{rokbox title=|Fishing grounds in the fishing tournaments conducted in the southeast of Mallorca (Western Mediterranean) :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-fishing-tournaments-sentinel-time-series-stock-assessment-uncertain-carreno-et-al-2025-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-fishing-tournaments-sentinel-time-series-stock-assessment-uncertain-carreno-et-al-2025.jpg{/rokbox}

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, Sámar Saber, 2025.
Fishing tournaments as sentinel time series when conventional stock assessment is uncertain.
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Abstract: We propose that catch-per-unit-effort (CPUE) data from fishing tournaments can derive a sentinel time series, serving as an indicator of unusual changes in unobserved abundance trends when stock assessments are uncertain. This proposition relies on strict tournament regulations that enforce consistent fishing tactics and standardized monitoring of catch and effort over time. However, three key challenges must be addressed to ensure its reliability: (i) correcting for daily bag limit effects on catch underreporting, (ii) accounting for between-boat variability and environmental factors affecting catchability at the trip scale, and (iii) modelling environmental effects on CPUE at the year scale. As a case study, we analyse a 19-year sentinel time series for the Mediterranean albacore (Thunnus alalunga), whose stock status remains uncertain due to data limitations. On average, 2.2 albacore were unreported per boat upon reaching the bag limit. No unusual changes were detected, as the series exhibited an apparent stability, with an average growth rate of 1.06 (95% credible interval: 0.77–1.48). Despite uncertainty, catchability peaked at an optimal wave height, while a hyperstability scenario was rejected by accounting for the boat consistency in tournament participation. Overall, our framework holds promise for improving the understanding of data-limited fisheries dynamics.

Keywords: catchability, CPUE trends, fishing tournaments, state space model, unreported catches