A NOTE ON THE CATCH TRENDS OF CATFISHES *TACHYSURUS THALASSINUS* AND *T. TENUISPINIS* BASED ON EXPLORATORY DATA FOR THE PERIOD FROM 1966 TO 1976

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ABSTRACT

The fluctuations noticed in the total catches/catch rates in respect of *T. thalassinus* are perhaps due to fishery independent factors. But in regard to *T. tenuispinis* there are reasons to believe that they are fishery dependent.

A decade of exploratory trawling surveys conducted by the Govt. of India trawlers *M. T. Ashok, M. V. Champa, M. V. Meena Shodhak* and *M. V. Meena Jawahar,* based at Visakhapatnam have well established the fact that the component of the catfishes, *Tachysurus thalassinus* and *T. tenuispinis,* is considerable in the ground-fish fisheries off the Andhra-Orissa coast. During the years 1966 to 1976, the contribution of the two species together had fluctuated from as high as 30.5% recorded in 1968 to as low as 9.9% obtained in 1973 (Table 1). Of the two species, *T. tenuispinis* was the major contributor during all the years except in 1976. The data, however, did not show what type of trend could be expected in the succeeding years.

In order, therefore, to delineate the probable trend, a quadratic equation of the type $Y = a + bt + ct^2$ (Banerji 1969, Chakraborty 1973) where Y is the annual production/catch rate and t is the year (the base year 1971 being taken $t = 0$) was fitted to the data.

TABLE 1. *Observed and calculated catches and catch-rates of* T. thalassinus *and* T. tenuispinis *based on exploratory operations for ground-fish fisheries*

Year	Catch in Kg							Catch-rate in Kg/hr			
	T. thalassinus (A)			*T. tenuispinis* (B)			A+B	*T. thalassinus*		*T. tenuispinis*	
	Observed	%	Calculated	Observed	%	Calculated	%	Observed	Calculated	Observed	Calculated
1966	13 532	8.5	14 043	29 978	18.9	32 627	27.4	8.87	13.02	19.65	27.69
1967	9 791	8.0	10 277	23 576	19.4	26 524	27.4	10.74	10.08	25.86	25.46
1968	8 148	6.6	7 295	29 773	23.9	21 287	30.5	9.53	7.38	34.84	23.17
1969	4 968	4.3	5 097	21 468	18.8	16 916	23.1	6.52	5.82	28.16	20.82
1970	7 151	9.9	3.683	14 680	20.3	13 411	30.2	8.53	4.50	17.50	18.41
1971	174	2.0	3 053	1 226	14.1	10 772	16.1	0.83	3.72	5.81	15.94
1972	1 491	4.1	3 207	4 110	11.2	8 999	15.3	4.62	3.38	12.72	13.41
1973	3 193	4.7	4 145	3 447	5.2	8 092	9.9	3.57	3.78	3.86	10.82
1974	10 430	8.3	5 867	19 884	15.8	8 051	24.1	6.84	4.62	13.03	8.17
1975	6 128	5.0	8 373	12 076	9.8	8 876	14.8	3.57	6.00	7.04	5.46
1976	11 702	9.8	11 663	5 903	4.9	10 467	14.7	7.04	7.92	3.55	2.69

The following equations were obtained:

T. thalassinus

Total catches : $Y = 3053 - 238t + 392t^2$
Catch rate : $Y = 3.72 - 0.05t + 0.27t^2$

T. tenuispinis

Total catches : $Y = 10772 - 2206t + 433t^2$
Catch rate : $Y = 15.94 - 2.50t - 0.03t^2$

It would appear that in regard to both total catches and catch rates of *T. thalassinus*, an increasing trend could be expected (Figs 1 & 2). Since the annual mean lengths of this species did not show any significant difference between years (personal communication), the fluctuations in the total catches/catch rates presently noticed are perhaps due to fishery independent factors. But the picture (Figs 1 & 2) obtained in regard to *T. tenuispinis* is different from that observed for *T. thalassinus*. While an increasing trend could be expected in regard to total catches; a steadily decreasing trend is noticed in regard to catch rates. This may be possible when the increase in the availability is not commensurate with the increase in the effort. Since over the years the annual mean lengths were observed to fall (personal communication), there is reason to believe that the decline in the catch rates may be due to fishery independent factors such as various mortality rates. If, in future years, a decline is also

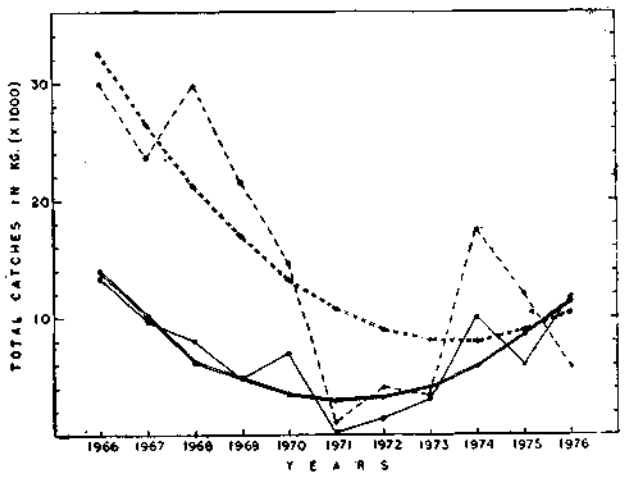

FIG. 1. Trends in total catches of *T. thalassinus* (continuous line; single: observed; double: calculated) and *T. tenuispinis* (broken line; single: observed; double: calculated).

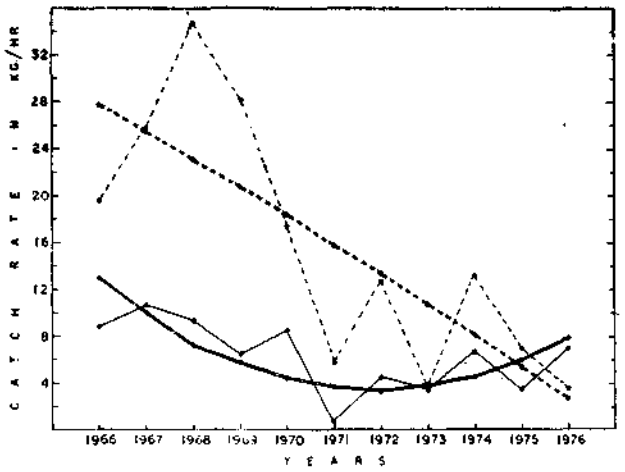

FIG. 2. Trends in catch rates of *T. thalassinus* (continuous line; single: observed; double: calculated) and *T. tenuispinis* (broken line; single: observed; double: calculated).

noticed in the total catches, then urgent management policies may have to be thought of against possible dangers of depletion that appear presently to threaten the stocks of *T. tenuispinis* in regions currenly being exploited.

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