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Marine Fish Landings in INDIA 2016

ICAR-Central Marine Fisheries Research Institute
(Department of Agricultural Research and Education, Government of India)
P.B. No. 1603, Ernakulam North P.O., Kochi - 682 018

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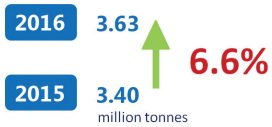
Indian Marine Fisheries in 2016 at a Glance

- Marine fish landings in India is 3.63 million tonnes during 2016; 6.6 % increase compared to 2015
- Gujarat tops marine fish landings in India during 2016 for the fourth consecutive year
- Indian Mackerel, the National Fish of India, became the highest contributor in 2016 with 2.49 lakh tonnes since 1996
- Declining trend of Indian oil sardine continues and it slips to 2nd position in the marine fish landings rankings during 2016
- Hilsa Shad, the favourite fish in West Bengal recovered from its previous trends of dwindling landings to reach 94,000 tonnes; four fold increase compared to last year
- *Pricanthus* spp., commonly known as bullseye emerged as a major resource in the landings with high production in the west coast where Karnataka contributed the maximum
- Cyclones affected fishing in Andhra Pradesh and Odisha resulting in poor catch due to loss of fishing days
- Karnataka boosts its landings to cross five lakh tonnes to become the third major fishing state during 2016.

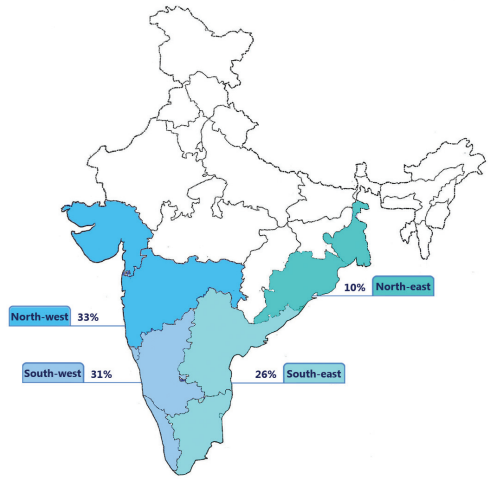
India being a tropical country is blessed with highly diverse marine fishery resources in its 2.02 million square kilometer Exclusive Economic Zone, with an annual harvestable potential of about 4.4 million metric tonnes. The coastline of peninsular India runs over 9 states and 2 Union Territories (UT) and is bound by the Arabian Sea in the west and Bay of Bengal in the east. The western coastal states are Gujarat, Maharashtra, Goa, Karnataka and Kerala and the eastern coastal states are Tamil Nadu, Andhra Pradesh, Odisha and West Bengal. The UTs which have sea-line running along their borders are Daman & Diu and Puducherry.

The marine fisheries sector provides livelihood to nearly 4.0 million people of India and meets the food and nutritional requirement of a significant proportion of the population. Also, it contributes to export earnings of the country to the tune of ₹ 30,000/- crores annually. Sustainable harvest of the marine fishery resources are necessary as over exploitation of the resources is likely to harm the diversity and cause decline in the availability of some of the resources. Monitoring of the harvest of the diverse marine fishery resources of the country from all along the coast is being carried out regularly by Central Marine Fisheries Research Institute (CMFRI) since its inception in 1947 through a scientific data collection and estimation system, leading to fish stock assessment for deriving management measures to keep the harvest of the resources at sustainable levels.

In the year 2016, CMFRI has estimated the marine fish landings for peninsular India as 3.63 million tonnes which has witnessed an increase of 6.6% compared to 2015.



West coast contributed a major share of 64% to the total landings. The north-west region comprising of Gujarat, Maharashtra and the UT of Daman & Diu have the maximum quantity with 11.8 lakh tonnes of landings (33%).

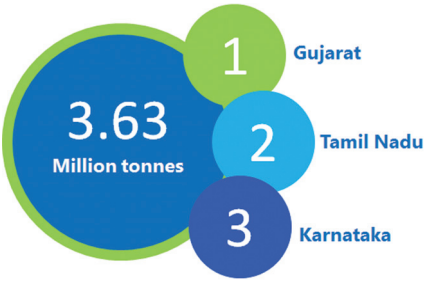


Estimated Marine Fish Landings (tonnes) in India 2016

Pelagic finfish		Demersal finfish	
CLUPEOIDS		ELASMOBRANCHS	
Wolf herring	17657	Sharks	23002
Oil sardine	244992	Skates	3627
Other sardines	195163	Rays	26211
Hilsa shad	93679	Eels	11171
Other shads	12565	Catfishes	80559
Anchovies		Lizardfishes	94817
Coilia	30618	PERCHES	
Setipinna	6990	Rock cods	42781
Stolephorus	61571	Snappers	10533
Thryssa	42255	Pig-face breams	12519
Other clupeids	58579	Threadfin breams	170349
Bombayduck	144951	Bullseyes	130740
Half Beaks&Full Beaks	5593	Other perches	40321
Flyingfishes	3427	Goatfishes	30276
Ribbonfishes	217100	Threadfins	9728
CARANGIDS		Croakers	157793
Horse Mackerel	39936	Silverbellies	92764
Scads	105057	Whitefish	6312
Leather-jackets	17428	POMFRETS	
Other carangids	83566	Black pomfret	13924
MACKERELS		Silver pomfret	26012
Indian mackerel	249241	Chinese pomfret	4227
Other mackerels	401	FLATFISHES	
SEERFISHES		Halibut	2713
Scomberomorus commerson	37677	Flounders	100
Scomberomorus guttatus	17110	Soles	41015
Acanthocybium sp.	224	**Crustaceans**	
TUNNIES		Penaeid prawns	200116
Euthynnus affinis	35466	Non-penaeid prawns	169558
Auxis spp.	13418	Lobsters	2976
Katsuwonus pelamis	16232	Crabs	56679
Thunnus tonggol	8090	Stomatopods	13861
Thunnus albacares	16792	**Molluscs**	
Other tunnies	1637	Mussels, Oysters and Clams	84483#
Billfishes	16815	Other Bivalves	1216
Barracudas	37817	Gastropods	2759
Mullets	7964	Cephalopods	
Unicorn Cod	108	Squids	114886
Others		Cuttlefish	101805
Seaweeds	20576#	Octopus	14585
Miscellaneous	79769		
		TOTAL	**3734882**

#The estimates are based on an alternate method and are excluded from the comparisons made. The comparisons are based on 3629823 tonnes (3734882-20576-84483=3629823)

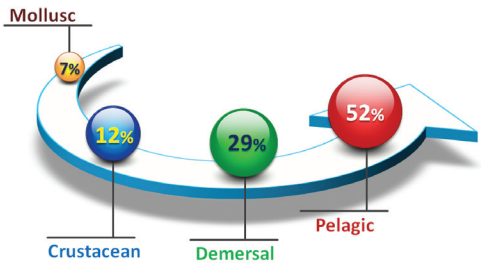
The south-west region (Kerala, Karnataka and Goa) follows the north-west with 11.1 lakh tonnes (31%). Tamil Nadu, Andhra Pradesh and Puducherry form the south-east region and West Bengal and Odisha form the north-east region and their contributions are 9.4 lakh tonnes (26%) and 4.0 lakh tonnes (10%) respectively. In marine fish production, Gujarat remained as the major producer followed by Tamil Nadu and Karnataka. West Bengal, Karnataka, Gujarat, Kerala, Maharashtra and Daman & Diu have witnessed hike in their landings while other states witnessed fall of varying degrees.



Indian mackerel have been placed in the top spot of the major resources obtained from Indian waters in 2016 with an estimate of 2.5 lakh tonnes. For the first time since 1999, oil sardine was not ranked the top species in terms of catch as it fell below Indian mackerel. Since 2013, oil sardine landings continued to show a decreasing trend, with an estimate of 2.45 lakh tonnes in 2016. A significant change was observed in 2016 in the landing pattern of Bullseye (*Priacanthus* spp.). From a mere 43,576 tonnes in 2015 its landings has been escalated to a three- times-high of 1.3 lakh tonnes this year. The major resources attributed to the landings and the leading state in terms of production are given in the table.

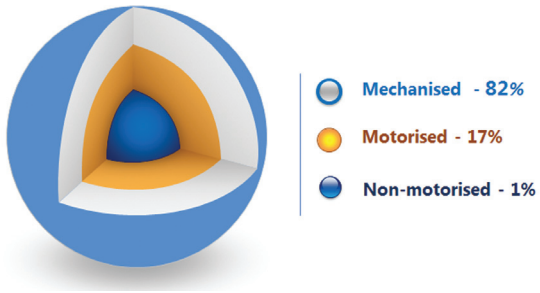
Resource	Landings (lakh tonnes)	Major Contributing State	Percentage contribution from the State
Indian mackerel	2.49	Karnataka	35
Oil sardine	2.45	Tami Nadu	33
Cephalopods	2.31	Gujarat	27
Ribbonfishes	2.17	Gujarat	44
Penaeid prawns	2.00	Gujarat	17
Other sardines	1.95	Tamil Nadu	49
Priacanthus spp.	1.71	Karnataka	52
Threadfin breams	1.70	Karnataka	31
Non-penaeid prawns	1.69	Gujarat	70
Croakers	1.58	Gujarat	33

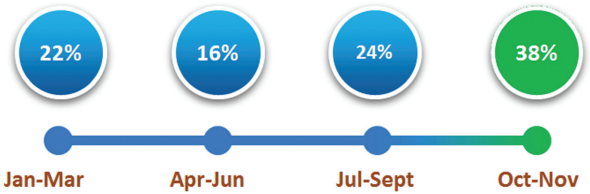
Pelagic resources contributed 52% to the



total landings of the country with major share of Indian mackerel, oil sardine and ribbonfish. Demersal finfish constitute 29% in which threadfin breams, croakers and *Priacanthus* spp. were found as the major groups. The share of crustacean landings was assessed at 12% of the total landings and that of molluscan resources at only 7% where squids and cuttlefishes got the maximum share.

Among the three different categories of crafts used for fishing, the contribution from mechanized sector was 82% and from motorized sector, it was 17%. The contribution from the artisanal/traditional sector was a near negligible 1%. In this categorization, mechanized includes crafts which use upwardly powerful engines that are deployed for propulsion and fishing. The highest contribution was from trawlers, which was around 57% in 2016. Both in 2015 and 2016, the catch per hour of multiday trawlers were more or less the same. The motorized sector includes gillnets, seine nets, hooks & lines and bagnets.





A seasonal analysis of the estimates shows October-December as the best season with 38% share. The July-September period contributed 24% of total landings and January-March follows with 22%. The April-June period having influenced by the fishing ban period shows the minimum share of 16%.

With more than seven hundred species landed along the Indian coast, there exists dissimilarities between the east and west coasts, with marked differences in productivity patterns, qualitative and quantitative composition of fisheries. Kerala and Tamil Nadu are found to have more species diversity than the other states. The percentage contribution of each maritime state/UT (shown within circle) along with the landings pattern is depicted in the following section.

West Bengal

8%

Major Resources (t)	
Hilsa shad	89109
Bombayduck	31333
Catfishes	17414
Anchovies	15898
Penaeid prawns	14895

The state of West Bengal has much to cherish in 2016 as there was a remarkable increase in marine fish landings reaching 2.72 lakh tonnes from 1.18 lakh tonnes in 2015. Almost all the major resources have shown this increasing trend but the supreme dominance was that of Hilsa shad, the most favourite fish in the state. Its estimated landings have reached 0.89 lakh tonnes from the 0.16 lakh tonnes of previous year. Pelagic resources such as Hilsa shad, Bombayduck and Anchovies caught by Gillnetters contributed 68% of the total landings. Demersal finfish contributed 22%, followed by Crustacean (9%) and Mollusc (1%). Mechanized fishing crafts caught 90% of the landings while motorized crafts caught 9.9% and non-motorized fishing craft could catch only a negligible 0.1% of the total landings. Generally, October-December was the best fishing season in the state. But in 2016, contribution of this period was comparably very less and the landings of July-September period was maximum with 45% of the total landings.

Odisha

3%

Major Resources (t)	
Croakers	17323
Penaeid prawns	13849
Ribbon fishes	12588
Indian mackerel	11232
Lesser sardines	7099

Odisha contributed 1.17 lakh tonnes of marine fish catch in 2016. It was 17% less than that of the previous year as many fishing days were lost due to the cyclone warnings occurred in the third and fourth quarters of the year. The fishery of the state is dominated by commercial mechanized sector contributing 66.8% and more than one fourth of catch *i.e.* 26.9%, is contributed by motorized crafts. Traditional crafts also played a significant role contributing 6.3%. Pelagic fin fishes remained as the largest contributor (53.1%) in the state as in the previous year. The share of demersal finfish, crustaceans and molluscan resources in the total marine fish landings of the state were 30.9%, 14.4% and 1.6%, respectively.

Andhra Pradesh

5%

Major Resources (t)	
Lesser sardines	24252
Indian mackerel	22849
Penaeid prawns	20300
Ribbonfishes	14993
Oil sardine	12950

Andhra Pradesh, where fishery was dominated by commercial motorized sector contributed 1.92 lakh tonnes to the marine fish landings of the country. An approximate 35% decrease in landings occurred in 2016 compared to 2015. There were no fishing operations for many days during the months of September, October and November, due to cyclone warnings. This may be one of the reasons for the huge drop in marine fish landings in the state. Mechanized sector showed a sizeable increase in the contribution with 41% during 2016, where it was only 29% in the previous year. A good proportion of the catch (13%) was by artisanal crafts. Like other maritime states, Andhra Pradesh fishery comprises of pelagic fin fishes (63%), demersal fin fishes (22%), crustaceans (14%) and molluscs (1%).

Among the maritime states of India, Tamil Nadu was ranked second in 2016 with a share of 7.07 lakh tonnes. Mechanized sector (78.1%) continued to contribute the major share in the landings in comparison to motorized (21.3%) and non-motorized (0.6%) sectors. There is a change in the community structure of fishes available in Tamil Nadu coast. Though there is a slight decrease in the catches of oil sardine in 2016, in the last decade the oil sardine has emerged as a major fishery in Tamil Nadu and is producing this resource more than Kerala. Also, the traditionally rich silverbellies and lesser sardines in Tamil Nadu have not declined. The contribution of pelagic and demersal fishes were 54% and 29% while the crustaceans and molluscs accounted 9% and 8% respectively. The landings were maximum during October-December.

Tamil Nadu

20%

Major Resources (t)	
Lesser sardines	94745
Oil sardine	80957
Silverbellies	76476
Cephalopods	54070
Indian mackerel	32278

Puducherry

1%

Major Resources (t)	
Penaeid prawns	4824
Cephalopods	4605
Oil sardine	3760
Goatfishes	2500
Barracudas	2475

The marine fish landings of Puducherry was 0.45 lakh tonnes during 2016 with a reduction of 0.34 lakh tonnes compared to 2015. The major part of landings was from mechanized sector (86.7%), followed by motorized (13.3%) and non-motorized (0.04%) sector. Multiday and single day trawlers together contributed 82% of the total catch. Bagnet, gillnet, hooks & lines and ring seines were operated in the motorized sector. The contribution of pelagic and demersal fishes were about 43% and 34% while the crustaceans and molluscs accounted for 13% and 10% respectively. The maximum production was recorded during July-September.

Kerala

14%

Major Resources (t)	
Scads	53990
Indian mackerel	47253
Oil sardine	45958
Threadfin breams	37245
Cephalopods	35672

Kerala, one of the major fish consuming state in the country witnessed a slight increase in marine fish landings in 2016. Oil sardine, the most favourite and common fish species of the state continued to show a decreasing trend in landings and this year recorded a mere 0.46 lakh tonnes which is the lowest in the past two decades. But the total marine fish production (5.23 lakh tonnes) in the state has increased by 0.40 lakh tonnes over the previous year. Scads belonging to the genus *Decapterus* were the most abundant resource in the state during 2016 with an estimate of 0.54 lakh tonnes. Pelagic finfish contributed 60%, Demersal fin fish 25%, Crustaceans 8% and Molluscs 7% of the total landings. The mechanized sector contributed 63% to the total landings followed by motorized (36%) and non-motorized sector (1%). The second half of the year witnessed maximum harvest of marine fish in Kerala accounting for 68% of the total landings with October-December period as the best season of the year.

Karnataka

15%

Major Resources (t)	
Indian mackerel	88219
Bullseye	68554
Oil sardine	62609
Threadfin breams	52858
Lizardfishes	33972

The marine fish landings in Karnataka registered a new record, with all time high estimate of 5.29 lakh tonnes in 2016. An increase percentage of 19.6% is noted in total annual landings when compared with that of 2015. Among the major resources, Bullseyes (*Priacanthus* spp.) has shown a three times hike in its landings. The rich pelagic resources in the Karnataka coast contributed more than half of the total landings (54%) followed by demersal (36%) and the remaining, equally shared by crustaceans and molluscs. Nearly 90% of the landings was from mechanized sector followed by the motorized (8.4%) and non-motorised crafts (0.89 %). Best season of fishing was the fourth quarter of the year (Oct-Dec) which contributed 40% to the total landings followed by first quarter with 24% and third and second quarters with 19% and 17% respectively. The trawlers of Mangalore and Malpe fishing harbours are found to be most dominant in marine fish production of the state as they contribute almost 60% to the total landings.

Goa

2%

Major Resources (t)	
Oil sardine	24951
Indian mackerel	13537
Lesser sardines	4847
Scads	4302
Tunnies	2611

Marine fish landings in Goa accounted for 0.61 lakh tonnes during 2016. Mechanized vessels attributed to 88% of the total landings in the state. Remaining portion of the landings were equally shared by motorized and non-motorized sector. Pelagic resources contributed about 90% of the landings and the contribution of demersal resources was only 6.5%. There were only meagre landings of crustacean and molluscs resources which was 2.4% and 1.2% of the landings respectively. About 61% of the total landings from Goa occurred during October–December. There was a prominent increase in the landings of Scads (*Decapterus* spp.) in 2016 (4302 tonnes), which is much higher than the landings in 2015 (182 tonnes).

Maharashtra

8%

Major Resources (t)	
Penaeid prawns	32262
Non-penaeid prawns	31160
Croakers	28334
Cephalopods	25939
Indian mackerel	19123

Maharashtra produced 2.92 lakh tonnes in 2016, with 10% increase in the landings compared to previous year. The fishery here is heavily capital intensive with mechanized crafts contributing 99.2% and an abysmal contribution (0.4%) from motorized and artisanal crafts (0.35%). The highest contribution was from multiday trawlers, which was around 52.8% in 2016 compared to 48.4% in the previous year. The pelagic (42%), demersal (26%), crustacean (23%) and molluscs (9%) assemblage remained similar to 2015. The peak season for fishing in the state was October-December, with a contribution of 40% similar to the trends seen in Gujarat. Major harbours such as New Ferry Wharf (28%) and Sassoon Docks (Old and New) (19%) landed nearly half of the fish. Historically well-known Bombayduck fishery in the state is on a decline, recording only 17,658 tonnes.

Gujarat

21%

Major Resources (t)	
Non-penaeid prawns	118424
Ribbonfishes	95561
Bombayduck	93582
Cephalopods	61663
Croakers	51930

Gujarat is the highest contributor to Indian marine fish landings in 2016 with 7.74 lakh tonnes. This has been an encore of the state's last year performance. The fishery is dominated by commercial mechanized vessels contributing 91.6%. A minor contribution in the fishery is from the motorized sector (8.4%) and contribution from artisanal crafts is near negligible (0.02%). The contribution to the marine fish landings by pelagic and demersal fin fishes were about 38% and 33% respectively while the crustaceans clocked 21% and molluscs logged 8%. Gujarat fishery was more intensive during October-December with 40.2% contribution. Community based fishing ban existed to the extent of 5 months in certain parts of the state. In tune with the heavy mechanization in Gujarat, huge landings were witnessed in the major harbours and Bombayduck landing centres. The presence of a strong *Acetes* fishery was reflected in the major resources landed with 15% share of non-penaeid prawns.

Daman & Diu

3%

Major Resources (t)

Ribbonfishes	22522
Cephalopods	13410
Threadfin breams	8538
Croakers	8425
Catfishes	7327

This Union Territory recorded 1.16 lakh tonnes of marine fish landings in 2016 with 43% increase comapred to 2015. The fishery is supported by mechanized (91%) vessels and motorized vessels contributed 9%. The fish catch had nearly doubled in multiday trawlers during 2016 as 44% more units were operated. The catch per unit effort got a hike from 3957 kg in 2015 to 5999 kg in 2016. The catch per hour also increased from 41 kg to 67 kg thereby establishing a double boost to the landings *vis-à-vis* 2015. Similar to Gujarat, Daman & Diu has a higher contribution from demersal (41%), followed by pelagic (39.7%), crustaceans (7.8%) and molluscs (11.5%).

Valuation of marine fish landings

The estimated value of marine fish landings during 2016 at landing centre level was ₹ 48,381 crores, registering an increase of 20.7% over 2015. At the retail level, the estimated value was ₹ 73,289 crores with 12.4% increase over 2015. The unit price per kg of fish at landing centre was ₹ 133.38, the same being ₹ 201.89 at the retail market.

Valuation of fish landings across states (₹ CRORES)

State	Landing Centre Valuation			Retail Centre Valuation		
	2015	2016	% change	2015	2016	% change
Kerala	9574	9149	-4.4	14641	12398	-15.3
Gujarat	7027	8427	19.9	11700	13130	12.2
Tamil Nadu	5634	6492	15.2	9650	10728	11.2
Karnataka	4617	6247	35.3	7694	9108	18.4
Odisha	2480	1645	-33.7	4020	2836	-29.5
Maharashtra	4626	5369	16.1	7490	8313	10.9
Andhra Pradesh	3048	2516	-17.5	4828	3916	-18.9
West Bengal	1220	5501	350.9	1560	8190	425.0
Goa	1060	997	-5.9	2150	1451	-32.5
Daman Diu	620	1433	131.1	1066	2351	120.4
Puducherry	190	605	218.4	380	868	128.4
Total	**40095**	**48381**	**20.7**	**65179**	**73289**	**12.4**

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