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Mobulid Ray Post-Release Mortality to Assess the Feasibility of Live-Release Management Measures

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Abstract : Taking strides towards the sustainable use of marine stocks requires science-based management of target fish populations and reduction of bycatch in non-selective fisheries. Among elasmobranchs, mobulid rays are faced with high extinction risk due to intrinsic vulnerability to fishing and their conservation has been recognized as a strong priority both in Indonesia and worldwide. Despite their common vulnerabilities to fishing pressure due to slow growth, late maturation and low fecundity, only manta rays, but not devil rays, are protected in Indonesian waters. However, both manta and devil rays are captured in non-selective fisheries, in particular drift gillnets, since their habitat overlaps with fishing grounds for primary target species (e.g. marlin, swordfish and bullet tuna off the coast of Muncar). For this reason, mobulid populations are being heavily impacted, and while national-level protections are crucial to help conservation, they may not suffice alone to insure populations sustainability. In order to assess the potential of applying live-release management measures to conserve mobulids captured as bycatch in drift gillnets, we deployed pop-up survival archival transmitters to assess post-release mortality in Indonesian mobulid rays. We also assessed which fishing practices, in particular, soak duration, affected post-release mortality in order to draw relevant conclusions for management.

Keywords : Mobulid, Devil ray, Manta ray, Bycatch
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