

Approach and implementation strategies for Marine Fisheries Census 2016

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Introduction

Fisheries sector plays a significant role in the socio-economic development of a developing country like India by generating employment and income, besides being source of protein for a large section of the population. It generates a substantial amount of foreign exchange through exports. Over a period, marine fisheries sector in India has witnessed a significant improvement in fishing gear technologies, infrastructure, communication and transportation facilities which resulted in an increase in the annual marine fish production from 0.5 million tonnes in 1950 to 3.59 million tonnes in 2014. Marine fisheries are considered as renewable resources, but its management and development supported by focussed research activities are necessary to ensure sustainable fish production from the seas. For this, it is very much essential to have reliable and updated knowledge about marine fishery resources as well as the information about socio-economic status of fisher-folk and infrastructure facilities existing in marine fishing villages. With this aim, the first planned survey was carried out by ICAR-Central Marine Fisheries Research Institute (CMFRI) during 1948-49 period and the information regarding fishing seasons, village-wise fishermen population, number of active fishermen, various types of fishing units and variety of fish caught were collected. A systematic and well organized Marine Fisheries Census was carried out by the institute in 1980 covering all maritime states except Maharashtra, within a period of less than a month. Micro level information on different aspects of marine fisheries was collected by covering 2132 marine fishing villages, 1442 landing centres and 333038 households. Realising the importance about demographic features, socio-economic status and infrastructure of marine fishing villages for

developmental plans, Government of India, restarted 'Marine Fisheries Census' scheme in 2005 during the 10th Five Year Plan after a gap of 25 years. Covering 3202 marine fishing villages, 1332 marine fish landing centres and 756212 households the 2005 Marine Fisheries Census generated a wealth of information on various aspects of marine fisheries in India. Subsequently in 2010, the Marine Fisheries Census was completed within a period of 30 days in all the maritime states and Union Territories as a component of the 11th Five Year Plan of India. It now continues at a regular five year interval through ICAR-CMFRI with funding support from the Department of Animal Husbandry, Dairying and Fisheries (DADF) under Ministry of Agriculture and Farmers' Welfare.

'Marine Fisheries Census-2016' will be carried out by ICAR- CMFRI in the maritime states of West Bengal, Odisha, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Goa, Maharashtra and Gujarat as well as Union Territories of Puducherry and Daman & Diu. The islands of Andaman & Nicobar and Lakshadweep will be covered by the Fishery Survey of India. Planned to be executed in the beginning of year 2016 within a period of 30 days as 'Marine Fisheries Census 2016' it has several important objectives. The objectives are to determine fishermen population size and structure at micro level, to assess the educational and socio-economic status of fisher-folk, to obtain occupational status of fishermen, to determine active fishermen engaged in fishing, to determine gender-wise occupation in fishing allied activities, to determine the number of craft and gear owned by fisher-folk and the number of crafts and gears in the fishery, to obtain information on existence of infrastructure facilities and social aspects.

Schedule preparation

Three types of schedules (Schedule-I, Schedule-II with subset of 'Form a-e' and Schedule-III) were designed on preliminary basis by the Fishery Resources Assessment Division (FRAD) following brain storming sessions in the institute, in which Heads of different Divisions, Scientist-in-Charges of Regional / Research Centres and other Scientists made their contributions. The first Pre-Census workshop was organized at CMFRI, Kochi on 28th May 2013 in collaboration with DADF, Ministry of Agriculture, New Delhi. The workshop was attended by Deputy Director General (Statistics), DADF, Director-General, Fishery Survey of India, senior officials from ICAR-CMFRI, DADF, FSI and State Fisheries Departments. Detailed discussions were done on different data collection schedules used in Marine Fisheries Census 2010 and modifications were suggested. The developed data collection schedules were approved by the Technical Monitoring Committee set up by DADF.

In the second phase, a series of workshops were conducted at Vishakhapatnam, Mumbai, Chennai and Mangalore to finalize the data collection

schedules and to finalize the list of marine fishing villages in consultation with the state fisheries department officials and the field staff of ICAR-CMFRI. The draft schedules were presented and approved in a meeting organized by DADF under the chairmanship of Joint Secretary (Fisheries), with DDG (Fisheries), ICAR, Fisheries Development Commissioner DADF, Director General, Fishery Survey of India and Scientists of FRAD at Krishi Bhavan, New Delhi on 6th March 2014. Schedule-I was prepared for collecting the information about marine fishermen families, fishing crafts and gears owned by fishermen, their social, educational and occupational profile. Demographic features of marine fishing villages will be collected using Schedule-II while 'Form a-e' of sub-set of schedule-II will be used for collecting the information of Boat Building cum Repairing Yards (Form-a); Ice Factories and Cold Storages (Form-b); Freezing plants and Processing Plants (Form-c); Fish Curing Yards and Peeling Sheds (Form-d) and Oil Extraction Plants and Fish Meal Plants (Form-e) existing in the maritime district. The information related to Schedule-I will be collected by trained enumerators, while the detail in Schedule- II and Form a-e will be

Marine Fisheries CENSUS 2016
 (Household)
 (Fishermen population, Crafts and Gears)

Village/Town/Hamlet: _____ Circle/Panchayat Union/Block: _____
 Tehsil/Taluk: _____ District: _____
 State: _____ Period of Enumeration: _____
 From: _____ To: _____

Name(s) & signature(s) of Supervisor(s) with date(s) and Remarks: _____
 Name & Signature of Enumerator with date: _____

Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture & Farmers Welfare, Government of India
 Central Marine Fisheries Research Institute, Indian Council of Agricultural Research

Fig. 1. Schedule-I

MARINE FISHERIES CENSUS - 2016
 CENTRAL MARINE FISHERIES RESEARCH INSTITUTE, COCHIN
 Schedule II - Fishing villages & infrastructures

Serial Number	Name of fishing village	Total area (in acres)	No. of Pucca houses	No. of Katcha houses	Total population	Total fishermen population	IF drinking water available, state the source	Electrified (Y/N)	Connected by road (Y/N)	Whether any bus-stand/bus stop exists (Y/N)	IF not, the nearest bus-stand/bus stop and its distance (km)
1	2	3	4	5	6	7	8	9	10	11	12

Fig. 2. Schedule-II



Fig. 3. Workshop at Vishakhapatnam

collected by the field level supervisors during the census period. Schedule-III will be used for the collecting the information about the fishing crafts in the marine fish landing centres, which will be carried out by the field staff of the institute during the Fishing Ban period in the various maritime states. Both Schedule- II with subset of 'Form a-e' and Schedule-III were prepared in English, while Schedule-I was made in bilingual in respective regional languages for all maritime states and UTs.

Pre-Census Survey and Preparation of Frame

Marine fishing village is the basic geographic unit for the collection of data during Pilot Census. The lists of marine fishing villages for each maritime states and UTs were obtained from the respective State Fisheries Department to plan enumeration areas. All these marine fishing villages were verified, validated and updated through field visits by the deputed staff of ICAR-CMFRI in the Pre-Census phase during 12th to 17th October, 2015. A local person with minimum educational qualification of 10th class was the basic criteria for identification of local enumerators. They were selected either from the same or nearby fishing village, who were able to speak the regional language and collect detail information from the fisherfolk.

The information collected during pre-census survey from all maritime states and UTs by the field staff through State Level Supervisors (Scientist-in-charge of Regional/Research Centre of ICAR- CMFRI) were compiled before the actual census operation. This also gave the provisional information about the number of households to be covered per enumerator in a particular region.

Supervision of data collection



Fig. 4. Workshop at Chennai

The involvement of correct supervision is very essential to finish the entire census within the decided time frame. The various levels of supervisors were identified from both scientific and technical staff of the institute including Field Level Supervisors (Technical staff), District Level Supervisors (Scientists), State Co-ordinators (Scientist-in-charge of Regional/Research Centres), Regional Co-ordinators (Scientists of Fishery Resources Assessment Division), Project Leader (Head, Fishery Resources Assessment Division) and National Co-ordinator (Director, ICAR-CMFRI).

Total six workshops of two days duration were conducted to train all involved field, district and state level supervisors in the procedures for "Marine Fisheries Census-2016". The first workshop was conducted on 12th to 13th November, 2015 for all district level supervisors and field level supervisors of Kerala at Kochi. The successive workshops were conducted on 18th to 19th November, 2015 at Veraval Regional Centre ICAR-CMFRI for Gujarat, on 18th to 19th November, 2015 in Chennai Research centre ICAR-CMFRI for Tamil Nadu and Puducherry, on 19th to 20th November, 2015 at Vishakhapatnam Regional Centre ICAR-CMFRI for Andhra Pradesh, Odisha and West Bengal; on 20th to 21st November, 2015 in Mumbai Research Centre of ICAR-CMFRI for Maharashtra and Daman & Diu and on 1st-2nd December, 2015 at Mangalore Research centre of ICAR-CMFRI for Karnataka and Goa by the staff of FRAD. In total, 220 officials of ICAR- CMFRI were trained through the workshops to monitor and supervise "Marine Fisheries Census-2016" in the entire marine fishing villages of India.