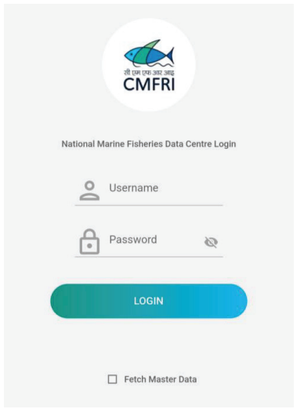
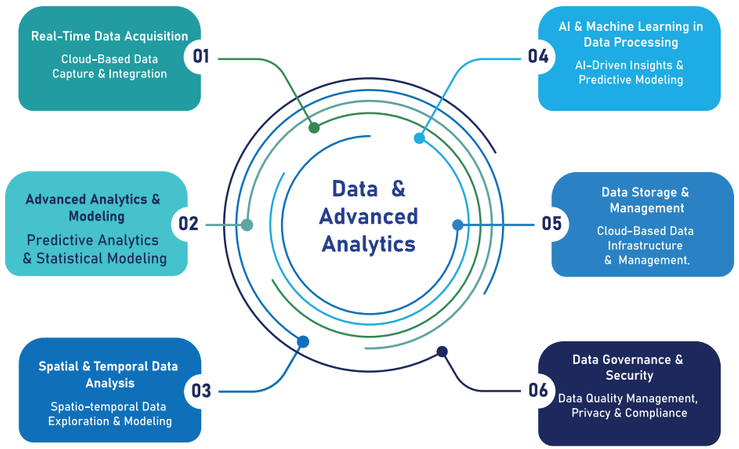
Digital Transformation – FCSA (Fish Catch Survey and Analysis)

FCSA is an innovative online application developed to streamline and modernize the data workflow. Enables real-time fish landings data collection from landing centers via electronic devices

Platform incorporates modules for meticulous scrutiny, sophisticated analysis, accurate estimation, and comprehensive reporting.





Advanced informatics—including a geo-referenced fisheries information system, automated data assimilation platforms using electronic devices, and AI-driven validation tools—enhance data quality and analytical capability. The AI/ML module includes provisions for storing tagged images as virtual links to the data warehouses, ensuring that georeferenced metadata on catch composition is available for validation, research, and advanced modeling.

NMFDC architecture is also designed to assimilate data from other diverse streams. This includes provisions for log-book based catch data entries from vessels and a separate module on Marine Fish Diversity as perceived from catch and landing observations, complementing the taxonomic studies of the institute.

Scientific Role in Policy Formulation and Resource Management

NMFDC functions as the principal scientific backbone for national fisheries policy and legislative accountability and advanced research within CMFRI's fisheries informatics programme.

Beyond archival purposes, NMFDC data are systematically utilized for governance and strategic planning. The system includes provisions for extracting relevant cross-cutting information from its various modules to generate dynamic infographics and thematic plots, supporting data-driven decision-making for diverse stakeholders.

Provides the empirical basis for periodic revalidation of Potential Yield and Optimum Fleet Size estimates for India's Exclusive Economic Zone, informs Parliament and State Assembly responses on fisheries-related matters and supports the preparation of strategic policy briefs for marine sector management.

To enhance data-driven decision-making, CMFRI is integrating the NMFDC's extensive time-series database with geo-informatics, automation, and AI-driven analytics. Ongoing initiatives include

- Development of an Automated Marine Fishery Resources Data Collection System employing computer vision for species identification and quantification, thereby strengthening real-time monitoring, forecasting, and resource management capabilities.
- Dedicated module to cater directly to international data reporting requirements, ensuring timely and accurate submission to global fisheries bodies.

To complement its primary datasets, the NMFDC also maintains a tranche of secondary information. This includes a searchable metadata repository of scientific papers published on the marine fisheries management of the Indian EEZ, positioning the Centre as a comprehensive knowledge hub for researchers and policymakers.

PUBLISHED BY:

Dr. Grinson George, Director
ICAR – Central Marine Fisheries Research Institute
Post Box No. 1603, Ernakulam North P.O., Kochi, Kerala, India
Tel: +91-484-2394867 | Fax: +91-484-2394909
E-mail: director.cmfri@icar.org.in | Web: www.cmfri.org.in

PREPARED BY:

J. Jayasankar, Somy Kuriakose, Mini, K. G., Manu, V. K., Sindhu K. Augustine, Manjeesh, R., Sijo Paul and Eldho Varghese

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N M F D C

National Marine Fisheries Data Centre

National Data Warehouse and Analytical Hub for India's Marine Fisheries

ICAR-Central Marine Fisheries Research Institute
(Department of Agricultural Research and Education, Ministry of Agriculture and Farmers Welfare, Government of India)
Post Box No. 1603, Ernakulam North P.O., Kochi-682 018, Kerala, India

Genesis of NMFDC

National Marine Fisheries Data Centre (NMFDC), placed within the ICAR–Central Marine Fisheries Research Institute (CMFRI) in Kochi, Kerala, serves as India's central repository and analytical hub for exploited marine fishery resources. Recognizing the complexity of India's multispecies marine ecosystem, CMFRI developed a scientifically rigorous, continuous data collection framework based on a stratified multi-stage random sampling design to ensure reliable estimation of marine fish landings.

To manage the growing volume of data, the National Marine Living Resources Data Centre (NMLRDC) was founded in 1982 within the Institute's Fishery Resources Assessment Division (FRAD) as a dedicated repository for information on exploited marine living resources.

Over time, the NMLRDC evolved to focus more on fished stocks, their landings, fishing effort, and data on fishermen, including their demographics and fishing practices, ultimately transitioning into the current NMFDC.

Today, the NMFDC remains the custodian of India's long-term marine fisheries database, supporting scientific assessments, policy formulation, and the sustainable management of marine fishery resources.

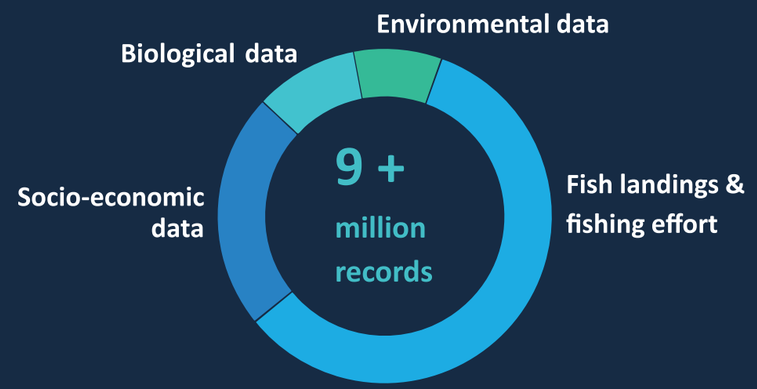
NMFDC – Data
Informed policy
Sustainable future

Comprehensive National Marine Fisheries Database

NMFDC's core dataset is based on fishery data collected through a stratified multi-stage random sampling design.

Design effectively captures the complexity of India's marine fisheries, with landings monitored at approximately 1,200 fish landing centres along the 11,099 km coastline.

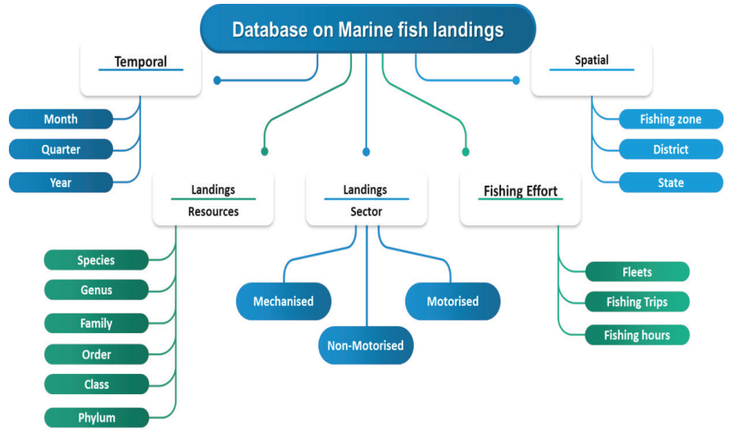
It ensures robust estimation of monthly marine fish landings and fishing effort, organized by fishing zones based on species - wise catch composition, fishing effort, and detailed craft–gear information.



In addition to fish landings statistics, the Centre integrates detailed biological data from sampled specimens (such as length-frequency, age, weight, sex, and maturity) and extensive socio-economic information derived from structured interview surveys. These surveys cover the economics of fishing operations and the well-being of fishers and their households. This integration of quantitative landings with biological and socio-economic variables forms a critical foundation for sustainable marine fisheries research, bio-economic valuations, and policy formulation.

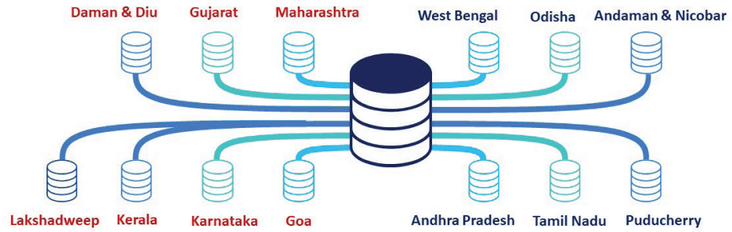
Data Architecture and Analytical Framework

NMFDC maintains analyzed marine fish landing data dating back to 1950, creating a multi-decadal baseline crucial for reconstructing historical ecology and conducting long-term stock assessments. Data are meticulously organized by state, district, quarter, resource group, and gear type, ensuring high granularity and traceability.



Marine Fisheries Census Data

NMFDC serves as the dedicated national repository for the Marine Fisheries Census, conducted periodically by ICAR-CMFRI since 1980 offering a centralized platform for access and analysis. This provides a comprehensive, time-series database on the demographics, craft ownership, and socio-economic profile of India's marine fisher families. This repository gives insights on demographic shifts, technological advancements & socio-economic trends and supports in decision-making, resource management and research in marine fisheries management.



In accordance with the citation guidelines issued by ICAR-CMFRI, data obtained from the National Marine Fisheries Data Centre (NMFDC) should be cited as

ICAR-CMFRI [Year]. MarineSTAT, National Marine Fisheries Data Centre, ICAR-Central Marine Fisheries Research Institute, Kochi, India.

NMFDC provides 70+ years of baseline data – an essential long-term perspective for fish stock assessment