

Marine Fisheries Census for India, 2005

The publication “Marine Fisheries Census 2005,” out recently in two volumes, is the outcome of a massive census effort relating to marine fishers and fisheries in India. Compiled by the Central Marine Fisheries Research Institute (CMFRI), Cochin, and the Fishery Survey of India (FSI), Mumbai, it provides a wealth of data invaluable for planning, research and decision-making, and for formulation of long-term strategies to meet current and future challenges.

Reliable data and databases are a pre-requisite for sound development plans. Marine fisheries planning and governance depend on reliable databases concerning human, material and financial resources – fishers, catches, craft and gear, fishing effort, prices and markets.

Capture or management interventions also require detailed information on landings, trends, species ratio and compositions, size at capture, length frequencies, catch per unit effort, mortality rates, and many other parameters.

Census history

The publication “Marine fisheries census 2005,” is a treasure-house of factual data. The CMFRI did the census for all maritime states and mainland Union Territories (UTs); the Fishery Survey of India executed the work for the UTs of Andaman and Nicobar and the Lakshadweep Islands. The Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture funded the census.

A preamble to the publication recalls the CMFRI’s first census on marine fisheries carried out way back in 1948-49. It was a survey of marine fishing villages and landings. Progressively better and more detailed surveys were carried out in 1957-58, 1961-62 and 1973-77.

In 1980, a well-organised and systematic census was carried out in all the maritime states of the mainland (except Maharashtra where the state government organised a census the previous year). It yielded valuable micro-

level data on all maritime states. The results were published by CMFRI in its *Marine Fisheries Information Service* No. 30, published in 1981.

The 2005 census was carried out after a gap of two-and-a-half decades, a period of substantial change in the marine sector – characterized for example by the introduction of mechanized trawlers and purse-seiners, the motorization of country craft, the advent of multi-day fishing crafts and new livelihood challenges facing fishers. The most extensive and intensive census so far, it was preceded by planning, technical consultations and census design exercises, by data collection schedules and awareness-raising publicity materials such as posters and handouts, and by sample surveys to test the schedules and train data enumerators.

The census was carried out from April 15 to May 15, 2005 in all marine states except Tamil Nadu

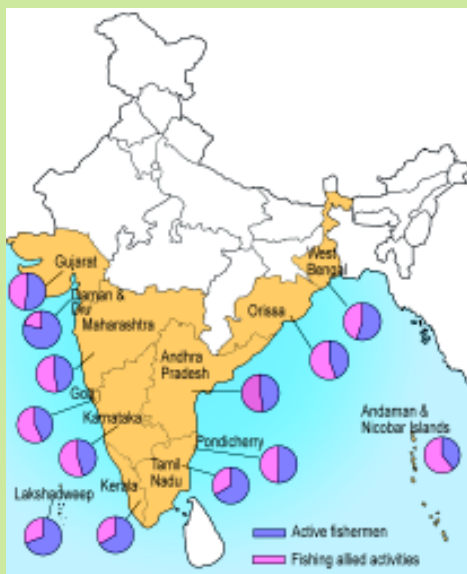


and Pondicherry, where it was put off to November-December, because of tsunami relief operations and the resettlement of fishers. A network of CMFRI officials conducted and coordinated the entire exercise, which covered 3 202 fishing villages, 1 332 landing centres and 756 212 households along maritime states.

The census data were collected at two levels. The enumerators



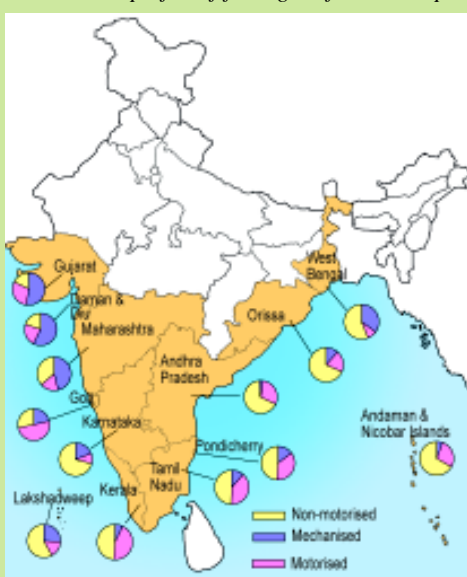
State-wise profile of fishers engaged in fishing, and fishing allied activities



Degree of mechanisation



State-wise profile of fishing craft ownership



Maps – not to scale

obtained micro-level data on individual households. Macro-level village-wise data, mainly on infrastructure facilities, was compiled by supervisors (CMFRI staff).

Some glimpses into summaries of data follow, along with graphs and tables prepared from selected data. In some cases, the results of the 1980 and the 2005 censuses are also compared (see table 1).

Glimpses into the summary data (census in coastal States and UTs)

Fisher population: Some 3.52 million fishers and family members who belong to 756 212 households live in 3 202 marine fishing villages of India. Orissa has the largest number of fishing villages – 641; Daman & Diu has the least (22). Women form 48.6 percent of the population; there are thus 948 females per 1 000 males. The average family size is 4.7. It is the highest in Karnataka (5.7), the lowest in Pondicherry (3.7).

Education: Nearly 56.5 percent of the fisherfolk are educated, the levels of education varying from primary (28.6% of the fisherfolk) to above-secondary education (5.6%). Kerala records the highest percentage of educated fisherfolk (72.8%), Andhra Pradesh (67.5%) has the highest percentage of un-educated fisherfolk.

Occupations of fishers: About 25.7 percent (889 528) of the fisherfolk are active fishers, of whom 80.7

percent (717 999) are full-time fishers. Table 2 details the occupations of fishers in India. About 46.8 percent of the fisherfolk engage in fishing and fishing-related activities. Among men, the major fishery-related occupations are labour (39.2%), net-mending (28.6%) and marketing (14%). The major women’s occupations are marketing (41.8%), labour (18.4%) and curing/ processing (18%). Women dominate in fish marketing (73.6%), while men dominate in net-repair and net-making (nearly 80%) and in providing labour to fishing boats (69.5%)

Religion: Hindus constitute 74.1 percent of fisherfolk families, Christians 16.6 percent and Muslims 9.2 percent. Christians dominate in Kerala (42.4%), followed by Hindus (30.7%) and Muslims (26.9%). Christians are significant also in Goa (37.3%) and Tamil Nadu (34.6%).

Fisheries co-operatives: About 15 percent of the fisherfolk are members of fisheries co-operative societies, one in five fisherfolk is a member of some co-operative society (either fisheries or any other). Tamil Nadu, Pondicherry, Kerala and Karnataka record significant percentages in co-operative membership.

Craft: Of the 238 722 fishing craft in India, 58 911 are mechanized and 75 591 motorized. Maharashtra and Gujarat account for 44.5 percent of the mechanized craft (Maharashtra has 13 053, Gujarat has 13 047). Of the 29 241 trawlers in the fishery, Gujarat accounts for 8 002, Tamil Nadu for 5 300, Maharashtra for 4 219, Kerala for 3 982. Tamil Nadu, Andhra Pradesh and Kerala together account for nearly two-thirds of the motorized craft. East coast states account for about 73 percent of the non-motorised/ non-mechanized craft.

Craft owned by fisherfolk: Of the 185 438 craft owned by fisherfolk, 35 806 are mechanised, 52 971 motorized and 96 661 non-motorized/ non-mechanized.

Table 1: A comparison of census figures from 1980 & 2005 – landing centres, fishing villages & fisher population

State/ Union Territory	Landing centres (nos)		Fishing villages (nos)		Fisher population	
	NMFS 1980	NMFS 2005	NMFS 1980	NMFS 2005	NMFS 1980	NMFS 2005
West Bengal	47	44	303	346	83 561	2 69 565
Orissa	56	57	236	641	1 17 144	4 50 391
Andhra Pradesh	379	271	453	498	3 26 304	5 09 991
Tamil Nadu	375	352	422	581	3 95 903	7 90 408
Pondicherry	27	26	27	28	25 312	43 028
Kerala	222	178	304	222	6 39 872	6 02 234
Karnataka	105	88	147	156	1 12 893	1 70 914
Goa, Daman & Diu	54	41	61	61	39 912	39 973
Maharashtra	182	152	315	406		3 19 397
Gujarat	173	123	179	263	1 52 015	3 23 215

Note: Maharashtra data are taken from Handbook on Fisheries Statistics 1977

Trawlers account for 39.6% of the mechanised craft, gillnetters for 31.3 percent, dolnetters for 19.2 percent. Gujarat (4 300), Tamil Nadu (3 274) and Maharashtra (2 526) are leaders in trawlers owned by fisherfolk, while West Bengal, Maharashtra, Gujarat and Orissa account for the bulk of the gillnetters. Of the 52 971 motorized craft owned by fisherfolk, 48 percent are fibreglass boats. Plank-built boats account for 22 percent and catamarans for 20 percent.

Other salient features: Nearly 62 percent of fisherfolk families involved in fishing do not possess any craft, about 49 percent have no gear. Nearly 47 percent of the families possess neither craft nor gear. In the maritime states, Kerala has 66 percent of such families, followed by West Bengal (49%), Tamil Nadu (46%) and others. In 10 percent of the fisherfolk families of Maharashtra, only women take part in fishing or allied activities. At the all-India level, this figure is 5 percent. The housing pattern is enormously varied. The proportion of *kutch* houses varies from 8 percent in Maharashtra to 91 percent in West Bengal. Kerala, Karnataka, Maharashtra and Gujarat are leaders in the number of primary educational institutions in fishing villages. In Kerala, Karnataka and

Maharashtra, almost all fishing villages are electrified. West Bengal and Orissa languish at the bottom of this table.

Health infrastructure (number of primary health centres and hospitals) is unsatisfactory in West Bengal, Orissa and Andhra Pradesh. Kerala, Karnataka, Maharashtra and Gujarat lead in the number of financial institutions. As for boat-building yards, Kerala leads with 112, followed by Karnataka with 32.

Kerala also has the largest number of freezing plants. According to the census, India has 399 processing plants and 471 cold storage facilities. There are 176 EU-approved processing and cold-storage facilities; also 303 units, both EU-approved and non-EU approved, that follow HACCP standards. This information is based on the data provided by the Marine Products Export Development Authority.

Table 2: Occupation status of fishers in India

State/ Union Territory	Full-time	Part-time	Occasional	Total working fishers	Fisher population
West Bengal	50 924	15 630	4 196	70 750	2 69 565
Orissa	74 980	34 315	11 987	1 21 282	4 50 391
Andhra Pradesh	1 09 644	13 008	15 962	1 38 614	5 09 991
Tamilnadu	1 85 603	15 954	5 351	2 06 908	7 90 408
Pondicherry	9503	401	437	10 341	43 028
Kerala	1 24 103	10 488	5 631	1 40 222	6 02 234
Karnataka	32 274	4 152	1 206	37 632	1 70 914
Goa	1 511	817	187	2 515	10 668
Maharashtra	54 901	12 484	4 689	72 074	3 19 397
Gujarat	68 956	10 185	4 181	83 322	3 23 215
Daman & Diu	5 600	194	74	5 868	29 305
Andaman & Nicobar	3 279	718	250	4 247	15 266
Lakshadweep	2 624	2 417	2 999	8 040	40 322
India	7 23 902	1 20 763	57 150	9 01 815	35 74 704

Glimpses into summary data (census in Andaman & Nicobar and Lakshadweep islands)

The Andaman-Nicobar group has 500 islands, a coastline of 1 912 km (one fourth of India's coastline) and a land area of 8 249 sq. km. The census here was launched on November 20 2005, in Port Blair. (The previous census was conducted in 1990.) It began with the training of 52 enumerators in Port Blair, most of them recruited from fishing villages and islands, educated up to higher secondary level or beyond. They obtained data from 100 marine fishing villages of Andaman-Nicobar, covering 3 275 fisher families.

Lakshadweep has 10 inhabited islands, a coastline of 132 km and a land area of 32 sq. km. Sixty-five enumerators selected in Lakshadweep covered the 10 inhabited islands for the census. Here are some of the findings.

Fisher population and occupation:

The total fisher population of Andaman-Nicobar, from 3 275 families in 100 fishing villages, is 15 266. Of these, 13 098 live in 75 villages of Andaman, 2 168 in 25 villages of Nicobar. Diglipur in north Andaman has the largest number of villages (28), and the largest number of households (664). The average family size is 4.66. In the Nicobar group of islands, Car-Nicobar has the highest number of households (195), followed by Cambell Bay (124). Women form 47.23 percent of the population.

77.2 percent of the fisherfolk are full-time fishermen, 16.9 percent part-time, 5.89 percent occasional fishermen. Some 43.1 percent of the fisher population take part in fishing-related activities. Women engage in fish marketing, net-making and mending, fish processing and in labour operations. Only 7.92 percent of the fisher population were members of any society, fisheries or any other.

In Lakshadweep, the 10 inhabited islands have a fisherfolk population of 40 322 who belong to

5 381 families. Androth has the largest number of households (1 302), with a population of 9 994. The average family size is 7.49. Women form 48.03 percent of the population.

One-fifth of the fisherfolk population in Lakshadweep engage in fishing activities. One-third of the active fishermen are full-time fishermen, 30 percent are part-timers, the rest are occasional fishermen. Net-making and repair is the most popular fishing-related activity among men (27%), curing is the most popular among women, with 54 percent.

Religion: 85 percent of the population of Andaman-Nicobar are Hindus, 13 percent are Christians, 2 percent are Muslims. The entire fisherfolk population of Lakshadweep are Muslims.

Education: About 67 percent of the fisherfolk population of the Andaman-Nicobar group are educated, in Lakshadweep the figure is 76 percent.

In Andaman-Nicobar, 42.5 percent of the population are educated up to the primary level, 20.8 percent up to the secondary level, 4.3 percent above the secondary level. Comparative figures for Lakshadweep are 35 percent (primary), 45 percent (secondary) and 20 percent (above secondary).

Craft: There are 2 783 fishing crafts in the Andaman-Nicobar islands, of which 2 539 are in Andamans and 244 in Nicobar. Andamans has 165 mechanised crafts, 90.9 percent of which are gillnetters; the others are trawlers and liners. There are no mechanized crafts in Nicobar. Andaman and Nicobar have 781 motorized crafts (97.8% of them in the Andamans) – mainly dugout canoes, catamarans, plank-built boats, ring seiners, FRP and ferrocement boats. There are about 1 837 non-motorized boats – dugout canoes, catamarans, plank-built boats. Fisherfolk own 97.3 percent of the craft in Andaman, and 91.8 percent of the crafts in Nicobar.

Lakshadweep has 2 384 fishing craft including 667 mechanized craft (27.98%). Non-motorized craft account for 56.25 percent of the total. Most of the craft (2 275) are owned by fisherfolk. Of these, 26 percent are mechanised, 16 percent are motorized and 58 percent are non-motorized. Pole and line craft constitute 67 percent of those owned by fisherfolk. Kalpeni Island has the largest number of owned craft, with 894.

Gear: Gillnet and hook and line are the main fishing gear in the Andaman-Nicobar islands. Gillnet alone forms 78.8 percent of the total gear, followed by hook and line (15.67%), longline (1.2%) and others. Most of the gear are owned by fisherfolk. Shore seine is the only gear that is shared.

In Lakshadweep, the most popular gear are pole & line, gill nets, hook and line, shore seines and traps. Gill nets are used with 30 percent of the craft owned by fisherfolk, followed by hook & line (22.37%), troll nets (12.82%), seine nets (11.28%), pole and line (10.08%).

Infrastructure facilities: Seventy-six fishing villages in the Andaman-Nicobar group of islands are connected by road, 91 villages have electric power. Of the 59 hospitals and dispensaries, 41 are in Andaman, 18 in Nicobar. Most of the fisherfolk population live in *kutchha* houses. Almost all islands have schools that offer primary and secondary education; but colleges and technical institutes are found only in Port Blair. Most of the fisheries infrastructure is in Port Blair (three boat-building yards and two of the three freezing plants). The government has provided a deep freezer in every island for the benefit of fishermen.

In Lakshadweep, all the villages have been electrified and provided with medical facilities. 80 percent of the fisherfolk live in *pucca* houses. The UT has two technical institutes, three colleges, 16 secondary schools and 30 primary schools. There are two boat-building yards.