

Dynamics of Fish Production in Fresh Water Bodies - A Study in the East Godavari District of Andhra Pradesh

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Abstract

East Godavari district of Andhra Pradesh plays a very key role in the fish and fisheries sector of the State. In the present study an attempt has been made to study the Ichthyofauna diversity and the fish production details in East Godavari district during the consecutive years from 1992-93 to 2003-04. Among the various districts of Andhra Pradesh, East Godavari district occupies seventh position in terms of fish production. In 12 years (i.e. from 1992-93 to 2003-04) the inland fish production was lowest (1,686 tonnes) during the year 1992-93 and the highest (20,028 tonnes) during 2001-02. The fish production of the district declined to 12,143 tonnes during the year 2002-2003 and to 11,844 tonnes during 2003-2004.

KEYWORDS: Fish production, East Godavari, Fish culture, High productivity.

Introduction

East Godavari district of Andhra Pradesh plays a very key role in the fish and fisheries sector of the State. This district is endowed with rich marine, inland and brackish water fishery resources. A distinct feature is the river Godavari which flows through it and the adjacent West Godavari district into the Bay of Bengal with its mouths in the district but also bordered by West Godavari district. East Godavari district has bends a canal network, reservoirs, perennial tanks and short seasonal tanks. This district also has a well developed network of irrigation canals and fishing is the second main occupation of farmers in this district.

The inland fish production in the East Godavari district is mainly from river Godavari, reservoirs, perennial tanks, village tanks and farmers dugout ponds. The total water spread area of all water resources in the district is 23,363 hectares. Of these, the water spread area of reservoirs is 796 hectares and fish production from the reservoirs is 125.50 tonnes, with the production per hectare there from being 157.66 kg. The other water resources in the district are perennial, long seasonal and short seasonal tanks having a total of 14,333.31 hectares of water spread area. The fish production from these tanks is 3,503.24 tonnes and per hectare fish production is 244 kg. With regard to village tanks, the total water spread area is 5, 828.07 hectares and fish production from these water bodies being 2,909.16 tonnes and per hectare fish production is 442 kg. The water spread area of dugout ponds of farmers is 2,403 hectares and fish production from these tanks is 9,612 tonnes, the per hectare fish production being nearly 4000 kg.

Materials and Methods

The material for the present study was collected from the different freshwater bodies such as tanks /reservoirs /canals and river Godavari of East Godavari district, which is located on the North Eastern part of Andhra Pradesh State between 16° - 17' and 18° - 30' and 82° - 37' East longitude. The district ranks 14th in the State in respect of area with 10,807 Sq. km. Having 57 mandals with 1,409 villages. The district is bound on the north by Vishakapatnam, West by Khammam and West Godavari districts and on the east by Bay of Bengal. The State can be broadly classified into three natural zones. They are delta, plain and agency tracts. The freshwater bodies that were surveyed during the present investigation were mainly the river Godavari and its canals and minor reservoirs such as Pampa, Yeleswaram, Vattigadda and freshwater tanks of Kakinada and Rajahmundry divisions. Departmental, Gram panchayat, perennial long seasonal and short seasonal tanks of different mandals and dugout ponds of fish farmers. The fishes were identified up to species level following the standard procedures in the literature (Dutta, and Srivastava. 1988; Murthy, 2002; Srivastava, 1985; Talwar and Jhingran. 1991). The fish production particulars were also collected for the last 12 years from the Assistant Directors of the A.P, Department of Fisheries.

Results and Discussion

Apart from the reservoirs and tanks, the river Godavari flows in the district for a distance of 41.80 km and contributes 3,875 tonnes of fish production. From all the water resources, the district produced around 20, 028 tonnes of freshwater fish during 2001-02 and 12, 143 tonnes during 2002-03. As per the available data of last 12 years fish production (from 1992-93 to 2003-04) of the district, increased from 1,686 tonnes to a maximum of 11,844 tonnes. The district always stood in seventh position in the State (Table – 1). The fish production mainly consists of Carps, Cat fishes, Murrels, Barbus, Hilsa and other miscellaneous groups. The Carps dominate with 70-80% of the production followed by Cat fish and Murrels. In the East Godavari district, the Hilsa fish catch is mainly confined in the river Godavari. As is known the Hilsa fish is a migratory fish (Anadromous).

The fish production from river Godavari has been showing continuous decline in the catch. Investigations by Rajyalakshmi and Narayana Rao during 1963-1969 in the stretch between Dowleswaram and Dummugudem anicuts have shown the continuous decline in the catch and catch per unit effort and mean size in catch, indicating the overfished state of fishery. The situation has not changed even after 35 years. Certain conservation measures aimed at limiting effort, declaring closed seasons and sanctuaries have not made any impact. As Pillay (1994) emphasized, in order to enhance the fish production in inland waters to cater the food requirement of the people, efforts have not been made in this direction. The average annual fish yield in Indian reservoirs can be increased to 75 kg/hectare per year during 1981 (Natarajan, 1974).

According to Annon (1977) reported that the reservoir fish productivity was much higher in China than that of India. In China the productivity is 60 kg/hectare per year in large reservoirs, 225 kg/hectare per year in medium reservoirs and 1000 kg/hectare per year in small reservoirs having less than 500 hectares of water spread area. This level of yield must have been achieved only under intensive monitoring. When compared to reservoirs of China, the productivity of Indian reservoirs is also low. As Mahapatra (2003) recorded only 15.6 kg/hectare per year in Hirakud reservoir and 5-10 kg/hectare per year in other major reservoirs of Orissa. It was observed that there

was scope to increase yield rate @ 100 kg/hectare per year, provided proper management practices are adopted. However the present fish yields from the reservoirs in East Godavari remain high with 157.667 kg /hectare per year.

The fish production in East Godavari district during 2001-2002 was 20,028 tonnes. When compared to the other districts of Andhra Pradesh, East Godavari district occupies seventh position among them in terms of fish production. The highest fish production achieved was in Krishna district with 1, 08,080 tonnes, closely followed by West Godavari with 1, 07,052 tonnes. The district lowest production was in the Hyderabad district with 9 tonnes only. While observing the fish production trend in the state for the last 12 years, the fish production has considerably increased (Table-2 and Fig -1). During the year 1992-1993 it was only 1,686 tonnes. During 2001-2002 the fish production in the district was 20,028 tonnes but the production declined to 12,143 tonnes during the year 2002-2003 and to 11,844 tonnes during 2003-2004. The fall in the production in the above mentioned last two years was attributed to the drought condition that prevailed in the State and the fish production was in tune with the rainfall.

TABLE – 1: INLAND FISH PRODUCTION IN ANDHRA PRADESH (District Wise)* Qty. In tonnes

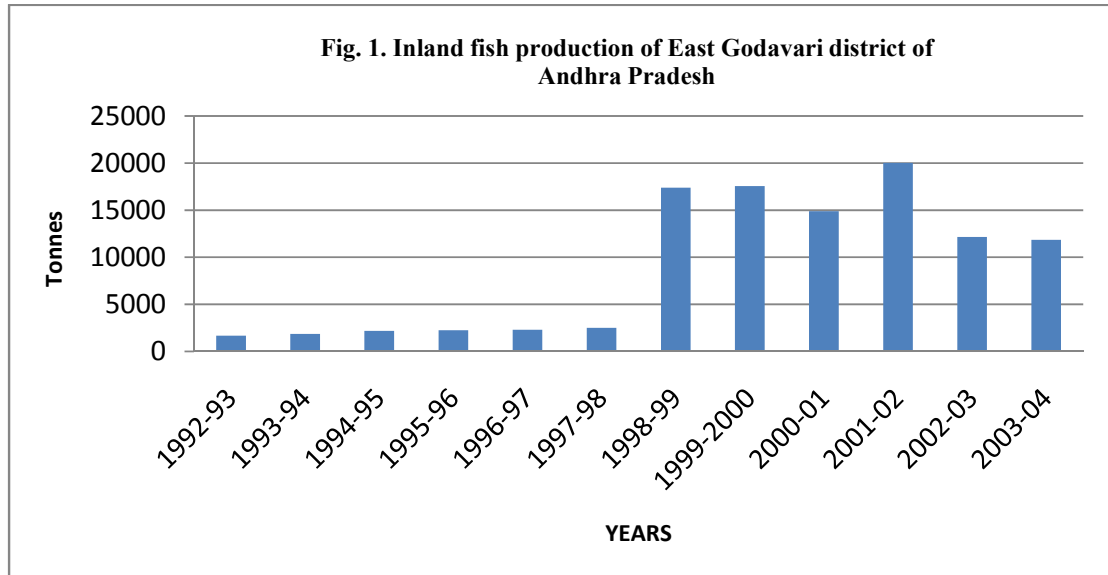
S.No.	Name of the	1992-93	1993-94	1994-95	1995-96	1996-97	1997-9	1998-9	1999-200	2000-01	2001-0	2002-0	2003-04
1	Srikakulam	1129	1245	1444	1530	1555	1697	2243	2334	3328	4147	3043	2575
2	Vizianagaram	15059	16607	19396	20274	20607	22496	6390	4855	5311	4449	5064	3290
3	Vishakapatnam	8353	9212	10771	11239	11423	12470	1617	2998	3196	10111	2239	2865
4	East Godavari	1686	1859	2166	2264	2301	2512	17397	17554	14901	20028	12143	11844
5	West Godavari	19175	21146	24703	25822	26245	28651	38316	84367	93923	107052	208130	249635
6	Krishna	3963	4370	5112	5344	5431	5929	5216	72400	94667	108080	163383	207468
7	Guntur	1807	1993	2322	2427	2467	2693	9494	8244	10239	10363	6066	6710
8	Prakasam	4387	4838	5659	5915	6012	6563	1513	7409	6086	9871	3162	132
9	Nellore	18482	20382	23806	24884	25292	27610	10355	20885	30523	33592	16814	13703
10	Kurnool	1032	1138	1327	1387	1410	1539	24387	5047	11128	12115	9402	8705
11	Cuddapah	3796	4186	4898	8120	5203	5680	6938	1719	1215	3939	3251	1223
12	Anantapur	6718	7408	8664	9036	9184	10026	22927	2689	3771	5010	3605	1427
13	Chittoor	10040	11072	12937	13524	13745	15005	19303	3328	1061	3705	2525	460
14	Khammam	1707	1882	2205	2302	2343	2557	3599	16705	12911	14150	13100	13730
15	Adilabad	2556	2819	3298	3407	3504	3824	10720	12243	14487	12606	9500	7513
16	Karimnagar	8472	9343	10908	11442	11589	12654	13850	15104	13423	13305	10858	9625
17	Warangal	10748	11853	13834	14402	14719	16068	32030	9694	10920	12374	7003	7972
18	Hyderabad	2821	3111	3629	379	3856	4209	6782	7006	11	9	19	15
19	Ranga Reddy	0	0	0	0	0	0	3860	0	7627	7064	4906	4058
20	Medak	7781	8581	10029	10481	10656	11632	9520	10600	12330	8046	3679	3620
21	Mahaboobnagar	8733	9630	11239	11749	11941	13036	3991	20179	15243	20630	13312	14559
22	Nalgonda	7557	8334	9737	10678	10345	11293	2295	40150	29770	38675	18529	17965
23	Nizamabad	5473	6036	7044	7363	7484	8170	8083	15070	11116	11844	9612	4950
	Total	151475	167045	195128	203969	207312	226314	260826	380580	407187	471165	529345	594044

*Source: Year Book, Department of Fisheries, Govt. of AP.

**Table – 2: Inland Fish Production in East Godavari District*
(Period from 1992-93 to 2003 – 2004)**

Year	Fish Production (tonnes)
1992-93	1,686
1993-94	1,859
1994-95	2,166
1995-96	2,246
1996-97	2,301
1997-98	2,512
1998-99	17,397
1999-2000	17,554
2000-01	14,901
2001-02	20,028
2002-03	12,143
2003-04	11,844

***Source:** Year Book, Department of Fisheries, Government of Andhra Pradesh.



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The Water Bodies of East Godavari District



Fig.1 Pampa Reservoir



Fig.2 Yeleru Reservoir



Fig. 3 A Big Manmade Fish Pond



Fig.4 Fish Pond with Seed Storage Shed



Fig.5 Fish Pond with Feed Bag Polls



Fig.6 Fish Pond with Aerators



Fig.7 Fish Harvest Operations