SELF-STUDY REPORT

for Masters Programme in Aquatic Animal Health Management

Submitted to

National Agricultural Education Accreditation Board

College of Fisheries

CENTRAL AGRICULTURAL UNIVERSITY, IMPHAL

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6.4. Self-Study Report for Masters Programme in Aquatic Animal Health Management

6.4.1. Brief history of the degree programme

The 'Department of Aquatic Health and Environment' under the College of Fisheries, Lembucherra started functioning since the inception of the college in 1998. The department was initially named as 'Fish Diseases & Environmental Monitoring Department' and later on renamed twice as 'Department of Fish Health and Environment' and 'Department of Aquatic Animal Health and Environment, respectively. It was only during 2014 that the present name was adopted. The department has been offering **Masters' degree** in the discipline of '**Aquatic Animal Health**' since 2007. The department is also mandated with carrying out research in frontier areas of 'Aquatic Animal Health' and 'Environment' besides conducting training and other extension interventions for the end users.

Objective of the degree programme

- To produce globally competitive postgraduates in Aquatic Animal Health.
- To promote the advancement of learning and persuasion of research in fisheries sciences.
- To make the postgraduates competent to impart extension services to the stakeholders.
- To meet the requirement of well-trained skilled manpower in the North-Eastern states.
- To facilitate the startups, aqua-entrepreneurship, and also to undertake such other activities as it may deem fit from time to time.

Accomplishments

Till now, the department has produced 28 postgraduates since its inception and all the students have been well placed. The placement status of the PG students from the department is annexed below.

Scientist/ Faculty	State Department/Technical	NGO/Project	Pursuing Ph.D.
4	15	4	5

6.4.2. Faculty strength

The faculty strength of the Department of Aquatic Health and Environment is given below.

S. No.	Sanctioned faculty	Faculty in place	Vacant position	Faculty recommended by the ICAR/UGC/VCI/other regulatory bodies

1	Professor	1	-	1	1
2	Associate Professor	1	1*	-	1
3	Assistant Professor	3	3	-	2
Total		**5**	**4**	**1**	**4**

* Promoted to Professor under CAS

6.4.3. Technical and supporting staff

The administrative and accounts supporting staff are centralized in the college and are operating under the direct control of the Dean as part of Dean's office. The dedicated technical staff and supporting staff allotted to the department are as below:

S. No.	Designation	Staff in place
Technical staff		
1	Livestock cum Farm Assistant	1
2	Field cum Laboratory Assistant	1
Supporting staff		
3	Multi-Tasking Staff	2

In addition to the above staff, Skilled and Unskilled labours are hired on contractual basis.

6.4.4. Classrooms and laboratories

Apart from the common laboratory facilities of the college such as Central Instrumental Facility, Central Molecular Biology laboratory etc. the main laboratory, field and other facilities available for PG research of the department are as under:

S. No.	Name of the laboratory	Major Equipment available/Particulars
1.	UG Teaching Laboratory	• Automatic weather station, • Analytical Balance, • Moisture meter, • Muffle furnace,
2.	PG Research Laboratory	• Bomb calorimeter, • Multimode spectrophotometer, • ELISA reader,

		• CO2 incubator, • Research Microscopes with photography, • Auto Blood Analyzer, • Tissue Homogenizer.
3.	Water and Soil Chemistry Laboratory	• Multi Parameter Water Analyzer, • High Seeped Centrifuge, • Refrigerator, • Nitrogen evaporator, • Solid phase extraction unit, • Flame Photometer, • pH Meter, • S-T-C Meter, • BOD incubator, • Deep freezer (-20ºC)
4.	Microbiology Laboratory	• Laminar Flow Bench • Bacteriological incubator • Freeze • Cold Centrifuge • Vertical autoclave • CO2 incubator
5.	Molecular Biology Laboratory	• Refrigerated centrifuge • Gradient PCR • Real-Time PCR • Gel-Doc system • Electrophoresis Unit • Ice-flacking machine
6.	Pharmacology and Toxicology Laboratory	• Solid phase extraction unit • Nitrogen evaporator • Tissue Homogenizer • ELISA reader • ELISA washer • Bomb calorimeter • Automatic Bomb calorimeter

7.	Heamatology and Immunology Laboratory	• Auto Blood Analyzer • Refrigerated centrifuge • Ice-flaking machine • Multimode spectrophotometer
8.	Wet Laboratory	• Aquarium with stand and aeration facilities • FRP tanks • Syntex tanks
9.	Automatic Weather Station	• For monitoring and recording the weather parameter on regular basis.
10.	Mobile Fish Clinic	• For on field sampling and diagnosing/testing of fishes and water

6.4.5. Conduct of practical and hands-on training

The department has well established laboratories and wet laboratory to conduct practical classes and imparting hands-on training. The laboratories are well equipped with instruments and other facilities to support postgraduate research. Recently, three specific laboratories (Water and soil chemistry, Microbiology and Molecular Biology laboratories) have been developed in the dept though a NFDB funded Scheme 'Development of Aquatic Animal Health Laboratory'. Additionally, the state-of-the-art central laboratory and laboratory facilities under the Centre of Excellence (COE) programme supports hands-on practical knowledge to the research scholars. Under the compulsory course work allotted, the students are trained on various need-based and curriculum oriented hands-on practical on immunology, microbiology, molecular biology, disease

diagnosis, and water and soil parameter analyses. To assist the practical classes, the department has two laboratory assistants in place.

6.4.6. Supervision of students in PG

Sl. No.	No. of eligible faculty for guidance	Intake capacity	Faculty/student ratio
1.	4	5	0.8

The department has started the postgraduate programme since 2007. The number of scholars enrolled for this programme is 05 including the ICAR candidate. All faculties in the department are well qualified and eligible (Annexed below) for guiding the students as per the ICAR norms.

S. No.	Name of Faculty	Designation	Qualification	Area of specialization
1.	Dr. Ratan Kumar Saha	Professor	M.Sc., IFDA, D.F.Sc., Ph.D.	Fish Eco-toxicology & Management
2.	Dr. Dibyendu Kamilya	Assistant Professor (SS)	B.F.Sc., M.F.Sc., Ph.D.	Fish Immunology, Microbiology, Fish health Management
3.	Dr. Himadri Saha	Assistant Professor	B.F.Sc., M.F.Sc. Ph.D.	Fish Parasitology, Fish Nutra-pharmacology, Aquatic pollution & toxicology
4.	Mr. Tanmoy Gon Choudhury	Assistant Professor	B.F.Sc., M.F.Sc.	Fish Disease Prophylaxis and Therapeutics

Sl. No	Name of faculty	Post held	Highest qualification received	Teaching/ Work experience (in years)	Honors and awards	No. of students guided (PG/PhD separately)	Publication
1	Dr. Ratan Kumar Saha	Professor & Head	Ph.D.	> 35 years	10	PhD-2 PG-11	Research papers - 50
2	Dr. Dibyendu Kamilya	Assistant Professor	Ph.D.	14 years	5	PhD-1 PG-10	Research Paper – 39
3	Dr. Himadri Saha	Assistant Professor	Ph.D.	9 years	5	PG-3	Research Paper – 30
4	Mr. Tanmoy Gon Choudhury	Assistant Professor	M.F.Sc.	11 years	8	-	Research Paper – 30

List of Students Awarded M.F.Sc. (Aquatic Animal Health) Degree (2016-2020)

S. No.	Name	Title of Thesis	Year
1.	Mr. Asish Kumar Sahoo	Effects of ketoconazole on patho-physiological responses in *Labeo rohita* (hamilton) fingerlings	2016
2.	Ms. Mukta Singh	Thesis title has been corrected as per synopsis effects of miconazole on patho-physiological responses in *Labeo rohita* (hamilton) fingerlings	2016
3.	Ms. Auroshree Biswal	Effects of mebendazole against gill monogenean in *Labeo rohita* (hamilton) fingerlings	2016
4.	Mr. Biswanath Kheti	Effects of dietary supplementation of biofloc on immunity and disease resistance of rohu, *Labeo rohita* (hamilton)	2016
5.	Mr. Sukham Tushiba Singh	Dietary Effects of Heat-Killed Bacillus amyloliquefaciens on Immunity and Disease Resistance of Catla, *Catla catla* (Hamilton)	2016
6.	Md. Idrish Raja Khan	Efficacy of Bamboo (*Melocanna baccifera* (Roxburgh) Kurz, 1875) Extract in *Labeo rohita* (Hamilton, 1822) Fingerlings against Fungal infection under Low pH Stress	2017
7.	Mr. Rahul Kumar	Influence of Chitin on Immuno-biochemical Responses and Resistance of *Labeo rohita* (Hamilton) Infected with Gill Monogeneans	2017
8.	Ms. Narinder Kaur	Kinetics of Systemic and Mucosal Immunity and Haematological Indices of *Catla catla* (Hamilton) Challenged with Gill Monogeneans	2017
9.	Mr. Bhupendra Chouriya	Evaluation of *Millettia pachycarpa* (Benth.) Plant Extract as a Piscicide against Weed Fish	2018
10.	Ms. Arambam Ashwini Devi	Effects of Anesthetic and Transportation Dose of Clove Oil and Tricaine Methanesulfonate (MS-222) on Physiological Responses of Rohu (*Labeo rohita*)	2018
11.	Mr. C. Laltlanmawia	Dietary Supplementation to Ameliorate the Effect of Waterborne Iron and Low pH Toxicity in *Labeo rohita* (Hamilton)	2018
12.	Ms. Wangkheimayum Malemnganbi Devi	Effects of Cordyceps militaris Spent Mushroom Substrate Based Nutraceutical	2019

	Mixture on *Labeo rohita* (Hamilton, 1822) against *Aeromonas hydrophila* Infection	
13. Mr. Surajkumar Irungbam	Effect of Feed Deprivation on Immuno-Hematological Responses and Resistance of *Labeo rohita* (Hamilton, 1822) during Induced *Aeromonas hydrophila* Infection	2019
14. Mr. Manu Mog	Effect of Oxytetracycline on *Labeo rohita* (HAMILTON, 1822) Infected with *Aeromonas hydrophila*	2019
15. Ms. Songhita Paul	Iron Mediated Stress in *Osteobrama belangeri* (Valenciennes, 1844)	2020
16. Mr. Yumnam Abungcha Mangang	Effect of Un-ionized Ammonia on Pathophygiological Responses of *Osteobrama belangeri* (Valenciennes, 1844)	2020
17. Mr. Arpit Acharya	Evaluation of Mahua Oil Cake Extract as a Therapeutic Agent against *Argulus* Infection in *Cyprinus carpio* (Linneaus, 1758)	2020

6.4.7. Feedback of stakeholders (Students, parents, industries, employers, farmers etc.)

The alumni of the department have expressed their satisfaction regarding various theoretical as well as practical knowledge that they have gained during their degree programme. Besides student, parents also sometimes express their happiness, particularly the way their wards have been trained. The students who come from a different university to join the department's PG and Ph.D. programme are overwhelmed to see the research and other infrastructural facilities. They honestly confess that their former colleges do not have such infrastructure for gaining practical knowledge. The PG students have been well received by the professional experts during the interview for selection of scientists, assistant professors, line department officials or NGOs. Additionally, the faculties of the department impart training and conduct awareness programmes for the farmers. The request from the farmers to conduct training again after few months shows their satisfaction. In fact, many a times, they directly call the faculty members to solve their problems related to fish health and environment related aspects. It clearly shows their satisfaction from their first interaction with the faculty members. The feedbacks taken from them are critically examined and necessary measures are taken to address the issues.

6.4.8. Student intake and attrition in the programme for the last five years

	Actual student admitted in the last five years	Attrition (%)

Name of the degree programme	2016-17	2017-18	2018-19	2019-20	2020-21	2016-17	2017-18	2018-19	2019-20	2020-21
M. F. Sc. (Aquatic Animal Health)	5	5	4	5	5	40%	40%	25%	0%	0%

6.4.9. ICT application in curricula delivery

Computer-aided methods like PowerPoint Presentation are used as per need of the topic and for interactive teaching. Sometimes multimedia aids are also used to make things more plausible to the students, particularly short animation films depicting a scientific process are shown to the students.

I, **Prof. Ratan Kumar Saha** the Dean, **College of Fisheries, Lembucherra**, hereby certify that the information contained in the Section 6.4.1 to 6.4.9 are furnished as per the records available in the college, and degree awarding university.

Signature of Dean of the College with Date & Seal