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## Analysis of Fish Production in Goa

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### **ABSTRACT:**

*Fishing industry in Goa occupies a unique place. Marine fisheries provides livelihood to a large number of people in Goa with more than 5 percent of total working population is engaged in fishing and allied activities. Fisheries industry including fishing, marketing and processing forms a second largest industry both in terms of employment and income. The state holds a huge scope of fisheries development particularly through backish water and marine fish production. Fish Production in Goa is showing fluctuating trends. Most of the resources are getting depleted. Thus there is a urgent need to frame proper policy which could help in increasing the production of fisheries in Goa.*

**Keywords:** Fisheries, Production, monetary value, performance, Growth, Contribution

### **Introduction:**

India is the second largest in aqua-cultural production in the world. Fish production has increased from 41.57 lakh in 1991-92 to 100.567 lakh tonnes in 2019-20<sup>1</sup>. Despite fluctuations in supply and demand caused by the changing state of fisheries resources the economic climate and environmental conditions fisheries and aquaculture remain very important as a source of food, employment and revenue in many countries and communities.

Indian fisheries are an important component of the global fisheries and the sector have been recognized as a powerful income and employment generator. The contribution of this sector to foreign exchange earnings is substantial and forms 1.4 per cent of GDP<sup>2</sup>. More than 6 million fishermen in the country depend on fisheries for their livelihood. The country with a long coastal line

of 8129 Kms has an Exclusive Economic Zone (EEZ) extending to 2.02 million Sq. Kms. and is a major marine fish producer ranking seventh in the world.

Fishing industry in Goa occupies an unique place. Goa with a total terrestrial area of 3,702 sq. Kms. has a coastal line of 105 Kms. The coastal sea is one of the most productive areas as far as fishing is concerned. Fisheries contribute about 2.5 percent of the GDP of the state.<sup>3</sup> The total fishermen population in Goa is about 10545 (Marine Fisheries Census of CMFRI, 2010) of which South Goa and North Goa contributes about 64 per cent 36 per cent respectively. The total number of fishermen families in Goa is calculated to be 2189 with 1368 families are in South Goa and 801 families in North Goa.

Marine fisheries provides livelihood to a large number of people in Goa with more than 5 percent of total working population is engaged in fishing and allied activities. Fisheries industry including fishing marketing and processing forms a second largest industry both in terms of employment and income. The state holds a huge scope of fisheries development particularly through backish water and marine fish production.

#### **Objectives of the study:**

1. To compare and analyze inland and marine fisheries in Goa.
2. To analyse the contribution made by different varieties of marine fish to the to the total money value from fisheries.

#### **Methodology:**

Present study is based on secondary data. Data is collected mainly from published sources like statistical handbook of Goa, Directorate of statistics and planning Goa, periodicals published by directorate of fisheries Goa and also from Government of Goa websites.

#### **Analysis and Discussion:**

##### **Marine and Inland fish catch in Goa-**

Marine fishing sector provides livelihood to a large number of people in Goa. All together more than 5 per cent of the total workers population is engaged in fishing and allied activities. The fish is in great demand in the whole state especially the marine fish which forms 96 per cent of the total fish production in Goa. Besides marine fishing inland fisheries also play an important role in the state. Inland fish production has increased from 3311 tons to 3669 tonnes in 2019 (Directorate of Fisheries Panaji Goa.)

Quantity of marine fish catch has increased from 87062 tons in 2010 – 11 to 96398 tons in 2019-20. Marine (Table 1). Marine fish catch was highest during the year 2014-15 (128107). This could be because of positive effect of ban on mining during this period which might have led to increase in the different species of marine fish due to less disturbance by trallers carrying iron ore. During the period 2010-2019 proportion of marine fish catch to the total fish catch has varied

between lowest 95.70 percent (2012-13) to highest 97.17 percent (2014-15). Whereas the contribution of inland fish to the total catch of fish has varied between 2.82 percent in 2010-11 to 5.04 percent in 2013-14. Overall the production of marine fish have always remained above 95 percent whereas the contribution of inland fish to the total fish catch has always remained below 5.05 percent. Total catch of fish that marine and inland has increased from 90373 during 2010-11 to 100567 that is by 11.27 percent.

The money value of catch of marine fish has increased from 41455 (2010 11) lakhs of rupees to 153173 lakhs of rupees (2019-20) that is there is increase in value of marine fish is 269.49 percent over the period of 10 years. In case of inland fish catch the value has increased from 2583 lakhs of rupees to 10278 lakhs of rupees that is by 297.90 percent. This shows that even though the contribution made by inland fish catch is not substantial to the total catch of fish its increase in value in terms of proportion is comparatively higher than that of marine fish catch. This might be because of more demand for species of inland fish or people might be valuing inland species of fish more than the marine fish. As far as money value of total fish catch is concerned it has increased from Rs. 44038 to Rs. 160644 that is in terms of percentage it has increased by 264.78 percent.

Above analysis reveal that the proportionate increase in the quantity of total catch of marine fish (11.27 per cent) is quiet lower than the increase in the money value of the fish (264.78 per cent)

**Table 1: Annual Quantity & Value of Fish catch from 2010 onwards.**

Annual Quantity & Value of Fish catch from 2010 onwards						Total (Marine / Inland)	
Sr. No	Year	Marine		Inland		Quantity of fish catch in tonnes	Value in Lakhs of Rs.
		Quantity of Fish catch in tonnes	Value in lakhs of Rs	Quantity of fish catch in tonnes	Value in lakhs of Rs.		
1	2	3	4	5	6	7	8
1	2010-11	87062 (96.33%)	41455	3311 (3.66%)	2583	90373	44038
2	2011-12	86185 (96.05%)	48949	3538 (3.94%)	2618	89723	51567
3	2012-13	86628 (95.70%)	67368	3887 (4.29%)	3787	90515	71155
4	2013-14	87984 (94.95%)	1,00,218	4,678 (5.04%)	5,736	92662	105954
5	2014-15	128107(97.17%)	1,10,261	3,718 (2.82%)	5,556	131825	115817
6	2015-16	108240 (95.88%)	117177	4648 (4.11%)	7634	112888	124811
7	2016-17	101053 (95.82%)	137540	4403(4.17%)	8180	105456	145720
8	2017-18	120430 (95.76%)	149843	5332 (4.23%)	10278	125762	160121
9	2018-19	116095 (95.85%)	136994	5020 (4.14%)	10072	121115	147066
10	2019-20	96398 (95.85%)	153173	4169 ((4.14%)	7471	100567	160644

Source: Compiled from Statistical handbook of Goa from 2009 to 2019

### **Contribution made in terms of money value by different varieties of fish-**

Tons of catch of fish is important in determining physical quantity of fish that is caught during a particular period of time while the money value is very important in determining its contribution towards the total production. Production can be continued only and only if product under consideration is contributing sufficiently in terms of money value towards the production process. As far as fishing industry in Goa is concerned total amount of catch with respect to fish is determining its contribution towards the money value of particular type of fish. During 2009 Prawns was the major contributor towards the money value that is it was contributing more than (31 %) towards the money value of all the varieties of fish caught followed by Mackerel whose contribution was (23%), Other fishes (17%), Sardines (15%), Seerfish (8%). Contribution made by remaining varieties was very less that is below 5 percent (Table 2)

Prawns were the single largest contributor till 2015 in terms of money value towards the total contribution from fishery. Its contribution increased from 10768 lakhs rupees to 29392 lakhs of rupees in 2015. Contribution made by prawns substantially decreased during 2019 and reached to 15650 lakhs of rupees. This decrease in money value of prawns was mainly because of low catch of fish. The reason for low catch of fish might be the decrease in the total quantity prawns in the catchment areas.

As far as money value of Mackerel is concerned except for three consecutive years from 2013 onwards there was a steady increase in its money value during the study period. Money value of Mackerel has increased from Rs. 8017 lakhs to Rs 52665 lakhs. Contribution made by Mackerel in terms of money value was the highest till 2012. During 2013 money value of other varieties of fish (21 per cent) was higher than the money value of Mackerel (14 per cent), same trend continued till the year 2016. During 2017 contribution of Mackerel increased marginally (26 per cent) compared to rest of the other fish (25 per cent). During 2018 contribution of other fish was 38 per cent while that of Mackerel was (36 per cent) indicating that there was fall in the monetary value of mackerel compared to that of other fish. During 2019 production of Mackerel improved compared to that of other fish and hence its monetary contribution was higher (34 per cent) than that of other fish (33 per cent). Above analysis indicate that Mackerel is the most important fish that is contributing towards the total value from fishery.

Monetary contribution of Sardines shows an increasing trend till 2014. Its contribution in terms of value decreased during 2013 but increased substantially during the subsequent year. Total value of money from the catch of Sardines was highest during 2014 (33 per cent) and was lowest during 2019 (06 per cent). So the trends in value of sardines shows that, its contribution to the total money value has decreased over the years. This might be because of increase in contribution made by other species of fishes.



Contribution made by Seerfish in terms of money has increased from Rs. 2749 lakhs to 8708 lakhs. Its highest contribution was during 2016 contributing to the amount of 11782 lakhs of rupees. Contribution made by Pomfrets has increased substantially during the study period. It has increased from 266 lakhs of rupees in 2009 to 5399 lakhs of rupees. Contribution of cuttlefish also shows a good increase towards the total money value its contribution has increased from Rs. 940 lakhs of rupees to 2445 lakhs of rupees.

There was a steady increase in the contribution made by other fish. Its contribution has increased from 6011 lakhs of rupees in 2009 to Rs. 50713 lakhs of rupees in 2019. This growth indicate that there was a spectacular increase in the contribution made by other variety of fishes compared to very well known varieties like Mackerel, Sardines and prawns.

**Table 2: Money Value of fish catch from 2009 -2019**

Money Value of fish catch from 2009 -2019												
Sr. No	Type of Fish	Years										
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	Mackerel	8017	11371	11875	15089	14350	10857	13166	27706	38550	45030	52665
2	Sardines	5127	5275	8193	14170	13184	36747	31596	22466	23787	10908	9924
3	Catfish	433	443	709	258	340	525	352	846	575	239	1419
4	Sark fish	266	535	463	590	532	312	885	736	2121	1250	320
5	Seerfish	2749	2216	3590	4487	10237	6472	9462	11782	8456	6195	8708
6	Prawns	10768	10751	12085	16859	24984	28112	29392	20150	26787	19379	15650
7	Pomfrets	266	462	975	631	8143	4183	6806	3767	10149	2664	5399
8	Cuttlefish	940	1514	1205	1535	7348	2428	2404	3788	3558	3666	2445
9	Others	6011	9157	9782	13876	21042	20405	23687	46150	37245	46792	50713
	Total	34577	41724	48877	67495	100160	110041	117750	137391	151228	136123	147243

*Source: Compiled from Statistical handbook of Goa from 2009 to 2019*

### Conclusion:

Production of marine fisheries in Goa is showing fluctuating trends. Most of the resources are getting depleted. One of the main reasons for the depleting resources of fisheries in Goa is the disturbance caused by trawlers in th sea water. So the measures should be taken to divert the route of the trawlers in such a direction which would cause minimum disturbance for the development of fisheries resources in Goa. Demarcating the route for the trawlers and not allowing them to move in any other direction could solve the problem to some extent. Since the production of fisheries is fluctuating there is a need for the enhancement of the fishery resources through sustainable exploitation. In this regard department of fishery should take active part in the process of sustainable development of fishery in Goa. There is a wide scope for setting up a research centre and equipping it with modern techniques for developing fishing activity in Goa. Inland water fishing culture should be promoted among the locals by providing them with various incentives like subsidies and other

required facilities so that total catch of fish could be increased leading to increase in export and contributing towards the states ex-chequer.

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