

# Assessment on the Total Fish Catch Year Wise and Gear Wise Data from within and Outside PFZ Off Ratnagiri Coast, Maharashtra State, India

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**Abstract :-** The main aim of PFZ Mission is to encourage to maximum use of PFZ advisory by the entire fishing community those are interested in receiving PFZ data under the PFZ services which is providing an authentic lowdown on fish abundance. The further intention is to meet the demands and needs of the fishermen population to their satisfaction level. This service has guaranteed to increase their income to subsist bread and butter and standard of living in a better way. In Ratnagiri district there are overall 2564 mechnized fishing vessels but out of 30-40 boats are gaining the benefit from PFZ advisory. However the PFZ advisories contain details such as the latitude and longitude of the areas of fish abundance and the distance and direction from different fishing harbours. The advisories based on satellite data are disseminated in their local languages thrice a week in collaboration with various modes like email, Electronic Display Board (EDB) plays an important role, Doordarshan, and in collaboration with fishery society & interested fisher community. A total number of fishing boats were from Harnai (78) Mirkarwada (184), and Sakhari-Natye (184) in Ratnagiri. But upon validation of PFZ advisory in both within and outside PFZ showed better fish catch in the present analysis.

**Keywords:-** PFZ Advisory, Total fish catch, Major landing centers and Gears.

## I. INTRODUCTION

The fish catch with different varieties encountered throughout the fishing season from August to May in the PFZ and Non-PFZ realm. The fishing activities must be carried out at the actual fish aggregation is an important standpoint. An attempt has been made to sort out the pelagic and demersal fish catch for the analysis. Overall fishes from selected fishing boats viz. purse-seine, trawl and gill net from Harnai, Mirkarwada and Sakhari-Natye in Ratnagiri Coast were taken into consideration. The number of boats of each type purse-seine, trawl and gill net were fixed during each dissemination, two from each fish landing center one is going for within and other for outside PFZ. The data was analyzed in both within and outside PFZ to obtain total fish catch. As stated by Jhingran (1983) all metabolic, physiological activities and life processing such as feeding, reproduction etc. of aquatic organisms are immensely influenced by water temperature. Biometric studies are

always useful for the identification of a fish species and for detecting variations in the fish populations. Biometry reflects the proportionate growth of different body parts and the influence of environmental factors in a particular habitat. (Roja et al., 2010) observed discrepancies in meristic and morphological characters of *Colletteichthys Dussunieri* from estuarine waters of India. The fish catch are occurred in large amount in trawl, purse-seine followed by gill nets from within and outside PFZ realm have been recorded.

## II. MATERIALS AND METHODS

The fish catch landed at major fish landing centers were analyzed with their taxonomic identification, habit and habitat. The present study gives an account of the fish abundance and depth wise captured fishery resources in different gears with estimates of their potential yields for the Ratnagiri district coast from within and outside PFZ realms. The quality species-wise identification as well as quantity approximate of fish catches from within and outside PFZ validation conducted experiment from different fish landing centers were also put into calculation. The quality species-wise identification as well as quantity approximate of fish catch from fish landing centers was also recorded. Observations were conducted on the fishing boat hired at Mirkarwada-Ratnagiri, during August 2006 to May 2012 for total frequency analysis, originating from fishing units which operated in both the within and outside PFZ zones. Fish samples were identified up to species level (Talwar and Kacker, 1984; Smith and Heemstra, 1986; Froese and Pauly, 2010). The fish catch landing based on the data collected from different landing centers from within and outside PFZ are put in taxonomically order. The fishes indicates common name, local name, and scientific name with authority, habitat, and occurrence in gear, migratory category and maximum length in catches.

## III. RESULT

The quantitative results of the validation experiments were described throughout the study period. During the awareness programme the fishermen were explained generation of PFZ advisories, PFZ maps and text and also they were given training on use of PFZ maps, texts GPS. During the mission PFZ advisories were also distributed to various fishermen groups/ fishery societies, Govt. Offices, Port Offices and associations via mobile, internet and personally holding

discussion. Gillnet also be operated mechanically to get benefit of PFZ and improving total catch of the vessels. Experiment on PFZ validation were conducted by the

following fishing boat hired from Mirkarwada Ratnagiri. The fish catch from purse-seine; trawl and gill net yearwise were studied.

**Table 1** Total fish catch (kg) yearwise and gearwise data within and outside PFZ during 2006 to 2011.

Year	Zones	Purse-seine	Trawl	Gill net	Grand Total
2006-2007	Within PFZ	13, 796	7, 796	1, 832	23, 424
	Outside PFZ	9, 936	4, 968	1, 172	16, 076
2007-2008	Within PFZ	8, 225	14, 043	4, 125	26, 393
	Outside PFZ	6, 225	9, 596	2, 725	18, 576
2008-2009	Within PFZ	40, 921	48, 700	8, 138	97, 759
	Outside PFZ	19, 146	34, 465	6350	59, 961
2009-2010	Within PFZ	13, 856	48, 910	-	62, 766
	Outside PFZ	12, 912	36, 112	-	49, 024
2010-2011	Within PFZ	15, 184	66, 537	-	81, 721
	Outside PFZ	11, 549	50, 698	-	62, 247
Total	Within PFZ	91, 982	1, 85, 986	14, 095	2, 92,063
	Outside PFZ	59, 798	1, 35, 839	10, 247	2, 05, 884

The purse-seine fish catch was dominant within PFZ during 2008-2009 and lowest fish catch found in 2006-2007, 2007-2008, 2009-2010 and 2010-2011. Whereas, in outside PFZ the fish catch is less than within PFZ, In outside PFZ dominance of fish catch shows during 2008-2009 and 2009-2010 than 2006-2007, 2007-2008 and 2010-2011. Overall results shows that purse-seine fishing operation from within PFZ was highest than outside PFZ. The trawl net operation of fish catch data found high from within PFZ during 2010-2011, 2009-2010 and 2008-2009 as compared to the 2007-2008 and 2006-2007 where as in outside PFZ the trawl net operation of fish catch data found high from outside PFZ during 2010-2011, 2009-2010 and 2008-2009 as compared to the 2007-2008 and 2006-2007. In the gill net operation fish catch data from within PFZ shows the high in 2008-2009 and less in 2007-2008 and 2006-2007, where in outside PFZ shows the high in 2008-2009 and less in 2007-2008 and 2006-2007. Overall results shows that the trawl net operation from within PFZ fish catch data is high than outside PFZ and in purse-seine net operation within PFZ fish catch data was high than outside PFZ and in gill net operation fish catch data was high within PFZ than outside PFZ. The overall fish catch data shows that high in trawl net operation than purse-seine net followed by gill net.

#### IV. DISCUSSION

The total fish catch was greater in trawl then purse-seine and minimum from gill net in both within and outside PFZ were observed. Of the different fishing areas and the log reports of these fishing vessels provide information only regarding total fish catch, depth range and nature of bottom, as such the present investigation has its own limitations. Therefore the data analysed and presented here throw light on the resources of this fishery in the different fishing regions from Ratnagiri Coast. Detailed investigation on the

recent fish catch with catch trends in the different fishing gears have been carried out so far.

A commencement of trawling in Ratnagiri district initiated in early 1960. Trawl net is the main important fishing gear for exploitation of demersal living resources. The size of the trawl depends on the towing speed of the vessel and towing speed should be proportional to the swimming speed of the fish (Srikrishna and Shenoy, 2000). The trawl net varying from 30-50 OAL with wooden hull fitted with 40-160 HP engines and power winches. The trawl net is often operated from 15 to 25m long with 20m foot rope and 50-70kg otter boards and 10-20mm cod end mesh size. More than 50, the trawl gear boats were in fishery operation with varying capacity of 4-6 cylinders. Trawls are operated with varying at a depth of 10-40m. The standard duration of each haul by trawl net was 1.5 -3 hours by inquiry from fishers.

The purse-seiners have introduced in late eighties off Ratnagiri and Bombay coast are of 11.5 to 13.0 m length with a mesh size of 2cm. The purse-seine net with mesh size variable 10-25 mm and from 500 to 1200 m encirclement around fish shoals and vertical hanging of depth altered from 15 to 40m. The fishing by the purse seine gear is seasonal activity generally ranging and may last from September to May. The hauling operation for each time almost took 2.5 to 3 hours.

The gill net with mesh size 40-120mm, are often spread at the inshore realm, length about 500m and vertical hanging more or less 10-20 feet. The net is set twice in a day from evening 7: 00pm to 1: 00am and early in the morning by 4 o' clock to 10: 00am the gill net is uplifted. All the fishes are gilled and they are collected. The gill nets were usually operated at the inshore waters and the nets had a length of about 500 m and depth around 3-6 m and mesh

size ranged from 80 to 160 mm. This gear is set subsequently after a gap of 4-6 hours, especially uplifted early in the morning. This net is operated especially at the surface mostly during night time at a depth of 10-15m; consist of 20-25 pieces. Each segment of net varies from 140-240' in length and 15' in breadth. Mesh size is 3" to 4".

## V. CONCLUSION

The total fish catch may fall about depletion in fish and major threat to fishery, degradation of habitat by trawl net operation, migration, predator increased, less food availability, season in which fishing done could be in terms of reasons. All the PFZ and non-PFZ validation experiment was conducted successfully where the area is given in PFZ advisory. The following objectives are attempted to study from both within and outside PFZ regions. Such as Study on fishing crafts, Identifying techniques of marine fish finding, Identifying major pelagic and demersal fishes in terms of catch, To evaluate the potentiality of the PFZ and socio-economic uplifting of fishermen community from the Ratnagiri district coast and Scientific analysis of the entire fish catch data for calculating the total fish catch. The PFZ advisory have seemed to be occurred in timely accurate & of significant valuable for the fishing community which will help in enhancing their income level. There are a number of general ways in which the economic level of the fisher, in particular those belong to rural areas with traditional fishing can be augmented. Some of the pivotal issue they include Increasing the fish catch, improving catch efficiency and reducing cost, improved utilization of catch, distribution and marketing system improvement, development of improved ports, harbors and infrastructure, optimum use of fish over time. Marine fishery sector is one of the vital areas for the better improvement in socioeconomic conditions of the fishermen community. More challenging aspect for the fishermen today is to identify the accurate location and catch the fish school, as the fish stock itself is mobile and move further offshore when the vessel approaches the stock. This results in increase in the fish catch. Identification of potential fishing grounds using the advanced technology of remote sensing earned an excellent result for the fishermen reducing in search time, fuel and manpower in getting better fish catch.

## Acknowledgement

I would like to thank Ex-Director, Dr. Mane U.H., Center for Coastal and Marine Biodiversity of Dr. Babasaheb Ambedkar Marathwada University, Ratnagiri for his invariable encouragement and scientific support in the analysis throughout the study period. Thanks are due to, The Indian National Center for Ocean Information Services (INCOIS), Ministry of Earth Sciences, Government of India offered the valuable pecuniary support for this study through PFZ-Mission project to the first author as JRF-SRF.

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