

Bait specificity in Hook and line fishery of River Ganga and associated conservation issues

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Recent survey in lower 1,110 km stretch of River Ganga regarding 'hook and line' fishery revealed that fishers apply their inherited indigenous knowledge for selection of bait to harvest finfish and shellfish from river water. A total number of 26 different types of baits under 07 categories were recorded. Six varieties of fish species and four types of insects are found to be prevalent for catching carnivorous fishes. Five specially modified indigenous types of bait moulded with fish attractants were also documented. Bait-fish species association in hook and line fishery of river Ganga is discussed. Feeding habits of the target fishes was compared with the type of baits employed. Conservation issues associated with hook and line fishery is highlighted along with possible remedial measures. Different varieties of hook & line fishery which are in operation in river Ganga are briefly described. Indigenous Traditional Knowledge (ITK) associated with hook & line fishery needs to be properly documented and preserved for developing and encouraging 'sport fishery' in River Ganga.

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The diverse nature of fish fauna in a large flowing river system like Ganga is best reflected through its fishing practices. As the river comes across varied topographical conditions, fishing exercises also vary notably. A number of fishing gears each having specific fishing techniques are put to use in river Ganga. However, such practices vary depending upon the landscape and availability of targeted fish species. Since the fishes belonging to upper trophic level of the aquatic ecosystem generally fetch higher economic return, therefore, attempts are mostly made to capture them through angling. Out of the several traditional fishing practices, hook and line fishing forms one of the most prevailing and feasible gears in terms of cost to exploit maximum of the pelagic, column and demersal fish species from the coastal waters¹. Similar instances are met with the fishing activities of inland water bodies. Comprehensive work on fishing gears of inland waters of India - specifically of river Ganga was documented long back by several workers^{2,3,4,5}. On the other hand, detailed documentation of non-selective fishing gears along with its sustainable measures from the lower stretch of river Ganga was put on record in

recent past⁶. However, such documents lacked information related to specific hook & line fishery. Documentation of various fishing techniques of northeast India depicted four different types of hook & line fishing procedures⁷. However, being one of the popular fishing methods in the country operated in almost every water body, there is not much documentation regarding hook and line fishery techniques of the inland open waters especially of the major rivers like Ganga. In river Krishna, hook & line fishery is reported from almost entire stretch of the river⁸. This indigenous method of fishing is practiced both as a sport as well as means for livelihood producing substantial amount of catch from the open water bodies. The entire process of hook & line, being comparatively simpler as compared to other fishing practices, are found to be operated extensively in the entire middle and lower stretch of river Ganga. However, apart from different modes of hook & line fishing, variation of bait also plays a significant role. In this type of fishing techniques, the fishes are mainly encouraged or rather tempted towards gulping the bait. In a vast continuous flowing river system like Ganga, the type of hook and line arrangement is somewhat different (mostly multiple hook and line) in comparison

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