

{rokbox title=|Yearly spatial distribution of real (observed, left), modelled (centre), and cross-predicted (right) SHQ from 2001 to 2005 (from first to fifth row) :: Image: Authors|thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-modelado-pr ediccion-puesta-atun-rojo-ices-alvarez-berastegui-et-al-2016-thumb.jpg|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-modelado-prediccion-puesta-atun-rojo-ices-alvarez-berastegui-et-al-2016.jpg{/rokbox}

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, 2016.

[Pelagic seascape ecology for operational fisheries oceanography: modelling and predicting spawning distribution of Atlantic bluefin tuna in Western Mediterranean](#)

. ICES Journal of Marine Science. doi:10.1093/icesjms/fsw041

Abstract: The ecology of highly migratory marine species is tightly linked to dynamic oceanographic processes occurring in the pelagic environment. Developing and applying techniques to characterize the spatio-temporal variability of these processes using operational oceanographic data is a challenge for management and conservation. Here we evaluate the possibility of modelling and predicting spawning habitats of Atlantic bluefin tuna in the Western Mediterranean, using pelagic seascape metrics specifically designed to capture the dynamic processes affecting the spawning ecology this species. The different seascape metrics applied were processed from operational oceanographic data products providing information about the temporal and spatial variability of sea surface temperature, kinetic energy and chlorophyll a. Spawning locations were identified using larval abundances sampled in the Balearic Sea, one of the main reproductive areas for this species in the Mediterranean Sea. Results confirm the high dependence of bluefin tuna spawning ecology on mesoscale oceanographic processes while providing spawning habitat maps as a tool for bluefin tuna assessment and management, based on operational oceanographic data. Finally, we discuss the coming challenges that operational fisheries oceanography and pelagic seascape ecology face to become fully implemented as predictive tools.

Keywords: Balearic sea, ecosystem, ecosystem-based fisheries management, essential fish habitat, habitat forecast, Mediterranean, seascape metrics