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ORIGINAL ARTICLE

Geographical Perspectives On Marine Fisheries In Maharashtra

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Abstract:

Fishing and hunting are age old occupations which date back to pre-historic period .Egyptians were the first to start fish culture somewhere in 2500 B.C. followed by Chinese in 2000 B.C. Fish culture in tanks had been started in India since 350 B.C. Fishing is one of the traditional activities of Maharashtra which bestowed with 720 km coastline. Since 1950 nature of this traditional activity has rapidly changed in to commercial activity.

Fishery is one of the most important primary economic activities of man. Man has been operating this activity from ancient period. It is one of the means which meets man's fundamental need e.g. food up to certain extent. In modern period this activity has been occupied a significant place in developing country like India. At present it has immense importance because it contributes to the national income, generates employment, provides nutritious food and earns foreign exchange. This sector consists of two types of fisheries, viz. Inland fisheries and Marine fisheries. Inland fisheries include fishing and fish culture in rivers, ponds, swamps, canals, reservoirs and lakes. While marine fisheries includes fishing in sea, brackish water fisheries, fishing in estuaries.

Maharashtra State is one of the major Marine States in India. It has 720 km long coastal line spread all over the five maritime districts viz. Thane, Mumbai and Suburban, Raigad, Ratnagiri and Sindhudurg. The continental shelf area up to 40 fathoms i.e.55,529 sq.kms (50% of the total continental shelf 1,11,512 sq.kms) is being exploited. About 4.50 lakhs fishermen population are engaged in this activity and 406 fishing villeges,184 fish landing centers 3 major Harbours and 170 Ice plant & cold storage in Maharashtra.

An attempt has made to study the marine fishing activity in study region, its distribution, problem and potentials. For analysis of the existing conditions of various aspects of marine fishery related data and information is collected from various sources. All the relevant published and unpublished records is consulted. However the present work is based mainly on primary data collected through intensive field work. Obtained data has been processed and presented in tabular and the graphical form.

Modernization of fishing methods, Mechanization use of fish finders and methods of fish preservation has changed scenario. To meet the increasing demands of marine fish ,fishermen have concentrated their attention to increase marine fish production. Today we are facing adverse effects of over exploitation of fish stock. Fish catch per fishing boat is reduced due to reduction of natural fish stock. The fish potential of the state is estimated at 6.3 Lakhs Tonnes. 40 varities are found in the sea-water of the Maharashtra state, during the year 2009-10,the marine fish production in the State is 4.16 lakh tones. The percentage of the production to State potential is 66%.

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INTRODUCTION:-

Fishing and hunting are age old occupations which date back to pre-historic period .Egyptians were the first to start fish culture somewhere in 2500 B.C. followed by Chinese in 2000 B.C. Fish culture in tanks had beginning in India since 350 B.C. Fishing is one of the traditional activities of Maharashtra which bestowed with 720 km coastline. Since 1950 nature of this traditional activity has rapidly changed to in commercial activity.

Fishery is one of the most important primary economic activity of man. Man has been operating this activity from ancient period. It is one of the means which meets man's fundamental need e.g. food up to certain extent. In modern period this activity has been occupied a significant place in developing country like India. At present it has immense importance because it contributes to the national income, generates employment, provides nutritious food and earns foreign exchange. This sector consists of two types of fisheries, viz. Inland fisheries and Marine fisheries. Inland fisheries include fishing and fish culture in rivers, ponds, swamps, canals, reservoirs and lakes. While marine fisheries includes fishing in sea, brackish water fisheries, fishing in estuaries. Indian sea food industry ranks seventh in total marine production of the world.

OBJECTIVES: -

Present study is an attempt to assess the distribution and pattern of fishery in the study area. However the specific objectives of the study are as following.
To highlight the geographical setting of study region.
To study the Temporal fish production in the study region.
To study the spatial patterns of marine fish production.

STUDY REGION :

For the present study Maharashtra state is selected where marine fishing activity is operated along the Maharashtra sea coast of Arabian sea. This cost is extending from 720 km at the north to south. Its latitudinal extension is 15 44' to 22 ^{0} 6' north latitudes and 72 ^{0} 36' to 80 ^{0} 54' east longitudes. It extends over an area of 14985 sq km. Which is about 4.8 percent of the states geographica l area.. Its shape is elongated. The continuity of sea coast is broken due to several estuaries formed by the rivers coming from western ghat and draining the whole konkan. Climate of this coastal region is characterized by mildness and moistness of the c limatic as well as seasonality of rainfall. Temperature of the region ranges between 20 ^{0} to 30 ^{0} c where as annual average rainfall receives to this region between 2500 to 3500 mm.

DATA SOURCES AND METHODOLOGY.

For the analysis of the existing conditions of various aspects of Marine fishery related data and information is collected from various sources. All the relevant published and unpublished records is consulted. It is collected mainly from fish production r eport of Maharashtra, socio - economic reviews and district statistical abstracts of Maharashtra etc. Obtained data has been processed and presented in tabular and graphical form.

PRODUCTION OF MARINE FISH (1991 -92 TO 2009 -10)

Marine fish production of the state in 1991 -92 was 3, 44,536 tonnes. Which has raised up to 4, 10,515 tonnes. in the year2010 -11. Where as in the year 2010 -11 Indians total marine fish production was 29, 80,000 tonnes. The share of the state in national marine fish production was of 13.95 percent. Its value in rupees was 1,84,915.38 lakh of rupees, which shares 1.45 percent of country's total income. This shows the importance of marine fisheries in Indian economy.

TABLE NO-1
Marine Fish production in Maharashtra
From 1991-92 To2009-10, (Quantity-in Tonne)

Sr.No	Year	Quantity
1	1991-92	344536
2	1992-93	419581
3	1993-94	353926
4	1994-95	332934
5	1995-96	423985
6	1996-97	480954
7	1997-98	453712
8	1998-99	394883
9	1999-00	397901
10	2000-01	402769
11	2001-02	414268
12	2002-03	386680
13	2003-04	420077
14	2004-05	417854
15	2005-06	445343
16	2006-07	464090
17	2007-08	419815
18	2008-09	395963
19	2009-10	415767

Source:- Dept. of Fisheries, Govt. of Maharashtra

In depth study of above table it is found that there is uneven picture of fish production. In 1991- 92 there was 3, 44,536 tonnes. fish production which has raised up to 480954 tonnes. in 1996- 97. Because in this year there was good atmospheric conditions such as calm sea, clear sunlight throughout the year which had favoured the better growth of sea foods for fish. With few exceptions same condition was found in 1997-98,2003-04, 2005-06 and 2006-07 years. In the rest years there was near about average fish production with little variations.

SPATIAL SCENARIO OF MARINE FISH PRODUCTION –

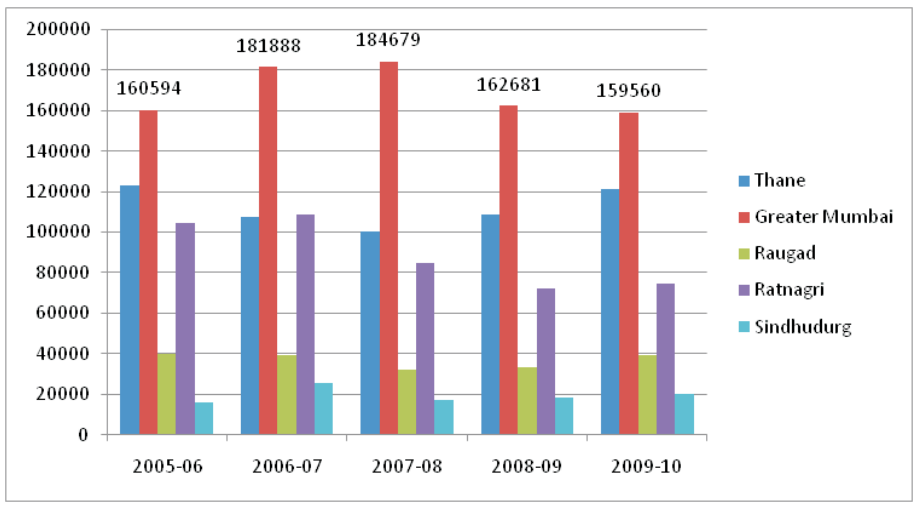
In Maharashtra state marine fish production activity is practiced along the west coast within the administrative districts from Thane at north to Sindhudurg at south comprising Greater Mumbai, Raigad and Ratnagiri districts in between.

TABLE NO-2
DISTRICTWISE MARINE FISH PRODUCTION OF MAHARASHTRA
(In Tonne)

Sr. No.	District	FINANCIAL YEAR (APRIL TO MARCH) (in Tonnes)				
		2005-06	2006-07	2007-08	2008-09	2009-10
1	Thane	123591	107747	100479	109016	121514
2	Greater Mumbai	160594	181888	184679	162681	159560
3	Raugad	40044	39505	32488	33273	39435
4	Ratnagri	105069	109025	85099	72318	75122
5	Sindhudurg	16045	25895	17070	18675	20136
STATE TOTAL		445343	464090	419815	395963	415767

Source:- Dept. of Fisheries, Govt. of Maharashtra

DISTRICTWISE/YEARWISE MARINE FISH PRODUCTION
(In Tonne)



Above table No.2 shows the spatio-temporal production pattern of marine fishery. Thane,Greater Mumbai, Raigad, Ratnagiri & Sindhudung these five tahsils are mainly confined with marine fishery of the state. Out of these five districts Greater Mumbai is consistently ranking first in fish production.Its share of fish production in the state's marine fish production is of 38.38 percent.As compared to other four districts in Greater Mumbai there fishing boat's are more in number.Mumbai is an ideal port there is favorable continental shelf ample stock of fish highly mechanised fishing boats, advanced fishing technology as well as proximity of efficient domestic market. In addition to these there are efficient and convenient means of transportation, freezing facilities ideal port for export marketing etc are the other boosting factors for bulk fishing.

Thane is the second ranking district inrespect of marine fishery .In the year 2009-10 total marine fish production of this district was about 1,21,514 M.T. Which shares 29.23 percent of the state total of fish production. Thane city and whole district is also having good domestic markets. As well as proximit location of Mumbai a mega city is also one of the favouring factors for marine fish production of the district.Ratnagiri is third ranking district regarding the marine fish production in the state.This district has produced75,122 M.T.of fish in the year 2009-10 The fish production share of Ratnagiri in the state total was of 18.07 percent in that year.Ports in Ratnagiri district are more in number. As well as the district has very long sea coast as campared to other coastal districts of Maharashtra.These factors are also favouring for fishing activity in the district.

The fish production shares of Raigad and Sindhudurg districts are of 9.48 and 4.84 percents respeetively. These two districts have small costs.As well as these districts are not having efficient domestic markets for fish disposal.Raigad district has little more fish production than that of sindhudurg because many fishermen practice their fishing activity near the coast of Greather Mumbai and they try to catch the benefit of proximity of urban markets of Greater Mumbai. On the contrary Sindhudurg district has far away from densely populated domestic markets of Greater Mumbai. As well as this district as low population density and very less number of efficient domestic markets. Besides these poor economic condition of fishermen less number of mechanised boats, non availability of cold store houses and undeveloped ports for export activity are the other adverse causes of low fish production in this district.

VARIETYWISE FISH PRODUCTION IN MAHARASHTRA.

In Maharashtra state more than 30 varieties of fish are produced in fishing activity.

From above table no –3 it is observed that Non-penaeid prawns is leading variety which is produced in very high proportion. Its share in total production of state was of 17.30 percent in the year 2009-10. It is followed by Harpodon Neherus fish variety and its production in the year 2009-10 was 64640 M.T. Which shares 15.54 percent in the state total. Next important variety of fish is Penaeid prawns. Its

Production was 40.488 M.T. in that year and its share in total production of the state was 9.74 percent. It is followed by Ribbon fish. It's total production in the year 2009-10 was 29649 M.T.and its proporation in states total production was 7.13 percent. as where Markeral (5.13%), S ardines (4.79%) Anchoviella (4.37%),Otolithes (sp) (4.06%) Cephalopoda (3.56%) Cat fishes (3.26%) Upenedes (sp) (2.55%) Pomfrets (2.42%) are the other important fish varieties which are also produced.

TABLE NO-3
VARIETYWISE MARINE FISH PRODUCTION
(in Tonnes)

Sr. No.	Variety	FINANCIAL YEAR (APRIL TO MARCH)				
		2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**
1	E lasmobranchs	6492	8669	8935	7236	5888
2	Eels	1714	3141	2864	1906	1351
3	Cat Fishes	10618	12452	12206	12681	13576
4	Chirocentrus	2623	2520	2800	2957	3531
5	Sardines	24614	38829	25690	22211	19933
6	Hilsa Ilisha	1009	1014	1139	1378	1918
7	Anchoviella	24997	21988	21391	19843	18173
8	Thrissocles	3912	4535	5901	5592	6242
9	Other Clupeida	2848	1762	1642	1146	1581
10	Harpodon Neherus	76011	66587	59254	63163	64640
11	Perches	375	711	461	242	182
12	Red Snapper	863	1109	958	874	390
13	Polynomids	460	900	1183	1031	808
14	Sciaenids	7053	8403	7094	5627	6453
15	Otolithes sp	23404	22128	16687	14947	16636
16	Ribbon Fish.	34073	48709	30254	32336	29649
17	Caranx	7358	8359	6339	10375	5672
18	Pomfrets	9545	7207	10011	6725	10055
19	Black Pomfret	1465	1878	1697	1894	1770
20	Mackeral	11682	15823	25065	13179	21317
21	Seer Fish	7630	10263	8655	7980	8188
22	Tunnies	4042	5076	5476	3964	2872
23	Bregamceros Macellendi	2382	986	408	476	440
24	Soles	6219	7025	5300	3590	4694
25	Carangids Small	3445	3315	4459	3740	4169
26	Leognathus	693	1412	671	886	1792
27	Upenaides Sp.	10097	12294	11400	10714	10619
28	Penaeid Prawns	47039	42519	45352	45321	40488
29	Non-Penaeid Prawns	68498	51801	53869	58440	71925
30	Lobsters	628	771	555	471	611
31	Lactarius	1405	1871	2256	2769	3859
32	Cephalopoda	13612	16421	13665	10501	14780
33	Miscellaneous	28537	33612	26178	21768	21565
TOTAL		**445343**	**464090**	**419815**	**395963**	**415767**

Source: - Dept. of Fisheries, Govt. of Maharashta.

CONCLUSION –

1.Maharashtra is an important marine fish producing state in India which contributes more than 13 percent of country's total fish production.
2.With little variations the volume of fish production is remain constant from last twenty years.
3.Greater Mumbai district is highest ranking district in fish production in the state which contributes 38.38 percent of state total marine fish production (2009-10)
4.As where Thane is second important district in respect of marine fish production in the state (29.23%)
5.Proportion of marine fish production of Raigad and Sindhudurg districts is negligible and that is 9.48% and 4.84 respectively.
6.Spatial variation in marine fish production is the composite result of various natural and economical

factors.
7.More than 30 verities of fish are produced out of which Non-penaeid prawns, Harpodon Neherus, Penaeid prawns ,Robbon etc. are important verities and its share in total production is more than 50 percent.

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