

## **PhD Thematic Area Marine Ecology and Biology-Fishery Biology**

A major issue for marine ecosystems is to allow the long-term sustainability of exploited resources while maintaining biodiversity and habitat conservation. Anthropogenic pressures can impact marine biodiversity and one of the most important is probably overfishing. Fishery management is evolving towards Ecosystem Approach to Fisheries (EAF) in order to limit negative effects on marine environment because fisheries operate within a complex array of species interactions, hence a more holistic approach incorporating biological interactions is recommended. Among species interactions, trophic relationships can particularly play a dominant role in structuring marine fish populations, still interspecific competition occurs in closely related morphologically similar species with similar resource requirements and limited foraging ranges. In view of the profound effect of competition on population and community dynamics, the co-existence of two or more exploiters of quite similar resources is especially interesting in situations of limited resources or in highly exploited areas such as the Adriatic, which nearly always intensify competition, leading competitors to develop a wide range of strategies to avoid direct competition, including high levels of dietary specialization. Among the most common strategies to avoid direct competition are temporal or spatial segregation of foraging; feeding upon slightly different organisms, whether prey species or developmental stages; and the development of distinct morphological/physiological characteristics between very similar predator species. A better knowledge of species interactions is consequently a major issue of the EAF in order “to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries” (FAO 2008).