

Effects of climate change on Indian marine fisheries

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The marine fish production of India has increased from 34.76 lakh tones in 2020-21 to 44.95 lakh tones in 2023-24 with annual average growth rate of 8.9%. The ICAR – Central Marine Fisheries Research Institutes (CMFRI) reported that **Marine fish stock assessment studies in Indian waters showed that the stocks are in good health and 91.1% of the 135 fish stocks assessed in different regions during 2022 were found sustainable.** Further, the fisheries research institutes under the aegis of the Indian Council of Agricultural Research (ICAR), Government of India, regularly undertake scientific studies to assess the impacts of climate change and to develop climate-resilient strategies for sustainable fisheries and aquaculture. Studies under the National Innovation in Climate Resilient Agriculture (NICRA) include vulnerability assessments of wetland fisheries in Assam, West Bengal, Bihar, Odisha, and Kerala; climate trend analysis for major river basins; and evaluation of impacts on fish distribution, catch composition, and yield. In the marine fisheries sector, research covers climate change modelling, projections for fish catch and mariculture production, risk and vulnerability assessments, wetland mapping, carbon footprint and blue carbon potential studies, ocean acidification impacts, species response analysis, and adaptive management measures. Awareness campaigns and capacity-building programmes are also conducted by the ICAR in States such as Odisha, Assam, West Bengal, and Kerala to enhance the preparedness of fishers against climate change.

The PMMSY programs, implemented in collaboration with State and Union Territory (UT) Governments, contribute significantly to climate change adaptation and mitigation by promoting sustainable fishing practices, eco-friendly aquaculture methods, resilient infrastructure, and marine ecosystem conservation. Key ecological restoration efforts include the development of artificial reefs in coastal waters and the implementation of sea and river ranching programs to replenish native fish stocks and strengthen aquatic ecosystems. These measures aim to protect biodiversity, boost productivity, and safeguard fisher communities from the adverse effects of climate change.

Additionally, under PMMSY, the Department have taken up a transformative initiative to develop existing 100 Coastal Fishermen Villages (CFV) situated close to the coastline in all coastal States and Union Territories (UTs) as Climate Resilient Coastal Fishermen Villages (CRCFV) and to make them as economically vibrant fishermen villages. Under this, 100 villages have been identified based on the guidelines, jointly with the respective states/UTs. Interventions under this component are tailored to local needs to enhance the climate resilience based on the gap analysis studies. The development of CRCFV is a Central Sector Scheme Component of the PMMSY with a unit cost of Rs. 200 lakh per fishing village, and the entire cost (100%) is met by the Government of India.

The Pradhan Mantri Matsya Sampada Yojana implemented by the Department of Fisheries, Government of India in coordination with the State Governments and UT Administrations promotes hygienic fishing and fish handling practices, through support for quality fish production, species diversification, promotion of export-oriented species, branding, standardisation and certification. Creation of post-harvest infrastructure with emphasis on seamless cold chain and development of modern fishing harbours and fish landing centers. Training and Awareness to stakeholders including on hygienic handling practices on-board fishing vessels and in the farms to maintain quality standards is a thrust area of the scheme. Under PMMSY, 58 fishing harbours and fish landing centres at a total outlay of Rs. 3281.31 crore have been approved including modernization and upgradation of existing fishing harbours. In addition, Rs. 1568.11 crore has been approved for the construction of 734 ice plant/cold storages, 192 fish retail markets, 21 Modern Wholesale fish markets, 6410 fish kiosks including ornamental kiosks and 134 value added enterprise units. Further the Department of Fisheries, Government of India has also sanctioned 27,297 units of post-harvest fish transportation facilities viz., refrigerated (375) and insulated trucks (1407), Live Fish Vending Centres (1265), auto rickshaws (3915), motor cycles (10924) and bicycles with ice box (9412) at a total cost of Rs. 835.27 crore. Additionally, Sagar

Mitras deployed in coastal villages to educate fishers on hygienic handling, personal hygiene, and sustainable fishing methods.

Furthermore, the Marine Products Export Development Authority (MPEDA), through its Network for Fish Quality Management and Sustainable Fishing (NETFISH) and in coordination with State Governments, has undertaken extensive awareness and training programmes for marginal fishers on hygienic fishing, handling, and post-harvest practices. As reported by MPEDA, since 2007, more than 45,500 programmes have been conducted, benefiting nearly 15 lakh stakeholders across all maritime States, leading to reduced post-harvest losses, improved seafood quality, enhanced fisher incomes, and strengthened competitiveness of Indian marine exports.

This information was given by Union Minister of State, Ministry of Fisheries, Animal Husbandry and Dairying, Shri George Kurian, in a written reply in Rajya Sabha on 20th August, 2025.

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