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Knowledge level of respondents about fish collection technology in southern Rajasthan

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Abstract
The present investigation was carried out in Jaisamand Lake and Mahi Bajaj Sagar Dam in Udaipur & Banswara Districts of Rajasthan to know the knowledge level of the respondents regarding fish production technology. The findings revealed that of the general aspects the respondents had highest knowledge regarding important Indian fish species (MPS 92.50) and the least about the medicinal value of fishes (MPS 17.75). Among the fish breeding and rearing practices the study found that the highest knowledge was about suitable time of breeding among fishes in natural conditions (MPS 67.50). Regarding transportation and marketing of fishes, the practice with highest Mean Percent Score (94.50) was the knowledge of respondents regarding the agencies for selling of fishes and the practice with least MPS (34.37) was the technique of processing unsold fish.

Keywords: Knowledge, breeding and rearing, transportation and marketing

Introduction
The fisheries sector occupies a unique status in the national economy of India. It provides valuable foreign exchange, employment opportunities and food and nutritional security to growing population in the country. About 8 million people are employed in this activity majority of who live in coastal villages and fisher-hamlets along major river basin and reservoirs in the country. India is the fourth largest fish producer in the world and second in inland fish production. In the year 2008-09 India produced 8.5 million tonnes out of which 4.3 million tonnes of fish and other aquatic products came from inland sector alone (Vass, 2010). Fish Production has helped a lot in making protein rich food available to millions of people in our country. It is particularly invaluable in the Indian diet which consists mostly of rice or imbalanced cereals or is deficient in milk or meat. It is also rich in vitamin and contains variable quantities of fat, Calcium, Phosphorus and other nutrients for human health and growth. The current per capita availability of fish per annum in India is 9.85 kg which is less than the minimum requirement of 12 kg per capita per annum as recommended by World Health Organization (WHO).

The State of Rajasthan is endowed with ample amount of fresh water resources, in the form of lakes, reservoirs, rivers and canals for aquaculture. The Southern Rajasthan including Udaipur, Banswara, Dungarpur & Chittorgarh districts have ample number of Water bodies where fish culture & capture activities are performed by the fishermen who contribute income and generating employment among its members through fishing & marketing activities. But unfortunately we have not been able to cater to the needs of people in terms of the recommended per capita availability of the fishes. Why is it so? Is there any knowledge gap? The present study was therefore conducted to assess the knowledge level of the respondents about different aspects of fish production technology.

Research Methodology
The present study was conducted purposively in Jaisamand lake and Mahi Bajaj Sagar Dam in Udaipur & Banswara Districts of Rajasthan, where well organized fish collection activities are being performed through Cooperative societies that too are well organized. Four Societies from each water reservoir were selected on the basis of maximum number of registered members in the society. The final study sample consisted of 200 respondents selected from eight societies.

Findings and Discussions
In order to know the extent of knowledge of respondents about fish collection technology, three major aspects were identified.

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These were (a) general aspects (b) fish breeding and rearing practices and (c) transportation and marketing of fish. The analysis was done using mean percentage scores and ranking was done accordingly.

Table 1: Extent of knowledge of the fishermen regarding general aspects of fish Collection technology, (n=200)

S. No.	Practice	Fishermen of Jaisamand lake		Fishermen of Mahi Dam		Total	
		MPS	RANK	MPS	RANK	MPS	RANK
1.	Important Indian fish species	97.00	1	88.00	1	92.50	1
2.	Recommended exotic fish species	52.25	3	42.50	2	47.37	2
3.	Advantages of exotic fish species	41.33	4	31.33	4	36.33	4
4.	Nutritive value of fishes	53.00	2	36.00	3	44.50	3
5.	Medicinal value	19.25	5	16.25	5	17.75	5

$r_8 = 0.90*$

MPS= Mean Per cent Score
** = Significant at 1 percent level

During the analysis of data, it was noted that some of the respondents of both the sites possessed complete knowledge about 'exotic fish species' namely Tilapia, common carp & silver carp. The extent of knowledge regarding nutritive value of fish' was 53.00 per cent among fishermen of Jaisamand Lake while in case of fish farmers of Mahi Dam it was 36.00 per cent. It was further noted that fishermen of both the sites had poor knowledge about 'medicinal value of fish'. Further analysis of the table clearly shows that the calculated value of Rank Order Correlation was found to be significant at 1 per cent level of significance. This leads to the conclusion that there is correlation between the ranks assigned to Jaisamand Lake and Mahi Dam fishermen with respect to different aspects of fish collection technology in spite of difference in magnitude of mean per cent scores.

The present findings are in line with the finding of Ingle *et al.* (1999) who revealed that mean knowledge level was quite high among members and non-members with 91.83 and 89.08 per cent respectively about improved fish farming practices. This clearly indicated that despite poor socio-economic states most of the fishermen were adequately aware of improved fish farming practices.

It is apparent from the table 2 that the fishermen of Jaisamand Lake had maximum knowledge about suitable time of breeding among fishes in natural condition with MPS 72.00 and this was ranked first by the respondents. This was followed by the practices like 'Composition of supplementary food for fishes' method of feeding supplementary food to the fish, time required for raising fingerlings,' 'type of food given to the fish,' control of aquatic weed' and techniques for raising nursery pond.

Further analysis of the table reveals that fishermen of Mahi Dam possessed highest knowledge about composition of supplementary food for the fishes, with 65.50 MPS and it was ranked first by the respondents. The MPS regarding extent of knowledge regarding aspects like 'suitable time breeding among fishes in natural condition,' 'method of feeding supplementary food to the fish,' 'type of food given to the fish,' 'control of aquatic weeds,' 'time required for raising fingerlings,' eradication of predatory aquatic insects and other enemies,' and 'time required for raising adult fish' were 63.00, 60.50, 57.00, 50.50, 50.00, 46.00 and 45.00 per cent respectively.

Table 2: Knowledge of the respondents regarding fish breeding and rearing practices, (n=200)

S. No.	Practices	Fishermen of Jaisamand lake		Fishermen of Mahi dam		Total	
		MPS	RANK	MPS	RANK	MPS	RANK
1.	Time required for raising fingerlings	59.00	5	50.00	6	54.50	5
2.	Time required for raising adult fish	63.00	4	45.00	8	54.00	6
3.	Techniques for raising nursery ponds	43.00	8	42.00	9	42.50	8
4.	Control of aquatic Weeds	46.00	7	50.50	5	48.25	7
5.	Eradication of predatory aquatic insects and other enemies	37.00	9	46.00	7	41.50	9
6.	Suitable time of breeding among fishes in natural condition	72.00	1	63.00	2	67.50	1
7.	Stocking density of fingerlings /unit area	36.33	10	28.66	10	32.49	10
8.	Type of food given to the fish Method of feeding	58.50	6	57.00	4	57.72	4
9.	supplementary food to the fish	64.50	3	60.50	3	62.50	3
10.	Composition of supplementary food for fishes	67.50	2	65.50	1	66.50	2

$r_s = 0.88**$
$t = 5.30$

MPS=Mean per cent score
** = Significant at 1 per cent level

Further from 'rs' value and calculated 't' value it is concluded that there was a significant correlation between the ranks assigned to the fishermen of Jaisamand Lake and Mahi Dam about various breeding and rearing practices.

The present findings are in line with the findings of Chatterjee (1987) [2] who observed that since fisheries extension unit of Government of India was set up at Calcutta in 1950, fish seed production has increased substantially owing to the application of modern hatchery techniques.

Table 3: Extent of knowledge of the respondents about transportation and marketing of fish: (n=200)

S. No.	Practices	Fishermen of Jaisamand lake		Fishermen of Mahi dam		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Appropriate time for selling of fish after catching	66.00	3	80.00	2	73.00	2
2.	Container used for transfer of fish	73.00	2	68.00	3	70.50	3
3.	Agencies for selling of fishes	95.00	1	94.00	1	94.50	1
4.	Techniques of processing of unsold fish	40.25	6	28.50	6	34.37	6
5.	Preservation practices of fish	43.00	5	42.00	4	42.50	4
6.	Value addition of surplus fish	45.00	4	37.00	5	41.00	5

rs=0.88**

The data clearly shows that the extent of knowledge of respondents of Jaisamand Lake about 'Value addition of surplus fish' and 'preservation practices of fish' was 45.00 and 43.00 per cent respectively, while the knowledge of fishermen of Mahi Dam about these aspects was 37.00 and 42.00 per cent. Less knowledge about these aspects may be due to the reason that there was no cold storage as well as processing facilities available in/around the selected cooperative societies. Further the respondents had least knowledge about 'techniques of processing of unsold fishes' with MPS 40.25 and 28.50 respectively, From the above discussion it could be concluded that the extent of knowledge of transportation and marketing of fish among the fishermen of Jaisamand lake was more as compared to the fishermen of Mahi dam.

The present findings are in line with the findings of Kamat (1977) [3] who stated that there is need for institutionalization of the fishing activity in the inland sector, which can facilitate organization of all types of activities right from nursing of the fish fry up to the stage of marketing and processing of the carp.

Further by comparing the mean value with CD value, it was found that there was significant difference between Jaisamand Lake and Mahi Dam fish farmers. Also fishermen of Jaisamand Lake had higher mean knowledge value (37.15) than Mahi dam (32.44) fishermen.

Conclusion
The study indicates that the extent of knowledge in fishermen of Jaisamand Lake was 19.25 to 97.00 per cent, where as in Mahi dam fishermen it was from 16.25 to 88.00 per cent in general aspects of fish collection technology. The MPS of Jaisamand fishermen in practices namely fish breeding and rearing, general aspects and transportation and marketing was 54.68, 62.11 and 60.37 respectively. However, in case of Mahi dam it was 50.81, 57.17 and 58.25 respectively. The extent of knowledge of fishermen of Jaisamand Lake was found to be substantially higher than the Mahi dam fishermen about fish collection technology. The results of the study also necessitated to create awareness among the fishermen regarding various aspects of fish production technology. It is also necessary to have suitable post harvest and cold storage facilities in and around belts where peoples are engaged in fish collection activities.

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