the developmental stages is crucial for species specific abundance estimates. | 3.1, 3.2 | year 1, 2, 3 | |
| e | Standardization of sampling and sample processing procedures | Standards of sampling and sample processing procedures need to be optimized w.r.t. efficiency | 3.1 | year 1, 2, 3 | |
| f | Prepare data for archiving in the ICES eggs and larvae database | WGSINS data need to be prepared and uploaded to the ICES eggs and larvae database by each institute | 3.2 | year 1, 2, 3 | Updated dataset om the ICES egg and larval databse |
| g | Assess possibilities for the different ichthyoplankton surveys to supply data for the implementation of ecosystem approach to fisheries management | Ichthyoplankton surveys are able to provide additional data than needed for the original survey objectives. The acquisition of additional data has to be assessed w.r.t. feasibility of new survey objectives. | 3.1, 3.3 | year 1, year 2, year 3 | Review any additional objectives that are proposed for the different ichthyoplankton surveys in the North Sea and adjacent seas. |

### Summary of the Work Plan

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

### Supporting information

| Priority | This working group is important for the fisheries advisory process. The different ichthyoplankton surveys in the North Sea and adjacent seas provide important fishery-independent stock and/or recruitment data used in the assessment for herring stocks in the North and Baltic Seas as well as for cod in the Baltic and the Irish Sea, as well as for haddock in the Irish Sea and informs management of whiting in the Irish Sea. |
|---|---|
| Resource requirements | None. |
| Participants | The Group is normally attended by some 8 – 15 members and guests. |
| Secretariat facilities | None. |
| Financial | No financial implications. |

| Linkages to ACOM and groups under ACOM | HAWG, WGCSE, WGBFAS |
|---|---|
| Linkages to other committees or groups | EOSG, WGBIOP, IBTSWG, WGALES, WGML, WGZE |
| Linkages to other organizations | None |

## WGNEPS – Working Group on Nephrops Surveys

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

## ToR descriptors

| TOR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | To review any changes to design, coverage and equipment for the various *Nephrops* UWTV and full-scale trawl surveys since 2018 and to update the Series of ICES Survey Protocols (SISP) as required | To ensure surveys used by WGCSE, WGBIE and WGNSSK are fit for purpose. | 3.1, 3.2 | Recurrent annual update | Survey summary including and description of alterations to the plan, to relevant assessment-WGs (WGCSE, WGNSSK,WGBIE) and SCICOM. Planning of the upcoming surveys for the survey coordinators and cruise leaders, and update the SISP accordingly if necessary. |

| | | | | |
|---|---|---|---|---|
| b | Develop an international database for *Nephrops* UWTV survey data which will hold burrow counts, ground shape files and associated data. | There is a need to centralize UWTV data in a single international database. Ensure data is available externally. | 3.5 | Year 1-3 | ICES database |
| c | Update R scripts for *Nephrops* UWTV survey data processing including functions to quality control, analyze and visualize data, and interface the tools with the international database for *Nephrops* UWTV survey data | Improving standarisation of data QC and data processing. Support new developing surveys on data analysis. | 3.1 | Recurrent annual update | Document and R packages for UWTV survey data on github site. |
| d | To review video enhancement, video mosaicking, automatic burrow detection and other new technological developments applied in *Nephrops* UWTV surveys and to update the Series of ICES Survey Protocols (SISP) as required . | WGNEPS should periodically review emerging technologies that might improve survey methodologies. | 4.1 | Recurrent annual update | To update the SISP based on conslusions if necessary. Other publications when appropriate. |
| e | Review and report on the utility of UWTV and trawl *Nephrops* surveys as platforms for collecting data for purposes other than *Nephrops* assessment (e.g. the collection of data for OSPAR and MFSD indicators). | *Nephrops* UWTV surveys have a role in relation to benthic habitat monitoring and the collection of other environmental and ecosystem variables. | 1.5 | Year 2 | Joint workshop/meeting report with users |
| f | Analyse existing data from UWTV and trawl *Nephrops* surveys to evaluate possible factors affecting burrow emergence of *Nephrops* (e.g. currents and light) | Recent behaviour aspects have been investigated in the laboratory. Important to investigate correlation with field data. | 1.3 | Year 3 | Review paper |
| g | Review differences of new HD and previous used SD camera systems and its effect on burrow detection, edge effects and bias correction factors, and explore the possibility of HD system tools for providing estimates of burrow size distributions. | Recent changes from SD to HD technology for many survey areas. Important to investigate edge effects and correction factors with field data on burrow system size. | 3.2 | Year 2&3 | To update the SISP based on conslusions if necessary. Other publications when appropriate. |

## Summary of the Work Plan

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

## Supporting information

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

## WKICDAT – Workshop on Index Calculation based on DATRAS

**2018/2/EOSG11** The **Workshop on Index Calculation based on DATRAS (WKICDAT)**, chaired by Holger Haslob, Germany, will meet in ICES HQ, Copenhagen, Denmark, 21-22 March 2019 to:

a ) Evaluate the use of the so called deltaGAM index method (Berg et al., 2014) with regard to different survey designs of the beam trawl surveys conducted in the North Sea and adjacent waters.

b ) Contrast the deltaGAM method with the previously used index calculation methods with regard to the output of the stock assessment models used.

WKICDAT will report by 3 June 2019 for the attention of the ACOM Committee.

## Supporting information

| | |
|---|---|
| Priority | The WGBEAM feels that currently communication between survey and assessment groups is not fluent in many cases and the automation of procedures unfortunately risks further reducing the important communication between survey and assessment experts. A better understanding of the interactions of the survey and age sampling design with the automated index calculation is necessary to ensure appropriate index development. WGBEAM recommends a two-day workshop to bring experts from survey and assessment groups together in order to address this issue. The results of this workshop |

| | |
|---|---|
| | will have implications for the used approaches to derive adequate survey indices and to make best use of the available survey data. |
| Scientific justification | Term of Reference a) |
| | In recent years a lot of progress of automation index calculation procedures and the adoption of a modelled approach combining several surveys into a single index, based on DATRAS data (e.g. used for North Sea plaice, dab, lemon sole, North Sea cod), was made. However, especially the indices which are based on data from the different beam trawl surveys, which use different gears and apply different biological sampling designs, have to be thouroghly evaluated and compared to historical methods to understand the differences and their implication for stock assessment. (Science plan 3.2, 3.3) |
| | Term of Reference b) |
| | It has to be investigated to what extent the new method affects the outcomes of the used stock assessment models in comparison with the previously used methods. It has to be clarified which approach for which stock makes the best use of the available survey data. (Science plan 3.2, 3.3) |
| Resource requirements | No additional resources required. |
| Participants | The workshop will be attended by some 10-15 survey and assessment experts. |
| Secretariat facilities | Meeting room in ICES HQ. It is planned to have the two-day workshop in the same week as WGBEAM2019. |
| Financial | No financial implications. |
| Linkages to advisory committees | There are direct linkages with ACOM as the results of this workshop will have implications for the quality of the stock assessment results for important stocks which make already use of the deltaGAM method. The work may be of interest to other survey WGs |
| Linkages to other committees or groups | There is a very close working relationship with IBTSWG, WGNSSK, WGSCE. |
| Linkages to other organizations | |

**WKSCRUT2 – Workshop on scrutinizing of acoustic data from the IESSNS survey**

**2018/2/EOSG12** The **Workshop on scrutinizing of acoustic data from the IESSNS survey** (WKSCRUT2), chaired by Jan Arge Jacobsen, Faroes, and Age Høines, Norway, will meet in Bergen, Norway, September 17 to 18 2019 to:

a ) Evaluate and report on the procedures used to scrutinise acoustic data by the different nations contributing to the International ecosystem survey in the Nordic Seas (IESSNS)

b ) Describe and adopt common scrutinizing procedures for the International ecosystem survey in the Nordic Seas (IESSNS)

c ) Update the description of scrutinizing procedures for the International ecosystem survey in the Nordic Seas (IESSNS) in the Series of ICES Survey Protocols (SISP) manual.

WKSCRUT2 will report by 31st October 2019 for the attention of ACOM, SCICOM.

**Supporting information**

| Priority | A workshop on scrutinising of acoustic data from the IESSNS survey is highly recommended by the WGIPS. Scrutinisation procedures may differ slightly between coordinated surveys, however, it is very important that all scientists responsible for the scrutinisation are following the same general procedure. The workshop should preferably take place prior to the survey in 2019. Uncertainty regarding the scrutinising procedure, i.e. categorization and allocation into species or species groups, emphasizes the need for a workshop which involves scientists responsible for the scrutinizing in the survey (e.g. from Iceland, Norway, Faroes, Greenland and EU). |
|---|---|
| Scientific justification | Scrutinisation procedures, including using biological samples and allocation of species to echotraces need to be scientifically reviewed periodically for all acoustic surveys and a set of technical procedures agreed for eash survey.  This is particularly important in the internationally coordinated surveys.  The Manual for International Pelagic Surveys (SISP 9) needs updating with the results of this workshop. |
| Resource requirements | The research programmes which provide the main input to this Workshop are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this Workshop is negligible. |
| Participants | It is expected that this Workshop will be attended by 4-5 members of WGIPS; in particular, participants of the IESSNS survey. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to advisory committees | WGWIDE |
| Linkages to other committees or groups | There is a close working relationship to WGWIDE, and linkages with WGIPS and PGDATA. |
| Linkages to other organizations | There are no obvious direct linkages to outside organisations. |

**WKHASS - Workshop on Herring Acoustic Spawning Surveys**

**2018/2/EOSG13**          **Workshop on Herring Acoustic Spawning Surveys** (WKHASS), chaired by Pablo Carrera, Spain, will meet in Vigo, Spain, 15–17 October 2019 to:

a ) Review survey design and acoustic data collection methods of ongoing surveys not previously reviewed by WGIPS (Irish Sea Spawning Survey and 6a Herring Industry Acoustic Spawning Surveys). The review should address survey design, timing, stock identification, containment, biological sampling and acoustic data collection methods;

b ) Explore the estimation methods of indices, including sensitivity to trawl and biological sampling allocations and echogram scrutinisation. Review and document methods used to produce measures of uncertainty (CV) in abundance and biomass for the survey by strata and the overall survey area.

c ) Fully document methods for inclusion in the Manual for International Pelagic Surveys (SISP 9) to ensure repeatability of the survey as reviewed, allow appropriate data quality checks and provide transparency of methodologies.

d ) Consider the relevance of additional information that is collected or could be collected for ICES advisory or science products, particularly ecosystem over-views and integrated ecosystem assessments.

WKHASS will report by December 13th 2019 for the attention of ACOM, SCICOM.

**Supporting information**

| Priority | The Irish Sea herring spawning survey has never been thoroughly reviewed by WGIPS, however, results from the survey are presented to the group annually.  The |
|---|---|

| | survey index is currently used in the stock assessment for Irish Sea herring as an absolute estimate of abundance. There are also herring spawning surveys under development for herring in 6a in recent years that have never been thoroughly reviewed. These surveys are similar in design and objectives to the Irish Sea Spawning Survey. WGIPS requests a workshop to establish and agree on survey design and protocols for coordinating and conducting these surveys |
|---|---|
| Scientific justification | Surveys need to be designed to appropriately address issues including containment, stock identification, sampling and precision, etc. Design considerations for such surveys in general are objective dependent and may be different to survey designs currently reviewed by WGIPS. It is important that the survey design is fit for purpose and understood by WGIPS in order to review and conduct the QA-checks under the group. |
| | Scrutinisation procedures, including biological sampling and allocation of species to echotraces need to be reviewed for herring spawning acoustic surveys; procedures need to be evaluated and documented for a transparent evidence base and to ensure appropriate use in science and advice. |
| | The Manual for International Pelagic Surveys should be updated to include these surveys during this workshop. Currently there are no protocols in the manual on how to conduct these surveys. |
| Resource requirements | No additional resources are required from ICES. The research programmes which provide the main input to this Workshop are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this Workshop is negligible. |
| Participants | It is expected that this Workshop will be attended by 7-8 members of WGIPS and HAWG. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to advisory committees | HAWG |
| Linkages to other committees or groups | WGIPS, PGDATA |
| Linkages to other organizations | There are no obvious direct linkages to outside organisations. |

**WKAREA3 - Third Workshop on Age Reading of European and American Eel**

**2018/2/EOSG14** The **Third Workshop on Age Reading of European and American Eel (**WKAREA3), to be chaired by Françoise Daverat, France, Isabel Domingos ,Portugal, and Kélig Mahé, France, will meet in Bordeaux, France, 17-18 June 2019 to:

a ) Exchange a collection of European eel otolith pictures, including known age eels, with samples prepared using different protocols and representing all the eel sub-populations and their respective environmental types from Portugal, Spain and France (Science Plan codes: 3.3, 4.1, 4.4)

b ) Conduct an age intercalibration process with institutions throughout Europe, applying the ageing criteria defined during the Workshop on Age Reading of European and American Eel (WKAREA) to the otolith image library compiled by the workshop.; (Science Plan codes: 3.3, 4.1, 4.4)

c ) Develop recommendations on any aspects of the age estimation criteria that could be refined to increase the standardization, precision and accuracy of eel age estimation. (Science Plan codes: 3.3, 4.1, 4.4)

WKAREA3 will report by October 1st 2019 for the attention of WGBIOP and EOSG.

EOSG EGs Resolutions

**Supporting information**

| | |
|---|---|
| Priority | The EU has requested annually recurring scientific advice on the European eel from ICES. The advice is sought in support of the Eel Regulation (EC 1100/2007), fisheries controls and other legislative frameworks such as CITES. The EU also has requested period advice from ICES on the post-evaluation of national eel management plans. Eel ageing by otolith reading is a pillar of data collection and analysis for national eel assessments, and it is vital that eel ageing is standardized between countries. Thus, the work of WKAREA3 is essential if ICES is to be appropriately placed to advise on the development of recovery plans for eels. |
| Scientific justification | European and American eel stocks are currently in a severely depleted state. The EU Regulation for the Recovery of the Eel Stock requires biomass estimates of current silver eel escapement. The reporting requirements of the EU Eel Regulation specifies biomass reference points and these plus mortality rates need to be summed over the age groups in the stock. For this approach to provide meaningful results at the local and stock (species) scale, biologists need to estimate eel age with precision. The previous meeting established age estimation criteria for European and American eel. A very small scale age intercalibration was conducted during the meeting based on known age eel samples. This exercise pointed out the need for a larger scale age intercalibration reading in order to apply the newly established age estimation criteria, and to measure the accuracy and precision of readers. |
| Resource requirements | Access to a dedicated area in the ICES SharePoint is requested for file sharing and storage. |
| Participants | Members of SUDOANG project, members of WGEEL and other ICES groups. |
| Secretariat facilities | Support to organize the logistics of the meeting including a SharePoint site and publishing the report. |
| Financial | None specific. |
| Linkages to advisory committees | The proposal originates from SUDOANG and WGEEL but is of direct relevance to ACOM and review group activities in relation to the development of appropriate assessment methods for eel (e.g. WKEELDATA; WGBIOP). |
| Linkages to other committees or groups | WGEEL, WGBIOP and other Working Groups on inshore fisheries; and to Regional Coordination Groups and other interested parties involved in the EU's Data Collection Framework. |
| Linkages to other organizations | INTERREG SUDOANG project, European Union Recovery Plans. |

**WKREO - Workshop on the Realigning of the Ecosystem Observation Steering Group**

**2018/2/EOSG15** **The Workshop on the Realigning of the Ecosystem Observation Steering Group** (WKREO), chaired by Sven Kupschus, UK, Matthias Kloppmann, Germany, Olavi Kaljuste, Sweden, and Colm Lordan, Denmark will be established and will meet in Copenhagen, Denmark, 29 - 31 October  2019 to:

d ) Review the current tasks of the multi-annual data collection expert groups in the Ecosystem Observation Steering Group (EOSG) and  identify essential tasks for the science and advisory processes (Science Plan codes: 3.1, 3.2, 3.3);

e ) Develop options for reorganizing EOSG expert groups that can effectively conduct the essential tasks most efficiently while improving communication between, and incorporation of innovation from, expert groups (EGs) and across ICES steering groups (SGs) (Science Plan codes: 3.1, 3.2, 3.3);

f ) Critically evaluate different reorganisation options for EOSG to identify the potential for issues with crucial delivery and timing for annual advisory needs, risks to  communication pathways, and other possible implications for ICES science delivery (Science Plan codes: 3.2).

WKREO will report by 28th November for the attention of ACOM and SCICOM.

**Supporting information**

| | |
|---|---|
| Priority | The communication in the Ecosystem Observation Steering Group (EOSG) and with other steering groups has decreased as the size (the number of expert groups), the complexity of the tasks and the level of specialisation have increased. To improve communication, ACOM sees it as an important task to investigate options to better align the EG activities with the advisory and science processes and considers it essential that this be considered from both a top-down and bottom-up perspective. ACOM and SCICOM retain the responsibility for enacting any potential changes to EOSG based on output from the workshop. Consequently, these activities are considered to have a very high priority. |
| Scientific justification | Term of Reference a) |
| | The data collection EGs under EOSG provide the essential evidence base for many advisory and science processes in ICES and perform an essential QAQC function for the data provision. Due to a historic focus on consistency these groups and their tasks have become increasingly inflexible and with the changing advisory landscape a number of the reporting tasks are potentially outdated. Reviewing the tasks in the context of the new ICES science and advisory could potentially increase efficiency and effectiveness of the data collection groups and thus provide an opportunity to develop more effective ways to support ICES. |
| | Term of Reference b) |
| | Communication amongst data collectors, data collectors and data users has become hampered by the methodological focus of data collection making it difficult for data users to connect with the wider data collection community spread over many existing EGs. A new steering group structure could more effectively transfer the information to data users and potentially improve the cooperation between data collectors, while providing the opportunity to rejuvenate the scientific interest and develop new skills and expertise in these groups. Such opportunities need to be critically assessed from a data collector's perspective. |
| | Term of Reference c) |
| | EOSG is a complex network closely intertwined with the advisory network sharing a common heritage in their development. Any degree of major reorganisation is likely to have some impact on these interactions particularly with regards to timing of reporting and report content. A detailed evaluation and identification of solutions for specific issues is necessary. |
| Resource requirements | No additional ICES resource requirements are needed. However, support at the national level by ACOM and SCICOM is essential to ensure that the workshop has broad participation of EOSG expert groups. |
| Participants | A broad spectrum of data collectors and good representation of the groups is necessary as well as some representation of data users that rely on the data collection for their advisory and science purposes. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to advisory committees | ACOM as parent committee for the steering group as well as FRSG and the assessment EGs as data users. |
| Linkages to other committees or groups | ACOM, SCICOM as parent committees for the steering group as well as EGs under EOSG potentially affected by any proposed changes. |
| Linkages to other organizations | RCG-groups, National Institutes. |

**WGALES - Working Group on Atlantic Larval and Egg Surveys**

**2018/2/EOSG16** **The Working Group on Atlantic Larval and Egg Surveys (WGALES)** chaired by Patrick Polte, Germany, Richard D.M. Nash, Norway (to be replaced in 2020), and Cristina Nunes, Portugal (from 2020) will work on ToRs and generate deliverables as listed in the Table below

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2019 | | By correspondence | | |
| Year 2020 | 19–21 October 2020 | By correspondence | E-evaluation | Richard D.M. Nash replaced by Cristina Nunes |
| Year 2021 | | By correspondence | | |
| Year 2022 | October | TBD | Final report by 15 December | |

**ToR descriptors[8]**

| ToR | DESCRIPTION | BACKGROUND | Science plan codes | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Review the current ichthyoplankton surveys in light of their original purposes, with respect to design, estimation methods and challenges and identify their potential for other purposes such as ecosystem surveys. | Ichthyoplankton surveys collect abundance data on early life history stages useful for estimating fish standing stock biomass (SSB) and recruitment of several fish stocks. | 1.4, 2.2, 3.2 | year 2, 4 | |
| b | Survey scientist work together to evaluate and recommend methodologies and research needs for sampling, processing and data analyses for ichthyoplankton surveys, concerning the Early life history stages and the contributions from the adult components. WGALES also offers the possibility for data users to gain insights into the rationale, methodology and potential applications of fish early life stage ecology (and adult fish maturity) research. | Ichthyoplankton surveys need to keep pace with developing data needs and technological developments. The provision of a workshop/conference environment provides a forum for improvement, development of new ideas and innovative insights for these surveys. | 1.4, 3.2, 4.4 | year 2, 4 | |
| c | Present and report on reproductive dynamics and fish early life | Successful surveys are dependent on understanding the life- | 1.7, 2.2, 3.2 | year 2, 4 | |

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

| | | | | | |
|---|---|---|---|---|---|
| | strategies relevant for ichthyoplankton surveys | history dynamics of the target organisms and understanding how this may change with ecosystem vaiability and change. | | | |
| d | To work together with ichthyoplankton data providers and experts to evaluate and improve surveys. This will include collaboration across members in several ICES groups including IBTSWG, WGACEGG, WGMEGS, WGSINS (WGEGGS2). | Specialist working groups need a forum with experts from other types of ichthyoplankton surveys and personnel working in different areas to seek guidance and advice. | 2.3, 3.2, 3.4 | year 1, 2, 3, 4 | |
| e | Provide a standardized framework for ichthyoplankton data bases and facilitate implementation of new survey data into the ICES egg and larvae data base in collaboration with the ICES Data Center. | Ichthyoplankton data needs to be of high quality and centrally available for the assessment working groups and the science groups more generally to do their work and demonstrate transparent ways of working. | 3.2, 4.2 | year 1, 2, 3, 4 | Updated dataset on the ICES egg and larval database |

## Summary of the Work Plan

| | |
|---|---|
| **Year 1** | WGALES will communicate by correspondence to act upon urgent ToR's from ichthyoplankton survey groups (ToR d) |
| **Year 2** | WGALES will meet to address ToRs a, b, c, d, e, f |
| **Year 3** | WGALES will communicate by correspondence to act upon urgent ToR's from ichthyoplankton survey groups (ToR d) |
| **Year 4** | WGALES will meet to address ToRs a, b, c, d, f |
| | This Working Group meets every two years with a meeting format that covers general matters concerning ichthyoplankton surveys (ranging from new innovations in survey equipment and design through considering current ichthyoplankton surveys and their protocols) and also includes a specialised theme session or two on current and innovative relevant topics. The new topics are chosen at the end of each meeting to allow participants to work on them in the period between meetings. As such, new meeting ToRs can arise every two years to provide a focus for part of the biannual meeting. |

## 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. |
|---|---|
| Resource requirements | The research programmes which provide the main input to this group are already underway, and resources are already committed. |
| Participants | The Group will be attended by members of ICES groups, WGMEGS, WGEGGS2/WGSINS, IBTSWG, WGACEGG and guests carrying out ichthyoplankton surveys in the non-ICES areas. The Group is normally attended by some 25–30 members and guests. |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to ACOM and groups under ACOM | There are linkages with ACOM through the individual ichthyoplankton surveys groups that are associated with WGALES and their assessment groups that use plankton data. |
| Linkages to other committees or groups | There is a  close working relationship with the all the ICES expert groups of ichthyoplankton surveys, WGMEGS, WGEGGS2/WGSINS, IBTSWG, WGACEGG and their assessment groups, WGWIDE, HAWG, WGHANSA. |
| Linkages to other organizations | No formal linkages. |

# Resolutions approved in 2017

### 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 | 30 March– 3 April 2020 | By correspondence/Skype | Final report by 14 January 2021 to SCICOM and ACOM | |

| Year 2020 | 1-3 December 2020 | By correspondence/Webex | Final report by 14 January 2021 to SCICOM and ACOM | | |
|---|---|---|---|---|---|

## ToR descriptors

| ToR | Description | Background | Science Plan Codes | 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 | 3.1 | 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. | 3.1 | 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 | 3.1 | 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 | 3.1 | annually Year 1, 2 and 3 | Updated BITS data in DATRAS database for ICES Data Centre and WGBFAS |
| e | Coordinate and plan demersal trawl surveys and experiments to be conducted, and update and correct the Tow Database | Demersal trawl surveys provide important fishery-independent stock estimates for Baltic cod and flatfish stocks | 3.1 | annually Year 1, 2 and 3 | Finalized planning for the surveys for WGBIFS, updated and corrected Tow Database |
| f | Conduct 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 | 3.1, 3.2, 3.3 | Year 1-3 | Improved quality of acoustic indices with estimates of the uncertainty for WGBFAS |

| | | | | | |
|---|---|---|---|---|---|
| g | Update on progress in development of the StoX software and implementation of it for the calculation of WGBIFS acoustic stock estimates, 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. Comparisons will be performed to validate whether the StoX software provides us similar results as the current IBAS calculation method in order to allow WGBIFS to use it as a new standard tool for the calculation of annual BIAS and BASS survey estimates. | 3.1, 3.2 | 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 | 3.1, 3.2 | 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. | 3.1 | 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. | 3.1, 3.2 | 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 | 3.1, 3.2 | Year 3 | Updated IBAS manual for WGBIFS (SISP 8) |

| 1 | 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 | 3.1, 3.2 | 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 or 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 | By 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 | 28 – 29 April 2020 | By Correspondence/Webex | Final report by 11 December 2020 to ACOM/SCICOM |  |
| Year 2020 | 4-6 November 2020 | By Correspondence/Webex | Final report by 11 December 2020 to ACOM/SCICOM |  |

**ToR descriptors**

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | 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 season for both species a comprehensive survey plan is required that covers the area from Portugal to Iceland. | 3.1 | year 1 | Planning description and updated manuals for the survey in 2019 for WGMEGS |
| b | Coordinate the planning of the | Reliable realized fecundity estimates are | 3.1 | Year 1 | Planning description and |

| | | | | | |
|---|---|---|---|---|---|
| | sampling programme for mackerel/horse mackerel fecundity and atresia. | 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. | | | updated manuals for the survey in 2019 for WGMEGS through WKFATHOM2 |
| 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. | 3.1, 3.2 | Year 1 | Updated manual for the survey in 2019 for WGMEGS through WKFATHOM2 |
| 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. | 3.1, 3.2 | Year 1 | Updated manual for the survey in 2019 for WGMEGS through WKFATHOM2 |
| 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. | 3.2 | Year 1 | Updated manual for the survey in 2019 for WGMEGS through WKFATHOM2 |
| 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. | 3.1 | Year 1 | Final estimate of North Sea mackerel SSB for WGWIDE 2018. |
| g | Examine the results of the Bremerhaven, Germany and IJmuiden, The Netherlands workshops (8 – 12 October and 19 – 23 November 2018) on mackerel and horse mackerel egg staging and identification and fecundity and histology, and | For quality assurance in the year before the Atlantic survey a workshop (WKFATHOM2) is organized in which survey participants are obliged to participate in order to standardize egg identification and staging and fecundity estimation. The | 3.2, 3.3 | Year 2 | Updated manual for the survey in 2019 for WGMEGS |

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|---|---|---|---|---|---|
| | incorporate these into the Survey Manual for the 2019 survey; | WGMEGS manual is required to be updated with the results from the WKFATHOM2 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. | 3.2 | 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;<br>1. calculate the total seasonal stage 1 egg production estimates for mackerel separately for the western and southern areas;<br>2. calculate the total seasonal stage 1 egg production estimates for the western horse mackerel stock (AEPM);<br>3. analyse and evaluate the results of the mackerel and horse mackerel fecundity and mackerel atresia sampling in the western and southern areas;<br>4. provide estimates of the spawning-stock biomass of mackerel, using stage 1 egg production estimates and the estimates of fecundity and atresia, separately for the western and southern areas;<br>5. evaluate the quality and reliability of the | 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, 3.1, 5.1 | Year 3 | Finalized results of the mackerel SSB index, western horse mackerel egg production for WGWIDE. |

| | | | | | |
|---|---|---|---|---|---|
| | 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. | 3.1 | 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 | 3.1 | 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, WKFATHOM2, 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 | 18-22 November | Madrid, Spain | Final report by 17 January 2020 to EOSG | Change in chair |

### ToR descriptors

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| 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 | 3.1 | 3 years | Abundance and biomass estimates by age group. Fish spatial distribution will be provided to WGHANSA by the end of the WGACEGG meeting. Datasets will be published in the ICES facility when available. |
| 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 | 1.5 | 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 | 1.4, 1.5 | 3 years | Gridded maps updated every year. Datasets will be published in the ICES facility when available. |
| d | Assess developments in the technologies and data analyses for the application of both acoustics and the DEPM (on Egg Production or adult parameters). | a) Science Requirements b) Advisory Requirements c) Requirements from other EGs | 3.3 | 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 | 3.3 | 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 | 3.1, 3.2 | 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 | 3.1, 3.2 | 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 | 3.5 | 3 years | Biomass per age group when available otherwise per length classes and spatial density distribution, provided to WGWIDE before the WG annual meeting. Datasets will be published in the ICES facility when available. |
| i | 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. | 3.1 | 3 years | Develop an independent SISP for the data collection and product specification conducted under the auspices of WGACEGG |
| j | 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 | - | 3 years | Advances reported in annual WG report, available to the public one month after the meeting |

| k | Develop the use of imagery techniques to characterise the distribution of surface mesozooplankton and possibly microplastics in areas 8 and 9, based on CUFES and/or PairoVET samples. | a) Science Requirements b) Requirements from other EGs | 1.2 | 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:<br>• Session on acoustic data collection and analysis<br>• Session on DEPM data collection and analysis<br>• Session on acoustic and DEPM indices comparison<br>• Update of gridded maps of ecosystem data derived from surveys<br>• Session on methods for the analysis of series of gridded maps of ecosystem data<br>• Session to analyse progress on sardine and anchovy egg production estimates from CUFES<br>• Submission of the WGACEGG DEPM Survey Protocols (SISP) |
| **Year 2** | Annual meeting, including a joint session with MEDIAS (Mediterranean acoustic survey group):<br>• Session on acoustic data collection and analysis<br>• Session on DEPM data collection and analysis<br>• Session on anchovy and sardine eggs staging intercalibration exercises<br>• Session on acoustic and DEPM indices comparison<br>• Session on survey design<br>• Update of gridded maps of ecosystem data derived from surveys<br>• Session on methods for the analysis of series of gridded maps of ecosystem data<br>• Session to analyse progress on sardine and anchovy egg production estimates from CUFES<br>• Submission of the WGACEGG acoustic Survey Protocols (SISP) |
| **Year 3** | Annual meeting:<br>• Session on acoustic data analysis and developments<br>• Session on DEPM data analysis and developments<br>• Session on anchovy and sardine eggs identification and staging using automated methodologies<br>• Session on acoustic and DEPM indices comparison<br>• Writing of a report or manuscript on the analysis of series of WGACEGG gridded maps of ecosystem data<br>• 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.<br>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<br>a) ICES Assessment Working groups: HANSA, WIDE, together with related Benchmark WG and Workshops<br>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. |

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

## 2017/2/EOSG06

A **Working Group on Improving use of Survey Data for Assessment and Advice** (WGISDAA), chaired by Sven Kupschus, UK, will work on ToRs and generate deliverables as listed in the Table below.

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2018 | 3-5 July | Copenhagen, Denmark | Interim report by 20 September to ACOM/SCICOM | |
| Year 2019 | 8-10 October | Copenhagen, Denmark | Interim report by 15 November to ACOM/SCICOM | |
| Year 2020 | 6-8 October | By Correpondence/Webex | Final report by 5 November to ACOM/SCICOM | |

### ToR descriptors

| TOR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a) | To work together with assessment working groups to provide resolution to assessment issues prioritized by the assessment working groups | Specific resolutions to individual assessment issues with a report to feedback into the assessment, or where necessary into the benchmark process. In addition, cataloguing and classification of issues and review of methods used to resolve problems in order to provide "self-help" options to resolve similar issues in other assessments. | 5.1 | | |
| b) | 'To work together with survey working groups to | Specific resolutions to individual survey issues | 3.1, 3.2 | | |

| | | | | | |
|---|---|---|---|---|---|
| | provide resolution to problems associated with index calculations, survey design changes (proposed or realized) to ensure efficient and effective use of survey resources. | 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. | | | |
| c | Initiate with ACOM and secretariat a process to identify upcoming issues associated with the use of survey data in benchmarks. This should be initiated as soon as the benchmark process is started | Survey data issues, as in ToR a, are often critical in the benchmarking process. WGISDAA can advise best if involved in this process from the start, can collaborate with the operators and present conclusions at the benchmark | 5.1 | As required | Reports and presentations to the appropriate Benchmark workshop. |
| d | Review the output from the topic specific workshops initiated by WGISDAA and document more general principles learned from the specifc cases dealt with in TOR a and b | WGISDAA has had difficulty in attaining wider participation in its work | - | | |

## Summary of the Work Plan

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

## Supporting information

| | |
|---|---|
| Priority | This group will feed the results of its work directly into the assessment and hence advisory process. As such it should be considered central and of high priority |
| Resource requirements | The key additional resource requirement is the group needs particpation of the key players in the relevant assessment, survey or benchmark group. This would be in addition to work required for the normal operations of htese groups. Essentially, this would involve key personnel attending the relevant WGISDAA meeting, and where rquired, personnel from WGISDAA attending the relevant requesting EG |
| Participants | Dependant on information requests, but normally less than 10 core members |
| Secretariat facilities | None. |
| Financial | No financial implications. |
| Linkages to ACOM and groups under ACOM | ACOM, Benchmark process and assessment EGs as well as Survey EGs will be the key clients for the work of WGISDAA |
| Linkages to other committees or groups | WGISDAA will have strong links to to survey working groups under SSGIOMP, and in particular to the work of WGISUR. Given surveys as an important source of wider ecosystem data there will also be important links to groups under SSGIEA |

| | |
|---|---|
| Linkages to other organizations | None specific |

**WKUSER – Workshop on unavoidable survey effort reduction**

**2017/2/EOSG07**      The **Workshop on unavoidable survey effort reduction** (WKUSER), chaired by Stan Kotwicki*, US, Sven Kupschus, UK and Wayne Palsson*, USA, will meet in Seattle, USA, 13-17 January 2020.

- 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 (Science plan codes 3.2);
- b ) Develop key quality metrics that can be used to describe "total survey uncertainty" for survey derived indices of abundance for common survey designs (Science plan codes 3.2, 3.3);
- 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 (Science plan codes 3.2, 3.3);
- 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 (Science plan codes 3.3).

WKUSER will report by 15 February 2020 for the attention of the ACOM and SCICOM.

## Supporting information

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|---|---|
| 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 of 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 measures 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 4-5 February 2019 at the at the Marine Institute, Galway, Ireland to:

a ) Review and consider the quality and availability of survey data going into the assessment of cod, haddock and whiting as requested by WGCSE2017 (Science plan codes 5.1);

b ) 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 (Science plan codes 5.1);

c ) 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 (Science plan codes 5.1).

WKESIG will report by 19 March 2019 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)<br><br>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 Benchmarks, but not currently published or documented in detail.<br><br>The proposed workshop will review the construction and quality of these survey indices including:<br><br>a) optimal standardization such as swept area<br>b) appropriate fill ins of ALKs<br>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 | |

### 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 Bremerhaven, Germany, 18–21 June 2019 to:

d ) Review expected near future changes in the North Sea IBTS (Science plan codes 3.1);

e ) 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) (Science plan codes 5.1);

f ) Advise on the implications of different change-options on future survey deliverables and how to minimise the impact of necessary changes (Science plan codes 3.2).

WKNSIMP will report by 5 August 2019 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 |

**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 | 15-18 January | ICES HQ, Copenhagen, Denmark | Interim report by 1 March 2019 to SCICOM, ACOM, EOSG | |
| Year 2020 | 21-24 January | ICES HQ, Copenhagen, Denmark | Final report by April to SCICOM, ACOM, EOSG | Change in chair |

**ToR descriptors**

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | 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 benchmark workshops; consult with WGCATCH, WGBIOP, WGISDAA, ICES Data Centre, other relevant SSGIEOM EGs & ACOM. | 3.1, 3.2, 3.3 | 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 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 | 3.1, 3.2, 3.3 | 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 | | 3.1, 3.2, 3.3 | 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:<br>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

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|---|---|
| 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 |

**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, 22–24 October 2019 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 2020 to the attention of ACOM and SCICOM

**Supporting information**

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|---|---|
| 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 |

**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 Coad Davies, 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 2018 | 1–5 October | Ghent (Belgium) | Interim report by 9 November 2018 to EOSG, SCICOM& ACOM | |
| Year 2019 | 7-10 October | Lisbon, Portugal | Interim report by 8 November to EOSG, SCICOM and ACOM | |
| Year 2020 | 7–8 October | By correspondence | Final report after 11 November to EOSG, SCICOM& ACOM | WGBIOP will be starting its work end of June/early July 2020 in subgroup meetings via WebEx covering the different ToRs. To present work 7-8/8. |

**ToR descriptors**

| TOR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Plan studies, workshops and exchange schemeson interpretation of fisheries data on stock-related biological variables, and review the | Review incoming suggestions for inter-sessional work from EGs, WKs and other ICES related groups, e.g. planned benchmarks | 3.1, 3.2 | 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 | 3.1, 3.2 | 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. | 3.1, 3.2, 5.1 | 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. | 3.1, 5.2, 6.6 | 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 | 3.1, 3.2, 3.3 | 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 | 3.1, 4.1 | 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 | None. |
| Financial | None. |
| Linkages to ACOM and groups under | 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 |

**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 (WKSEATEC2)**, 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 2018**, 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).

WKSEATEC2 will report by **28 February 2019** to the attention of the EOSG Committee.

## Supporting information

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|---|---|
| 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** <br> **a) – Update on Board Development** <br> 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. <br><br> **b) – Review of additional data capture technologies** <br> 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. <br><br> **c) – FDL & API** <br> 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. |

**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. (Science plan codes 3.2)

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. (Science plan codes 3.3, 3.4)

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. (Science plan codes 2.3)

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. (Science plan codes 4.1)

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. (Science plan codes 5.2, 6.6)

**WKMESOMeth** will report by 10 June 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 |

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|---|---|
| | 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 | |

### WGIPS – Working Group of International Pelagic Surveys

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

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2019 | 14–18 January | Santa Cruz, Spain | Interim report by 3 March 2019 to EOSG, SCICOM & ACOM | Incoming chair Michael O´Malley |
| Year 2020 | 13–17 January | Bergen, Norway | Interim report by 2 March 2020 to EOSG, SCICOM & ACOM | |

| Year 2021 | 18–22 January | Belfast, Northern Ireland | Final report by 8 March 2021 to EOSG, SCICOM & ACOM |
|---|---|---|---|

## ToR descriptors

| ToR | Description | Background | Science plan codes | Duration | Expected Deliverables |
|---|---|---|---|---|---|
| a (ACOM) | Combine and review annual ecosystem survey data to provide: indices of abundance and spatial distribution for the stocks of herring, sprat, mackerel, boarfish and blue whiting in Northeast Atlantic waters. | a) Advisory Requirements b) Requirements from other EGs | 3.2, 5.2 | years 1–3 | Survey reports containing indices of stock biomass and abundance at age, spatial distributions of stocks and hydrographic conditions. HAWG WGWIDE |
| b(ACOM) | Coordinate the timing, area and effort allocation and methodologies for individual and multinational acoustic surveys on pelagic resources in the Northeast Atlantic waters covered (Multinational surveys: IBWSS, IESNS, IESSNS, HERAS, and individual surveys: CSHAS, ISAS, PELTIC, GERAS, WESPAS, industry coordinated surveys, CAPS). | a) Science Requirements b) Advisory Requirements c) Requirements from other EGs | 3.1 | years 1–3 | Cruise plans for international and individual surveys. HAWG WGWIDE |
| c (SCICOM) | Adopt standardized analysis methodology and data storage format utilizing the ICES acoustic database repository for all acoustically derived abundance estimates | a) Science Requirements b) Advisory Requirements | 3.2 | years 1–3 | Progress on the adaption of standardized analysis methodology and data storage format utilizing the ICES pelagic acoustic database repository for WGIPS coordinated surveys. |

| | | | | | |
|---|---|---|---|---|---|
| | of WGIPS coordinated surveys | | | | |
| d (ACOM) | Periodically review and update the WGIPS acoustic survey manual to address and maintain monitoring requirements for pelagic ecosystem surveys | a) Science requirements b) Advisory requirements | 3.1 | years 1–3 | Updated WGIPS survey manual. |
| e (ACOM) | Review the work, and report of workshops organised by WGIPS and develop formal ICES recommendations. This should include SISP updates and adopting changes to survey coordination where deemed appropriate. | a) Science requirements b) Advisory requirements | 3.1 | years 1–3 | |
| f (ACOM) | Review and evaluate survey designs across all WGIPS coordinated surveys to ensure the integrity of survey deliverables, including acoustic surveys on spawning aggregations. | a) Science requirements b) Advisory Requirements c) Requirements from other EGs | 3.1, 3.3 | years 1–3 | Optimize and harmonise sampling designs and precision estimates for the different surveys to ensure survey quality. HAWG WGWIDE |
| g(ACOM) | Assess and compare scrutinisation procedures employed for the analysis of raw acoustic data from WGIPS coordinated surveys | a) Science requirements b) Advisory requirements | 3.2, 3.3, 4.2 | year 1 | Documented standardised scrutinisation recommendations; Update of survey manual to address and maintain monitoring requirements for pelagic ecosystem surveys. |
| h (SCICOM) | Collaborate with groups wishing to utilize available time-series from WGIPS coordinated surveys. | a) Science requirements | 3.2 | Years 1-3 | Facilitate testing and developing forecast models provided by WGS2D and other groups. |
| i (SCICOM) | Assess developing pelagic ecosystem surveying technology (e.g. optical technology, multibeam and wideband acoustics) to: (i) achieve monitoring of | a) Science Requirements b) Advisory Requirements c) Requirements from other EGs | 3.1, 3.3, 4.1 | years 1–3 | Update ecosystem metrics that are collected by WGIPS coordinated surveys; and protocols/recommendations for practical implementation of new technologies. |

different ecosystem components, and/or (ii) give input to the development of ecosystem indicators from surveys covered by WGIPS, (iii) continue to support the development of tools to improve the accuracy and precision of survey estimates.

## Summary of the Work Plan

| | |
|---|---|
| **Year 1** | General meeting, preceded by 3 post-cruise meetings which collate data of multinational surveys. Session to review and evaluate survey designs across all WGIPS coordinated surveys done in Year 1; and coordinate planning and discuss designs for surveys taking place in Year 2. Session to standardize scrutinisation procedures for the International Ecosystem Summer Survey in the Norwegian Sea (IESSNS) covered by the WG (WKSCRUT). Inter-sessional work on the review and updates for the WGIPS acoustic manual, followed by a session during the annual meeting **to review and provide possible updates for the WGIPS acoustic survey manual.** Harmonize changes amongst the different surveys.  Develop survey design protocols for acoustic surveys on spawning aggregations for inclusion in the survey manual. Session (mini symposium) to assess auxiliary pelagic ecosystem surveying technology focusing on methods currently used to monitor different ecosystem components across WGIPS coordinated surveys. Session on the future and development of databases (more specifically the ICES acoustic database and the PGNAPES database) |
| **Year 2** | General meeting, preceded by 3 post-cruise meetings which collate data of multinational surveys. Session to review and evaluate survey designs across all WGIPS coordinated surveys done in Year 2, and coordinate planning and discuss designs for surveys taking place in Year 3. Inter-sessional work on the review and updates for the WGIPS acoustic manual, followed by a session during the annual meeting to review and provide possible updates for the WGIPS acoustic survey manual. Harmonize changes amongst the different surveys.  **Develop survey design protocols for acoustic surveys on spawning aggregations for inclusion in the survey manual.** Session to assess progress in the implementation of auxiliary pelagic ecosystem surveying technology and methodology (e.g. optical technology, multi-beam and wideband acoustics) for monitoring components of the wider ecosystem in surveys covered by WGIPS. Session on the future and development of databases (more specifically the ICES acoustic database and the PGNAPES database). |
| **Year 3** | General meeting, preceded by 3 post-cruise meetings which collate data of multinational surveys. Session to review and evaluate survey designs across all WGIPS coordinated surveys done in Year 3. Inter-sessional work on the review and updates for the WGIPS acoustic manual, followed by a session during the annual meeting to review and provide possible updates for the WGIPS acoustic survey manual. Harmonize changes amongst the different surveys. **Develop survey design protocols for acoustic surveys on spawning aggregations for inclusion in the survey manual.** |

Session to assess progress in the implementation of auxiliary pelagic ecosystem surveying technology and methodology (e.g. optical technology, multibeam and wideband acoustics) for monitoring components of the wider ecosystem in surveys covered by WGIPS.

Session on the future and development of databases (more specifically the ICES acoustic database and the PGNAPES database).

## Supporting information

| | |
|---|---|
| **Priority** | The Group has a very high priority as its members have expertise in design and implementation of acoustic-trawl surveys, including sampling of additional ecosystem parameters. It will therefore directly contribute to the implementation of integrated pelagic ecosystem monitoring programmes in the ICES area. The Group's core task is the standardisation, planning, coordination, implementation, and reporting of acoustic surveys for the main pelagic fish species including herring, sprat, blue whiting, mackerel, and boarfish in Northeast Atlantic waters. The work provides essential data in the form of survey indices to WGWIDE and HAWG in the aim to perform integrated ecosystem assessment. |
| **Resource requirements** | The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible. |
| **Participants** | The Group is normally attended by some 20–25 members and guests. |
| **Secretariat facilities** | None. |
| **Financial** | No financial implications. |
| **Linkages to ACOM and groups under ACOM** | WGWIDE, HAWG |
| **Linkages to other committees or groups** | There is a very close working relationship with other groups in EOSG, especially relevant links to WGACEGG, WGALES, WGBIFS, WGFAST, WGFTFB, WGISDAA, WGISUR, WGMEGS, WGTC, WGINOR, WGINOSE, WGIAB, WKEVAL, WKMSMAC2, WKSCRUT, WKSUREQ |
| **Linkages to other organizations** | EU H2020 project 'AtlantOS' |

# Resolutions approved in 2016

**WGISUR – Working Group on Integrating Surveys for the Ecosystem Approach**

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

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

## ToR descriptors

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

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

## Summary of the Work Plan

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

## Supporting information

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

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

### 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 2019 to:

a) Update the international maturity scales based on macroscopic features both for oviparous and viviparous species (Science plan codes 1.7, 5.2);
b) Validate both maturity scales based on macroscopic features through histological analysis (Science plan codes 1.7, 5.2);
c) Update the conversion tables both for oviparous and viviparous species (Science plan codes 1.7, 5.2);
d) Compile an Atlas using both macroscopical and histological gonad pictures (Science plan codes 1.7, 5.2);
e) Increase the number of case studies with particular attention for viviparous species (Science plan codes 1.7);

WKSEL3 will report by **29 June 2019** 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 Mattias van Opstal, Belgium, and Adriaan Rijnsdorp, the Netherlands, will work on ToRs and generate deliverables as listed in the Table below.

| | MEETING DATES | VENUE | REPORTING DETAILS | COMMENTS (CHANGE IN CHAIR, ETC.) |
|---|---|---|---|---|
| Year 2018 | 17-19 April | WMR Ijmuiden, the Netherlands | Interim report by 31 of May 2018 to ACOM-SCICOM | |
| Year 2019 | 11-13 June | Ghent, Belgium | Interim report by 11 of July 2019 to ACOM-SCICOM | |
| Year 2020 | 25-27 March | By correspondence | Final report by 24 April 2020 to ACOM-SCICOM | |

### ToR descriptors

| ToR | DESCRIPTION | BACKGROUND | SCIENCE PLAN CODES | DURATION | EXPECTED DELIVERABLES |
|---|---|---|---|---|---|
| a | Produce a state-of-the-art review of all relevant studies on marine electrofishing. Yearly update it by evaluating and incorporating new research to it. | a) Science Requirements b) Advisory Requirements | 2.1, 6.1, 6.4 | Yearly update | Review report 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 of the benthic ecosystem; and to assess (v) the impact of repetitive exposure to the two gear types on marine organisms.. | b) Advisory Requirement as part of a response to request from the Dutch Ministry of Agriculture, Nature and Food Quality. s  WGECO will provide some considerations for WGELECTRA to take account of when responding to this request. | 2.1, 2.7, 6.4 | Year 1 | Relevant section of the WGELECTRA report must be made available for independent external review by 30 April 2018. |
| c | Discuss and prioritise knowledge gaps, and discuss ongoing and upcoming research projects in the light of these knowledge gaps, including the experimental set up | a) Science Requirements b) Advisory Requirements | 2.1, 2.7, 6.4, 6.6 | Year 1, 2 & 3 | Scientific research adressing knowledge gaps or questions from management |
| d | Create a platform for the application for supra-national joint research projects on electrotrawling | a) Science Requirements b) Advisory Requirements | 3.1, 6.6 | Year 1, 2 & 3 | Joint projects and publications among participants and |

| | | | | | |
|---|---|---|---|---|---|
| | and scientific publication of the obtained results | | | | others<br>Collaboration with other related WG's such as WGNSSK, WGCRAN |
| e | Analyse the possible contribution of pulse trawling to reduce or increase the ecosystem/ environmental impacts of the fishery for sole in the North Sea and reflect on the fuel consumption used in the fishery sole in the North Sea. | Advisory Requirement as part of a response to request from the Dutch Ministry of Agriculture, Nature and Food Quality.<br>Analysys must be developed taking into consideration:<br>1. The elements listed in article 31(1) of regulation (EU)2019/1241 of 20 June 2019 namely: marine ecosystems (including the long-term effects on), sensitive habitats and selectivity.<br>2. Discussions within FAO on the issue of CO2 emissions in fisheries and its impact on climate change. See http://www.fao.org/policy-support/resources/resources-details/en/c/1152846/ in particular chapter 27 | 2.1, 6.1, 6.4 | Year 3 | Relevant section of the WGELECTRA report must be made available for independent external review by 3 April 2020 |

## Summary of the Work Plan

| **Year 1** | - Initiating the review document |
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| | - 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.<br>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. |
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| 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. |
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| 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 | Nicosia, Cyprus | Interim report by (TBD) to ACOM-SCICOM | Kirsten Birch Hakansson, Denmark new co-chair |
| Year 2019 | 4-8 November | Gdansk, Poland | Final report by 9 December 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 CODES | 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<br>i ) Discuss sampling and | 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 intended 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 | 3.1, 3.2, 6.1 | 3 years | Documentation of sampling designs and estimation methods<br>R-Scripts for within-sample optimization of length and age sampling<br>Best practice guidelines for sampling national landings in foreign ports<br>Best practice guidelines in data request and provision for frequency data<br>Best practice guidelines for chosing methods and variables used to expand commercial sampling data |

estimation methods (including new technologies or other data sources), taking into account results from intersessional WKs and training courses.

ii ) Best practice guidelines for choosing methods and variables used to expand commercial sampling data:

1 ) Compilation and documentation of the present methods used

2 ) Start to develop guidelines for estimators (algorithms, tools for analysing the appropriateness of using the specific estimator: Ratio estimators; estimation of variance (e.g. design based, bootstrap)

iii ) Develop best practice and guidelines on data request and data provision for frequency distribution data (age and length).

iv ) Review intersessional work done on summarizing documentation of sampling design and estimate and plan how to

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 was sent by LM 2016 to WGCATCH that will now be addressed.

Theme Session in ICES ASC

Peer-reviewed publication on statistically sound sampling design

Book on best practices for sampling commercial catches

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| | continue the work. | | | | |
| b | Review developments in sampling and estimation practices of catch, effort, length and age distributions and other biological parameters of small scale fisheries (SSF)<br><br>i ) Discuss and review the main outputs from research projects focusing on SSF sampling and estimation (e.g. FishPi2 and STEAM).<br><br>ii ) Continue to develop best practice guidelines on SSF data collection, standardize reporting and define quality indicators for sampling and census.<br><br>iii ) Analyse different options to monitor SSF with new technologies based on end-users needs.<br><br>iv ) Review the Regional Database and Estimation System (RDBES) core group's suggestion for storing of and estimation with SSF data in the RDBES.<br><br>v ) Review the new EU-MAP tables and variables in light | 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. | 1.7, 3.2, 6.1 | 3 years | Best practice guidelines for standardized reporting of fishing effort<br><br>Peer-reviewed publication on SSF |

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| | of the SSF (if available). vi ) Review the progress of the scientific paper. vii ) Review and document sampling effort of biological data 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. | 2.1, 3.2, 5.3 | 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 both national laboratories and end-users. | 3.1, 3.3, 6.1 | Routine ToR | Forum to discuss specific problems and find appropriate solutions and recommendations of best practice |
| 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 | 3.1, 3.3, 6.1 | Routine ToR | Report to ICES Data Centre and SC-RDB. |

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| | | development and ensuring the development encompasses statistically sound sampling schemes and proper methods of estimation. | | | |
| 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 | 3.1, 3.3 | 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. | 5.1, 6.1 | Routine ToR | Report relevant findings to benchmark steering group. |
| h | Identify research needs, amend work-plan and propose new workshops and training courses, reviewing their outcomes. | | 3.2 | Routine ToR | |
| i | Respond to recommendations to WGCATCH from ICES expert groups, RCGs, Liaison Meetings and other end-users of commercial catch data. | | 3.2 | Routine ToR | Report to ICES groups (WGBIOP, WGRFS, PGDATA and EOSG), RCMs/RCGs, the LM and research projects. |
| j | Ensure, where appropriate, that systems are in place to quality assure the products of WGCATCH. | | 3.1 | Routine ToR | |

**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 |
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| **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.<br>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. |

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| **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 groups under ACOM** | 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, 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 Expert Groups Dissolved in 2019

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| 2018/2/EOSG02 | **WKHDR** – Workshop proposal: Integrating human dimensions into the management of marine recreational fisheries [report pending] | **Christian Skov, Denmark, Harry V. Strehlow,Germany, and Kieran Hyder, UK** |
| 2018/2/EOSG05 | **WKBECOSS** – Workshop on Better Coordinated Stomach Sampling | Izaskun Preciado, Spain, and Stefan Neuenfeldt, Denmark |
| 2018/2/EOSG07 | **WKBIOPTIM3** – The Third Workshop on Optimization of Biological Sampling | **Ana Cláudia Fernandes, Portugal and Eirini Mantzouni, Greece** |
| 2018/2/EOSG11 | **WKICDAT** – Workshop on Index Calculation based on DATRAS | Holger Haslob, Germany |
| 2018/2/EOSG12 | **WKSCRUT2** – Workshop on scrutinizing of acoustic data from the IESSNS survey | Jan Arge Jacobsen, Faroes, and Age Høines, Norway |
| 2018/2/EOSG13 | **WKHASS** – Workshop on Herring Acoustic Spawning Surveys | Pablo Carrera, Spain |
| 2018/2/EOSG14 | **WKAREA3** – Third Workshop on Age Reading of European and American Eel | Françoise Daverat, France, Isabel Domingos ,Portugal, and Kélig Mahé, France |
| 2018/2/EOSG15 | **WKREO** – Workshop on the Realigning of the Ecosystem Observation Steering Group | Sven Kupschus, UK, Matthias Kloppmann, Germany, and Colm Lordan, Denmark |
| 2017/2/EOSG08 | **WKESIG** – Workshop on evaluating survey information Celtic Sea gadoids [report pending] | David Stokes, Ireland, |
| 2017/2/EOSG10 | **WKNSIMP** - Workshop on Impacts of planned changes in the North Sea IBTS | Kai Wieland*, DK |
| 2017/2/EOSG15 | **WKVALPEL** – Workshop on age validation studies of small pelagic species | Javier Rey, Spain, Kelig Mahé, France, and Pierluigi Carbonara, Italy |
| 2017/2/EOSG19 | **WKSEATEC2** – Workshop on Technical Development to Support Fisheries Data Collection 2 [report pending] | Dave Stokes, Ireland, and Marcellus Rödiger, Germany |
| 2017/2/EOSG22 | **WKMESOMeth** – The Workshop on the development of practical survey methods for measuring and monitoring in the mesopelagic zone | Ciaran O'Donnell*, Ireland, and Gavin Macaulay*, Norway |
| 2017/2/EOSG24 | **WKARAS2** - A Workshop on Age reading of European Sardine (*Sardina pilchardus*) (NE Atlantic and Mediterranean) | Eduardo Soares, Portugal, and Pedro Torres, Spain |
| 2016/2/SSGIEOM19 | **WKMATHIS** – Workshop on Sexual Maturity staging from histological tools [Outdated report] | Cindy Van Damme, The Netherlands and Maria Cristina Follesa, Italy |
| 2016/2/SSGIEOM20 | **WKSEL3** – Workshop on Elasmobranchs maturity | Maria Cristina Follesa, Italy and Pierluigi Carbonara, Italy, |

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| 2015/2/SSGIEOM13 | **WKARNSSH –** Workshop on Age estimation of Norwegian Spring Spawning Herring (Clupea harengus) | Jane A. Godiksen, Norway and TBD |
| 2015/2/SSGIEOM18 | **WKMSHS2 –** Workshop on Sexual Maturity Staging of Herring (*Clupea harengus*) and Sprat (*Sprattus sprattus*) [Outdated report] | Cindy van Damme, The Netherlands and Joanne Smith, United Kingdom |