Efficiency of Two Designs of Trawls in Hirakud Reservoir

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High opening trawl was found to be effective for the exploitation of bottom and off bottom fishes from Hirakud Reservoir compared to bulged belly trawl.

Trawling in Indian reservoirs was discussed by Anon (1979) and George *et al.* 1982. The present communication deals with the study of two types of trawls in Hirakud Reservoir.

Materials and Methods

Comparative fishing experiments with a 13 m bulged belly (George *et al.* 1982) and 12 m high opening trawl (Fig. 1) with 100x 50 cm flat rectangular otter boards were undertaken in selected grounds of Hirakud

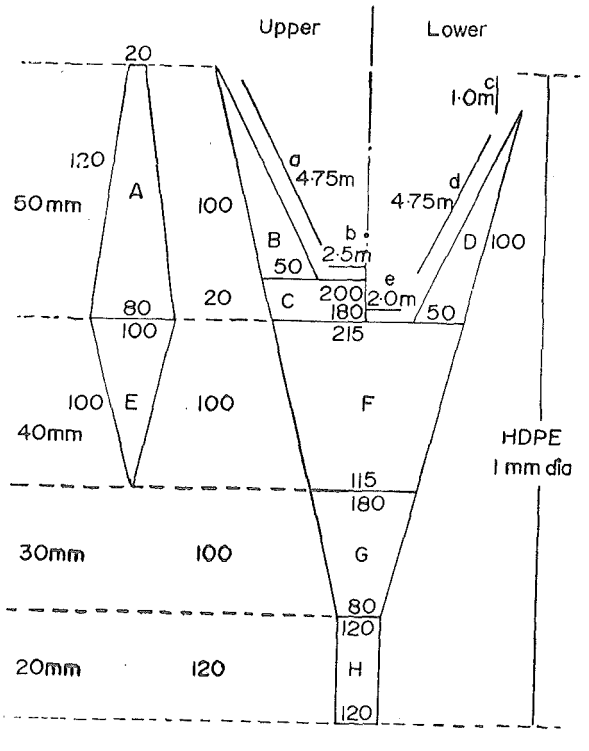

Fig. 1. 12 m high opening trawl

reservoir. The method of operation and boat used were the same as described by George *et al.* (1982). Catch of fish at three different speeds of boat (2.4, 2, 1.6 knots), catch per unit effort, variation in the catch in the morning and evening and catch composition of the above two nets were noted based on 168 comparable hauls of 20 min duration made with each net.

Results and Discussion

The data collected on comparable hauls with respect to speed and catch rate of both the nets during morning and evening hours were analysed. In Table 1, the catch h^{-1} of trawling of the bulged belly and high opening trawl is given. It is evident

Table 1. *Catch per unit effort of high opening and buldged belly trawls*

Type of net	Duration of operation, h	Total catch, kg	Catch h^{-1}, kg
High opening trawl	56	2705.09	48.35
Bulged belly trawl	56	1911.50	34.13

that the high opening trawl landed more catch as observed by Pillai *et al.* (1979). No significant difference in the catch of the two nets at different speeds at morning and evening was observed (Table 2). However significantly higher catch of *R. cotio* was obtained in the high opening net compared to bulged belly ($p<0.05$.) This increase in catch is due to the higher vertical opening of the high opening net which caught more

Table 2. *Anova table for catches*

	Source	S.S.	df	ms	F.
R. cotio	Total	17.3961	97		
	Time	0.6610	1	0.6600	3.85
	Nets	0.7336	1	0.7336	4.28*
	Speed	0.0748	2	0.0374	1
	Error	15.9277	93	0.1713	
M. seenghala	Total	5.4582	71		
	Time	0.2742	1	0.2741	3.79
	Nets	0.0031	1	0.0031	1
	Speed	0.3293	2	0.1647	2.27
	Error	4.8516	67	0.0724	
W. attu	Total	6.8607	71		
	Time	0.0813	1	0.0813	1
	Nets	0.0223	1	0.0223	1
	Speed	0.1467	2	0.0734	1
	Error	6.6104	67	0.0987	
Sciaenids	Total	1.1631	47		
	Time	0.0084	1	0.0084	1
	Nets	0.0009	1	0.0009	1
	Speed	0.0487	2	0.0244	1
	Error	1.1051	43	0.0257	
Miscellaneous fish	Total	5.2798	83		
	Time	0.0629	1	0.0629	1.005
	Nets	0.0462	1	0.0462	1
	Speed	0.0462	1	0.1124	1.796
	Error	4.9460	79	0.0626	

* Indicate significance at 5% level

of bottom fish like *R. cotio*. This suggests that exploitation of bottom and off bottom fishes from reservoirs can be achieved with high opening trawls.

The authors are grateful to the Director, Central Institute of Fisheries Technology, Cochin for the encouragement as well as for according permission, to publish this paper. They are also thankful to the crew for their services to execute this study.

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