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Abstract

Fishing Discards of Rays and Skates *Rajidae* in Galicia Waters †

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Abstract: Several skate and ray species are widely distributed in European Atlantic waters but many aspects still remain unknown: stock structure, species dynamics, migration movements, and spawning areas. Rays are vulnerable to overfishing and are bycatch species in the bottom fisheries in European waters of the International Council for the Exploration of the Sea (ICES). At least eight species of skate and rays inhabit north and northwestern Iberian waters. In offshore waters of the continental shelf, the most abundant is the thornback ray, *Raja clavata*, followed by *R. montagui* and *Leucoraja naevus*. In shallower waters, the most abundant species are *R. undulata*, *R. microocellata*, and *R. brachyura*. Some elasmobranchs are considered to have high survival rates, including the skates. In European waters, several studies have estimated the survival of discarded rays caught by different gear types. These species are usually discarded due to their small sizes or lack of fishing quota. Several commercial species are under an exemption for the landing obligation due to their high survivability when discarded in southwestern European waters. The estimates of the specific composition of landing skates are arduous to obtain due to the difficulties of certifying the identification of landed rays. This study presents the survival rates of discarded skates and rays caught by commercial trawlers and gillnetters operating in north Atlantic Spanish waters. Our results indicate that approximately 66.8% and 100% of sampled rays caught by bottom trawlers and trammel nets, respectively, survive fishing and handling operations on board. Detailed quantitative and biological data of species on catches and discards in Galician fisheries are also presented. Following the ICES recommendations, a tagging program has been carried out to improve knowledge of the status and spatial movements of species. Understanding the patterns of discarding and survivability rates could be used to reduce the fishing impact on skate and ray stocks.

Keywords: rays; skates; *Rajidae*; discards; survival; bycatch; landing obligation

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