Department of Aquaculture
College of Fisheries
Acharya Narendra Deva University of Agriculture and Technology
Kumarganj, Ayodhya – 224 229, Uttar Pradesh

1. BRIEF ABOUT THE DEPARTMENT:

Department of Aquaculture came into existence in the academic year 2006-07 with the establishment of undergraduate teaching (B.F.Sc.) in College of Fisheries. The postgraduate (M.F.Sc.) and Ph.D. programme were started in the academic year 2019-20 and 2023-24, respectively. The Department has well qualified and dedicated faculty members to facilitate teaching, research and extension activities to disseminate knowledge and address the concerns of the population and support the sustainable growth of aquaculture, particularly in eastern Uttar Pradesh.

VISION:

Impart quality fisheries education to the students and to improve competency of faculty in the various field of aquaculture for teaching, research and extension.

OBJECTIVE:

1. To produce trained human resource for the development of aquaculture practices in state and the country.
2. To undertake basic and applied research work on various aspects of aquaculture.
3. To offer training programmes to students and farmers.
4. Dissemination of technology through demonstration extension materials, books, booklets, articles etc.

FACULTY:

Faculty	Designation	E-mail	Mobile No.
 Dr. Dinesh Kumar	Assistant Professor & I/C Head	dineshfish@rediffmail.com	9412604737

 Dr. Shashank Singh	Assistant Professor	drssaqua@gmail.com	7320887898
 Mr. Ajay Kumar Yadav	Assistant Professor	yadavajay1200@gmail.com	9774440130

ACADEMICS:

The students are getting admission through Uttar Pradesh Combined Agriculture and Technology Entrance Test (UPCATET). B.F.Sc. is the basic requirement for admission in M.F.Sc. degree programme. For taking admission in Ph.D. programme, the students should have M.F.Sc. with specialization in Aquaculture.

TEACHING:

According to Fifth Deans' Committee the department offers following courses in B.F.Sc. programme

Sl. No.	Course No.	Course Title	Credit Hours
1.	FAQ-111	Principles of Aquaculture	**2(1+1)**
2.	FAQ-112	Fundamentals of Biochemistry	**3(2+1)**
3.	FAQ-121	Freshwater Aquaculture	**3(2+1)**
4.	FAQ-122	Aquaculture in Reservoirs	**2(1+1)**
5.	FAQ-211	Fish Food Organisms	**2(1+1)**
6.	FAQ-212	Ornamental Fish Production and Management	**2(1+1)**
7.	FAQ-213	Genetics and Breeding	**2(1+1)**
8.	FAQ-221	Coastal Aquaculture and Mariculture	**3(2+1)**
9.	FAQ-222	Fish Nutrition and Feed Technology	**3(2+1)**
10.	FAQ-223	Shellfish Hatchery Management	**2(1+1)**
11.	FAQ-311	Finfish Hatchery Management	**3(2+1)**
12.	FAQ-321	Introduction to Biotechnology and Bioinformatics	**2(1+1)**
			29(17+12)

According to Sixth Deans' Committee the department offers following courses in B.F.Sc. programme

Sl. No.	Course No.	Course Title	Credit Hours
Core Course offered from the Department			
1.	FAC-111	Freshwater Aquaculture	2 (1+1)
2.	FAC-121	Fish and Shellfish Breeding and Hatchery Management	4 (3+1)
3.	FAC-211	Coastal Aquaculture and Mariculture	3 (2+1)
4.	FAC-212	Fish Nutrition and Feed Technology	3 (2+1)
5.	FAC-221	Breeding and Culture of Ornamental Fish	2 (1+1)
6.	FAC-222	Live Food Organisms for Fish and Shellfish	2 (1+1)
7.	FAC-311	Fish Genetics and Breeding	2 (1+1)
8.	FAC-321	Fish Biotechnology and Bioinformatics	2 (1+1)
		Total (A)	**20(12+8)**
Skill Enhancement Course offered from the Department			
1.	FSE-111	Fish/Shellfish Breeding and Hatchery Operation	2 (0+2)
2.	FSE-112	Fish/Shellfish Seed Rearing	2 (0+2)
3.	FSE-113	Aquarium Making, Decoration and Management	2 (0+2)
4.	FSE-121	Fish/Shellfish Grow-out Production Management	2 (0+2)
5.	FSE-122	Breeding and Culture of Ornamental Fish	2 (0+2)
6.	FSE-212	Integrated Fish Farming	2 (0+2)
7.	FSE-221	Non-conventional/Diversified Farming Practices (Pearl Farming/SeaweedFarming/Aquaponics/Microalgae Production, etc.)	2 (0+2)
		Total (B)	**14(0+14)**
Elective (major/minor) courses offered from the Department			
1.	FAE-411	Open-water Aquaculture	3 (2+1)
2.	FAE-412	Smart Aquaculture Production Systems	3 (2+1)
3.	FAE-412	Coldwater Aquaculture and Recreational Fisheries	2 (1+1)
		Total (C)	**8(5+3)**
		Grand Total (A+B+C)	**42(17+25)**

The department follows BSMA guideline for M.F.Sc. and Ph.D. degree programme.

STUDENTS STRENGTH

The details of number of the students enrolled and completed their degree in the department are given below

Students Enrolled			**Degree Awarded**	
Academic Year	**Number of Student**		**Number of Student**	
	M.F.Sc.	**Ph.D.**	**M.F.Sc.**	**Ph.D.**
2019-20	02	-	-	-

2020-21	01	-	-	-
2021-22	01	-	03	-
2022-23	03	-	01	-
2023-24	11	2	03	-
2024-25	07	1	10	-
2025-26	07	1	07	-
2026-27	07	3	-	-

FACILITIES AND INFRASTRUCTURE:

Sl. No.	**Facility**	**No.**
1.	Classrooms	03
2.	Laboratory	02
3.	Central Instrumentation Facility	02
4.	Wet Laboratory	01

Instructional Fish Farm –

The instructional fish farm covered 6.0 ha land with total 23 fish ponds which includes 5 nursery ponds, 5 rearing ponds, 6 grow-out, 2 broodstock ponds and 5 integrated ponds. The instructional fish farm is also having a Circular carp hatchery with one overhead tank and spawning pool, 2 hatching pool and 1 spawn collection chamber constructed under Mega Seed Project. The quality seed of various species like Indian Major Carp and exotic carps are produced during the breeding season to fulfill the demand of Instructional fish farms, B.F.Sc and M.F.Sc students practical classes, research purpose and farmers of Eastern Uttar Pradesh. The source of water is tube well and solar pump. The Instructional fish farm is also having a RAS unit for the demonstration, training and research purpose. Apart from this, twenty four small earthen ponds of 10×10 feet are available for the practical experimentation and research work of M.F.Sc. students.

LABORATORY FACILITIES:

Sl. No.	**Name of the Equipment**	**Quantity (No.)**	**Utility / Purpose**
1.	Weighing Balance	1	Used to weigh samples/chemicals
2.	Water testing kit	1	Used to observe water samples
3.	pH meter	2	Used to observe water pH
4.	Microscope with Image Processing System	1	Used to observe samples/ plankton identification
5.	Muffle Furnace	1	Used for estimation of Ash/Minerals
6.	Hot Air Oven	1	Used for Drying

7.	Autoclave	1	Used for Sterilization
8.	Centrifuge	1	Used in analysis for taking supernatant
9.	Biochemical Analyzer Kit	1	Used for biochemical analysis
10.	Aeration Motor	4	Used for supplementation of oxygen
11.	Tissue Homogenizer	1	to break apart biological samples like animal tissues, plant matter, or cells, to create a uniform, consistent mixture (homogenate)
12.	Refrigerated Centrifuge	1	A refrigerated centrifuge separates sample components by density via high-speed rotation while simultaneously regulating temperature, typically between -20°C and +40°C, to prevent heat-induced degradation of sensitive biological materials
13.	Spectrophotometer	1	Measures how much light a sample absorbs or transmits at specific wavelengths to calculate the concentration of a substance or analyze its optical properties
14.	Kinetic-based Spectrophotometer	1	Used to measure how the light absorbance of a chemical solution changes over time, rather than just taking a single snapshot at a static point
15.	Vortex mixer	1	Used to rapidly mix, blend, or suspend small liquid samples in test tubes, vials, microcentrifuge tubes, and small flasks

Research Project

Title of the Project	Funding Agency	Status
Development of suitable model to harvest the optimum potential of fish production in sodic soil of Uttar Pradesh	UPCAR	Completed
Development, Standardization and Adoption of Freshwater Pearl Culture Technique in Eastern Uttar Pradesh	SADP	Ongoing

Patent

Title of Patent	Application no./ Design no.	Inventor's Name	Type of patent	Status	Date &Year of Publication/ Grant
Two-Paddle Wheel Aerator for Biofloc Fish Culture	387024- 001 25.05.2023	Dr. Sambid Swain, Dr. Katare Milind Bhagwan, Dr. Mogaleker, H.S., Dr. Prafulla Kumar Panda, **Dr. Shashank Singh**	Design	Granted	13.10.2023

Aquatic Habitat Monitoring Device	477024-001	Dr. Vipin Kumar Misra, Dr. Laxmi, Dr. Nagung Camder Tok, Dr. Jag Pal, Dr. Om Pravesh Kumar Ravi, Dr. Akhilesh Kumar Mishra, Dr. Shailesh Kumar Mishra, **Dr. Dinesh Kumar**, Dr. Prem Kumar and Dr. Shikha Ahalawat	Design	Granted	15/10/2025

PUBLICATIONS

- Mitrasen Maurya, **Dinesh Kumar**, **Shashank Singh**, Chandra Pal Singh, Aditya Kumar, Monika Gupta, Rajesh Kumar Verma, Sumit Kumar, Shivm Saroj, Raghvendra Singh and Puneet Kumar Patel (2026) Histological characterization of ovarian development and oocyte maturation in the striped snakehead fish, Channa striata (Bloch, 1793). Biochem. Cell. Arch. 26, 1089-1095. DOI: https://doi.org/10.51470/bca.2026.26.2.1089
- Abhishek Kumar, **Dinesh Kumar**, **Shashank Singh**, K. V. Radhakrishnan, Sumit Kumar, Ajay Kumar Yadav, Mitrasen Maurya, Shivm Saroj, Adyasha Parida and Anil Singh (2026) Effects assessment of Butea monosperma flower as a feed ingredient in the diet of Koi carp (Cyprinus carpio L, 1758) on their growth performance and coloration impact. Biochem. Cell. Arch. 26, 1471-1477. DOI: https://doi.org/10.51470/bca.2026.26.2.1471
- Kantharajan, G., Singh, R.K., Chandran, R., Sarkar, U.K., Singh, A., Tyagi, L.K., **Yadav, A.K.,** Tenali, D.R. and Rana, J.C., 2026. Unravelling the diversity patterns and drivers of fish community structure in an impacted tropical river in Peninsular India: What is lost when the habitat features are simplified? *Science of The Total Environment*, *1010*, p.181103.
- Verma, S.K., Singh, C.P., Radhakrishnan, K.V., **Yadav, A.K., Singh, S.,** Maurya, P.K., Kumar, S., Dey, S., Singh, A., Saroj, J. and Patel, P., 2026. First report on the successful cultivation of *Euryale ferox* Salisb. (Makhana) under sodic soil condition of Eastern Uttar Pradesh: A comparative study on direct sowing and transplantation method. *PLANT SCIENCE TODAY, Vol 13(sp2): 01–06 https://doi.org/10.14719/pst.10542*
- Kumar, S., Maurya, P.K., **Yadav, A.K.**, Singh, C.P. and Verma, S. K., 2026. Integrated Assessment of Heavy Metal Bioaccumulation and Ecological Risk Using Macrobenthic Community Bioindicators in the Ganga River, India. Eco. Env. & Cons. 32 (July Suppl. Issue): 2026; pp. (S451-S459) Copyright@ *EM International*, ISSN 0971–765X
- Ranjan D., **Singh, S.,** Singh, A., Misra, V. K., Singh, C. P. and **Kumar, D**. (2026). Recent advancements in sustainable aquaculture: innovative techniques and future prospects. **Frontiers in Aquaculture, 5:1770106.** doi: 10.3389/faquc.2026.1770106.
- Kumar, S., Kumar, D., Singh, C.P., Prasad, L., Saroj, S., **Singh, S.,** Kumar, S., **Yadav, A.,** Maurya, M. and Kushwaha, V., 2025. Impact Assessment of Phase Manuring on the Water Quality Parameters and Growth Potential of *Labeo rohita* (Hamilton, 1822). *AMA (ISSN:00845841)*, Volume 56, Issue 08, August, 2025. DOI: 08.13631/Ama.30.08.2025.01
- Shubham, **Yadav, A. K.,** Maurya, P. K., Kumar, D., Saroj, J., Singh, C. P., Kumar, A., 2026. Evaluation of Fish Silage as an Alternative Protein Source for Fish Meal Replacement in Diets for Pacu, *Piaractus brachypomus* (Cuvier, 1818) Fingerlings. UTTAR PRADESH JOURNAL OF ZOOLOGY, 47(14), 220–234. https://doi.org/10.56557/upjoz/2026/v47i145765.

- Patel, P. K., Singh, S., Kumar, D., Singh, C. P., Singh, V. K., Dey, S., **Yadav, A. K.** and Nagendra, P. S., 2026. Optimization of Dietary Moringa oleifera Leaf Meal as a Fish Meal Substitute for *Labeo rohita* during the Nursery Phase. UTTAR PRADESH JOURNAL OF ZOOLOGY, 47(14), 148–160. https://doi.org/10.56557/upjoz/2026/v47i1.45759
- Kumar, A., Kumar, D, Singh, SA., Radhakrishnan, K. V., Kumar, S., **Yadav, A. K.,** Maurya, M., Saroj, S., Parida, A., and Singh, A., 2026. Effects Assessment of *Butea Monosperma* Flower as a Feed Ingredient in the Diet of koi carp (*cyprinus carpio* l, 1758) on their Growth Performance and Coloration Impact. Biochem. Cell. Arch. Vol. 26, No. 2, pp. 1471-1477, 2026. DOI: https://doi.org/10.51470/bca.2026.26.2.1471
- **Dinesh Kumar,** Shivaji Kanoujiya**,** Laxmi Prasad and C. P. Singh (2023). Assessment of fish biodiversity in middle stretch of Gomti river with the relation of water quality. ***J. Exp. Zool. India*** Vol. 26, No. 2, pp. 2311-2318, 2023.
- Tiwari S., Pramanik, P.S., Chauhan, S. S., Verma, R. K., Singh, K.D., Sirohi, R, Tewari, D., **Singh, S.** and Shrivastava, D.P. (2025). Comparative assessment of poultry dropping and dairy waste on physico-chemical parameters of water. AMA, 56(6): 20715-20720.
- Tiwari S., Pramanik, P.S., Chauhan, S. S., Kashyap, S.S., Verma, R.K., Tewari, D., **Singh, S.** and Shrivastava, D.P. (2025). Assessing profitability and sustainability in poultry cum fish and dairy cum fish integrated farming systems. AMA, 56(6): 20715-20720.
- Patel, P. K., Sahu, B., Tripathi, M. K., Venkatesh, K., Acharya, P. Gokul, S., Singh, C. P., Kumar, D. and **Singh, S**. (2025). Formulation and Evaluation of Economical Extruded Fish Feed for GIFT Tilapia (*Oreochromis niloticus*) Fingerlings: A Study in Sustainable Aquaculture. *Journal of Advances in Biology & Biotechnology*, 28(3): 982-995.
- Patel, P. K., Venkatesh, K., Gokul, S., Tripathi, M. K., **Singh, S.,** Kumar, D., and Maurya, M. (2025). Comparative growth performance of Indian Major carps and exotic carps in an Aquaponics systems with cucumber (*Cucumis sativus*). *Journal of Advances in Biology & Biotechnology*, 28(3): 703-711.
- Singh, A., **Kumar, D**., Prasad, L., Singh, C. P. and Singh, S. (2024). Effects of using vermicompost as fish pond manure on *Labeo rohita* (Ham.) growth. International Journal of Advanced Biochemistry Research, 8(12): 05-09.
- **Dinesh Kumar**, Ashish Kumar Maurya, Vipin Mishra, C. P. Singh and Laxmi Prasad (2020) Present status of freshwater Fishery Resources in Uttar Pradesh, India. *International Journal of Current Microbiology and Applied Sciences*., special issue (11) 2389-2394.
- **Dinesh Kumar**, Ashish Kumar Maurya, Laxmi Prasad, C.P.Singh, K V Radhakrishanan and SR Somasekara (2020). Fish biodiversity and diversity indices in Himalayan River Ghaghara at Northern India. *Journal of Entomology and Zoology Studies*;8(6)15-59-1564.
- **Singh, S.,** Dey. S., Katare, M. B. and Misra, V. K. (2023). Aquaculture for a Rural Economy of India. In: A Critical Appraisal of India's Self-reliance in Agriculture (Editors: Rai, P. K., Sharma, N. K., Singh, V. K. and Rai A. K.), pp. 179-198. Nova Science Publishers, Inc. **(ISBN: 979-8-88697-602-1)**
- Vibha Yadav, Dr. Dharmendra Yadav and **Dr. Dinesh Kumar** (2022). Batakh, Bater, Khargosh Sah Matsya Paalan. Dr. Rama Publishing House, Meerut
- Laxmi Prasad and **Dinesh Kumar** (2022). Matasya Paalan Prashikshan. **Training Manual**, College of Fisheries, ANDUAT, Kumarganj, Ayodhya.

GLIMPSES OF THE ACTIVITIES



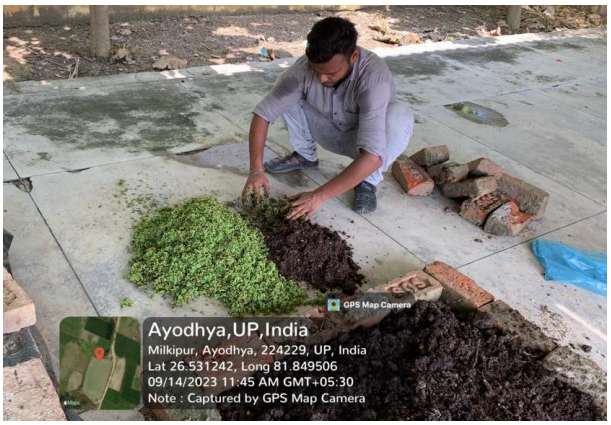






Students working in the laboratories













Experimental Units