

## Theme Session L

### Pelagic ecosystem dynamics from integrated monitoring surveys

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Ecosystems are characterized by many dynamic interactions between different trophic levels and environmental parameters. Foodwebs and species interactions are complex and organisms often distributed over wide spatial scales. Pelagic ecosystems are further characterized in 3D by dependence on high spatio-temporally variable hydro-climatic drivers; complex foodweb interactions with e.g. small pelagic fish competing for plankton and exerting bottom-up pressure by feeding on their predator's larvae; the increased importance of vertical hydrological structures and schooling. Further, many of its resources include fish species which are in high commercial demand due to favourable properties such as high omega-3 levels.

The move towards a more holistic ecosystem approach to fisheries management and the policy drive to achieve good environmental status puts increasing demands on monitoring requirements of the pelagic realm. It is therefore important to assess whether some of the existing survey time series may provide additional data on the biotic or abiotic characteristics of the pelagic ecosystem. Examples include hydrological features and zooplankton, which may be extracted with some innovative approaches. Requirements for dedicated multidisciplinary surveys seriously challenge the current pelagic survey setups within ICES, which are still largely focused on providing abundance estimates of the 'target species'. Therefore, surveys will inevitably have to adapt in order to capture the status of the pelagic ecosystem given its inherent complexity. These surveys may also be integrated at regional sea level or combined with other ocean monitoring programmes including those based on data from satellites, smart buoys, ships of opportunity, or coastal observatory systems. Such integration will provide vital concurrent information on a combination of metrics. In addition to providing the inputs needed for fish stock assessment models, and ecosystem models, such integrated monitoring will also provide indicators for ecosystem management, such as the metrics outlined in policy documents such as the European Marine Strategy Framework Directive (MSFD).

Across integrated pelagic monitoring programmes, papers and posters are welcome on the following topics:

- Innovative monitoring approaches integrated within current survey designs
- Integrating current survey designs within global monitoring strategies of the pelagic ecosystem
- How survey strategies can be combined to contribute to monitoring for indicators and sampling for process understanding
- Dissemination of multidisciplinary integrated data output
- Spatial modelling of pelagic ecosystems and how surveys contribute to modelling and integrated ecosystem assessment
- Pelagic foodweb dynamics and how surveys contribute to knowledge development
- Indicators of MSFD descriptors from monitoring programmes