

Inland fisheries in Tamilnadu: A case study of Thiruvannamalai district

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Abstract

In a country like India with it is undernourished millions the need for enhancing protein rich food cannot be over emphasized. In the context fish production assume great importance. Fish is rich in protein and it is also contains fat in organic substances and vitamins. The protein content on fish ranges from 12 per cent to high as 20 per cent the general beings 17 per cent fisheries contributes 1 percent of the total food supply of world. Thus Per capita fish consumption of India is for below than that of other countries like Taiwan (20kg) Korea (80kg per annum James (1990); Japan (72.0 kg F.A.O 1991. Facroles (85.2 kg) Iceland (92.1 kg) and Portugal (60.02kg). Development o suitable technologies coupled with extension activities has pushed Indian fish production manifold. The marine fisheries potential of the state is estimated at 0.719million tones(0.369 million tones form less than 50 mater depth and 0.35 million tones beyond 50 meters depth) as against the all India potential of 3.934 million tones of the east coast states, Tamil Nadu lands the maximum catch followed by West Bengal.

Keywords: Fisheries, fish production, protein content

INTRODUCTION

Fish is an essential food for people on developing countries. Asia with special references to India is by far the most regions for the direct human Consumption of fish owing to a mixture of large population and relatives high Per capita consumption levels. About 59.3 percent of the world population is in Asia (Pandey, 2004)¹.

In country like India with it is under nourished millions the need for enhancing protein rich food cannot be our emphasized. In the context fish production assume great importance. Fish rich in protein and it is also contains for organic substances and vitamins. The protein content on fish ranges form 12 percent to high as 20 percent the general beings17 percent fisheries contributes 1 percent of the total food supply of world (Five year plan 1988).

Determining the quantity of fish that is or might be available to the average consumer to a particular Individual is not easy. The total food supply available form fisheries would fine an approximate annual availability. In live weight terms of 15 kilograms, for each of the world's in habitants. This figure has been increasing form about 7 kilogram percapita in 1950 and has kept pace with population growth, but is now leveling of percapita consumption of fish 3.5 kg in 1987 increased to about 8.0kg per annum by the end of 1996-97 and 10kg by 2000 A.D. Thus percapita fish consumption of India is far below than that of other countries like Taiwan (20kg), Korea (80kg per annum James (1990) Japan (2072.0kg) Facroles (85.2kg) Iceland (92.1kg) and Portugal (60.02kg) (F.A.O 1991). Development of suitable technologies coupled with extension activities has pushed Indian fish production manifold (Pandey, 2004).

The world fish production grow from 19.6 million tones in 1950-

50 to 1963 million tones in 1969 have increased form 111 million tones in 1978 to 125 million tones in 1999. It has increased to 150million tones in 2002 registering an annual growth rate of growth 11 percent. World fish production has now crossed is million metric tones. The global patterns of fish production owe much to the activities of quantity. The other major producers are Japan, India, the United States, The Russian Federation and Indonesia (Fisheries Development Mission, 2002)³.

TAMIL NADU SCENARIO

Tamil Nadu with its 1076 km of coastline (13 percent of the country's coastline) 0.91 million sqkm of Exclusive Economics Zone (EEZ) which is 9.4 percent of India's EEZ and continental Shelf of about 4142 sqkm is leading state in fish production. The marine fisheries potential of the state is estimated at 0.719 million tones (0.369 million tones from less than 50 meter depth and 0.35 million tones beyond 50 meter depth) as against the all India potential of 3.934 million tones of the east coast states, Tamil Nadu lands the maximum catch followed by West Bengal.

Among the inland water bodes, the seas and tanks and other ponds contribute the maximum for the annual inland fish production (41.1%) major irrigation tank(both perennial and long seasonal tanks) stands in importance (32.6%). It is followed by rivers and corals (14.8%) estuaries and backwater (3.7%) FFDA tanks (3%) major reservoirs (3.2%) and miscellaneous rise fields and swamp 2.1 percent (Tami Nadu Fisheries Statistics 1994).

Among the district, Thanjavore stand first with its annual contribution of 12% of in land fish production in the state. Chengalpattu district stands next in importance with 10.3% of the total catches followed by Nagapatinam district 9.2 percent (Tamil Nadu Fisheries Statistics, 1994).

Among the species of inland fishes caught in Tamil Nadu, common carp dominates the scene accounting for 29.6% of the fish catches. The second position goes to Tilapia (14.8%) and Barbus (14.8%). This is followed by Rohu (9.1%) Cotla (5.8%) mrigal 13.9 percent (Tamil Nadu Fisheries Statistics 1994)⁴.

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METHODOLOGY OF THE STUDY

The study is entirely based on secondary data. The socio-economic condition of inland fisherman is studied using inland fisherman census 2004. Primary data has not been collected since the study is based on census data. The data provided by the water fisheries department in regard to fish production, fish growing water spread area has been used. Various statistical tools have been used to analyse the data.

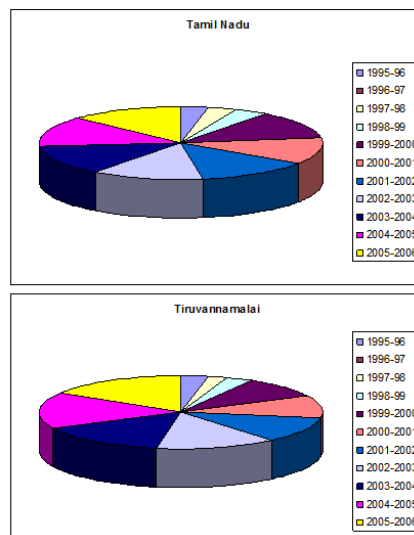
Inland Fisheries

The state has about 3.96 lakhs hectares of water spread comprising of perennial reservoirs, irrigation tanks and seasonal tanks and village ponds which are suitable for fish culture. There are 19.67 Lakhs in inland fishermen in the state and a percent of them are active fishermen. The inland fisherman population in Thiruvannamalai District is 8151 in 2005-06. The table below gives the inland fisherman population over the years for the state and for the study area.

Table – 1

Year	Tamil Nadu	Thiruvannamalai	Percentage
1995-96	47419	1535	3.24
1996-97	-	-	-
1997-98	50461	1181	2.34
1998-99	56169	1535	2.73
1999-2000	185322	4628	2.49
2000-2001	182554	4989	2.73
2001-2002	196609	5845	2.97
2002-2003	196697	6975	3.55
2003-2004	201786	7650	3.79
2004-2005	199671	8151	4.08
2005-2006	199671	8151	4.08

Sources: Registered Fisherman Co-operative Society



The Method of Least Square Analysis

$$a = \frac{\sum y}{N} = \frac{1516359}{11} = 137850.08$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{2106591}{110} = 19150.82$$

Year	Tamil Nadu	X	X ²	XY	Y=a+bx
1995-96	47419	-5	25	-237095	42095.98
1996-97	-	-4	16	0	61246.80
1997-98	50461	-3	9	-151383	80397.62
1998-99	56169	-2	4	-112338	99548.44
1999-2000	185322	-1	1	-185322	118699.26
2000-2001	182554	0	0	0	137850.08
2001-2002	196609	1	1	196609	157000.90
2002-2003	196697	2	4	393394	176151.72
2003-2004	201786	3	9	605358	195392.54
2004-2005	199671	4	16	798684	214453.36
2005-2006	199671	5	25	798684	233604.18
N=11	1516359	0	110	2106591	425112.38

$$a = \frac{\Sigma y}{N} = \frac{1516359}{11} = 137850.08$$

$$b = \frac{\Sigma xy}{\Sigma x^2} = \frac{2106591}{110} = 19150.82$$

$$1995-96 = a + bx = 137850.08 + 19150.82(-5)$$

$$= 137850.08 - 95754.10 = 42095.98$$

$$1996-97 = 137850.08 + 19150.82(-4)$$

$$= 137850.08 - 76603.28 = 61246.80$$

$$1997-98 = 137850.08 + 19150.82(-3)$$

$$= 137850.08 - 57452.46 = 80397.62$$

$$1998-99 = 137850.08 + 19150.82(-2)$$

$$= 137850.08 - 38301.64 = 99548.44$$

$$1999-00 = 137850.08 + 19150.82(-1)$$

$$= 137850.08 - 19150.82 = 118699.26$$

$$2000-01 = 137850.08 + 19150.82(0)$$

$$= 137850.08 + 19150.82 = 137850.08$$

$$2001-02 = 137850.08 + 19150.82(1)$$

$$= 137850.08 + 19150.82 = 157000.90$$

$$2002-03 = 137850.08 + 19150.82(2)$$

$$= 137850.08 + 38301.64 = 176151.72$$

$$2003-04 = 137850.08 + 19150.82(3)$$

$$= 137850.08 + 57542.46 = 195392.54$$

$$2004-05 = 137850.08 + 19150.82(4)$$

$$= 137850.08 + 76603.28 = 214453.36$$

$$2005-06 = 137850.08 + 19150.82(5)$$

$$= 137850.08 + 95754.10 = 233604.18$$

$$2010-11 \text{ will be estimated the Tamilnadu Fisherman}$$

$$= 137850.08 + 19150.82(15)$$

$$= 137850.08 + 287262.30 = 425112.38$$

Trend Line

It is evident from the table that inland fishermen population in the study area compared to that of the state shows a marginal increase from 3.2 percent in 1995-96 to 4 percent in 2005-06. The average rate of growth of inland fishermen population from 1995-06 to 2005-06 has been 0.33 percent and 0.48 percent for the state and the study area which reveals that during the study period the inland fishermen population in the study area has been growing ahead of the average.

Table -2: Details of fishermen population in Tiruvannamalai

S.No.	Name of the village	Adults		Female	%	Total	%
		Male	%				
1	Arani town	201	47.063	221	52.7	422	7.43
2	Azhinjalpattu	148	50.68	144	49.32	292	5.14
3	Kammakkoor	7	29.17	17	17.83	24	0.42
4	Mamandoor	1	25.00	3	75.00	4	0.07
5	Rantham, Thellum	16	61.54	10	38.46	26	0.46
6	Thenmathimangalam	192	51.89	178	48.11	370	6.51
7	Thiruvannamalai	364	48.79	382	51.21	746	13.23
8	Ukkal	16	57.14	12	42.86	28	0.49
9	Other villages	1927	0	1842	0	3769	66.71
District Total		2872	0	2809	0	5681	0
District Average		35.00	0	34.00	0	70.00	0

Sources: Fisher Folk Census 2004.

Table - 3: Ten Years Inland fish production
(Quantity in tonnes)

Year	Inland	
	Target	Achievement
	108000.000	108050.000
1995-1996		
1996-1997	109810.000	109000.000
1997-1998	110000.000	109500.000
1998-1999	111000.000	119800.000
1999-2000	112000.000	114089.000
2000-2001	113000.000	110134.000
2001-2002	114000.000	113691.000
2002-2003	125400.000	102217.000
2003-2004	137940.000	77304.000
2004-2005	151734.000	86851.129
2005-2006	166907.000	155943.630
2006-2007	183590.000	160171.525
2007-2008	184100.000	164504.290

Sources: Directorate of Fisheries in Tamil nadu

Correlation Analysis

Year	X	X=(y-A)	X ²	Y	Y=(y-A)	Y ²	XY
1995-96	108000	-2000	4000000	108050	-11750	138062500	23500000
1996-97	109810	-190	36100	109000	-10800	116640000	2052000
1997-98	110000	0	0	109500	-10300	106090000	0
1998-99	111000	1000	1000000	119800	0	0	0
1999-00	112000	2000	4000000	114089	-5711	32615521	11422000
2000-01	123000	3000	9000000	110134	-9666	93431556	2898000
2001-02	114000	4000	16000000	113691	-6109	37319881	24436000
2002-03	125000	15000	225000000	102217	-17583	309161889	263745000
2003-04	137940	27940	780643600	77304	-42496	1805910016	1187338240
2004-05	158734	41734	1741726756	86851	-32949	1085636601	135093566
2005-06	166907	56907	3238406649	155943	36143	1306316449	2056789701
2006-07	183590	73590	5415488100	160171	40371	1629817641	2990901890
2007-08	184100	74100	5490810000	164504	44704	1998447616	331266400
			16926111205			8659449670	5474777185

Correlation Analysis

5474777185

= 130100x93056

5474777185

= 12106606944 = 0.45 positive correlation

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{5474777185}{\sqrt{16926111225} \sqrt{8659449670}}$$

ESTIMATION OF SOURCE WISE INLAND FISH PRODUCTION IN TAMIL NADU

The inland fish production in Tamil Nadu accounts of 108050 tones in 1995-96. It has increased to 1,64,504 tones in the year 2007-08. It has increased by 56,454 tones our the last 13 years. In the first three years (1995 to1998) the maximum inland fish production came from major irrigation tanks and seasonal tanks and river, streams, canals. In this period this the fish production from these sources was more than 80 percent in Tamil Nadu. However major reservoirs and Rice Fields accounts a minimal level production Estuaries and fish farmer development Agencies occupy third position in inland fish production. The production form these two sources was nearly 15 percent of inland fish production for the years 1995-96 to 1998-2000. After the year 1999-2000 ther is a small decline inland fish production from the sources of major irrigational

tanks and seasonal tanks. Rivers, streams etc, But FFDA, Estuaries, Rice field production increased in the years 1998-99 to 2002-03.

However in the year 2001 to 2004 the inland production from the sources of major irrigational tanks, seasonal tanks and estuaries declined. The fish production for major irrigation tanks almost declined by280 times in the year 2004 compare to 2003. But it increased by 528 times in the year 2004-2006. The seasonal tanks fish production declined in the year 2004-2005 which accounts for only 426 tones. But it increased to 75098 tones in the year 2005-2006. In the year 2006-07. The fish production in higher than the previous year, and also increase the production of fish in the year 2007-08 to approximately achieve the target. The estuaries fish production showed increasing as coal as declining trend over the years 1995 to 2008.

Table-4 Reservoir Fisheries- species wise stocking in Tamil nadu During the year 1995-2008 (in lakhs)

Speices	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Catla	11.16	29.55	-	28.21	35.48	32.2	29.02	112.92	40.63	28.192	33.676	35.00	40.00
Rohu	23.78	25.41	-	26.856	20.43	19.97	23.60	79.376	28.78	21.952	23.910	35.00	40.00
Mrigal	14.24	7.37	-	14.081	15.00	13.99	20.71	36.277	30.29	18.80	20.146	35.00	40.00
Common	7.80	13.02	-	18.612	14.45	12.05	14.14	39.079	5.43	11.870	12.143	25.00	40.00
Mirror	-	-	-	-	-	-	-	39.079	1.21	0.70	.0100	30.00	30.00
Crop others	1061	10.26	-	0.298	1.28	0.35	20.98	9.337	0.28	7.317	2.3222	20.00	20.00
Total	67.59	85.61	95.11	88.058	86.6	78.56	90.45	271.93	106.68	88.781	92.297	180.00	210.00

Table-5 Reservoir Fisheries- species wise stocking in Tamil nadu During the year 1995-2006 (in lakhs)

Speices	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Catla	-	-	-	-	-	-	-	-	3.57	0.000	0.160
Rohu	-	-	-	-	-	-	-	-	3.13	0.000	0.000
Mrigal	-	-	-	-	-	-	-	-	0.88	0.000	0.000
Common	-	-	-	-	-	-	-	-	0.00	0.000	0.000
Mirror	-	-	-	-	-	-	-	-	0.00	0.000	0.000
Crop others	-	-	-	-	-	-	-	-	0.00	0.000	0.094
Total	-	-	-	-	-	-	-	-	7.58	0.000	0.094

Reservoir Fisheries - Speice Wise Stocking In Thiruvannamalai

Though there was no data available from 1995-2003. It is inferred from 2004-06 that there was reservoirs fish stocking in Thiruvannamalai District. Similar to the state reservoir fish stocking cotla and Rohu accounted the major species in 2003-2004. The production of cotla remained positive while the stocking of Rohu was nil.

SUMMARY

Food problem is major concern for many developing countries in these context. The food contributed by fisheries of as much opportunity for improvement and success can be highly rewarding. In a country like India with its under nourished millions the aid for enhancing protein which food especially from fish cannot be over emphasized.

The fisheries sector broadly classified into two types. Marine fisheries and inland fisheries. The inland fisheries reservoirs which is the area of this study consist of two type of water, brackish and fresh. The fisheries of this type of water can be for classified into two type culture and capture. The inland water of fisheries has four kinds of fisheries. That is (A) food fisheries from wild stocks (B) food fisheries from smaller water bodies (C) recreational fisheries (D) fisheries on small adults farms.

CONCLUSION

The objectives of fisheries department to increase fish production full exploitation of water bodies and increase the socio economic condition of inland fishermen have a long way to go.

The problems is achieving these objectives is mainly because of the policy being adopted in inland fisheries. The leasing plights of inland water bodies is controlled by the public works department of the state government to here as the development activities in regard to fisheries department of the state government. This dichotomy between the leading rights with the public work department and the development activities with the fisheries department presence the achievement of fishery objectives in full.

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