{rokbox title=|Map of the marine ecosystems that were reviewed :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-gap-analysis-biology-marine-fishes-european-seas-kesner-et-al-2025-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-gap-analysis-biology-marine-fishes-european-seas-kesner-et-al-2025.jpg{/rokbox}

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Abstract: This review evaluates the current knowledge of essential biological traits (diet, fecundity, maturity, length-weight relationships, spawning, growth, lifespan, and natural mortality) of marine fishes across European and adjacent waters. These traits are crucial for ecosystem modeling and stock assessments. Using data from FishBase, the largest and most comprehensive database on fishes, a gap analysis was performed to identify areas of research focus and the corresponding gaps that require further study. Biological data coverage is strong in the Baltic and North Seas but moderate in the Adriatic, Aegean, Biscay, Celtic, Levantine, and western Mediterranean Seas. Well-documented species include the European conger (*Conger conger*), thornback ray (*Raja clavata*), and transparent goby (*Aphia minuta*) which are reported from all areas. The narrowest knowledge gaps concern length-weight relationships, followed by spawning and growth, while natural mortality and fecundity are the least studied biological characteristics. Regional variations exist, particularly for protected species. Future research should focus on filling gaps by addressing overlooked species (bycatch and discarded species) and traits such as natural mortality and fecundity, with special attention to vulnerable groups like sharks and rays. Expanding biological data coverage will reduce uncertainties in stock assessments and improve ecosystem models, two widely used tools for sustainable fisheries management and marine conservation.

Keywords: fish biology, data gaps, life history, biodiversity monitoring, marine ecosystems