Indigenous knowledge in the beach seine fisheries in Sri Lanka: An indispensable factor in community-based fisheries management

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ARTICLE INFO

ABSTRACT

Small-scale fishing over the globe is based primarily on fisher indigenous knowledge (IK), accumulated through many generations of close interactions between people and the natural world. Community-based beach seine fisher communities of southern Sri Lanka were studied through standard ethnographic methods to ascertain the traditional method in using fishers' IK, and explore empirically the accuracy in using those methods distilled from the traditional fishers. Study revealed that, inter alia, traditional fishers use IK to predict the commencement of fishing season, and identify and quantify the species composition occurring at their fishing territory. Ten traditional methods those which are important for identifying and quantifying the fish school were distilled. Explored methods frequently used by traditional fishers were based on the changes of seawater color (folk oceanography) and the behaviour of sea terns (*Sterna* sp.). Traditional fishers' responses on frequency of utility of explored methods in day-to-day fishing activities were in accordance with the findings of the empirical study. Moreover, principal component analysis (PCA) revealed that PC score loading in fishers' expectation and fishers' realization had a positive significant relationship ($r=0.814$, $p<0.001$). This indicated that traditional fishers' expectation on composition and quantity of fish school arriving at fishing territory (*ex-ante*) is accurate and reliable at the realization (*ex-post*). As such, there exist opportunities to fisheries co-management for the coastal fisheries in Sri Lanka, incorporating fishers' indigenous knowledge in resource exploitation.