# ASSESING EFFECTS OF A FISHING PROTECTED ZONE ON FISH ASSEMBLAGES. ROSES' BAY CASE STUDY (NW MEDITERRANEAN SEA)

Elena Fagín, Laura Recasens, Ulla Fernández-Arcaya

Institut de Ciències del Mar (ICM-CSIC), Passeig Marítim de la Barceloneta, 37-49, 08003, Barcelona, Spain (elena.fagin@gmail.com).

The increase in abundance, biomass and diversity within protected areas has been well documented, especially in rocky littoral areas. In this study we assess the effects of a two years fishing ban in a muddy-sandy bottom Roses' fishing ground (NW Mediterranean) located at 130 m depth. This fishing ground was closed by fishermen during 2014-15, in order to protect hake (*Merluccius merluccius)* recruitment, the main target species of the trawl fleet in Roses. Population density, biomass, size and diversity were compared inside and outside the protected zone to evaluate changes in the fish community. Biological data were collected monthly on board of trawl fishery vessels from March to June 2015. A total of 51 fish species were found inside the protected and 40 outside. From the 13 species found exclusively in the protected area, stands out the presence of vulnerable species as *Raja polystigma,* suggesting that the closed area could act as a refuge for some species. Results showed significant higher values of density inside (mean value= 15.724 ind/km$^2$) in comparison with outside (6.616 ind/km$^2$) and also biomass (875 kg/km$^2$ inside, 299 kg/km$^2$ outside) for the overall community values, as well as for the most frequent species. The observed differences between areas were more marked in commercial species (i.e. *Merluccius merluccius*, *Lepidotrigla cavillone*, *Lepidorhombus boscii*, *Argentina shpyraena* and *Trachurus trachurus*) than in non-commercial ones (i.e. *Capros aper* and *Scyliorhinus canicula*). Moreover, both small-sized and large-sized individuals of the most frequent species were found mainly into the protected area. Our results suggest that the management measure adopted by Roses fishermen has positive effects on the demersal community.