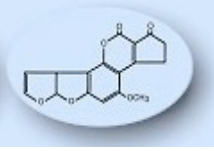



Fish Health Section


FHS NEWS – August 2023

Fish Health Section website: https://units.fisheries.org/fhs/

Fish Health Section Facebook Site: https://facebook.com/FishHealthSectionAFS

Fish Health Section Twitter feed: @AFSFishHealth
Would you like your recent open-access publication featured on our Twitter feed? We would like to share one publication per week. Just fill out the form at: https://forms.gle/NWVXEFoGcdYME6gh8.

President's Message

August 31, 2023

Dear AFS-FHS Members:

As the incoming AFS-FHS president for 2023-24, I would like to thank you all for giving me the opportunity to serve in this position. Following in the footsteps of such a prestigious list of FHS presidents is exciting, challenging and truly humbling.

First, I would like to thank Tom Jones, Matt Bodnar and Anita Kelly for organizing a highly successful annual meeting in Burlington, Vermont this year. The combination of continuing education, meeting topics and unique case studies were exceptional and at times very entertaining. I would also like to recognize all of our past and present committee members for their commitment to the FHS. Your efforts are sincerely appreciated and your participation has enabled the creation of long-term friendships and valuable partnerships within our community.

As one of my first responsibilities as president, I will work to confirm that all committee positions are filled so we can continue to address annual section needs. While many of these positions are now filled, there is interest from the Continuing Education and Awards Committees to include a few new members while current members transfer to other projects. These openings are appointed positions so please let me know if you are interested so we can discuss further.

I will also work to focus on the continued effort to update and improve the Blue Book revision process. This extensive project began with the original Ad-hoc Committee in 2019 and has since evolved into a Steering Committee that includes an impressive list of members that continue to move this program forward. The membership's recent vote to accept the suggested changes to the FHS bylaws (89% approval), will help to guide the revision process, develop working committees and identify long-term program requirements. Most recently, we were excited to learn that Dr. Linda Rhodes was recruited to serve as the new Blue Book Revision Coordinator. Linda is a well-respected professional in the aquatic animal health community and has an extensive and very impressive history with the Northwest Fisheries Science Center and the FHS. Linda is a friend and colleague who will bring an insightful approach to forming and leading this program so please congratulate her and provide any support as requested.

Lastly, I would like to announce that the combined 2024 FHS and Western Fish Disease Workshop will be held in Boise, Idaho from July 30th - August 1st. The meeting will be located at the Riverside

Hotel and is being hosted by Brandon Taro with the Idaho Department of Fish and Game. We will advertise the meeting in upcoming newsletters and will send multiple announcements throughout the year to encourage attendance and to recruit additional FHS members. Please note the date and plan to attend!

Thank you again for your efforts and for supporting the FHS.

Wade Cavender
435-720-2784

AFS-FHS ELECTION – RESULTS

Vice President: Jesse Trushenski

Policy and Position Development Committee: Jayde Fergeson

Technical Standards Committee: Nilima Renukdas

Nominating and Balloting Committee: Alison Aceves Johnson

Professional Standards Committee: Megan Shavalier

Thank you for voting and thank you to the candidates for volunteering for the section!!
Nominating and Balloting Committee

MEETINGS, WORKSHOPS AND COURSES

The International Society of Aquatic Animal Epidemiology (ISAAE) Proudly Presents the
3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III)
November 29 - December 01, 2023
Venue: ICAR-National Bureau of Fish Genetic Resources (NBFGR)
Lucknow

See attached .pdf for details.

JOBS/GRADUATE ASSISTANTSHIPS

Aquatic Animal Health Laboratory Biologist

Maryland DNR – Fisheries Service
Oxford, MD
Closes 9/4/2023
Link: https://www.jobapscloud.com/MD/sup/BulPreview.asp?R1=23&R2=003121&R3=0005

The purpose of the position is to secure and process tissue samples from aquatic animals for diagnostic assays, to conduct and analyze laboratory assays on those samples, and to document laboratory assay results for aquatic animal health monitoring and disease investigations conducted or serviced by the Aquatic Animal Health Laboratory Program of the Cooperative Oxford Laboratory. The position draws blood from live fish and shellfish and dissects or biopsies both live and dead animals to obtain samples of solid tissues. The position preserves, processes, and stains tissue samples to produce histological or cytological preparations for microscopic analysis, including immunoassays and in situ hybridization assays. This position performs microbiological assays on fish

and shellfish tissue samples and analyzes results. The position maintains and operates sophisticated laboratory equipment and follows strict safety procedures while regularly working with hazardous laboratory chemicals.

Non-tenure track Assistant/Associate/Full Professor - Veterinary Anatomic Pathology

Mississippi State University
Harrison County, MS
Link: https://explore.msujobs.msstate.edu/cw/en-us/job/506503?lApplicationSubSourceID=

The position is associated with the Diagnostic Laboratory Services (DLS) section of the Department of Pathobiology and Population Medicine. Responsibilities include participation in the pathology service and research through the marine animal program, with limited teaching in the professional and residency/graduate program. It is expected that this position will allocate approximately 60% time to diagnostic service, 30% research activities, and 10% time to teaching. The diagnostic service will predominately support the marine animal health program at MSU, which is currently focused on conducting necropsies on marine mammals and sea turtles that strand on the Mississippi coast.

PhD Assistantship

Texas A&M University
College Station, TX
Application Review starts 9/20/23

Ph.D. Assistantship Opportunities in Fish Health and Disease at Texas A&M University
Are you passionate about aquatic life, microbiology, and environmental conservation? Do you want to contribute to global food safety and sustainability? Look no further! Two Ph.D. student positions are available in the Fish Health and Disease Laboratory (FHDL) at Texas A&M University, located in College Station, Texas.

Under the guidance of Dr. Haitham Mohammed, you will join a dynamic and multidisciplinary research team focused on fish disease diagnostics, immuno-nutrition, fish pathology, and fish vaccinology. The research in Dr. Mohammed's lab revolves around aquatic microbiology, host-pathogen-environment interaction, and the development of alternative therapies and vaccines to combat bacterial diseases in warmwater fish. Join us on this exciting journey to advance fish health and disease management and make a lasting impact on U.S. aquaculture!
As a Ph.D. student in the Department of Rangeland, Wildlife & Fisheries Management, College of Agriculture and Life Sciences, you will play a vital role in securing global food security. With a degree from Texas A&M, you'll stand out in the job market, gaining knowledge and expertise that will be highly sought after by employers worldwide.

See attached .pdf for more information.

Post-doc position

Bigelow Laboratory for Ocean Sciences
East Boothbay, ME

We are hiring a postdoc to engage in a dynamic team of scientists and resource managers exploring the impact of warming ocean temperatures on epizootic shell disease in American lobster in the Gulf of Maine. The postdoc will be doing a combination of modeling and lab experiments to explore this topic. Funding is available for 2 years, with the second year of funding contingent on a successful first year. Start date is listed as October 2, 2023, but some flexibility is possible.

https://bigelow.freshteam.com/jobs/bqM81KSwLI4t/postdoctoral-scientist-climate-change-and-epizootic-shell-disease-in-american-lobster

Position Overview
Bigelow Laboratory for Ocean Sciences is seeking a Postdoctoral Scientist for a one-year term beginning in October 2023 to work on two different projects related to understanding the changing risk of epizootic shell disease in American lobster in the Gulf of Maine. First, they will be conducting an experiment examining the effects of temperature on establishment, progression and mortality associated with ESD in lobster from a range of locations. Secondly, they will develop an individual-based mathematical model of epizootic shell disease in adult lobster in response to changing seawater temperatures and shifting molting phenologies. Both projects will be led by the postdoc, but will involve working on a team consisting of the lead PI (Maya Groner, Bigelow), a second postdoc doing a hindcast analysis of ESD in lobster (Reyn Yoshioka, Bigelow), an oceanographer (Nick Record, Bigelow), and resource managers from the Maine Department of Natural Resources (Kathleen Reardon and Heather Glon), and the state of Massachusetts Division of Marine Fisheries (Tracy Pugh) Towards the end of the position, the postdoc will travel around the state of Maine to present findings to lobstermen at zone council meetings.

The position is posted for one year with the possibility of extension. Salary range for this position is $52,650-60,450. Some supervision of research undergraduates and/or technicians assisting with lab experiments may be required.

Requirements
- PhD in disease ecology, veterinary sciences or similar
- Experience using and integrating diverse data using R or similar
- Experience or strong interest in developing mathematical models of disease (e.g., SIR models)
- Experience working with and maintaining marine invertebrates
- Ability to design and execute experiments in a seawater lab
- Track record demonstrating a commitment to publishing research finding
- Strong written and oral communication skills with significant motivation to publish in the peer-reviewed literature
- Strong interest in team-based interdisciplinary science, with the willingness and ability to work independently when required

Apply
Please submit a cover letter, CV, and three professional references using our online application portal. Screening of candidates will begin after August 15, 2023 with the expectation that the successful candidate will be available in to start October 2, 2023. Some flexibility with start date is available. The search will continue until the position is filled.

Individuals seeking more information about this position or needing to request an accommodation, please contact careers@bigelow.org or (207) 315-2567, ext. 107.

About Midcoast Maine
Bigelow Laboratory's state-of-the-art oceanfront campus in East Boothbay is located in scenic Midcoast Maine, perfectly situated to provide access to the very best Maine has to offer. Within a reasonable commuting distance of most major Maine cities, this mid-coast peninsula offers the perfect balance between small town coastal charm and urban accessibility. Our peninsula is home to fishermen and sea captains, marine biologists, nature lovers, botanists and gardeners, artists, merchants, and entrepreneurs. Many non-profit organizations call this region home and work hard to further their missions in support of the arts, seamanship and marine education, conservation, historic preservation, and more.

Working at Bigelow Laboratory
Bigelow Laboratory is an inclusive community of scientists from around the world that welcomes and supports diverse opinions and cultures. Bigelow Laboratory for Ocean Sciences strives to maintain an environment that allows our employees to flourish through respectful, inclusive, and equitable treatment of others. We believe there is power in embracing the full diversity of humanity to advance science and are committed to supporting each other as individuals worthy of respect.

Bigelow Laboratory for Ocean Sciences requires that all employees be fully vaccinated against COVID-19. Being fully vaccinated means that an individual is at least two weeks past their final dose of an authorized COVID-19 vaccine regimen. As a condition of employment, newly hired employees will be required to provide proof of their COVID-19 vaccination.

The postdoctoral scientists at Bigelow Laboratory have access to professional training programs and opportunities for undergraduate student mentoring and teaching. A competitive compensation package is offered with a salary range starting at $52,650 as well as employee, family, and domestic partner health insurance; a 403(b) retirement contribution; paid time off including parental leave; as well as a working environment that supports continuous professional development and engagement. Bigelow Laboratory is an Equal Opportunity/Affirmative Action Employer.

Zebrafish Related Job Announcements
https://wiki.zfin.org/display/jobs/Zebrafish-Related+Job+Announcements

RESOURCES/NEWS

Aquatic Animal Drug Approval Partnership (AADAP) Updates are now available online (new link): https://www.fws.gov/library/collections/aquatic-animal-drug-approval-partnership-update

Ph.D. Assistantship Opportunities in Fish Health and Disease at Texas A&M University

Are you passionate about aquatic life, microbiology, and environmental conservation? Do you want to contribute to global food safety and sustainability? Look no further! Two Ph.D. student positions are available in the Fish Health and Disease Laboratory (FHDL) at Texas A&M University, located in College Station, Texas.

Under the guidance of Dr. Haitham Mohammed, you will join a dynamic and multidisciplinary research team focused on fish disease diagnostics, immuno-nutrition, fish pathology, and fish vaccinology. The research in Dr. Mohammed's lab revolves around aquatic microbiology, host-pathogen-environment interaction, and the development of alternative therapies and vaccines to combat bacterial diseases in warmwater fish. Join us on this exciting journey to advance fish health and disease management and make a lasting impact on U.S. aquaculture!

As a Ph.D. student in the Department of Rangeland, Wildlife & Fisheries Management, College of Agriculture and Life Sciences, you will play a vital role in securing global food security. With a degree from Texas A&M, you'll stand out in the job market, gaining knowledge and expertise that will be highly sought after by employers worldwide.

Responsibilities and tasks:

In these Ph.D. projects, students will engage in both in vitro bench laboratory studies (approximately 60%) and experimental in vivo trials (around 40%) with commercially important fish species, such as catfish, bass, and tilapia. The research will focus on the impact of functional feed additives on fish health and disease resistance to major freshwater fish pathogens encountered in the U.S. aquaculture industry. The projects encompass nutritional, immunological, and microbiological aspects, along with genomic and proteomic analyses.

Minimum Qualifications:

- Bachelor's degree in Fisheries, Microbiology, Biological Sciences, Molecular Biology, Fish Pathology, or related fields. Preference for candidates holding MS degree.
- Prior research experience and lab competencies in fish necropsies, microbiological culture, pathogen identification, sequencing, and immunological assays.
- Molecular biology skills, including PCR, SDS-PAGE/Western blotting, gene expression (RT/qPCR), and proteomics.
- Excellent analytical and communication skills (oral and written).
- Proven research and scholarly productivity demonstrated by a publication record.
- Knowledge of bioinformatics and biostatistics.
- Experience in fish husbandry and conducting laboratory disease challenges would be advantageous.
- Demonstrated ability to work both independently and in a team atmosphere.
- Valid driver's license.
- International applicants whose native language or language of instruction is not English must provide valid proof of English proficiency to be considered.

Location, Salary, and Appointment Terms:

You'll conduct your research on TAMU's main campus and at the Aquacultural Research and Teaching Facility (ARTF) in College Station, Texas. The salary, fringe benefits, and appointment terms (4 yrs.) will be in accordance with current Ph.D. degree student regulations at TAMU, including a tuition waiver. Ideally, your coursework and research will commence in Spring 2024 or Fall 2024.

Application:

To receive the fullest consideration, submit your application materials via email to haitham.mohammed@ag.tamu.edu as a single PDF file/packet with the title “Fish Health Assistantship 2024” in the subject line. The application packet must include:

1- A cover letter (qualifications, interests, career goals)
2- CV
3- Contact information (e-mail and phone numbers) of 3 professional references
4- Unofficial transcripts

Review of applications will begin on September 20th and continue until the positions are filled.

For further information and any queries about the assistantship, please contact Dr. Haitham Mohammed

Department of Rangeland, Wildlife & Fisheries Management
495 Horticulture Rd, College Station, TX 77843
email: haitham.mohammed@ag.tamu.edu

The successful candidates must meet the TAMU graduate admission requirements. The Department of Rangeland, Wildlife and Fisheries Management offers a rigorous graduate program, preparing students for advanced careers in a variety of private industries, public agencies, academia, and beyond. Ranked among the best in the country, students can expect to work in problem-focused field and lab research addressing contemporary issues related to wildlife conservation, as well as fisheries and aquaculture. For information about our program please see: https://rwfm.tamu.edu/ph-d-rangeland-wildlife-and-fisheries-management/

Information on Texas A&M University may be found here: https://www.tamu.edu/index.html

The International Society of Aquatic Animal Epidemiology (ISAAE)
Proudly Presents the

3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III)

Organised by

Indian Council of Agricultural Research (ICAR), New Delhi

In collaboration with

National Fisheries Development Board, Hyderabad

Aquatic Biodiversity Conservation Society (ABCS), Lucknow

November 29-December 01, 2023

Venue

ICAR-National Bureau of Fish Genetic Resources (NBFGR) Lucknow

3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III)

Background

Fisheries and Aquaculture has been one of the fastest growing food sectors in the world. However, diseases are the most significant constraint to the growth of aquaculture. Globally, huge economic losses have been reported due to diseases. In finfish aquaculture, the losses due to parasitic infestations were estimated to be about US$1.05 to 9.58 billion (Shinn et al. 2015). In the shrimp aquaculture sector in Asia, the annual losses were reported to be to the tune of US$4 billion during 2009–2018 (Shinn et al. 2018). Similarly, a recent study estimated annual loss due to shrimp diseases in India to be around US$ 1.02 billion (Patil et al. 2021).

Disease outbreaks are usually the end result of complex interactions involving environmental factors, health condition of the animals and presence of infectious agents. To have a thorough understanding of the factors involved in disease outbreaks, it is essential to follow aquatic system approach, which is possible through application of epidemiological principles. In this approach, the major emphasis is to determine if the disease is infectious or not and if infectious, then prevent transmission and spread. Over the last few decades, there have been a number of instances where the new diseases have spread across countries while the focus has been on identifying the causal agent. It is important to note that a number of risk factors determine and influence the frequency and distribution of disease in a population. The knowledge on risk factors can improve the ability of aquatic animal surveillance systems for early detection and rapid response to pathogens.

The International Society of Aquatic Animal Epidemiology (ISAAE) organises a triennial event 'International Conference on Aquatic Animal Epidemiology (AquaEpi)' which provides a platform for dissemination, networking and creative contacts between researchers working in the area of aquatic animal epidemiology, industry and stakeholders for the benefit of the aquaculture sector. Two previous Conferences in Oslo, Norway in 2016 and Hua Hin, Thailand in 2019 have brought together eminent scientists, students and industry personnel from different countries to discuss disease-related issues and finding solutions to them. The ISAAE in collaboration with Indian Council of Agricultural Research announces 3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III) which will be held at ICAR-National Bureau of Fish Genetic Resources, Lucknow during November 29- December 01, 2023. The AquaEpi III will provide a platform for focussed discussions to address issues relating to risk factors which catalyse horizontal spread of diseases, emergence of new pathogens and spread of transboundary pathogens, increased diseases susceptibility and possible strategies for their mitigation and strengthening surveillance system thereby minimizing losses due to diseases. The Conference will include Keynote Presentations from renowned experts on Aquatic Animal Epidemiology and other relevant disciplines. It would have a strong practical aspect in order to familiarize the use of epidemiology in day-to-day challenges. During the international event, there will be deliberations on the following thematic areas;

- Epidemiology of finfish and shellfish diseases
- Molecular epidemiology and application in source tracking
- Surveillance and reporting
- Spatial and temporal patterns in prevalence and risk mapping
- Risk assessment and management studies
- Outbreak investigation, case reports, data collection/sampling procedures
- Interaction of wild and farmed aquatic species - the challenges for disease control.
- Use of artificial intelligence in disease diagnosis
- Environmental DNA- A tool for monitoring pathogens in aquaculture
- Disease informatics and its application for control strategies
- Biosecurity in aquaculture
- Social and economic impacts of aquatic animal diseases

3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III)

Important Dates

Abstract submission- open	July 15, 2023
Abstract submission- deadline	August 31, 2023
Abstract review process	Sept. 1-15, 2023
Announcement of abstract acceptance	September 16, 2023
Early bird registration- open	September 16, 2023
Early bird registration- close	October 15, 2023
Regular registration	October 16, 2023 onwards

Registration

Scientists, researchers, academicians, students, policy makers, industry personnel and all those interested in aquatic animal epidemiology and health management are eligible to register and participate in the Conference.

Category	**International (US $)**		**National (₹)**	
	Delegates	**Students**	**Delegates**	**Students**
Early bird registration (up to September 30, 2023)	300	125	10000	7500
Regular/Spot Registration (from October 1, 2023)	350	150	12000	8500

About Lucknow

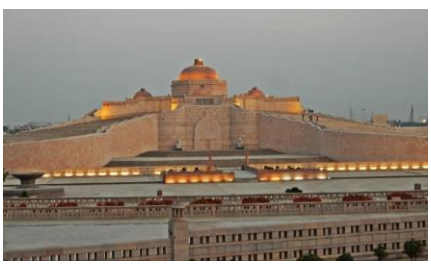
Lucknow, the capital city of Uttar Pradesh, a state of Northern India is one of the beautiful cities in India, and it is known for its hospitality and culture. No other place has been able to blend past with the present with such consummate ease as has Lucknow. The city is famous for its magnificent monumental works and beautiful poetry as well as courtly diction since the ear of Mughals. Its gorgeous chikankari and gourment vintage points make it the city of grandeur. Lucknow is also a hub of premier scientific Institutes.

Lucknow has an international airport, connected to several international cities and is 45 minutes journey by air from New Delhi, the National Capital of India. Lucknow is also connected to the major cities and tourist destinations by non-stop flights of 1 to 2 hrs duration. The participants can enjoy picturesque road travel en route Taj Mahal, Agra which is one of the 7 wonders of the World. The Lucknow is also well connected to Buddhist Circuit, namely Sarnath, Shravasti and Kushinagar in Uttar Pradesh. Besides, there are a several wildlife sanctuaries and national parks within 300-500 km of the city.

Rumi Darwaza

Bada Imambara

Chhota Imambara



Ambedkar park

About the Venue

ICAR-National Bureau of Fish Genetic Resources (NBFGR), Lucknow is a premier institute of Indian Council of Agricultural Research, actively involved in research on conservation and sustainable utilization of fish genetic resources of the country. The institute also possesses a public aquarium and a National Fish Museum and Repository. At present, the Institute is coordinating the National Surveillance Programme for Aquatic Animal Disease (NSPAAD) in the country, which is being implemented through involvement of 62 collaborating centres.

There are a number of 3 to 5 star hotels within the distance range of 2-5 km, with tariff rate ranging from $60 to $120 per day.

3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III)

Exhibition

The Conference will provide a platform for manufacturers, suppliers, industry, book publishers and others to display their products and interact with the participants. A 10x10 feet stall would be provided for the exhibition at a cost of Rs. 2.0 lakh for Indian vendors/organizations and US$ 3000 international organizations, and will include complementary registration for 2 persons.

Chief Patron
Dr. Himanshu Pathak, Secretary, DARE and DG, ICAR, New Delhi

Convener:	Dr. J.K. Jena, Deputy Director General (Fy. Sc.), ICAR, New Delhi
Co-Convener:	Dr. U.K. Sarkar, Director, ICAR-NBFGR, Lucknow
Organizing Secretaries:	Dr. P.K. Pradhan and Dr. Neeraj Sood
Co-organizing Secretaries:	Dr. Anutosh Paria and Dr. Chandra Bhushan Kumar

International Scientific Program Committee

Dr. Larry Hammell (Canada)	Dr. Edgar Brun (Norway)
Dr. Kenton L Morgan (UK)	Dr. Charles G.B. Caraguel (Australia)
Dr. Edmund Peeler (UK)	Dr. Fernando Mardones (Chile)
Dr. Saraya Tavornpanich (Norway)	Dr. Nihad Fejzic (Bosnia and Herzegovina)
Dr. Annette Boerlage (UK)	Dr. Kevin Christson (South Africa)
Dr. Isabel Arzul (France)	Dr. Grant D. Stentiford (UK)
Dr. Andy Shinn (Thailand/ UK)	Dr. C.V. Mohan (Malaysia/India)
Dr. Victoria Alday Sanz (Spain)	Dr. Melba B. Reantaso (Italy /Philippines)
Dr. Iddya Karunasagar (India)	Dr. Krishna Kumar Thakur (Canada/Nepal)
Dr. Eduardo M. Leano (Thailand/Philippines)	Dr. Huang Jie (Thailand/China)
Dr. Yuko Hood (Australia)	Dr. Ha Thanh Dong (Thailand)
Dr. K.V. Rajendran (India)	Dr. N.K. Sanil (India)
Dr. P.K. Pradhan (India)	Dr. Neeraj Sood (India)

National Advisory Committee

Dr. C.N. Ravishankar	Dr. B.P. Mohanty
Dr. A. Gopalakrishnan	Dr. Shubhadeep Ghosh
Dr. Kuldeep K. Lal	Dr. A.G. Ponniah
Dr. P.K. Sahoo	Dr. Indrani Karunasagar
Dr. B.K. Das	Dr. K.M. Shankar
Dr. P.K. Pandey	Dr. Rosalind George
Dr. George Ninan	Dr. K. Riji John
Prof. G. Sugumar	Dr. M. Karthikeyan
Dr. L.N. Murthy	Mr. Antony Xavier
Prof. Nirupama Agarwal	Dr. Devika Pillai

3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III)

National Organizing Committee

Dr. Gaurav Rathore	Dr. S.K. Otta
Dr. T. Raja Swaminathan	Dr. K. Paniprasad
Dr. P.K. Patil	Dr. M. Samanta
Dr. S.R. Krupesh Sharma	Dr. Amit Pandey
Dr. T.J. Abraham	Dr. Ezhil Praveena
Dr. Toms Joseph	Dr. Megha Bedekar
Dr. Asit Bera	Dr. Anirban Paul
Dr. S.K. Girisha	Dr. Arun Sudhagar
Dr. K. Saravanan	Dr. Naveen Kumar B.T.
Dr. Murali S.	Dr. Gadadhar Dash
Dr. Murugadas Vaiyapuri	Dr. Tarachand Kumawat
Dr. Prem Kumar	Dr. Yasmeen Basade

Partner Organizations

For further information, please contact:

Organizing Secretary

3rd International Conference on Aquatic Animal Epidemiology (AquaEpi III)

ICAR-National Bureau of Fish Genetic Resources

Canal Ring Road, P. O. Dilkusha, Lucknow- 226002

Uttar Pradesh, India

E-mail: aquaepi3@gmail.com