Essential coastal habitats for fish in the Baltic Sea

Many coastal and offshore fish species are highly dependent on specific habitat types for population maintenance. In the Baltic Sea, shallow productive habitats in the coastal zone such as wetlands, vegetated flads/lagoons and sheltered bays as well as more exposed rocky and sandy areas are utilized by fish across many life history stages including spawning, juvenile development, feeding and migration. Although there is general consensus about the critical importance of these essential fish habitats (EFH) for fish production along the coast, direct quantitative evidence for their specific roles in population growth and maintenance is still scarce. Nevertheless, for some coastal species, indirect evidence exists, and in many cases, sufficient data are also available to carry out further quantitative analyses. As coastal EFH in the Baltic Sea are often found in areas that are highly utilized and valued by humans, they are subjected to many different pressures. While cumulative pressures, such as eutrophication, coastal construction and development, climate change, invasive species and fisheries, impact fish in coastal areas, the conservation coverage for EFH in these areas remains poor. This is mainly due to the fact that historically, fisheries management and nature conservation are not integrated neither in research nor in management in Baltic Sea countries. Setting joint objectives for fisheries management and nature conservation would hence be pivotal for improved protection of EFH in the Baltic Sea. To properly inform management, improvements in the development of monitoring strategies and mapping methodology for EFH are also needed. Stronger international cooperation between Baltic Sea states will facilitate improved management outcomes across ecologically arbitrary boundaries. This is especially important for successful implementation of international agreements and legislative directives such as the Baltic Sea Action Plan, the Marine Strategy Framework Directive, the Habitats Directive, and the Maritime Spatial Planning Directive, but also for improving the communication of information related to coastal EFH among researchers, stakeholders, managers and decision makers. In this paper, efforts are made to characterize coastal EFH in the Baltic Sea, their importance and the threats/pressures they face, as well as their current conservation status, while highlighting knowledge gaps and outlining perspectives for future work in an ecosystem-based management framework.