

Abstract

CMSY and Trend Analyses Reveal Depletion in Data-Poor Migratory Fish Stocks of Galicia (NW Spain) [†]

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Abstract

Diadromous fishes support culturally important small-scale fisheries in Galicia (NW Spain), but their assessment is constrained by scarce biological and effort data. We evaluated nine data-poor fishery units using first-sale records for *Alosa alosa*, *Anguilla anguilla*, *Petromyzon marinus* and *Platichthys flesus* from six Galician ports (A Guarda, Arcade, Carril, Ferrol, Vigo and Rianxo) over the period 1997–2026. The workflow combined data cleaning and ecological classification, Mann–Kendall and Theil–Sen trend analyses, actual catch over maximum catch, and catch-only CMSY models with species-specific resilience priors. Results revealed widespread signals of depletion in both anadromous and catadromous groups. Six of the nine units were classified as collapsed or critical by CMSY, three as over-exploited, and none as sustainable. The most severe cases were sea lamprey (*P. marinus*) in A Guarda and Carril ($B/B_{MSY} = 0.10$ and 0.11 , critical). *A. alosa* in A Guarda and European eel (*A. anguilla*) in Arcade, Carril and A Guarda (glass eel) were classified as collapsed ($B/B_{MSY} = 0.35$ – 0.50). Trend analyses detected significant declines in lamprey at A Guarda and Carril and in adult eel at Ferrol, whereas *P. flesus* in Rianxo showed a significant positive slope but remained under alert status. Overall, three stocks showed increasing trends (although only one was statistically significant), while six showed declining trends (of which only three were significant). These findings showed that public landing time series can support precautionary assessment in data-limited migratory fisheries, and justify adaptive harvest restrictions, intensified monitoring, and routine screening to support recovery and management prioritization.

Keywords: data-limited fisheries; diadromous fish; CMSY; stock screening; Galicia



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