Social Cost of Marine Juvenile By-catch: A Study from India

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Abstract

The increasing biodiversity loss is a major global concern today. India is endowed with rich marine biodiversity areas. Nevertheless, overfishing has been reported as one of the important drivers of marine biodiversity loss. This is an unintended consequence of fishing on marine biodiversity, a cost to the society. This study provides a review of overfishing and estimates of social cost in terms of juvenile species loss besides suggesting solution to minimize the cost so that the stock of fish resources and biodiversity are sustained while simultaneously harvesting fish for human purposes. The estimate of social cost is based on case study conducted in Andhra Pradesh state, which is located in the east of India with a coastal line of 974 kilometers and a continental shelf of 33,227 km2. This study has made use of secondary data on fish landings from the government of Andhra Pradesh and the Central Marine Fisheries Research Institute to examine the trends and composition of species harvested over time in Andhra Pradesh. Two primary data sets collected during the period 2013-14 and 2014-15 have been used to estimate the proportion and values of catch and juvenile by-catch. As far as juvenile catch is concerned, we segregated them based on length at first maturity. The study also shows that 59.8 percent of the future biomass is forgone due to juvenile catch that needs to be regulated. The cost of juvenile catch can be avoided by regulating the excessive fishing efforts used for harvest. One of the best strategies to regulate by-catch harvest is to make fishers take into account the implicit cost incurred by them due to juvenile catch besides providing simple juvenile reduction technologies with a fair amount of subsidy.

Keywords: Marine Biodiversity, By, catch, Social Cost, India

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