A knowledge platform to inform on the effects of trawling on benthic communities

Muntadas, Alba; Lample, Michel; Demestre, Montserrat; Balle-Beganton, Johanna; de Juan, Silvia; Maynou, Francesc; Bailly, Denis.

Abstract

For a successful implementation of an Ecosystem Approach to Fisheries (EAF) management, it is necessary that all stakeholders involved in fisheries management are aware of the implications of fishing impacts on ecosystems and agree with the adopted measures to mitigate these impacts. In this context, there is a need for tools to share knowledge on the ecosystem effects of fisheries among these stakeholders. When managing bottom trawl fisheries under an EAF framework, one of the main concerns is the direct and indirect consequences of trawling impacts on benthic ecosystems. We developed a platform using the ExtendSim[®] software with a userfriendly interface that combines a simulation model based on existing knowledge, data collection and representation of predicted trawling impacts on the seabed. The platform aims to be a deliberation support tool for fisheries' stakeholders and, simultaneously, raise public awareness of the need for good benthic community knowledge to appropriately inform EAF management plans. The simulation procedure assumes that trawling affects benthic communities with an intensity that depends on the level of fishing effort exerted on benthic communities and on the habitat characteristics (i.e. sediment grain size). Data to build the simulation comes from epifaunal samples from 18 study sites located in Mediterranean continental shelves subjected to different levels of fishing effort. In this work, we present the simulation outputs of a 50% fishing effort increase (and decrease) in four of the study sites which cover different habitats and different levels of fishing effort. We discuss the platform strengths and weaknesses and potential future developments.