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Promote a sustainable fishery in a mediterranean lagoon through the recruitment of undersized target species

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Abstract

This study reports the experimental trials undertaken to minimize the discharge of undersized target species caught by the small-scale fishery in Lesina lagoon (S. Italy). Our aim was to assess the amount of bycatch and, more specifically, to collect discharged juveniles of European eels, *Anguilla anguilla* (Linnaeus, 1758), and grey mullets, *Mugilidae spp.* (Jarocki, 1822) for future restocking in nature. A total of 22 fishing surveys involving 236 fyke-nets were performed between October 2019 and February 2020. Undersized individuals of eels and mullets were kept alive on-board using small plastic tanks filled with aerated lagoon water. After biometric data were recorded, animals were released in a semi-closed aquaculture facility (ponds). During the study period, the bycatch rate by weight was 62.5 % with undersized grey mullets being the second most abundant taxa (8.2 % kg.). The discharge rate of mullets was 98.2 % by number and 81.2 % by weight from the total mullets catch, while the discharge rate of eels was 71.1 % by number and 11.2 % by weight from the total eels catch. A total of 211 juvenile eels and 206 juvenile mullets were selected from the bycatch portion and kept inside the semi-closed ponds facility for 153 and 122 days, respectively. At the end of the study the overall survivals (53.1% eels and 49.5% mullets), were collected from the ponds and released in nature. In the context of Blue Growth and the Code of Conduct for Responsible Fisheries, our results highlight a suitable strategy that minimizes fishing impact, promoting sustainable management of local natural resources. The use of simple methodologies that enhance the survival of undersize target species, together with their maintenance in aquaculture facilities for short periods, would contribute to improve population restocking actions

Keywords

lagoon bycatch, artisanal fishery, aquaculture facilities, population restocking