

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

2019/2/EOSG22

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

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

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

Supporting information

Priority	<p>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 mesopelagic zone, their abundance distribution, food web linkages and biodiversity. Specialised methods exist to examine the mesopelagic zone, but these would be experimental 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.</p> <p>The activities of this workshop will respond to the need to the Working Group on International Pelagic Surveys (WGIPS) concerning data quality insurance and expansion from individual species towards ecosystem oriented surveys. Provision of reliable data to for the development of a monitoring index and to support ecosystem integrated assessment that are considered to have a very high priority.</p>
Scientific justification	<p>Scientific justification by ToR</p> <p>Term of Reference a)</p> <p>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.</p> <p>Term of Reference b)</p> <p>Determine through data sharing and practical experience the limitations 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.</p> <p>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.</p>

	<p>Term of Reference c) Determine the current limitations associated with reliable measurements of animals within the mesopelagic zone and identify potential opportunities using existing survey series.</p> <p>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.</p> <p>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.</p>
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 Working Group on Fishing Technology and Fish Behaviour (WGFTFB) and Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR).
Linkages to other organizations	