

{rokbox title=|Gamba roja de Sóller :: Photo credit: Ana Morillas (COB-IEO)|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-gamba-roja-soller-ideados-amores-et-al-2013-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-gamba-roja-soller-ideados-amores-et-al-2013.jpg{/rokbox}

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[Influence of the hydrodynamic conditions on the accessibility of *Aristeus antennatus* and other demersal species to the deep water trawl fishery off the Balearic Islands \(western Mediterranean\)](#)

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Abstract: Monthly catches per unit of effort (CPUE) of adult red shrimp (*Aristeus antennatus*), reported in the deep water bottom trawl fishery developed on the Sóller fishing ground off northern Mallorca (Western Mediterranean), and the mean ocean surface vorticity in the surrounding areas are compared between 2000 and 2010. A good correlation is found between the rises in the surrounding surface vorticity and the drops in the CPUE of the adult red shrimp. This correlation could be explained by assuming that most of the surface vorticity episodes could reach the bottom, increasing the seabed velocities and producing sediment resuspension, which could affect the near bottom water turbidity.

A. antennatus

would respond to this increased turbidity disappearing from the fishing grounds, probably moving downwards to the deeper waters. This massive displacement of red shrimp specimens away from the fishing grounds would consequently decrease their accessibility to fishing exploitation. Similar although more intense responses have been observed during the downslope shelf dense water current episodes that occurred in a submarine canyon, northeast of the Iberian peninsula. The proposed mechanism suggesting how the surface vorticity observed can affect the bottom sediments is investigated using a year-long moored near-bottom current meter and a sediment trap moored near the fishing grounds.

The relationship between vorticity and catches is also explored for fish species (*Galeus melastomus*, *Micromesistius poutassou*, *Phycis blennoides*

) and other crustacean (

Geryon longipes

and

Nephrops norvegicus

), considered as by-catch of the deep water fishery in the area. Results appear to support the suggestion that the water turbidity generated by the vorticity episodes is significant enough to affect the dynamics of the demersal species.

Keywords: *Aristeus antennatus*, Mesoscale Eddies, Vorticity, Turbidity, Sediments, Red shrimp