

Marine fisheries of the north-west coast of India during 2009-2010

J. Jayasankar, T. M. Najmudeen, S. Haja Najeemudeen, K. Ramani, M. R. Beena, M. B. Seynudeen, K. Anandan and Lata Khambadkar

Central Marine Fisheries Research Institute, Kochi

The north-west region consists of two important coastal states of India viz., Maharashtra, Gujarat and the Union Territory, Daman & Diu. The total length of the north-west coastal region is about 2,320 km which is nearly 29% of the nation's total coastal length. This region consists of 714 marine fishing villages and 278 landing centres. As per the 2010 marine fisheries census, the total marine fishermen population in Gujarat, it is 3,36,181, in Maharashtra is 3,86,259 and in Daman & Diu, it is 40,016, which put together account for 19.07% of the all India fishermen population. The marine fish production of the north-west region for 2009 was 8,80,312 t and for 2010 was 8,51,521 t accounting for 27.49% and 25.44% respectively of the total marine fish production from the country.

Sector-wise contribution

The contribution from mechanised sector has increased from 89.9% in 2009 to 93.6% in 2010, but the contribution of motorised and non-motorised sectors have shown a decline in 2010. Trawlers, gillnetters, dolnetters and purse seiners were the major contributors among mechanised gears. Sectorwise contribution of marine fish landings in the north-west region for 2009 and 2010 is shown in Fig. 1.

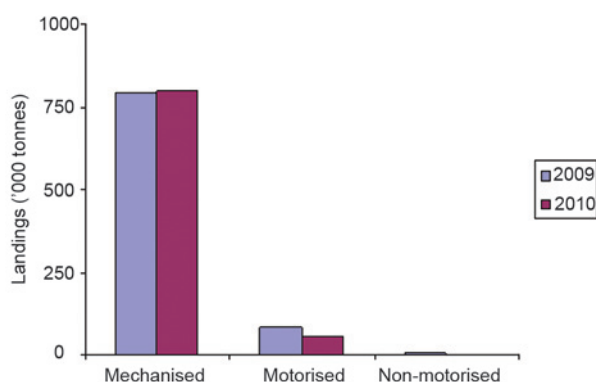


Fig. 1. Sector-wise contribution in north-west region

Marine fish production from north-west region mostly centered on landing centres with large concentration of mechanised crafts viz., single centres, like Sassoon Docks, New Ferry Wharf and Versova in Maharashtra and Veraval, Mangrol, Okha/Salaya, and Jakhau along with the three Bombayduck landing centres viz., Nawabandar, Rajpara and Jafrabad in Gujarat. Quarter-wise marine fish landings of important groups for 2009 and 2010 are given in Table 1.

Although landings of groups like cephalopods, ribbonfishes, penaeid prawns, clupeids, tunnies and Indian mackerel increased in 2010, there was an overall decrease of about 28,790 t. A major decline was noticed in the landings of non-penaeid prawns and catfishes. From Table 1, it can be seen that the first and fourth quarters were more productive seasons as compared to second and third quarters in the region. The lean period was the third quarter as there was no fishing during monsoon period. The governments of Gujarat and Maharashtra states, imposed fishing ban from June 10 to August 15 every year to protect the resources during their breeding season.

Assemblages profile

The extent of contribution attributable to major assemblages of north-west region is depicted in Fig. 2. Nearly 67 % of the catch was from pelagic and demersal resources in both the years. The important crustacean group was slightly behind with 26 % and molluscan contribution was only 7%.

Gear-wise scenario

Among the gears operated in this region, mechanised trawl nets and dolnets were the dominant gears which accounted for 80% of north-west landings in both the years. During 2009, the contribution of single day trawlers was 9.92% and in 2010, it was reduced to 5.02%. But in the case of multiday trawlers, the landings increased

Table 1. Quarter-wise marine fish landings (t) of north-west region

Resource	2009					2010				
	1QR	2QR	3QR	4QR	TOTAL	1QR	2QR	3QR	4QR	TOTAL
Non-penaeid prawns	26845	60687	7438	41464	136434	36160	26140	4814	35476	102591
Croakers	25219	14368	13202	28882	81671	25820	13055	8200	35921	82996
Penaeid prawns	13837	10215	16971	24358	65381	17525	10205	10637	24397	62763
Ribbonfishes	14933	7453	14387	27632	64405	20637	9460	10984	33729	74809
Bombayduck	14241	9462	6446	30077	60226	14439	9965	5862	36845	67110
Catfishes	17838	8650	6368	23703	56559	15109	7956	3223	13314	39603
Threadfin breams	15356	9776	4511	14980	44622	14369	9389	3621	17853	45233
Clupeids	15776	7116	6820	24439	54151	16415	5356	4105	18085	43961
Cephalopods	16570	7665	7975	24144	56354	25138	12225	5148	32160	74670
Carangids	5625	4768	5822	11600	27815	7182	2724	3641	14609	28156
Other perches	6294	2450	2508	9646	20898	5119	2515	1862	11704	21200
Crabs	6173	2487	2261	6956	17877	7399	4996	1259	8766	22420
Elasmobranchs	5518	2971	1755	6355	16599	4559	2948	2303	8092	17903
Tunnies	3265	1687	2153	8501	15605	2925	515	1526	8246	13213
Indian mackerel	4144	728	268	10347	15486	5126	517	621	27409	33673
Pomfrets	2013	1263	7147	3131	13554	2570	1817	5338	4400	14125
Seerfishes	2885	781	1948	6983	12597	3471	2044	1237	7234	13987
Flatfishes	4263	1513	811	4600	11187	2049	1528	579	5974	10130
Others	27597	12532	12721	56038	108891	22962	11499	8701	39819	82978
Total	228392	166572	121512	363836	880312	248974	134854	83661	384033	851521

from 46.15% in 2009 to 54.61% in 2010. The unit operations of single day trawlers show a reduction of 18,971 units whereas unit operations of multi-day trawlers increased by 17,600 units which implies trips of multi-day trawlers are more than single day trawlers. The average catch per hour of single day trawler declined from 64 kg in 2009 to 41 kg in 2010 but in the case of multi-day trawlers, catch per hour was almost the same in both the years. While considering the catch per unit effort of trawlers, it was noticed that catch per unit effort of single day trawlers reduced from 613 kg in 2009 to 346 kg in 2010 whereas the multi-day trawlers consistently

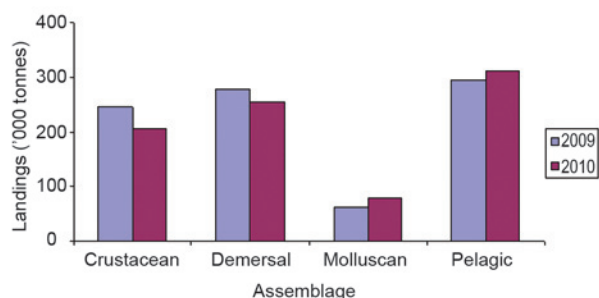


Fig. 2. Assemblage-wise contribution to marine fish landings in north-west region of India

maintained the same during both the years (3550 kg). The other major gear, mechanised dolnets contributed 23.02% and 21.45% during 2009 and 2010 respectively. The catch per hour decreased from 58 kg in 2009 to 55 kg in 2010 whereas the catch per unit effort increased from 523 kg in 2009 to 669 kg in 2010. Mechanised gillnets contributed to the tune of 6.15 % and 6.60 % respectively during 2009 and 2010. The contribution of mechanised hooks & lines was very meagre compared to all other mechanised gears. Mechanised purseseines and bagnets were operating in Maharashtra and their contribution was less than 5%. Outboard gillnetters which include set gillnets, driftnets and gillnets contributed 6.29 % and 5.59 % in 2009 and 2010 respectively. In the non-motorised sector, which involves the crafts bereft of mechanical propulsion, the gears operated were gillnet, staknet, castnet, boxinet, shoreseine, dolnet and hooks & lines and their contribution got reduced from 0.74% in 2009 to 0.14% in 2010. Detailed breakup of the percentage contribution of different gears for the years 2009 and 2010 attributed to north-west region is given in Table 2.

Table 2. Percentage contribution of different gears

Gear	2009	2010
Mechanised trawl net	56	59.63
Mechanised dolnet	23.02	21.45
Mechanised gillnet	6.15	6.60
Mechanised hooks & lines	0.10	0.02
Mechanised bagnet	0.87	1.21
Mechanised purseseine	3.68	4.62
Outboard gillnet	6.29	5.59
Outboard bagnet (dolnet)	2.05	0.46
Outboard hooks & lines	0.99	0.19
Non-motorised	0.74	0.14

Major resources

During 2009, in Maharashtra there were about 252 species landed of which 98 species come under pelagic group, 88 species under demersal, 53 species under crustaceans and 13 species under molluscs. While considering the 2009 landings, non-penaeid prawns and penaeid prawns were dominant groups with 11 species and 23 species respectively. Among penaeid prawns, *Solenocera crassicornis* (3,381 t), *Metapenaeus affinis* (8,318 t), *Metapenaeus brevicornis* (1,063 t), *Metapenaeus monoceros* (3,875 t), *Parapenaeopsis sculptilis* (1,255t) and *Parapenaeopsis stylifera* (16,603 t) were the major contributors whereas *Acetes indicus* (45,442 t) and *Nematopalaemon tenuipes* (10,564 t) were the major contributors among non-penaeid group. There were 245 species landed in Maharashtra during 2010, whose assemblage-wise breakup was the same as in 2009 with marginal difference. The major group landed was mackerels mainly by mechanised purseseiners and gillnetters (31,484 t) and Sassoon Docks was the major contributor of Indian mackerel with 14,788 t and during 2009, it was only 3,873 t. Non-penaeid prawns with 11 species and penaeid prawns with 27 species ranked second and third during 2010. Among penaeid group, *Parapenaeopsis stylifera* (10,254 t), *Metapenaeus affinis* (5,079 t), *M. monoceros* (3,114 t), and *Solenocera crassicornis* (1,456 t), were the dominant species landed in 2010. *Acetes indicus* (20,584 t) and *Nematopalaemon tenuipes* (7,249 t) were the major contributors among non-penaeid group wherein drastic reduction was noticed during 2010.

In Gujarat, 200 and 189 species were landed respectively during the years 2009 and 2010. During 2009, among 200 species, 76 species came under pelagic, 68 species under demersals, 48 species under crustaceans and 8 species under molluscs. The position of assemblages was found to be the same level especially for pelagics and demersals and a slight decrease was noticed in crustaceans in 2010. Among the variety of groups in 2009, non-penaeid prawns were the major group landed with 13.25% and it got reduced to 11.72% in 2010. *A. indicus* (14,303 t) and *N. tenuipes* (9,848 t) was the species landed among non-penaeid group in 2009 which was 6,093 t and 11,452 t in 2010. The landings of croakers was stable with 9.81% and 9.84% recorded during 2009 and 2010 respectively. In the case of ribbonfish, a slight increase was noticed in 2010. The landings of catfish recorded reduction from 42,703 t in 2009 to 32,875 t in 2010. The landings of penaeid prawns increased from 26,290 t in 2009 to 35,489 t in 2010.

The landing of north-west region was attributable primarily to mechanised units which operated in single centers like Sassoon Docks, New Ferry Wharf and Versova in Maharashtra and Veraval, Porbander and Mangrol in Gujarat. Veraval Harbour in Gujarat contributes to nearly one fourth of annual landings of Gujarat. In the case of Maharashtra, New Ferry Wharf matches the status of Veraval Harbour. Sassoon Docks contributed 18.4% and 23.72% respectively during the years 2009 and 2010. Contribution of Mangrol in Gujarat and Versova in Maharashtra were less than 10%. Though the landing centers, namely Jafrabad, Nawabander and Rajpara, where Bombayduck landings take place in a large scale, are not harbours, they play a vital role in the landings of Gujarat and their combined contribution has been 19% in both the years.

Table 3. Percentage contribution of major harbours in north-west region

State	Harbour	2009	2010
Gujarat	Veraval	24.14	25.55
	Mangrol	7.30	5.65
	Porbander	13.72	13.71
Maharashtra	New Ferry Wharf	23.03	27.44
	Sassoon Docks	18.40	23.72
	Versova	3.74	4.62