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Estimation of Marine Fish Landings Data from the Potential Impact Zones of Vizhinjam International Seaport, Kerala, India

Marine fish landings data from the potential impact zones of Vizhinjam International Seaport was estimated during 2021-22. The approach of Multistage Stratified Random Sampling established by CMFRI to estimate the national fish landings was used to estimate the fish landings from the direct footprint of development (Zone-1, 0- 2 km), potential impact zone (Zone II, 2- 5 km), and control zone (Zone III, 5-10 km) of the proposed project. The basic strata of the aforesaid design will be the landing centres, therefore, for the purpose of this project, all landing centres within a 10-kilometer radius of the Vizhinjam International Sea Port project were selected for fish landings appraisal. Extensive field surveys, experimental fishing, and sample collection on marine fishery resources were all part of the work schedule. An estimated 23934.03 tonnes of fish were landed from the three zones of Vizhinjam port during the reporting period (June 2021–May 2022). According to monthly catch analysis, the peak landings occurred in August, followed by December, and the lowest catch occurred in June 2021. More fish were landed during the monsoon season (39%) compared to the post-monsoon (32%) and pre-monsoon (29%). Landing centres located in the zone I contributed more to the landings (55%), followed by zone II (26%) and zone III (19%).

Fish catch data collected during the present investigation were compared with the baseline data collected during 2011-12 to elucidate the impact of port construction on the fishery activities along the potential impact zones of the project. The approach used to estimate fish landings and the landing centres chosen were both comparable to that of the current study. The total fish catch estimated from June 2021 to May 2022 was 23934 tonnes, which is 3.35 % higher than the baseline catch estimated during 2011-12 (23156 tonnes). The fish landings mainly comprised of pelagic fishes (Tuna, sardines, mackerel, scads, ribbonfishes etc.) followed by demersal fishes and cephalopods. Annual and biannual fluctuations in landings of specific pelagic fishes have been observed from the Vizhinjam coast (earlier fishery and biological studies)

resulting in the huge landings of a particular pelagic fish during one year and witnessing a few landings report of the same species in the coming year and an abundance of a new species. Since the majority (>60%) of the landings comprised of pelagic fishes, fluctuations in the species wise landings (pelagic fishes) are common to Vizhinjam coast. Due to this, the fish landings reported from Vizhinjam and its nearby landing centres were in a mere stagnant phase for years, where couldn't notice a great rise or fall in the annual landings. Monsoon fishery was affected at Vizhinjam for the last few years due to the less number of migrant fishers from the northern side of Thiruvananthapuram coast, this was mainly associated with the construction of the fishing harbour at Perumathura and the availability of suitable berthing facilities at Perumathura harbour during monsoon season. The failure of Southwest monsoon in certain years was also attributed to the fluctuations in the availability of pelagic resources and their recruitment. COVID-pandemic affected the actual fishing days during the last two years and contributed to the fluctuations in the landings. But during 2022, things were in line, and a good quantum of fish was landed during monsoon season with the ever-highest landings (last five years) of Ribbon fishes, Indian oil sardine and Scads. The experimental fishing conducted along the commercial fishing grounds helped to identify the present fishing ground and species composition of various gears. Seasonal and zonal variations of fish catch analysis depicted the highest catch from the direct footprint zone, implying the insignificant impacts of the development phase of Vizhinjam International seaport on the availability of fish resources. The present analysis on the estimation of fish landings from the potential impact zone of Vizhinjam International seaport depicted negligible effects on the fish landings and stated that the current phase of the port (construction phase) has insignificant impacts on the fish availability and landings along the 10 km zone. The impact assessment during the port's operational phase will reveal the fish landing's unique status and availability. Hence, studies need to be conducted during the operational phase to examine its effect on the marine habitat, flora, and fauna.

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