


CAREER OPPORTUNITIES IN FISHERIES SCIENCE





Dr. Niranjan Sarang

Prof. Kashti Prerna Deorao

India is blessed with abundant and diverse fisheries resources which include freshwater, marine-water and brackish-water fisheries resources. Our country has a long coastal line of 8129 kms extending from Gujarat to West Bengal. We are blessed with 0.5 million square km of continental shelf and 2.02 million square km of Exclusive Economic Zone (EEZ). In inland resources, India has total rivers length of 29000 kms including 14 major rivers, 44 medium rivers and uncountable number of small rivers. Ganga and Brahmaputra river basins are some of the most suitable sites for freshwater aquaculture which cover almost half of the farming area. Estuaries system is main source for brackish water aquaculture which cover an area of 0.29 million ha. Both natural and manmade reservoirs are ready source of both capture and culture fisheries which cover total area of 3.15 million ha. The total



Matysa Sampada Yojana:
Transforming Fisheries
Targets set for 2024-25
**For a Sustainable
Blue Revolution**

-  22 million metric tons of fish production (from 13.75 in 2018-19)
-  9% contribution to the Agriculture GVA (from 7.28% in 2018-19)
-  Rs. 1,00,000 crores of export earnings (from Rs. 46,589 crores in 2018-19)
-  More than 15 lakh employment opportunities to be generated

area of ponds and tanks for aquaculture is estimated to be 12 million ha for brackish water aquaculture and more than 2.85 million ha for freshwater aquaculture.

India is home to more than 10% of global fish diversity. High diversity of fishes includes marine species, warm water species, brackish water species and coldwater species. Indian fisheries not only fulfil the domestic market demand but also considerably contribute in export earnings. Fisheries sector assures nutritional security and also becomes cheap source of animal protein. India holds second position in the world with total fish production of 14.16 million metric ton (mmt), the marine sector contributes 3.72 mmt and inland sector contribute 10.43 mmt (2019-20). The total export has reached worth Rs. 46662.85 crores. Due to this huge production, consumption and export, fisheries sector has become an important part of Indian economy. Percentage

Continued on page 37

EN QUESTION OF THE WEEK

Readers' views elicited on important issues

Last date for entry submission: 28/09/2022

FREE SUBSCRIPTION FOR WINNERS

BEST ENTRY on page 39

Continued from page 1

CAREER OPPORTUNITIES IN FISHERIES SCIENCE

contribution of fisheries sector in Indian economy is 1.24% (2018-2019) and the percentage contribution of fisheries sector in Indian agriculture is 7.28%.

Still the production is not sufficient to fulfil the demand of the people as increasing population increases the demand of fish as food. It is a task for farmer's community to increase the fish production so there is a need to develop and adopt technologies which give high yield of fish and enhanced income to farmers. In achieving these objectives, fisheries education, research and extension play significant roles.

Need for Technical Manpower in Fisheries

India has huge fisheries potential in both marine and freshwater sectors. So many people are directly or indirectly depend on the fisheries sector through culture or capture fisheries for their livelihood. Large area is available for freshwater, marine water and brackish water aquaculture. So the fisheries sector plays an important role in Indian economy. Fisheries sector also serves as a means of food security and also generates employment. Culturing, net mending, boat building, manufacturing of fishing accessories, aqua feed preparation, antibiotic and drugs and many other related activities are ancillary activities associated with fisheries sector. There is a need of technical manpower for culture, production, conservation, management and sustainable utilization and development of fisheries. Technical manpower becomes an intermediate link between researchers and farmers which implicate new technology at field level. Various fisheries institutes under ICAR (Indian Council of Agricultural Research) and SAUs (State Agricultural Universities) are providing fisheries education to students and obviously fulfil the need of technical manpower.

Fisheries Research Institutes

Some research institutes are working to invent new techniques for increasing the production, conservation, management and sustainable utilization of fisheries resources. Central Marine Fisheries Research Institute (CMFRI) is conducting research in marine sector for increasing production of marine fishes likewise, Central Inland Fisheries Research Institute (CIFRI) is conducting research on inland sector. Central Institute of Fisheries Technology (CIFT) is working for development of suitable technology for culture, capture and processing of fishes. Central Institute of Fisheries Education (CIFE) on the other hand is fully engaged in research, education and extension activities. National Bureau of Fish Genetic Resources (NBFGFR) is working for conservation and maintenance of fish genetic resources. Central Institute of Freshwater Aquaculture (CIFA) and Central Institute of Brackishwater Aquaculture (CIBA) are engaged in developing new technologies for Freshwater and Brackishwater Aquaculture. Directorate of Coldwater Fisheries Research (DCFR) is specially working in the field of cold water fisheries. These fisheries research institutes are doing research for the betterment of fisheries sector, however, there is a gap between researchers and farmers which can be filled by the availability of trained technical manpower.

Sr. No.	Name of the Institute	Established (year)
1.	ICAR - Central Marine Fisheries Research Institute, Kochi, Kerala	1947
2.	ICAR - Central Inland Fisheries Research Institute, Barrackpore, West Bengal	1947
3.	ICAR - Central Institute of Fisheries Technology, Kochi, Kerala	1957
4.	ICAR - Central Institute of Fisheries Education, Mumbai, Maharashtra	1961
5.	ICAR - National Bureau of Fish Genetic Resources, Lucknow, Uttar Pradesh	1983
6.	ICAR - Central Institute of Freshwater Aquaculture, Bhubaneswar, Orissa	1987
7.	ICAR - Central Institute of Brackishwater Aquaculture, Chennai, Tamil Nadu	1987
8.	ICAR - Directorate of Coldwater Fisheries Research, Bhimtal, Uttarakhand	1987

Other Institutes

Sr. No	Name of the Institute	Established (year)	Established under
1.	Marine Products Export Development Authority (MPEDA), Kochi	1972	Ministry of Commerce & Industry
2.	Central Institute of Fisheries Nautical and Engineering Training (or CIFNET), Kochi	1963	Government of India, Ministry of Fisheries & Animal Husbandry & Dairying.
3.	National Fisheries Development Board (NFDB), Hyderabad	2006	Government of India, Ministry of Fisheries & Animal Husbandry & Dairying.
4.	National Institute of Fisheries Post Harvest Technology and Training (NIFPHATT)	1952	Ministry of Fisheries, Animal Husbandry and Dairying.

Fisheries Education in India

To fulfil the challenging demand of food security for increasing population it is essential to exploit the available resources by scientific and judicious utilization of resources in sustainable manner through trained manpower. To accomplish this need, fisheries education in India started way back in 1969 with the establishment of College of Fisheries at Mangalore under the aegis of University of Agriculture Science (UAS), Bangalore. Since then, total 32 fisheries education institutes have been established all over the India which strengthened the fisheries research, education and extension by fulfilling the need of technical manpower. Professional fisheries education is provided by various fisheries institutes under State Agricultural and Veterinary/Animal Sciences Universities which provide Bachelor, Master and Doctoral degrees.

Bachelor's of Fisheries Science (B.F.Sc)

Bachelor degree in fisheries science started in 1969 with the establishment of College of Fisheries, Mangalore, Karnataka, under Kamataka Veterinary Animal and Fisheries Science University and subsequently the professional degree programs in

fisheries were initiated under the Agricultural Universities of all the maritime states in the country as well as in the inland states. Bachelor Degree in Fisheries Science is a 4 years degree course which one can pursue after 10+2 with PCB or PCMB or Agriculture subjects in various SAUs.

Master of Fisheries Science (M.F.Sc)

Fisheries education at the University level in India started in the traditional Universities offering post graduate course in Zoology with certain specialization in Fish and Fisheries. Fish Biology and Limnology & Fisheries. Fisheries Education as applied science started in 1961 with the establishment of Central Institute of Fisheries Education (CIFE), Mumbai, followed by the establishment of College of Fisheries Mangalore, Karnataka and thereafter in other state Agricultural Universities. Post graduation in fisheries provides M.F.Sc degree in various sub-disciplines such as Aquaculture, Fisheries Resource Management, Aquatic Environment Management, Fish Genetics and Breeding, Biotechnology, Aquatic Animal Health Management, Fish Extension, Fish Processing. This is a 2 years professional course as per the recommendation of ICAR. The candidates possessing B.F.Sc degree are eligible for this degree program.

Ph.D. in Fisheries Science

Ph.D. is a 3 years program with provision of course work and research. Candidates can get Ph.D. after successful completion of M.F.Sc in respective disciplines.

Government Fisheries Colleges in the country which provide education in Fisheries Science are listed below.

Sr. No.	Name of College	Location	University	Established Year
1.	Central Institute of Fisheries Education	Mumbai, Maharashtra	Central Institute of Fisheries Education (Deemed University) University	1961
2.	College of Fisheries	Mangalore, Karnataka	Karnataka Veterinary Animal and Fisheries Science University	1969
3.	Fisheries College and Research Institute	Thoothukudi, Tamil Nadu	Tamil Nadu Veterinary and Animal Sciences University	1977
4.	College of Fisheries	Panagad, Kerala	Kerala University of Fisheries and Ocean Studies	1979
5.	College of Fisheries	Rangailunda, Odisha	Orissa University of Agriculture and Technology	1981
6.	College of Fisheries	Ratnagiri, Maharashtra	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth	1981
7.	College of Fisheries	Pantnagar, Uttarakhand	G. B. Pant University of Agriculture and Technology	1985
8.	College of Fisheries	Dholi, Bihar	Dr. Rajendra Prasad Central Agricultural University	1986
9.	College of Fisheries	Raha, Assam	Assam Agricultural University, Jorhat	1988
10.	College of Fisheries Science	Veraval, Gujarat	Kamdhenu University, Gandhi Nagar	1991
11.	College of Fisheries Science	Muthukur, Andhra Pradesh	Sri. Venkateswara Veterinary University, Tirupati	1992
12.	College of Fisheries Science	Kolkatta, West Bengal	West Bengal University of Animal & Fisheries Sciences	1995
13.	College of Fisheries	Lembucherra, Tripura	Central Agricultural University, Imphal	1998
14.	College of Fisheries	Udaipur, Rajasthan	Maharana Pratap University of Agriculture and Technology	2003
15.	College of Fisheries	Srinagar, Jammu & Kashmir	Sher-e-Kashmir University of Agricultural Sciences and Technology	2005
16.	College of Fisheries Science	Nagpur, Maharashtra	Maharashtra Animal and Fisheries Sciences University	2006
17.	College of Fisheries	Faizabad, Uttar Pradesh	Acharya Narendra Deva University of Agriculture and Technology	2007
18.	College of Fisheries	Udgir, Latur, Maharashtra	Maharashtra Animal and Fisheries Sciences University	2007
19.	College of Fisheries	Ludhiana, Panjab	Guru Angad Dev Veterinary and Animal Sciences University	2009
20.	College of Fisheries	Kawardha, Chhattisgarh	Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya	2010
21.	College of Fisheries	Jabalpur, Madhya Pradesh	Nanaji Deshmukh Veterinary Science University Adhartal, Jabalpur	2012

Continued from page 37

CAREER OPPORTUNITIES IN FISHERIES SCIENCE

Sr. No.	Name of College	Location	University	Established Year
22.	Dr. M. G. R Fisheries College and Research	Ponneri, Tamil Nadu	Tamil Nadu Dr.J.Jayalalithaa Fisheries University	2012
23.	College of Fisheries Science	Navsari, Gujarat	Kamdhenu University	2014
24.	College of Fisheries Science and Research Centre	Etawah, Uttar Pradesh	Chandra Shekhar Azad University of Agriculture and Technology	2015
25.	College of Fisheries Engineering	Nagapattinam	Tamil Nadu Dr. J. Jayalalithaa Fisheries University (TNJFU)	2015
26.	Post-Graduate Institute of Fisheries Education and Research	Gandhinagar, Gujarat	Kamdhenu University	2015
27.	College of Fisheries Science	Gumla, Jharkhand	Birsa Agricultural University	2015
28.	College of Fisheries	Pebbair, Telangana	P.V. Narasimha Rao Telangana Veterinary University	2017
29.	Institute of Fisheries Postgraduate Studies	Vaniyan-chavadi Tamil Nadu	Tamil Nadu Dr.J. Jayalalithaa Fisheries University (TNJFU)	2017
30.	Dr. M. G. R Fisheries College and Research	Thalainayeru, Tamil Nadu	Tamilnadu Dr.J.Jayalalithaa Fisheries University	2017
31.	College of Fisheries	Kishanganj, Bihar	Bihar Animal Sciences University	2018
32.	College of Fisheries Science	Hisar, Haryana	Haryana Agricultural University	2018

Upcoming Fisheries Colleges:

Sr. No.	Name of College	Location	University
1.	College of Fisheries Science	Amravati	Maharashtra Animal and Fisheries Sciences University
2.	College of Fisheries	Mathura	Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan
3.	College of Fisheries	Nonor, Dattiya	Rani Lakshmi Bai Central Agricultural University

Private Colleges

Sr. No.	Name of College	Location	University	Established Year
1.	Faculty of Fisheries, The Neotia University	Kolkata, West Bengal	The Neotia University	2015
2.	School of Fisheries	Bhubaneswar, Khurda, Odisha	Centurion University of Technology & Management	2005
3.	Faculty of Fisheries, ITM University	Gwalior	ITM University	1997
4.	Faculty of Fisheries	Jamuhar, Bihar	Narayan Institute of Agricultural Sciences	2018

Diploma in Fisheries

There are so many colleges providing diploma in various streams of fisheries under different universities in different states such as Diploma in Fisheries, Diploma in Fisheries Engineering, Diploma in Aquaculture and so on. The primary aim of providing diploma to students is to produce trained manpower in the field of fisheries. The admission is done after completing 12th in science field having PCB group (Physics, Chemistry and Biology). The diploma course is of 2 years. The diploma holder students get jobs in various companies like Fish Processing Plant, Fish Culture Plant, Shrimp Culture Plant, Field Manager, Field Assistant, Antibiotics Companies, Feed Companies, Fish Farm, Seed Production Farm, Fisheries Assistant etc.

Colleges which provide Diploma in Fisheries Science are listed below.

Sr. No.	Name of College	Location	University
1.	Fisheries Diploma College	Gaiwadi, Tuwandewadi, Maharashtra	Dr. Balasaheb Sawant Konkan Krishi Vidyaapeeth, Ratnagiri
2.	Fisheries Polytechnic,	Bhavadevarapalli	Sri Venkateswara Veterinary University
3.	Agro-Polytechnic Centre	Rangeilunda, Berhampur, Orissa	Odisha University of Agriculture and Technology, Rangeilunda, Berhampur, Odisha
4.	Diploma in Fisheries	Saharanpur	Glocal University
5.	Fisheries Polytechnic	Rajpur (Dhamdha)	Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya, Durg, Chhattisgarh

Admission Process

There is 15% all-India quota in State Agricultural Universities which are filled through all India Entrance Examination conducted by ICAR for agriculture and allied subjects. The eligibility for this test is 10+2 with PCB/PCMB with a minimum of 50% marks. Some states also conduct state level entrance test for getting admitted in agriculture and allied courses.

For admission in M.F.Sc in SAUs and CIFE, All India Entrance Examination is similarly conducted every year by ICAR. The eligibility is successful completion of B.F.Sc program with minimum 60%.

Job Opportunities

There are good job opportunities in fisheries sector as many colleges are strengthening their faculty positions as per ICAR norms. State Fisheries Departments are also recruiting fisheries professionals.

Government Sector: Fisheries graduates can join Central or State Government jobs. Fisheries graduates are recruited as Fisheries Officers in Agriculture, Animal Husbandry and Fisheries Department of Central and State Government as Assistant Fisheries Development Officer, District Fisheries Development Officer, Fisheries Extension Officer, Assistant Director of Fisheries and Assistant Commissioner of Fisheries etc.

Institutes/Universities and Research Centres: There is a scope to become scientist in fisheries after completing Masters degree and qualifying the examination of Agriculture Scientist Recruitment Board (ASRB) of Indian Council of Agriculture Research (ICAR), Pusa, New Delhi. The Masters and Doctoral degree holder students can join the Universities for teaching, Junior Research Officer (JRO), Senior Research Officer (SRO), Lecturer, Subject Matter Specialist (SMS) or Assistant Professor (AP). M.F.Sc graduate with two years of experience can apply for subject matter specialist in Krishi Vigyan Kendra. Some Private Institutes of Environmental or Fisheries Sciences providing jobs for fisheries degree holder as fisheries tutor. The fisheries post graduates can also join Fisheries Survey of India (FSI). They also get Junior Research Fellowship (JRF), Senior Research Fellowship (SRF) and Research Associateship (RA) under various projects run by government organizations, institutes and Universities.

Banking Sector: Many banks like NABARD, Nationalized Banks, NCDC (National Cooperative Development Corporation), etc. are appointing fisheries graduates in rural development activities in managerial posts for implementing government policies for fishermen. The private and public sector banks are also recruiting fisheries professionals for developing their business in fisheries sector.

Private and Public Sector: Fisheries professionals are required in private and public sectors for working in their offices, laboratories, farms, customer care units, fisheries industries like fish processing plant, surimi processing plant, fish meat plants, fish oil plants, fish meal plants etc. Feed manufacturing companies are providing good jobs in manufacturing, marketing and extension work. Several probiotics and medical companies are providing good employment potential which supply probiotics for aquaculture. Also there is job opportunity in fish products exporting companies.

Self-employment/ Entrepreneurship: Fisheries professionals can establish their own business in the field of aquaculture, fish processing, feed manufacturing plant, fish product and by product industry. Agro-tourism based business such as fish hotel, fish pond, fishing activities could also be explored. They can also earn by doing marketing business of fisheries product.

Outsourcing/ Fisheries Consultants: Business Processing Outsourcing (BPO) and Knowledge of Processing Outsourcing (KPO) is gaining lot of importance in the recent years. Big organisations like NGOs, Private Companies as well as Project Management Units of Central and States Governments require fisheries professionals as Consultants.

NGOs: For the ecological and social benefits of fisheries community so many people are working in this field by establishing co-operative societies for fish farmers. Some fisheries co-operative societies have developed their own business.

Overseas Employment: International agencies keep their doors open for the talented and experienced fisheries professionals working in the field of culturing fishes and fish processing, through Food and Agriculture Organization (FAO), United Nation Development Program (UNDP), United Nations Volunteers (UNV), Asian Development Bank (ADB), Network of Aquaculture Centres in Asia Pacific (NACA). Many countries also provide good jobs in various projects.

(Dr Niranjan Sarang teaches at the Department of Fisheries Resources Management, College of Fisheries (DSVCKV), Kawardha, Chhattisgarh. Prof. Kashti Prerna Deorao is pursuing Ph.D from Fisheries Polytechnic (DSVCKV), Rajpur Dhamdha, Durg, Chhattisgarh)

Views expressed are personal.

Email: rc1.hrm@epfindia.gov.in

Phone No: 011-26170091



कर्मचारी भविष्य निधि संगठन

(श्रम एवं रोजगार मंत्रालय, भारत सरकार)

Employees' Provident Fund Organisation

(Ministry of Labour & Employment, Govt. of India)

मुख्य कार्यालय/Head Office

भविष्य निधि भवन, 14-भोकाजी कामा प्लेस, नई दिल्ली-110066

Bhavishya Nidhi Bhawan, 14-Bhikaji Cama Place, New Delhi-110066

Website: www.epfindia.gov.in, www.epfindia.nic.in

No. HRM-VII/1A-5(2)2017/Engg./10245

Subject: Extension of last date for receipt of application for filling up the post of Chief Engineer, Executive Engineer (Electrical), Executive Engineer (Civil), Assistant Executive Engineer (Electrical), Assistant Executive Engineer (Civil), Junior Engineer (Electrical) and Junior Engineer (Civil) on deputation basis. Please refer to this office memorandum dated 30.05.2022 on the subject cited above. In this regard, it is informed that the last date of submission of application has been extended to 04/10/2022 to fill up the vacant posts of Chief Engineer, Executive Engineer (Electrical), Executive Engineer (Civil), Assistant Executive Engineer (Electrical), Assistant Executive Engineer (Civil), Junior Engineer (Electrical) and Junior Engineer (Civil) on deputation basis in various offices of Employees' Provident Fund Organization.

(Mohammad Shariq)

Regional PF Commissioner-I (HRM)

EN 25/65