

Fish Health Section



FHS NEWS – August 2021

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

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

Fish Health Section Twitter feed: @AFSFishHealth

Summer Seminar Series

Don't forget to participate in the AFS-FHS Student Summer Seminar Series – last one on Aug. 27th! Graduate students and post-docs do not get many chances to network or share their research. With the cancellation of the EFHW, AFS-FHS, WFDW and other scientific meetings these opportunities have become even more limited. This summer seminar series will provide an avenue for young scientists to get their names out there, but also give the rest of us a chance to stay connected. You can find the Seminar Schedule and archived presentations/abstracts here: [Seminar calendar and Zoom access information](#)

This is a low-stakes forum for students, post-docs and early career folks to introduce themselves to a mix of lab groups from across the country and show off the fruits of their labors. Please feel free to forward these announcements to your friends and encourage them to sign up for the listserv: [AFS-FHS Student Seminar Series Listserv](#)

Presentations will take place on Friday afternoons from 12-1 pm Central time.

People of the Fish Health Section: Commemorating 50 years

Dear Fish Health Section members,

As part of the celebration of our 50th year as a Section, during my year as President I want to highlight each month the stories of two Section members. I plan to focus on stories from members that you might not have heard about (i.e., I will not be highlighting FHS Presidents or Snieszko Distinguished Service awardees). For August 2021, I am pleased to present Bob Summerfelt, who served as my Master's degree thesis advisor, and Nilima Renukdas, to whom I had the honour of presenting her Aquatic Animal Health Inspector Certificate in 2017. Submitted by Gary Marty, FHS President.

Happy 50th anniversary to the Fish Health Section! My name is **Robert Summerfelt**, and I am pleased to acknowledge being a charter member of the FHS as well as a member of AFS for 62 years. I am emeritus professor, Iowa State University. During a sabbatical at Oregon State University in (1993) I attended a graduate seminar by Dr. **John Fryer**, the 1st president of FHS. My interest in fish biology started with graduate studies in the Southern Illinois University Cooperative Fisheries Research Laboratory (SIU CFRL) of Dr. **William M. Lewis**. As a graduate student at SIU, I attended a year-long seminar on Protozoology taught by Dr. **Richard Roksaibro Kudo**, who I consider the father of American protozoology. Knowledge gained from his class alerted me to recognize the spores of Microsporidia. A highlight of my professional career is my description of a new species of microsporidia, *Pleistophora ovariae*, in the golden shiner while still a grad student. *Pleistophora* species, now



Ovipleistophora, are in the Phylum Microspora, no longer considered a protozoan but more likely related to the fungi. One of my graduate students, **Mark Warner**, described the epidemiology of *P. ovariae*. I opine that this research is the most extensive epidemiological study of any fish parasite other than the whirling disease of salmonids (*Mxyobolus cerebralis*).

Hello! My name is **Nilima N. Renukdas**. Currently, I am working as the Director of the Aquaculture Program for the Arkansas Agriculture Department. I conduct annual and bi-annual fish health



inspections which involve testing fish for viruses, bacteria, and parasites.

Dr. **Carole Engle** played a major role in the beginning of my aquaculture career. With Dr. Engle, I worked on different catfish production studies. Since my background is in biotechnology, Dr. Engle moved me to assist with Fish Health Certifications and fish diagnostics work with Dr. **Anita Kelly** and **Andrew Mitchell**. It was a phenomenal experience to learn about fish pathogens, especially fish parasite wet mounts. After getting to know about the FHS, I became a member of the AFS - Fish Health Section. I was delighted to complete my certification as an FHS Certified Fish Health Inspector in 2017, which enables me to provide service to fish producers with their inspection certification requirements. I hope to continue to explore and learn more about fish diseases.

New Rosters for Handbook Revision & Oversight Committee & Technical Standards Committee

2021-2022 HROC

Name	HROC Position	Email
Kathleen Hartman	FHS-TSC, Co-Chair	Kathleen.h.hartman@usda.gov
Stephen Reichley	FHS-TSC, Yr 2	stephen.reichley@msstate.edu
Nilima Renukdas	FHS-TSC, Yr 2	nilima.renukdas@agriculture.arkansas.gov
Cori Samson	USFWS, Yr 1	corie_samson@fws.gov
Ken Nichols	USFWS, Yr 1	Ken_Nichols@fws.gov
Huseyin Kucuktas	USFWS, Yr 1	huseyin_kucuktas@fws.gov
Gary Marty	AFS-FHS President, Ex-officio	Gary.Marty@gov.bc.ca
Joel Bader	USFWS NAAHC, Ex-officio	joel_bader@fws.gov
Janet Whaley	NOAA FSNAHC, Ex-officio	janet.whaley@noaa.gov
Janet Warg	USDA APHIS VS, Ex-officio	janet.v.warg@usda.gov

2021-2022 TSC

Name	TSC Position	Email
Kathleen Hartman	Chair, 3 rd Yr	Kathleen.H.Hartman@usda.gov
Stephen Reichley	Member, 2 nd Yr	stephen.reichley@msstate.edu

The TSC invites submissions, corrections, updates to Section 1 of the BB. Emails may be sent directly to Kathleen.

Reminder: Opportunity to Comment in Support of FDA Drug Indexing

Drug Indexing is a way to get legal access to a drug without going through the very expensive process of a full label and was established by the Minor Use Minor Species Act of 2004. Indexing is only allowed for non-food animals, and only for minor species. The current policy of FDA is that if the minor species is ever used for food, then all the animals in that species are not eligible for indexed drugs, which has led to very few drugs being indexed. They are now rethinking that policy to allow for an indexed drug if there is a discrete subset of animals within that species where there's a reasonable certainty they are not used for food. The FDA has requested public comment on this proposed policy change. In their announcement, the FDA uses the example of laboratory rabbits being a discrete subset of non-food animals in a species that is also used for food. There are many other examples of non-food animals in a minor food species where there is reasonable certainty they won't be used for food (e.g., zoos, aquariums, companion animals, broodstock, etc.). If you support this change, please take just a few moments to make comments by going to:

<https://www.federalregister.gov/documents/2021/06/24/2021-13417/eligibility-for-the-index-of-legally-marketed-unapproved-new-animal-drugs-for-minor-species-request>

This policy change offers an opportunity for numerous drugs to be made available for the care of numerous minor species at a fraction of the time and cost of full labeling, without affecting human health and the environment. The public comment period closes on September 22, 2021.

MEETINGS, WORKSHOPS AND COURSES

Health and Colony Management of Laboratory Fish 2021

MDI Biological Laboratory, Salisbury Cove, Maine

September 26 – October 1, 2021

Link: <https://mdibl.org/course/health-and-colony-management-of-laboratory-fish-2021/>

A short course for principal investigators, technicians, trainees, core managers, veterinarians, and veterinary technicians who utilize or plan to utilize fish models in laboratory research. The course consists of lecture, laboratory exercises and discussions. With a high faculty to student ratio, during the course there are ample opportunities for students to discuss unusual and/or unsolved diagnostic case experiences from their home laboratories as problem-solving exercises.

9th International Symposium on Aquatic Animal Health (ISAAH)

Santiago, Chile

September 4-8, 2022

See attached .pdf for more info.

JOBS/GRADUATE ASSISTANTSHIPS

Microbiologist II

Utah DNR – Fisheries Experimental Station

Cache County, UT

Closes 9/9/21

Link: <https://www.governmentjobs.com/careers/utah/jobs/3190001/microbiologist-ii?keywords=microbiologist&pagetype=jobOpportunitiesJobs>

Are you seeking an exciting opportunity to provide laboratory services to Utah's fish health programs? If so, the Fisheries Experiment Station (FES) is seeking a Microbiologist to perform laboratory work and assist with annual fish health inspections and laboratory analysis for State hatcheries and managed waters. In this position you will be part of a team that provides services to help manage, protect and improve the health of aquatic animal populations throughout Utah.

See attached .pdf for more information.

Fish Health Technician

Riverance Holdings

Hagerman Valley, ID

Link: <https://recruiting.paylocity.com/recruiting/jobs/Details/639470/Riverence-Holdings-LLC/Fish-Health-Technician>

The Riverence group is seeking a Fish Health Technician to support its trout farming operations in Idaho's Hagerman Valley. Riverence Provisions and Riverence Farms—the group's farms and processing operations—are collectively the largest producer of Rainbow Trout and Steelhead in the Americas. Riverence Brood—the group's breeding operation—is a producer of premium Rainbow Trout genetics and the only domestic commercial supplier of Atlantic Salmon and Coho Salmon eggs. The Fish Health Technician will demonstrate a strong commitment to the principles of biosecurity, proactive fish health management, legal and judicious use of therapeutants, and standard diagnostic methods in the identification and resolution of environmental or infectious disease in trout and salmon. Responsibilities include monitoring on-farm conditions that may contribute to fish morbidity/mortality, coordination with Fish Pathologist for preliminary diagnosis of disease, collection and submission of samples for diagnostic testing, cooperating with farm staff regarding implementation of biosecurity and fish health improvement plans.

M.S. Position in Fish Health

Auburn University

Auburn, AL

Closes 9/15/21

A Master of Science (M.S) position is available at Auburn University. The incoming student will be a Graduate Research Assistant in Dr. Tim Bruce's Fish Health Lab within the School of Fisheries, Aquaculture and Aquatic Sciences (SFAAS). Research in the Bruce lab focuses on host-pathogen interactions in cultured fish species, nutritional aspects of fish health, and fish vaccinology/therapeutants. The student will be co-supervised by Dr. Anita Kelly at the Alabama Fish Farming Center in Greensboro, AL. Dr. Kelly's research program focuses on production-related issues in fish health, emerging bacterial aquaculture pathogens, and stress physiology in cultured fishes.

This M.S. project will involve experimental laboratory studies (~10%), *Flavobacterium columnare* pathogen challenge trials (~45%), and field studies in west Alabama. Specifically, this M.S. thesis research will examine the health-promoting effects of dietary additives on the immune response of channel catfish. Overall, the student will be expected to conduct an independent research project followed by the writing and defense of a detailed thesis.

Please see attached .pdf for more information.

Diagnostic Fish Pathologist

University of Prince Edward Island – Atlantic Veterinary College

Charlottetown, PE

Closes 9/30/21

The Diagnostic Services Laboratory, Atlantic Veterinary College (AVC), University of Prince Edward Island, invites applicants for a contract term position in fish pathology. This is a full-time, term contract position starting immediately for eleven and one-half months, with the possibility of extension. The successful candidate will be working with and collaborating with the current diagnostic fish pathologist. The primary responsibility will be to perform and report on necropsy and histopathology examinations of fin-fish and shellfish samples submitted to the AVC Diagnostic Service Laboratory. The clients of this service include researchers, provincial and private aquaculture veterinarians in the four Atlantic Provinces as well as researchers and / or aquatic laboratories nationally and internationally. The successful candidate will consult with diagnostic services bacteriology, virology, clinical pathology, toxicology and parasitology units.

See attached .pdf for more information.

Postdoc Research Fellowship in Immunology

USDA-ARS Fish Health Unit at the National Center for Cool and Cold Water Aquaculture (NCCCWA)

Leetown, WV

Application Deadline: 10/31/21

The mission of the NCCCWA is to enhance the nation's aquaculture production by developing improved germplasm and technologies that increase farm efficiency, product quality, and environmental sustainability. Research focuses primarily on rainbow trout and encompasses genetics, genomics, physiology, aquatic animal health, and aquaculture engineering.

The selected participant will conduct immunological research evaluating genetic lines of disease resistant and susceptible rainbow trout. This will include determining mechanisms of innate immunity and the impact of selective breeding on commensal microbiota and vaccine response. The project will also include identifying how reuse water affects immunological function and identifying precision interventions to enhance health during grow-out.

See attached .pdf for more information.

Postdoc Fellowship in Molecular Microbiology

USDA-ARS Fish Health Unit at the National Center for Cool and Cold Water Aquaculture (NCCCWA)

Leetown, WV

Application Deadline: 9/9/21

The mission of the NCCCWA is to enhance the nation's aquaculture production by developing improved germplasm and technologies that increase farm efficiency, product quality, and environmental sustainability. Research focuses primarily on rainbow trout and encompasses genetics, genomics, physiology, aquatic animal health, and aquaculture engineering.

The selected participant will conduct microbiological research supporting the development of novel strategies that improve the health of farmed fish. This will include evaluating the utility of bacteriophage for precision biocontrol of pathogenic or nuisance bacteria in aquaculture systems,

characterization of emerging pathogens of farmed fish, and the development and evaluation of vaccines.

See attached .pdf for more information.

Zebrafish Related Job Announcements

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

RESOURCES/NEWS

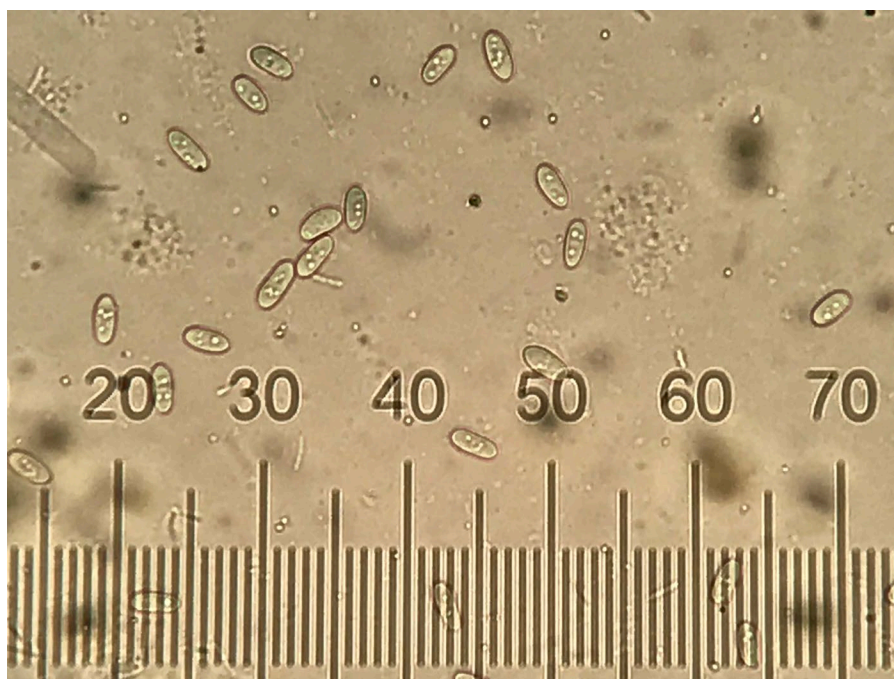
Aquatic Animal Drug Approval Partnership (AADAP) Updates are now available online:

https://www.fws.gov/fisheries/AADAP/aadap_update.html

AFS Job Board changes

Check out the new AFS [Career Center](#) with new and improved features for both job seekers and employers. Job hunters now benefit from improved search functions and email alerts. While employers can peruse candidate applications and submit jobs more quickly and easily through an online submission form with a credit card payment system. Individual AFS members can still advertise for assistants and internship positions at no charge. See the AFS member employer [pricing options](#).

EDITOR'S RANDOM PICS



Microsporidian spores in lower intestine of juvenile spring Chinook, Lake Billy Chinook, OR, May 2018.

POSTED August 20, 2021



UNIVERSITY OF PRINCE EDWARD ISLAND
ATLANTIC VETERINARY COLLEGE
DIAGNOSTIC SERVICES
ELEVEN AND A HALF (11.5) MONTH TERM POSITION
DIAGNOSTIC FISH PATHOLOGIST
COMPETITION #31A21

The Diagnostic Services Laboratory, Atlantic Veterinary College (AVC), University of Prince Edward Island, invites applicants for a contract term position in fish pathology. This is a full-time, term contract position starting immediately for eleven and one-half months, with the possibility of extension. The successful candidate will be working with and collaborating with the current diagnostic fish pathologist. The primary responsibility will be to perform and report on necropsy and histopathology examinations of fin-fish and shellfish samples submitted to the AVC Diagnostic Service Laboratory. The clients of this service include researchers, provincial and private aquaculture veterinarians in the four Atlantic Provinces as well as researchers and / or aquatic laboratories nationally and internationally. The successful candidate will consult with diagnostic services bacteriology, virology, clinical pathology, toxicology and parasitology units.

QUALIFICATIONS: Applicants must have a DVM (or equivalent) degree and at least one year of experience in fish and shellfish pathology. Clinical aquaculture experience and ACVP board certification are assets, but board eligible individuals will be considered. Salary is commensurate with credentials and experience.

Application Instructions:

Please submit a letter of intent, curriculum vitae and the names and contact information (including e-mail addresses) of three referees to:

Ms. Liz Dobbin, Director
Diagnostic Services Laboratory
Atlantic Veterinary College, University of Prince Edward Island
550 University Avenue, Charlottetown, PE
Canada, C1A 4P3
Phone: 902-566-0831
E-mail: edobbin@upe.ca

Salary is commensurate with credentials and experience. This appointment will be made at the Clinical Veterinary Professional (UPEIFA, BU2) level and is subject to budgetary approval.

The AVC is located on the campus of UPEI in Charlottetown, Prince Edward Island (PEI). Nestled on the east coast of Canada, PEI is one of the world's most beautiful islands, and is home to sandy beaches, championship golf courses, extensive bike and cross country ski trails and a vibrant arts community. Further details can be obtained at <http://www.upei.ca/~avc> and <http://www.gov.pe.ca>.

In accordance with Canadian immigration requirements, all qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority. UPEI is committed to the principle of equity in employment.

Applications will be received until September 30th, 2021, or until a suitable candidate is identified.

M.S. Position in Fish Health



A Master of Science (M.S) position is available at Auburn University. The incoming student will be a Graduate Research Assistant in Dr. Tim Bruce's Fish Health Lab within the School of Fisheries, Aquaculture and Aquatic Sciences (SFAAS). Research in the Bruce lab focuses on host-pathogen interactions in cultured fish species, nutritional aspects of fish health, and fish vaccinology/therapeutics. The student will be co-supervised by Dr. Anita Kelly at the Alabama Fish Farming Center in Greensboro, AL. Dr. Kelly's research program focuses on production-related issues in fish health, emerging bacterial aquaculture pathogens, and stress physiology in cultured fishes.

Responsibilities and tasks

This M.S. project will involve experimental laboratory studies (~10%), *Flavobacterium columnare* pathogen challenge trials (~45%), and field studies in west Alabama. Specifically, this M.S. thesis research will examine the health-promoting effects of dietary additives on the immune response of channel catfish. Overall, the student will be expected to conduct an independent research project followed by the writing and defense of a detailed thesis.

Qualifications

The lab team is looking for a motivated candidate who has:

- Bachelor's degree in the Biological Sciences
- Knowledge of aquaculture, nutrition, and/or fish health
- Proven ability to carry out goal-oriented work and fluent with data management systems (i.e. Excel, Word, statistical analysis)
- Lab competences in molecular biology (e.g., nucleic acid extraction, ELISA, gene expression (RT/qPCR), protein assays) and/or microbiology (e.g., culture, identification (PCR), microbe-related assays) would be considered an asset
- Fish husbandry experience will be an asset
- Ability to work in a team laboratory setting, as well as independently
- Ability to conduct field/pond trials at production sites in W. Alabama

Approval and Enrollment

This M.S. graduate appointment is subject to academic approval, and the candidate will be enrolled in the M.S. program within the School of Fisheries, Aquaculture and Aquatic Sciences (SFAAS). For information about our program please see: <http://sfaas.auburn.edu/programs-of-study/graduate-studies/>

Salary and appointment terms

This project will be carried out at the E.W. Shell Fisheries Center, which is situated in Auburn, Alabama (<http://sfaas.auburn.edu/e-w-shell-fisheries-center/>) and the second year of research will be conducted at the Alabama Fish Farming Center (<https://agriculture.auburn.edu/research/faas/alabama-fish-farming-center>). The salary (\$17,000 + fringe benefits) and appointment terms

(2 yrs.) are consistent with the current rules for MSc degree students; typically, a tuition waiver is provided. The student will begin research in **October 2022** and begin coursework in the **Spring 2022 Semester**.

Application

Please submit your application no later than **15 September 2021**. Applications must be e-mailed to tjb0089@auburn.edu as a **single .pdf file/packet** containing all materials to be given consideration. The .pdf packet must include:

- Cover letter motivating the application (background, interests, goals)
- Curriculum vitae
- Contact information (e-mail and phone numbers) for three references
- Unofficial transcripts and GRE scores (refer to: <https://www.ets.org/gre>)

Further information

For further information about the project and assistantship, please contact Dr. Bruce at tjb0089@auburn.edu. Information on Auburn University may be found here: <http://www.auburn.edu/main/welcome/index.php>



Job Title: Microbiologist II

Job Description:

Are you seeking an exciting opportunity to provide laboratory services to Utah's fish health programs? If so, the Fisheries Experiment Station (FES) is seeking a Microbiologist to perform laboratory work and assist with annual fish health inspections and laboratory analysis for State hatcheries and managed waters. In this position you will be part of a team that provides services to help manage, protect and improve the health of aquatic animal populations throughout Utah.

Principal Duties:

As a Fish Health Microbiologist you will:

- assist in planning, scheduling and performing fish health inspections in accordance with Utah's Fish Health Policy
- perform necropsies and collect samples from a variety of fish species
- oversee transport and maintain integrity of biological samples
- follow proper laboratory practices to process samples and perform laboratory analysis including
 - parasite isolation and microscopic identification
 - bacterial isolation and identification, immunofluorescent and other staining, microscopy
 - tissue culture: cell propagation, cell maintenance and cryopreservation of fish cell lines
 - virology: inoculation and microscopic examination for cytopathic effect and viral isolation
 - molecular biology: nucleic acid extraction, PCR, gel electrophoresis and analysis
- operate laboratory equipment properly (centrifuge, incubator, microscopes, autoclave, etc.)
- manage data appropriately for collecting, entering and reporting findings
- develop and maintain standard operating procedures (SOP's)
- assist the Fish Health Specialist and Fish Health Pathologist on diagnostic cases
- travel including overnight trips, occasionally work days in excess of 10 hours and some weekends
- participate in meetings and continuing education pertaining to fisheries, fish health and laboratory techniques
- occasionally provide technical support for and participate in fish health related research

The Ideal Candidate:

The ideal candidate for this position has:

- a Bachelor's degree in Microbiology, Fisheries Biology, Wildlife, Natural Resources, biological sciences or directly related field of study with coursework in virology, microbiology, chemistry, bacteriology, parasitology and/or molecular biology
- experience working in a fish health laboratory
- ability to perform fieldwork and collect samples
- the ability to obtain an Aquatic Animal Health Inspector Certification within 18 months of hire

Why You Should Join Our Team

This is an exciting opportunity to apply your education and laboratory skills working with the fish health section at FES. FES and the Logan Hatchery are responsible for fish health management and disease control, research and specialized fish culture. Additionally, the State of Utah offers great benefits and generous paid time off so you can spend more time with your family and have a positive work-life balance.

Typical Qualifications

(includes knowledge, skills, and abilities required upon entry into position and trainable after entry into position)

- BS degree in Microbiology, Fisheries & Wildlife, Biology
- knowledge of fish anatomy and necropsy procedures
- knowledge of cell maintenance and culture methods, aseptic technique and viral identification techniques
- knowledge of bacteriology, DFAT analysis, API methods, reagent and media preparation, antibiotic sensitivity testing
- knowledge of general parasitology methods, head defleshing, pepsin trypsin digest (PTD), parasite identification techniques
- knowledge of Qiagen extraction methods, nucleic acid enumeration, PCR, qPCR and troubleshooting
- knowledge of microbiological methods and laboratory practices
- computer proficiency, experience using MS Word and Excel

Supplemental Information

- Risks which require the use of special safety precautions and/or equipment, e.g., working around operating machines, working with contagious diseases or hazardous chemicals, etc.
- Work requires physical exertion. May require the ability to stand; walk over rough surfaces; bend, crouch, stoop, stretch, reach, lift moderately heavy items (up to 50 lbs.) in a recurring manner and/or for long periods of time.
- Some travel and overnight trips are required; some work on weekends.

Follow this link to apply: <https://www.governmentjobs.com/careers/utah/jobs/3190001/microbiologist-ii?keywords=microbiologist&pagetype=jobOpportunitiesJobs>

Opportunity Title: USDA-ARS Postdoctoral Research Fellowship in Immunology

Opportunity Reference Code: USDA-ARS-2021-0181



Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2021-0181

How to Apply *Connect with ORISE...on the GO!* Download the new ORISE GO mobile app in the [Apple App Store](#) or [Google Play Store](#) to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Application Deadline 10/31/2021 3:00:00 PM Eastern Time Zone

Description *Applications are reviewed on a rolling-basis and this posting could close before the deadline.

ARS Office/Lab and Location: A postdoctoral research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), National Center for Cool and Cold Water Aquaculture (NCCCWA), Fish Health Unit located in Leetown, West Virginia. The mission of the NCCCWA is to enhance the nation's aquaculture production by developing improved germplasm and technologies that increase farm efficiency, product quality, and environmental sustainability. Research focuses primarily on rainbow trout and encompasses genetics, genomics, physiology, aquatic animal health, and aquaculture engineering.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The selected participant will conduct immunological research evaluating genetic lines of disease resistant and susceptible rainbow trout. This will include determining mechanisms of innate immunity and the impact of selective breeding on commensal microbiota and vaccine response. The project will also include identifying how reuse water affects immunological function and identifying precision interventions to enhance health during grow-out.

Learning Objectives: The participant will gain useful experience designing and conducting experiments in collaboration with a team of immunologists, microbiologists, and veterinarians. The participant will be trained in an array of methodologies and technologies to fulfil the objectives of the project including molecular immunology, single cell sequencing, computational biology, machine learning, microbial genomics, and metagenomics. The fellow will have an opportunity to present their data in published manuscripts and at national and international meetings.

Mentor(s): The mentor for this opportunity is Greg Wiens (greg.wiens@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Fall 2021. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Opportunity Title: USDA-ARS Postdoctoral Research Fellowship in Immunology

Opportunity Reference Code: USDA-ARS-2021-0181

Citizenship Requirements: This opportunity is available to U.S. citizens only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email USDA-ARS@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a doctoral degree in one of the relevant fields or are currently pursuing the degree and will reach completion by the start date of the appointment. Degree must have been received within five years of the appointment start date.

Knowledge, skills, and experience in one or more of the following areas is preferred: fish health, immunology, computational biology, genomics, and metagenomics.

This is an equal opportunity program open to all qualified individuals without regard to race, color, age, sex, religion, national origin, mental or physical disability, genetic information, sexual orientation, or covered veteran's status.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** (3 )
 - **Engineering** (5 )
 - **Environmental and Marine Sciences** (10 )
 - **Life Health and Medical Sciences** (29 )
 - **Mathematics and Statistics** (1 )
 - **Nanotechnology** (1 )
 - **Other Physical Sciences** (1 )
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Molecular Microbiology

Opportunity Reference Code: USDA-ARS-2021-0186



Organization

U.S. Department of Agriculture (USDA)

Reference Code

USDA-ARS-2021-0186

How to Apply

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A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Application Deadline

9/9/2021 3:00:00 PM Eastern Time Zone

Description

***Applications are reviewed on a rolling-basis and this posting could close before the deadline.**

ARS Office/Lab and Location: A postdoctoral research opportunity is available with the Fish Health Unit at the National Center for Cool and Cold Water Aquaculture (NCCCWA), located in Leetown, West Virginia. The mission of the NCCCWA is to enhance the nation's aquaculture production by developing improved germplasm and technologies that increase farm efficiency, product quality, and environmental sustainability. Research focuses primarily on rainbow trout and encompasses genetics, genomics, physiology, aquatic animal health, and aquaculture engineering.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The selected participant will conduct microbiological research supporting the development of novel strategies that improve the health of farmed fish. This will include evaluating the utility of bacteriophage for precision biocontrol of pathogenic or nuisance bacteria in aquaculture systems, characterization of emerging pathogens of farmed fish, and the development and evaluation of vaccines.

Learning Objectives: The participant will gain useful experience designing and conducting experiments in collaboration with a team of microbiologists, immunologists, and veterinarians. The participant will be trained in an array of methodologies and technologies to fulfill the objectives of the project including microbiology, fish disease modeling, microbial genomics, metagenomics, biochemistry, microscopy, and molecular biology.

Mentor(s): The mentor for this opportunity is Timothy Welch (tim.welch@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: October 2021. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Molecular Microbiology

Opportunity Reference Code: USDA-ARS-2021-0186

Citizenship Requirements: This opportunity is available to U.S. citizens only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email USDA-ARS@ornl.gov and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields or are currently pursuing the degree and will reach completion by the start date of the appointment. Degree must have been received within five years of the appointment start date.

Knowledge, skills, and experience in one or more of the following areas is preferred: fish health and disease modeling, bacteriology, molecular biology, immunological assays, genomics, and metagenomics.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** (1 )
 - **Engineering** (27 )
 - **Environmental and Marine Sciences** (9 )
 - **Life Health and Medical Sciences** (20 )
 - **Mathematics and Statistics** (1 )
 - **Other Physical Sciences** (1 )
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).



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DE CHILE



Greetings, Fish Health Section members and colleagues worldwide!

We are pleased to announce the 9th International Symposium on Aquatic Animal Health (9th ISAAH) will be held 4 – 8 September 2022, in Santiago, Chile. The ISAAH is a truly unique event hosted by the Fish Health Section of the [American Fisheries Society](#) and held every four years. The ISAAH typically attracts 300–400 fish health professionals from around the world. This will be the first time ISAAH is hosted outside North America!

As a global forum for interdisciplinary collaboration and communication, ISAAH aspires to create an environment of fellowship, to learn and share the latest groundbreaking research, with a vision of building a better future for aquatic animal health professionals. The 9th ISAAH will bring together scientists from across the globe to open new avenues of research and help foster international collaborations.

The 9th ISAAH will be held at the [Extension Center](#) of the [Pontifical Catholic University \(PUC\)](#). Founded in 1888, the PUC is one of Chile's oldest universities and one of the most well-respected educational institutions in Latin America. Chile is a key player in global aquaculture and salmon farming as well as aquatic ecosystem resource management. [Chile](#) has many diverse habitats, from the Andes Mountains to the Pacific Ocean, from the desert in the extreme north to the Patagonia region in the south. Enjoying more than 5,000 km of coastline and an extensive network of aquatic ecosystems amidst numerous drainage basins, rivers and lakes, Chile is an appealing destination for aquatic animal health researchers.

[Santiago](#) is a bustling, vibrant city with diverse cultural roots, exquisite museums and top-tier restaurants, bars and cafes. We hope you will join us in Santiago for a truly inspiring event.

See you in Santiago!

The Organizing Committee

Matt Griffin, College of Veterinary Medicine, Mississippi State University, USA.

Fernando Mardones, School of Veterinary Medicine, Pontifical Catholic University, Chile.

Esteban Soto, School of Veterinary Medicine, University of California - Davis, USA.

Natalia Zimin-Veselkoff, School of Veterinary Medicine, Pontifical Catholic University, Chile.

9th International Symposium on Aquatic Animal Health
September 4 - 8, 2022
Santiago, Chile