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Anthropogeomorphology of marine fisheries in India: understanding the critical roles of Marine Fishery Advisories towards achieving SDG 14

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The livelihoods of more than 30 per cent of the total population in India residing in nine maritime states and four Union Territories are dependent on the diverse ecosystem services offered by coastal and marine systems. Marine fisheries contribute significantly to the Indian economy through the foreign exchange from the export of seafood which corresponds to nearly 5 per cent of the overall export and 20 per cent of the agro-export. In recent times, the anthropogenic pressures due to extensive marine fishing introduce challenges in the marine environment. Marine anthropogeomorphology, capable of transforming the natural settings of the continental shelf dominantly, is often not studied in detail from the perspective of sustainable fishing. For example, the use of the assorted fishing gears can damage the sea floor, apart from the capture of juvenile and non-target fishes. Bottom trawling by mechanised crafts as a part of marine fishing affects the geomorphology of the continental shelf and continental slope by displacing boulders, interrupting the structure of the sediment column, resuspending sediments, and imprinting deep holes on the muddy sea bottom. Occasionally, the abandoned fishing nets/gears on the seafloor are also responsible for the geomorphological damages to the bottom of the sea and death of several marine benthic flora and fauna, a phenomenon referred to as 'ghost fishing'. Further, Illegal, Unreported and Unregulated (IUU) fishing in the ocean also poses major threats for the marine environment. Thus, it is essential to quantify these impacts of anthropogeomorphology in order to achieve the targets of the Sustainable Development Goal (SDG) 14, promulgated by the United Nations Organisation. Marine Fishery Advisories, especially, Potential Fishing Zones (PFZ) advisories may be helpful in reducing the impacts by aiding sustainable harvesting of pelagic fishes under the current scenario. The ESSO-Indian National Centre for Ocean Information Services (INCOIS) is the nodal agency, which disseminates PFZ advisory since 1999 using remotely sensed datasets of sea surface temperature and chlorophyll-a to reduce the uncertainty during marine fishing. PFZ advisory can help to promote environment-friendly fishing by reducing the search time and hence, ensuring minimal damage to the marine environment.