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# Using multi-scale electronic tracking data to evaluate spatial protection measures for juvenile (undersized) bycatch of longline fisheries

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## Abstract

In spite of the RFMOs efforts, the substantial by-catch of juvenile individuals from target and accessory species is a major problem in the management and conservation in the surface longline fishery. This is the case of undersized (under 25 kg) juvenile swordfish, the target species, but also of blueshark, nowadays the most important species in the Atlantic fishery. Both are caught in large numbers due to the low selectivity of the gear, which threatens the sustainability of the fishery and the conservation of some populations. Of particular concern is the possibility that nursery areas – essential fish habitat - are disproportionately targeted by the fisheries. Knowing the spatial distribution and the patterns of habitat use of these juveniles are of primary importance to identify and quantify the stability of these EFHs, which can be provided by tracking data. Here we present novel data on satellite tracking of juvenile swordfish and blueshark in the Atlantic and Mediterranean to estimate their residences and home ranges, and to evaluate seasonal movements. We use this data to evaluate the potential efficacy in protection of the juvenile population segments of existing and possible future spatial-temporal closures in these two oceans. <![if gte mso 9]> <![endif]-> <![if gte mso 10]> /\* Style Definitions \*/ table.MsoNormalTable {mso-style-name:"Tableau Normal"; mso-tstyle-rowband-size:0; mso-tstyle-colband-size:0; mso-style-noshow:yes; mso-style-priority:99; mso-style-qformat:yes; mso-style-parent:""; mso-padding-alt:0cm 5.4pt 0cm 5.4pt; mso-para-margin:0cm; mso-para-margin-bottom:.0001pt; mso-pagination:widow-orphan; font-size:11.0pt; font-family:"Calibri","sans-serif"; mso-ascii-font-family:Calibri; mso-ascii-theme-font:minor-latin; mso-fareast-font-family:"Times New Roman"; mso-fareast-theme-font:minor-fareast; mso-hansi-font-family:Calibri; mso-hansi-theme-font:minor-latin; mso-bidi-font-family:"Times New Roman"; mso-bidi-theme-font:minor-bidi;} <![endif]-> <![if gte mso 9]> Normal.dotm 0 0 1 181 1035 IRD 8 2 1271 12.0 <![endif]-> <![if gte mso 9]> 0 false 21 18 pt 18 pt 0 0 false false false <![endif]-> <![if gte mso 9]> <![endif]-> <![if gte mso 10]> /\* Style Definitions \*/ table.MsoNormalTable {mso-style-name:"Tableau Normal"; mso-tstyle-rowband-size:0; mso-tstyle-colband-size:0; mso-style-noshow:yes; mso-style-parent:""; mso-padding-alt:0cm 5.4pt 0cm 5.4pt; mso-para-margin:0cm; mso-para-margin-bottom:.0001pt; mso-pagination:widow-orphan; font-size:12.0pt; font-family:"Times New Roman"; mso-ascii-font-family:Cambria; mso-ascii-theme-font:minor-latin; mso-fareast-font-family:"Times New Roman"; mso-fareast-theme-font:minor-fareast; mso-hansi-font-family:Cambria; mso-hansi-theme-font:minor-latin; mso-bidi-font-family:"Times New Roman"; mso-bidi-theme-font:minor-bidi;} <![endif]-> <!--StartFragment-->

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\*Speaker