Adaptive science and coordinated governance for cross-sector action towards Baltic Sea recovery

Conscious of the urgent and unique challenges facing the Baltic Sea and acknowledging the ongoing efforts of numerous institutions and stakeholders in addressing these issues, the International Council for the Exploration of the Sea (ICES) and the Directorate-General for Maritime Affairs and Fisheries (DG MARE) co-hosted the side event "For and from the Baltic: Navigating the future of fisheries with ecosystem-based management" at ICES Annual Science Conference 2025 in Klaipėda, Lithuania.

Participants concluded that current single-species stock assessments primarily focus on preventing overfishing and aim to achieve maximum sustainable yield (MSY) by restoring and maintaining populations above levels capable of producing MSY through appropriate exploitation rates. However, the Baltic Sea's recovery cannot be achieved by reducing fishing alone. Climate change, eutrophication, and biodiversity loss necessitate moving beyond single-species and single-sector approaches. There is a growing concern that fish stocks are losing productivity and resilience under multiple pressures. Traditional uniform management of single species is no longer sufficient to address the complexities observed. Therefore, a truly operational ecosystem-based approach to fisheries management is essential for balancing the various uses of the Baltic marine ecosystem and accelerating recovery.

Stronger coordination among regional actors is crucial for effectively implementing ecosystem-based solutions, building complementary approaches, and avoiding duplication of efforts. To remain relevant and impactful, science must be responsive to evolving ecosystem dynamics, social and economic realities, and the changing policy landscape. Ultimately, adaptive science combined with coordinated governance is needed to target operational actions across all relevant sectors, supported by effective communication with stakeholders.

The exchanges among representatives of various organizations and scientific actors in the context of the event in Klaipėda highlighted a need for sustained and determined commitment to coordination.

Managers are increasingly asked to consider fishing in the context of other marine industries, pressures, targets, and goals. In addition, existing approaches are insufficient to address the current complex ecosystem-based management questions.

In order to realize the vision of an operational ecosystem approach, it is necessary to foster and enable collaboration to

(1) <u>support ongoing work</u> with sustained and reliable long-term resources and investment in science, science coordination, and science–policy integration;
(2) <u>build research capacity</u> by integrating the work of ICES, its member country institutes, the Baltic Marine Environment Protection Commission (HELCOM), universities, and individual targeted research projects, especially in areas where environmental drivers dominate outcomes;
(3) <u>operationalize new technical tools and approaches</u>, such as the Digital Twin of the Ocean, integrated ecosystem assessments, and ICES Framework for Ecosystem-Informed Science and Advice (FEISA).

Cooperation among all Baltic states, their relevant institutions, organizations, and stakeholders is crucial to translate knowledge into coordinated action across sectors to reinforce common efforts towards the recovery and resilience of the Baltic Sea.