Prediction Modelling on Some Selected Beel Fishery at Berhampore Block in Murshidabad District,W.B.

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Abstract: *Wetland plays a crucial role among the Inland fisheries sector through its' production system and by maintaining bio-diversity. It is one of the crucial natural resources. Utility wise, wetlands directly and indirectly support millions of people in providing services such as food, fiber and raw materials, storm and flood control, clean water supply, scenic beauty and educational and recreational benefits. Upliftment of socio-economic condition of fishermen and to give them leadership in their area, are the most important aspect for their development. Government policy intervention is of utmost important to the acceleration process of the livelihood generation by rendering training, technological back up, continuous intervention etc.. Fishermen should integrated in more economic activities of fishery sector to increase their capacity for overall development of family in particular and in their area in general.*

Keywords: Beel, Fishery, Socio-economic, Training, Livelihood generation, Government Policy

1. Introduction

It is increasingly realized that the planet earth is facing grave environmental problems with fast depleting natural resources and threatening the very existence of most of the ecosystems (Akhtar, N.1995). *I*nland capture fisheries provided **56.32 lakh tones** (provisional) in 2012-13. Among the Inland fisheries sector (FAO), Wetland plays a crucial role through its' production system and maintaining Bio-diversity. wetland is neither truly aquatic nor terrestrial; it is possible that wetlands can be both at the same time depending on seasonal variability. To conserve and manage wetland resources, it is important to have inventory of wetlands and their catchments. Wetlands often called **"nurseries of life"** because they provide habitat to thousands of aquatic and semi-aquatic plants and animals, which intern provide food to many terrestrial animals, adding to the diversity of the landscape. Fresh water wetlands are called **Boars, Beels, Jheels, Ox-bow lakes and Floodplain** (Yadava, Y.S. 2004)). The wetlands of India covers a total area of 40, 40,127 hac (including man-made wetlands). Among the Indian states, West Bengal has second largest areas under wetlands mainly associated with the Ganga covering 8, 43,221 hac area comprising about 9 percent of the total area under wetlands in India. These wetlands serve multi-purposes and are essential for meeting the livelihood and various religious and social needs of the local communities. Apart from being an important source of fisheries, they form the lifeline supporting agriculture, post-harvest operations, navigation, animal husbandry and a host of other economic activities (Ghosh, S.K. 2004). The district Murshidabad has its own heritage and great historical back ground. Murshidabad District comprises of 5 sub-division mainly Berhampore Sadar, Domkol, Lalbag , Kandi and Jangipur and present geographical area is 5316611 ha. The district is divided into two parts by the river Bhagirathi. Berhampore, the selected study area is the central part of Murshidabad district. It contents so many beels namely **Beel Bishnupur, Chaltia Beel ,Bhandardaha Beel ,Katiganga**

Beel. These Wetlands or Beel in Berhampore block play a significant role by providing many goods and services in the livelihoods of the local people.

2. Materials and Methods

The present study was carried out to evaluate the present Socio-Economic status and prediction analysis of some selected Beel fishery at Berhampore Block among the input economic parameters. A random sampling four Beel society (**Beel bishnupur, Chaltia Beel ,Bhandardaha Beel ,Katiganga Beel)** and from each Beel officer in charge & farmers were interviewed to fulfil the purpose. Total No of farmer Engaged in these beels are 581 in number. Among them, 10 fishers from each beel i.e. 40 fishers in total is taken for interview. Data collection were made by two ways; collection of existing data (secondary data) such as published literature, books, research articles and maps etc. of institutions. The present status, current problems and related legislation were collected from the literature survey. The collection of new data by filling of questionnaires was carried out. The collected data are later analyzed statistically through SPSS 13.0 software.

3. Results and Discussion

The Beel Fishery plays an important role towards the socio economic status and livelihood generation for a large number of rural people at Berhampore block in Murshidabad district. The present study gives a spectrum of information, identification of important input variables, threats and the required management, and socio-economic status of farmers for the sustainability of Beel Fishery of West Bengal, particularly at Berhampore block in Murshidabad District. In specific, the data on *physico-chemical parameters* were collected from the farmers maintained by their technicians. Total 581 farmers engaged in the *fishing* in beel fishery,among them 228 people belongs to *middle age group*, 204 people are educated up to primary level, 460

people are fully depends on the beel as it is the main income source of them,368 farmers belongs to schedule cast group,404 farmers are involve in the fishing up to 9 to 14 hours. The case of *salinity*, the average value (comprising of both 2012 & 2013) is 1.4 ppt, on *pH it* is 6.87 which is very good for growth of fish because the optimum pH for good growth ranges between 6 and 7. For *D.O* it is 5.75 mg/lt. The bivariate inter-correlation among all the variables (average value calculated for 1 Ha area, in all the cases) is depicted as below. Firstly, considering the correlation between *Stocking with other variables*, there exist a significant high negative correlation with Electric installation with electrification , Watchman shed , Lease amount , Liming and manure , Cost of seeds, Electricity charges , Annual maintenance and repairing cost , Total Input ,Total Output, low negative correlation with Construction , equipments, Chemicals, Fuel charges, Labour charges, Profit. The collected data on construction in Berhampore construction is Rs 6300 in 2012 and Rs 7000 in 2013. On *electric installation* in Berhampore is Rs 373 in 2012 and Rs 402 in 2013. The collected data on Equipment in station is Rs 2234, but in the year 2013 the expenditure is Rs 2905. The collected data on *Watchman shed* in station is Rs 1044 in 2012, but in the year 2013 the expenditure is Rs 1614. The collected data on Lease amount in station is Rs 11316 in 2012, but in the year 2013 the expenditure is Rs 11912. The collected data on *Liming & Manuring* in station is Rs 13291 in 2012, but in the year 2013 the expenditure one is Rs 14733. The collected data on *Chemicals* in station is Rs 4231 in 2012, but in the year 2013 the expenditure is Rs 5047. The collected data on *cost of seed* in station is Rs 33542 in 2012, but in the year 2013 the expenditure is Rs 36677. The collected data on *Fuel* charge in station is Rs 103 in 2012, but in the year 2013 the expenditure is Rs 119. The collected data on Electricity charge in station is Rs 548 in 2012, but in the year 2013 the expenditure is Rs 620 .The collected data on *Labour charges* in station is Rs 4228 in 2012,but in the year 2013 the expenditure is Rs 5740 .The collected data on *Annual Maintenance and Repairing Cost* in station is Rs 382 in 2012,but in the year 2013 the expenditure is Rs 504. The collected data on *Miscellaneous* Cost in station is Rs 122 in 2012,but in the year 2013 the expenditure is Rs 156.

The linear prediction equation taking Profit as dependent variable and other variables viz. Stocking, Construction , Electric installation with electrification , equipments , etc. as independent variables.
The prediction equation revealed as below (for 2012):
Profit = 72516.026+(-98.991x Electric installation with electrification)
+ (.100x Total Output)
The prediction equation revealed as below (for 2013):

Profit= 2.74E-010+ (-1.000x Total Input) + (1.000x Total Output)

4. Conclusion

These larger water bodies are presently being utilized for fish production by fishermen cooperative societies with financial and technical assistance from the Fisheries Department of West Bengal, and financial assistance from the National Cooperative Development Corporation (NCDC). Due to the sustained efforts of these organizations, the annual productivity of the beels has been raised from 150-200 kg to 1 000-1 200 kg/ha. Similarly, the annual productivity of reservoirs has been increased from 60-50 kg/ha to as much as 600-800 kg/ha.). Due to the sustained efforts of these organizations, the annual productivity of the beels has been raised from 150-200 kg to 1 000-1 200 kg/ha. Similarly, the annual productivity of reservoirs has been increased from 60-50 kg/ha to as much as 600-800 kg/ha. The beels under study have surplus production of fish seed - spawns and fries. The production of fingerlings is marginally less than the demand and this could be largely due to the lack of credit support for this kind of activity. With the introduction of the short term loan of credit for fish-farmers, it is expected that the demand in this sector will also be met. Most of the Beels require provision of sluice gates, desilting and deepening of the connecting channels and clearance of the dense weed infestation. There is vast scope to reclaim many of the dead Beels into productive fish farms. Such converted fish farms can be able to produce fish to the tune of at least 2500 kg/ ha /year, if properly managed from the present fish productivity level of 100 kg/ ha/ year.

References

[1] Akhtar, N. (1995). Socio-economic setting and technological aspects of inland fishermen of the Punjab, Pakistan. The Carp Proceedings of the Second Aqaculture" sponsored Symposium held in Budapest, Hundary, 6-9 September, 1993, and 123 (1-4) pp: 478.

[2] Yadava, Y.S. (2004). Strategies for the conservation and management of Ox-bow lake resources. In. Abstracts of Nat. Conf. Manage. Lakes and Inland water bodies, IPHE India, 24-26 November,

[3] Ghosh, S.K. (2004), Traditional Commercial Practices in Sustainable Development and Conservation of Man and Wetlands, Paper Presented at the 3rd IUCN World Conservation Congress, Bangkok, Thailand, November 17-25, 2004.

[4] FAO yearbook 1992. Fishery statistics, catches and landings.FAO Fish. Ser. (38).FAO stat. ser. 70: (105)

Appendix

Average Economics of Beel Fisheries in Berhampore during 2012-13- Schedule Depicted on Average Farm Size of 1 Ha- 25500 Fing/Ha

Sl. No.	Particulars	2012	2013	Comments
A.	**Capital Cost**	**Amount (Rs.in thousand)**	**Amount (Rs.in thosands)**	
1	Construction	6394.984	7053.292	
2	Electric installation with electrification	373.0408	426.3323	
3	equipments(net,handi,boat etc)	2664.577	3040.752	
4	Miscellaneous	228.8401	264.8903	
5	Watchman shed	1592.476	1830.721	
6	**Total Capital Cost**	**11253.92**	**12615.99**	

B.	Variable Cost	Amount (Rs.in lakh)	Amount (Rs.in lakh)	Comments
1.	Lease amount	11316.6144	11912.23	
2.	Liming and manure (Fertilise and productivity purpose	13291.53605	14733.54	
3.	Chemicals (weed infestation)	4231.974922	5047.022	
4.	Cost of seeds	33542.31975	36677.12	
5.	Cost of feed	0	0	
6.	Fuel charges	103.4482759	119.1223	
7.	Electricity charges	548.5893417	620.6897	
8.	Labour charges	4228.840125	5740.752	
9.	Medicines	0	0	
10.	Annual maintenance and repairing cost	382.4451411	504.7022	
11.	Miscellaneous	122.2570533	156.7398	
	Total Variable Cost	**67768.02508**	**75511.91**	
	Total Input (capital cost + variable cost)	**79021.95**	**88127.9**	

a) 2013: Total Production: 14.07837 Quintal

Sl no	Species name	Production (in quintal)	Rate@/Qnt	Amount (in thousands)
1	Rohu	3.887147	12000	46645.77
2	Catla	2.570533	14000	35987.46
3	Mrigal	2.507837	10000	25078.37
4	Bata	2.194357	10000	21943.57
5	American rohu	2.918495	7000	20429.47
	Total Output			**150084.6**
	Profit : (output-input)			**61956.7**
	P.I: output/inputX100			**170.303**

b) 2012: Total Production: 12.48276 Quintal

Sl no	Species name	Production (in quintal)	Rate@/Qnt	Amount (in lakh)
1	Rohu	3.605016	11000	39655.17
2	Catla	3.009404	13000	39122.26
3	Mrigal	2.225705	9000	20031.35
4	Bata	2.225705	9000	20031.35
5	American rahu	1.416928	6000	8501.567
	Total output			**127341.7**
	Profit : (output-input)			**48319.75**
	P.I: output/inputX100			**161.147**

c) Water quality parameter

station	ph	D.O	Salinity
Bishnupur	7	6	1.5
Chaltia	7	5.6	1.5
Kati ganga	6.5	5.8	1.3
Bhandardaha	7	5.8	1.5
Average	5.77	5.75	1.4

Author Profile

Dr. Somen Sahu completed B.Sc. Honours in Statistics from Ramkrishna Mission Residential College, Narendrapur (Calcutta University) in 1991, Post-graduated in Statistics from Burdwan University in 1993, M.B.A. from National Institute of Personnel Management in 1995 with Gold Medal. He completed his Ph.D. from Jadavpur University in 2006. He was a National Scholar. He published number of articles in National & International Journals, and edited and contributed to several significant publications. His areas of interest are Bio-Statistics, Statistical Software Handling, Biomonitoring, Management Information System and Extension Education in different Agricultural fields. He introduced a new Model viz. Dr. Sahu's Networking Model which was adopted by

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