{rokbox title=| Kaplan-Meier survival curves showing, for each studied species, the mean percentage (±SEM) of individuals surviving after catch at the following time intervals: 0-3, 3-6, 6-12, 12-24, and 24-48 h :: Image: Authors|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-from-deck-to-recovery-guijarro-2026-thumb-et-al.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-from-deck-to-recovery-guijarro-2026-et-al.jpg{/rokbox}

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From deck to recovery: drivers and thresholds of post-discard survival in skates captured by bottom trawling.
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Abstract:Assessing post-discard survival of vulnerable elasmobranchs is critical for effective marine conservation and coastal management. This study provides an integrated assessment of post-discard survival of five skates (*Rajidae*) commonly captured in the bottom trawl fisheries in the Northeast Atlantic and the Western Mediterranean:
Leucoraja naevus
,
Raja clavata
,
R. miraletus
,
R. polystigma
and
R. radula
. Individuals were monitored on board for 48 h to assess injuries, vitality and reflex indicators, while physiological biomarkers were measured in blood plasma and dermal mucus. The environmental variables on deck, during the catch, and in the recovery tanks were also registered. All mortality occurred within the initial 24 h, after which surviving individuals achieved complete physiological recovery. Air exposure time, ambient air temperature, and seawater temperature during recovery were key environmental determinants of survival. Individual vitality after catch, and metabolic disturbance were identified as the primary drivers of survival, with dermal mucus biomarkers (particularly lactate) identified as sensitive, non-invasive predictors. Marked interspecific differences in mortality were also observed, largely related to differences in thermal tolerance. To maximize survival, mitigation strategies should focus on minimize air exposure and implementing best handling practices. This study advances fisheries science and coastal management by providing a scalable framework to improve post-release mortality estimates. Integrating non-invasive biomarker monitoring into routine fisheries

assessments enables the development of evidence-based conservation strategies that strengthen bycatch mitigation, support ecosystem-based fisheries management, and enhance the long-term resilience of marine ecosystems.

Keywords:Discards,Fisheries management,Physiology,*Rajidae*,Reflexes,Survival,Vitality.