

Opportunities in the Fisheries and Aquaculture sector

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Fisheries is an important vibrant sector witnessed as the primary source of protein for millions of the people. Its contributing to the national GDP is around 1.4% and 4.5% GDP contribution to the agriculture sector as a whole. In broad terms it involves capture including inland and sea, aquaculture, gears, navigation, oceanography, aquarium management, fish breeding, processing, export and import of seafood, special products and by-products, research and related activities. India is the fourth largest producer of fish in the world and the second largest producer of inland fish. India's long coastline with rich biodiversity offers great scope for aqua-farming of fish, crustaceans and aquatic plants for recreation or consumption. The sector is considered to be equally important due to the dependence of large section of poor fisherman community as a main source of income generating livelihood source. This has been a highly potential sector to offer huge opportunity exists for the development of fisheries through aquaculture and mariculture farming practices.

During the last six decades the sector has been strengthened with the much needed technical manpower and competent extension personnel with effective transfer of technology. Research and Development has helped the sector in addressing productive issues level and the availability of critical inputs for culture like fish seed, high productive breed and medicine by involving Aquaculturist, farm managers, exporters, traders, breeders and modern fishermen. Being highly remunerative sector it has been considered as a major source of employment generation and career avenues in various branches of fisheries and aquatic sciences.

Eligibility for Entry in Fisheries Science:

To get the entry in fisheries discipline, individuals desirous to become a fisheries graduate has to pass 4 year degree from Fisheries Colleges of State Agricultural Universities. For admission in B. F. Sc (Bachelor of Fisheries Science) course he /she can apply after 10 (+) 2 having PCB group. Admission is given as per merit score of candidates and the availability of seats. Special quota for outside state candidates is allowed to the candidates who have passed entrance exam of ICAR and are getting-fellowship too. Special reserved seats are there for Jammu & Kashmir, Mizoram, Arunachal Pradesh and Nagaland. B. F. Sc involves courses such as inland aquaculture, freshwater aquaculture, mariculture, industrial fisheries, fish processing and post harvest technology, fish nutrition, pathology, environment, ecology and extension. The syllabus contains practical experience like opportunities to work on sea cruise on fishing vessels and for data collection and fishing in processing plants. On-farm studies under Rural Agriculture Work Experience (RAWE) helps students to gain practical learning on aqua farms, hatcheries, fish processing units, value addition, resource management etc. through educational programme of ICAR.

Higher Education:

After completion of B.F.Sc, candidates can opt for M.F.Sc (Master of Fisheries Science) for taking admission in Central Institutes in India through all India level Common Entrance Test conducted by ICAR. There are eight fisheries institutes under the ICAR set up in India mainly CIFE, CIBA, CIFA, CMFRI, CIFT, CIFRI, NBFGR and DCFR. These institutes are engaged in capture, culture, value addition processing, repository, conservation and bio-diversity addressing educational and legal issues in addition to their mandate of research programme. Students can avail opportunities for masters and specialized education upto the doctoral level in these institutes. In addition there are about 18 fisheries colleges under the independent Veterinary and Animal Science University and also State Agriculture Universities offering B.F.Sc and M.F.Sc courses. Based on the availability of the infrastructure and State of Art Facility, fishery colleges are also offering doctoral programmes under their setup. Master's and

Doctor of Philosophy (Ph.D.) programs in aquaculture and fisheries are available through several schools. Students can choose programmes that fit with their research interests in subject areas viz. fish nutrition, water quality, aquaculture engineering, fish genetics, hatchery production and fish pathology. Most master's programs require a thesis, while Ph.D. students are typically required to complete a dissertation. There are research activities in the areas like culture and breeding of fish, integrated fish- livestock farming, fish health management and nutrition, development of post harvest and processing including intensive fish farming and environment management.

Farm Based/ Skilled Based Training:

Krishi Vigyan Kendras under ICAR conducts trainers training in collaboration with their institutes and offering fisheries as a vocational course at 10(+2) level with active assistance from NCERT. Coastal States have fisheries schools at fishermen's dominating villages conducts regular programme on skill development among the fisherman. Training programmes are also offered on Deep Sea Fishing and Navigation by Central Institute of Fisheries Nautical & Engineering Training (CIFNET). The short term duration training in Scuba diving are conducted by various private agencies in India which supports employment generation in the deep sea fishing and resource utilization, mapping and assessment.

Job opportunities

Career for fisheries and aquaculture graduates are available with a variety of employers, including state and central government agencies, academic institutions and fish farms. Government agencies and industry organizations recruit positions like aquaculture farmer, shellfish culturist, hatchery technician, biological science technician, fish research assistant etc. Many career options exist in this field in both public and private sectors in aquaculture to sea farming of fish, shellfish and marine organisms. Entry-level aquaculture jobs require either a high school diploma or an undergraduate degree in aquaculture and fisheries, but more advanced positions require a master's or doctorate degree.

In State Governments, job opportunities exist in fisheries department for fisheries graduate for the post of Assistant Fisheries Development Officer (AFDO)/ Fisheries Extension Officer (FEO) and District Fisheries Development Officer. Career opportunities also exist for high school diploma holders in aquaculture farming. However, an increasing number of employers in this industry prefer job candidates with some post secondary education. Certain aquaculture careers even require a graduate-level education and higher degree programs for research and teaching at many colleges and universities.

In foreign countries associate's and bachelor's degrees in fisheries or aquaculture provide the skills and knowledge needed to pursue a variety of aquaculture careers. Students in 2-year programs can typically pursue an Associate of Applied Science degree to enter the job market upon graduation and can earn an Associate of Science to transfer into a 4 year academic programme. Apart from scope for higher education in fisheries in countries such as USA, Canada, Australia, Japan, China and European countries, there are demands for fisheries professionals in the aquaculture and processing sectors in Gulf and African countries also. There are number of fisheries graduates doing business in foreign countries in field of aquaculture, export & import.

The fisheries graduates and higher qualified personnel gets good job opportunities with attractive salary and perks. They are appointed as Assistant Director, Research Assistant and Fisheries Inspector etc. in government establishments. The government sectors offer a pay which is less compared to the private sector, but is stable. In private sector, a post graduate in fisheries sciences has lots of opportunities to work as Quality Control Officer, Fish Processor, Aquaculturist, Farm Assistant/ Manager etc. The pay varies according to the type of job and specialization of the candidate.

National/ State Fishery Institutes:

1. Central Institute of Fisheries Education, Versova, Mumbai, www.cife.edu.in
2. Central Institute of Brackishwater Aquaculture, Chennai, www.ciba.res.in
3. National Bureau of Fish Genetic Resources, Lucknow, www.nbfgr.res.in
4. Central Institute of Fisheries Nautical and Engineering Training, Kochi, www.cifnet.nic.in
5. Tamilnadu Fisheries University, Nagapattinam, TN, www.tnfu.org.in
6. Indian Institute of Technology, Kharagpur, W.B, www.iitkgp.ac.in
7. Andhra University, Telibagh, Waltair, A.P, www.andhrauniversity.edu.in
8. Goa University, Goa, www.unigoa.ac.in

Fisheries Colleges under State Agricultural/ Veterinary Universities:

1. College of Fisheries, Shirgaon, Ratnagiri, www.dbskkv.org
2. College of Fishery Science, Telangkhedi, Nagpur, M.S, <http://cofsngp.org>
3. College of Fisheries, Mangalore, Karnataka, www.kvafsu.kar.nic.in
4. College of Fisheries Science, Pantnagar, UP, gbpuat.ac.in/acads/cfsc/index.html
5. Punjab Agriculture University, Ludhiana, www.pau.edu
6. Institute of Fisheries Technology, Thiruvallur, Chennai, <http://iftponneri-tnfu.org/index.php>
7. College of Fisheries Science, Kulia, WB, www.wbuaafsc.ac.in
8. College of Fisheries, Veraval, Gujarat, <http://www.gsauca.in/>