

numbers surviving. Overall, under climate change conditions juveniles have increased growth rates leading to larger size at the end of the first growth season yet reduced survival.

Work related to ICES via WGIPEM (the Working Group on Integrative, Physical-biological and Ecosystem Modelling).

(20) Marine plastics: aligning national research and monitoring with international guidelines

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The project Marine Plastics, funded by the European Maritime and Fisheries Fund (EFMZV), focuses on the presence of litter at the Belgian fisheries areas and the Belgian Part of the North Sea (BPNS), comprising both macro- and microlitter. Within the part on macrolitter, the main goals are to assess the presence of seabed litter at the Belgian fisheries areas, to identify impact of specific anthropogenic sources and to detect time trends in litter pollution. The part on microlitter concerns the identification of microplastics in seafood and the initiation of a Belgian monitoring approach for microplastics in seawater and sediment of the BPNS, in accordance with MSFD descriptor 10.

Many standardization issues remain. Macrolitter data collection and reporting differs between EU countries, the use of different gears for macrolitter sampling highly affects the extraction efficiency, there is a lack of standardization of macrolitter data assessment. The same range of issues, and even more, have to be clarified before a harmonized approach for microlitter monitoring and evaluation is reached. Which methods should be applied for microplastics sampling, separation, detection, identification and reporting? What size range and classes should be considered? What quality measures should be taken and how can we align international monitoring laboratories?

The interaction with the ICES working group on marine litter and microplastics (WGML) is of primary importance for the Marine Plastics project. WGML data assessments on international macrolitter datasets, collected within the International Bottom Trawl Surveys (IBTS) and Beam Trawl Surveys (BTS), influence the Marine Plastics project assessment approach, as similar statistical methods can be used. Vice versa, Belgian data has a unique value since marine litter is collected with the same fishing gear on a large area within the Belgian BTS. Besides the BTS, a second unique dataset is obtained within Belgian environmental monitoring at the BPNS. The latter has a large sampling density in an area with many human activities.

For microplastic research, the interaction with ICES WGML is also essential, as method alignment, standardization and quality assurance for monitoring purposes are key issues of this working group. Currently, methods for microlitter monitoring are not yet fixed and it will be a big challenge to align protocols between different EU member states in order to reach comparable results for MSFD descriptor 10. The active role of Belgian researchers at ICES WGML ensures that the Marine Plastic project is in accordance with newest guidelines and state-of-the-art protocols. Finally, the Marine Plastics project will provide the first integrated environmental monitoring assessment for microplastics in Belgium. This will be the necessary knowledge base for follow-up processes and actions by policy makers, the blue economy and the marine experts.

Work related to ICES via WGML (the Working Group on Marine Litter).

(21) Long-term changes in demersal fish abundance and distribution in the Belgian part of the North Sea

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Climate change and other anthropological influences such as fisheries have long-term effects on fish abundance and distribution. To study the combined effects of these stressors on demersal fish species in the Belgian part of the North Sea,