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Profile of Fisheries Officials of Maharashtra and Information Sources used by them in Shrimp Farming

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ABSRACT

An investigation was undertaken to study the profile and information sources used by fisheries officials involved in shrimp farming system of Maharashtra. Information was collected randomly from 55 fisheries officials from the Department of Fisheries, Maharashtra using interview schedule. Personal profile was also studied to have a broader understanding of the extension organization per se. Different sources from where they access information included internet/social media, fisheries institutions, literature from research institutions and development departments. A 3-point scale *viz*. always, very often and often was developed to record the information sources used by fisheries officials. Results indicated that majority of fisheries officials were post graduates (83.64%) with Master's Degree in Fisheries Science or Zoology. Majority of fisheries officials (58.18%) had not attended any formal training in scientific shrimp farming and extension management (72.73%). Higher percentages of fisheries officials (58.18%) were using mobile phones as a preferred mode for contacting farmers. The study indicated that internet / social media was the main source of information for majority of fisheries officials (74.25%) followed by fisheries Institutions (16.36%). It is necessary to integrate and institutionalize use of internet in extension advisories and trainings. Based on the results of the study, integration and convergence of different aquaculture extension system service providers is suggested.

Key Words: Aquaculture, Information sources, Officials, Profile Fisheries, Shrimp.

INTRODUCTION

Information is a catalyst for solving any problem and a very important tool for country's economic development. For any farming system to be successful right information at right time is required. In the same way sustainable aquaculture farming system is also dependent on correct information. In a recent 20-year retrospective review of global aquaculture by Naylor *et al* (2020) it was clear that pressure on the aquaculture industry to embrace comprehensive sustainability measures have improved the governance, technology, siting, and management in many cases. In the Indian context, it is known that India occupies the second position in the world with respect to cultured shrimp production. However, in the context of governance it has been reported by many studies that the role of Government has been regulatory and input companies have played an important role as information providers. The fishery extension personnel due to their priority towards welfare and regulatory programmes, neglected their expected job of education and training of farming community (Kumaran *et al*, 2012a).

In all states of India, Department of Fisheries (DoF) are in place and consist of Fisheries Extension Officers/ Assistant Fisheries Development Officers and Assistant Commissioner of Fisheries / Assistant Director of Fisheries and their mandate is implementation of various schemes (PMMSY / Blue Revolution) for farmers and fishers, providing extension services and conducting trainings. However, role of state government extension

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personnel in shrimp farming system is still limited to be regulatory and not much towards information dissemination.

Fisheries officials can be key architects of fish farmers/fishers to access quality farm inputs, technical counselling, institutional credit and to mobilize the fish farmers to achieve sustainability. Fisheries officials are expected to be rigorous information seekers to keep themselves updated in every aspect of on-farm and off-farm activities. Fisheries officials cannot be efficient in their responsibilities to their customers if they are deficient in information dissemination resulting from not being adequately informed on some subjects (Yomi-Alfred and Odefadehan, 2007).

Understanding the information sources used by fisheries officials would help in strengthening those channels, addressing the constraints if any and in devising alternative information dissemination mechanisms for an effective and efficient delivery of information which ultimately enhances their capacity to serve the aquafarmers appropriately. In this context, a study was taken up to assess the information seeking behaviour and profile of the fisheries officials involved in shrimp aquaculture.

Shrimp aquaculture farming system was selected as it is an important farm enterprise, contributing significantly to the nutritional, food security, employment and socio-economic development of coastal communities. India occupies second position in the world with respect to cultured shrimp production and exported 6,52,253 tons of frozen shrimp during 2019-20 (MPEDA, 2021).

Among all the states, Andhra Pradesh is having maximum brackish water area under culture followed by West Bengal, Odisha, Kerala, Tamil Nadu, Gujarat, Karnataka and Maharashtra. Though Maharashtra has huge potential for development of shrimp farming but only 12% area is presently under shrimp farming. Hence, Maharashtra was selected for this study.

MATERIALS AND METHODS

The study was carried out in Maharashtra which ranks fifth in shrimp productivity and sixth in terms of shrimp production (MPEDA, 2021). Structured interview schedule was used to collect information from fisheries officials. Information was randomly collected from 55 fisheries officials out of 70 from the Department of Fisheries (DoF), Maharashtra.

Personal profile *viz.,* age, gender, educational status, experience, training on shrimp farming and extension management, frequency of meeting with shrimp farmers and preferred mode of contact with shrimp farmers were studied to have a broader understanding of the extension organization per se. Discussions were done with 10 fisheries officials to list the different sources from where they access information. This included internet/social media, fisheries institutions, literature from research institutions and development departments. A 3-point scale viz. always, very often and often was made and usage of these information sources by the fisheries officials was recorded using interview method. Descriptive statistics and percentages analyses were performed to interpret the findings appropriately.

RESULTS AND DISCUSSION

Personal profile of fisheries officials

Personal profile of fisheries officials was studied to have a better understanding of respondents' profile and their organization. The personal profile of fisheries officials is presented in Table 1.

It was evident (Table 1) that 47.27 per cent of fisheries officials were in age group of 50 and above followed by 36-50 age group (34.55%), while 18.18 per cent of them were in the age group up to 35 years. Jeeva *et al* (2006) also found dominance of 40 years and above age for fisheries officials in Andhra Pradesh and Kerala. Kumaran *et al* (2015) however reported that, that majority of extension personnel (68%) from Andhra Pradesh and Tamil Nadu were

Table 1. Personal information of fisheries officials.

Sr. No.	Personal information	Categories	Number	Per cent
1	Age (years)	Up to 35	10	18.18
		36-50	19	34.55
		50 and above	26	47. 27
2	Gender	Male	32	58.18
		Female	23	41.82
3	Educational status	B.F.Sc./B.Sc.	9	16.36
		M.F.Sc./M.Sc.	46	83.64
		Ph.D.	0	0
4	Experience (years)	Up to 10 years	26	47.27
		11- 20 years	18	32.73
		Above 21 years	11	20.00
5	Training on shrimp farming	Yes	23	41.82
		No	32	58.18
6	Training on extension management	Yes	15	27.27
		No	40	72.73
7	Frequency of meeting with shrimp farmer	Once a week	10	18.18
		Once a month	18	32.73
		Occasional	27	49.09
8	Preferred mode for contact with shrimp farmer	Mobile	32	58.18
		Group meeting	18	32.73
		Personal visit on farm	5	9.09

below 40 years of age. It was observed that 58.18 per cent fisheries officials were male while 41.82 per cent were female officers.

Majority of fisheries officials (83.64%) were post graduate with Master's degree in Zoology or Fisheries science, while 16.36 per cent of them were graduates. Jeeva *et al* (2006) in their study have also reported that 50 per cent extension personnel were with post graduation degree. Kumaran *et al* (2015) in their study reported that, 65 per cent of fisheries extension personnel were post graduate.

Through personal enquiry it was revealed that basic qualification for the post of Assistant Fisheries Development Officer (AFDO) is graduation in fisheries science while for Fisheries Development Officer (FDO) and Assistant Commissioner of Fisheries (ACF) basic qualification is post-graduation in fisheries science. For each district, five to six AFDOs, two FDOs and one ACF are present. The study revealed that around 47.27 per cent of fisheries officials were having service experience up to ten years, which was followed by fisheries officials with service experience between 11-20 years (32.73%) and 20% were with service experience above 21 years. Similar type of observations was reported by Kumaran *et al* (2015) in Tamil Nadu and Andhra Pradesh mentioning that most of the extension personnel were having up to 10 years of service experience. Jeeva *et al* (2006) reported that fisheries officials from Kerala and Andhra Pradesh had more than 14 years of service experience in fisheries department.

With reference to training in shrimp farming a total of 41.82 per cent of fisheries officials had

attended trainings. The organizations which have organized training programme for them were Marine Product Export Development Authority (MPEDA), Mumbai, College of Fisheries (CoF), Ratnagiri and Central Institute of Fisheries Education (CIFE), Mumbai. The MPEDA usually organizes trainings which are conducted in Panvel for Department of Fisheries (DoF) personnel usually of three days and general in nature. CoF, Ratnagiri and ICAR-CIFE, Mumbai also conducts training for officers of Department of Fisheries. The study also revealed that, majority of fisheries officials had not attended training on extension management (72.73%).

Kumaran *et al* (2015) reported that, majority of extension officers in Tamil Nadu and Andhra Pradesh (68%) had not attended any formal training on shrimp farming. Similarly, Kumaran *et al* (2012a) reported that, majority of extension personnel (60%) in Tamil Nadu and Andhra Pradesh expressed their willingness to undergo training in extension methodologies, communication skills and human relations management. Findings of the present study were similar to these studies.

It was observed that, 49.09 per cent fisheries officials meet occasionally to shrimp farmers, followed by 32.73 per cent fisheries officials meet once in a month. Kumaran *et al* (2012a) in their study reported that, 60 per cent extension personnel had occasional contact with shrimp farmers. It was reported by 49.09 per cent of fisheries officials that they had occasional contacts with shrimp farmers. Around 32.73 per cent fisheries officials meet the shrimp farmers once a month while 18.18 per cent fisheries officials meet the farmers weekly. Kumaran *et al* (2011) reported that, about 38 per cent of fishery extension officers from Gujarat, Tamil Nadu and Andhra Pradesh were having weekly contact with farmers.

It was also reported that the contact of fisheries officials with shrimp farmers was less because they were mainly involved in giving diesel subsidy, implementing blue revolution scheme in marine sector. In brackish water sector, fisheries officials and extension personnel were mainly involved in giving license for farming, inspection of farms and regulatory work.

It is mentioned in the duties / job role of Assistant Fisheries Development Officer (AFDO) that they have to acquire advanced technology available at national as well as international level related to shrimp farming and disseminate to farmers. Also, technology developed by Central fisheries institutes are to be disseminated by conducting training, workshops, seminar etc. Fisheries Development Officers (FDO) was involved in implementation of various schemes (Blue revolution) for farmers and fishers, providing extension services, conducting trainings as well as surveys various water bodies for development of aquaculture. Assistant Commissioner of Fisheries (ACF) was responsible for overall development of fisheries and aquaculture in the district. These extension officers presently confined their role to regulation and welfare work.

The study revealed that higher percentages of fisheries officials (58.18%) were using mobile phones for contacting farmers. Around, 32.73 per cent of them were following group contact method such as group meeting for contacting farmers, while, 9.09% made personal visit on farm. These results were in conformity with the results of Kumaran *et al* (2011) who has also reported that, majority of extension personnel (70%) were using mobiles to convey information about shrimp farming and stated that the shrimp farmers regularly contact them through mobile phones. Mobile phones/ social media is revolutionizing the communication patterns. New age extension system is using technologies like mobile / social media / Internet to contact maximum farmers. Kumaran *et al* (2011) reported that, 85 per cent of extension personnel were using group contact methods like farmer's meetings and field training to reach the farming community however, their contact with the end users was not frequent.

It was reported by shrimp farmers that, contact of shrimp farmers with fisheries officials in this study

was for regulatory / license / lease purpose. The contact of fisheries officials with shrimp farmers in this study was mostly for collecting production data and sometimes for farm inspection purposes. Patil *et al* (2019) reported need for improving professional competencies of aquaculture extension personnel through training. They found that technical advice is provided by aqua company technicians who were the major source of information to shrimp farmers in Maharashtra. Shrimp farmers mainly depend on private extension services such as aquaculture consultants followed by input dealers for technical assistance (Patil and Sharma, 2020). Government extension service was more focused on regulatory/ license/leasing/recording. So parallel form of private extension mechanism and extension service providers such as aqua company technicians, input dealers are involved in providing information on all the technical matters related to shrimp farming, buyback arrangements were also found among shrimp farmers and input traders which seems to be a benefiting farmers.

Source of information

Source of information for shrimp farming related knowledge utilized by fisheries officials was collected and the same is presented in Fig 1.

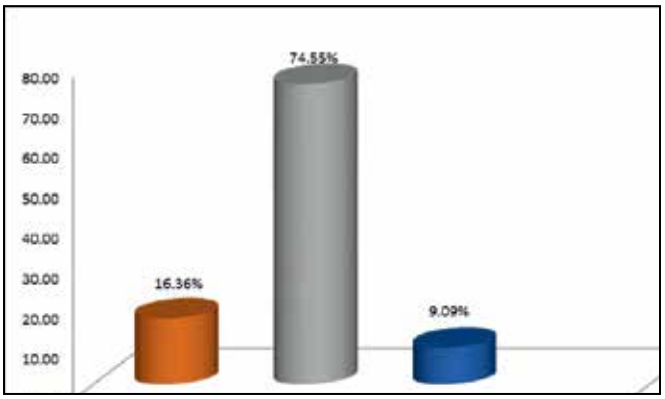

Fig. 1. Information sources used by fisheries officials of Maharashtra

It was clear from Fig. 1 that, internet / social media was the main source of information for majority of fisheries officials (74.25%) and they reported that this was used always. Fisheries Institutions like College of Fisheries, MPEDA and ICAR-CIBA, ICAR-CIFE was the second major source of information (16.36%) which were used very often. However, printed literature from research Institutions, development departments was the source of information for 9.09 per cent fisheries officials and were reported to be used often. These results were in conformity with the findings of Kumaran *et al* (2015) who reported that around 77 per cent extension personnel were regularly accessing internet.

Fisheries officials reported that advisories using mobile text / audio / video calling using WhatsApp has become the most preferred method. Queries related to farming are addressed through various WhatsApp groups, google and YouTube. As internet has emerged as a major information source used always it is necessary to integrate and institutionalize its use in extension advisories and trainings.

With reference to fishery institutions, Kumaran *et al* (2012b) also reported that fisheries colleges, MPEDA, ICAR institutes were the sources of information for fishery extension personnel.

CONCLUSION

The results of study indicated that majority of fisheries officials had not attended any formal training in scientific shrimp farming (58.18%) and extension management (72.73%). Higher percentages of fisheries officials (58.18%) were using mobile phones as a preferred mode for contacting farmers. The study also indicated that internet / social media were the main source of information for majority of fisheries officials (74.25%).

A targeted approach in disseminating shrimp farming information can ensure that information reaches as many farmers as possible. In these times of uncertainty, credible information on new technologies, inputs, government schemes, market prices etc. will lead to better decisions. Shrimp farmers are already using mobile phones

and internet therefore, internet/social media-based information exchange along with strengthening of digital extension system can be a viable strategy to provide information and services. It is suggested to use the internet and social media as information tool for extension advisories and trainings. Naylor (2020) has highlighted integration of aquaculture in the global food system. In this paper we recommend integration and convergence of different aquaculture extension system service providers.

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