



# Fish Health Section



## FHS NEWS – December 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

'Tis the season to renew your AFS and FHS membership at <https://fisheries.org/>. Thank you to the members who have already renewed. Let's all try to encourage our friends to join so that 2022 can be the best year yet!

## People of the Fish Health Section: Commemorating 50 years

Dear Fish Health Section members,

Last month I asked for nominations from the membership for people to highlight in this month's feature. I am pleased to feature the first two nominees. For the next month or two, I also want to feature **student members**. I will accept nominations (or seek out students myself). This is a great opportunity for mentors to get their students better known in the fish health community (nomination deadline Jan. 10, 2022).

Submitted by Gary Marty, FHS President (Gary.Marty@gov.bc.ca)

Hello Everyone! I am **Sue Marcquenski**, retired fish health specialist for the Wisconsin DNR after ~30 years. I joined AFS-FHS in 1990 to keep current on aquatic animal health issues, science advances, and to obtain Aquatic Animal Health Inspector certification. My life was enriched by many wonderful people through the Fish Health Section who unreservedly shared what was in their head. **Bruce Stewart** set a new bar at WDNR for what a fish health program could be. He, **Becky Lasee** and I attended **Ron Goede's** quality assessment workshop; Becky test drove the tool at DNR hatcheries, and I used the tool consistently throughout my career. Wow. What a gift! **Hui-Min Hsu** at the Wisconsin Veterinary Diagnostic Lab always provided the testing we needed, and I learned so much from her while reading histo slides together. **Rocco Cipriano's** shepherding of the Eastern Fish Health Workshop created an experience that was more like going to summer camp than a science meeting! One highlight of my career was being part of a team that diagnosed thiamine deficiency in Great Lakes salmonids and Baltic Sea Atlantic salmon. Whooooe! I was lucky to be invited to Stockholm Sweden to help present our work. The information in toto supported mitigation strategies that are still used today.



I am Sascha Hallett, an ichthyoparasitologist based in the Department of Microbiology at Oregon State University. My career trajectory was influenced during my PhD (U. Queensland) when I met Dr.



Mansour El-Matbouli at an international meeting. He saw my presentation on marine myxozoan parasites and encouraged me to apply for an Alexander von Humboldt Fellowship - to join his team as a post-doc at the University of Munich. This was my introduction to trout hatcheries and freshwater maladies.

After my return to Australia, without fixed plans, I found out about another post-doc opportunity – via Drs. Tom Cribb & Al Dove. Dr. Jerri Bartholomew at Oregon State University was seeking a myxozoan researcher with molecular experience and the expectation to “travel to remote field locations”, I was sold! Jerri introduced me to the scientifically and socially complex Klamath River system which has now engaged and

challenged me for almost two decades. One career highlight has been the satisfaction I gained from developing research tools that contribute to a better understanding of infection dynamics of fish pathogens and to help real-time mitigation and management of disease in wild and hatchery salmonids. Jerri also introduced me to her network of colleagues (and friends!), many of whom are FHS members. Those connections have taken me beyond my immediate research backyard, in terms of location, organisms and techniques.

When I was a PhD student, I joined the Australian Society for Parasitology. That was my first introduction to a professional scientific society and the support and connections that it can provide to members. That positive experience was the impetus for me joining the FHS – and ever since 2010 I have appreciated the welcoming environment with enthusiastic, supportive membership. I continue to be impressed by how generous members are with their time and knowledge – you are all so inspirational!

## **Policy/Position Development Committee Update**

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### **How to request the FHS to develop a policy or position**

The AFS-FHS Policy/Position Development Committee (PPDC) provides a mechanism for generating official policy/position statements by the AFS-FHS. Any member can bring a proposed issue, policy, or position statement forward to the PPDC for review. See the May 2020 FHS Newsletter for details (available on the FHS website). If you have an idea for a policy or position, don't hesitate to contact PPDC Chair Anita Kelly ([amk0105@auburn.edu](mailto:amk0105@auburn.edu)) or any of the Committee members listed on the FHS website.

### **S.F. Snieszko Distinguished Service Award Nomination Announcement**

As we approach the end of 2021, we would like to solicit nominations for the S.F. Snieszko Distinguished Service Award (SDSA). As you know, the SDSA is the highest award presented by the Fish Health Section. This award is presented for the purpose of honoring individuals for outstanding accomplishments in the field of aquatic animal health. This is a career award and while it may be given to more than one individual in a year, it is not necessarily awarded every year.



Because this is a career award, candidates should have a significant number of active years in science within the finfish or shellfish health field as well as significant accomplishments which are not limited to but may include a significant number of publications, a significant number of secured grants for grad student thesis projects, administration of a successful lab, a major discovery in the field of finfish or shellfish health, and/or previous recognition by other professional societies or committees.

If you wish to nominate an individual for the SDSA please send nomination packages to the Awards Committee Chair (Nicole Nietlisbach, [nicole.nietlisbach@wisconsin.gov](mailto:nicole.nietlisbach@wisconsin.gov)) by February 1, 2022. Awards recipient(s) will be honored at the Annual Fish Health Section Meeting.

Nomination packages must include:

1. Six letters of recommendation from fish health professionals that support the nominee's dedication to research, teaching and/or service to the field of aquatic animal health.
2. The nominee's curriculum vitae.
3. A general letter of recommendation by the primary nominator.

Additional guidance can be found on page 20 of the [FHS procedures manual](#). More information about the award and list of past SDSA recipients can be found [here](#).

Feel free to contact members of the Awards Committee with questions.

Awards Committee

Nicole Nietlisbach, Chair ([nicole.nietlisbach@wisconsin.gov](mailto:nicole.nietlisbach@wisconsin.gov))

Isaac Standish ([sirisaac\\_standish@fws.gov](mailto:sirisaac_standish@fws.gov))

Luke Iwanowicz ([liwanowicz@usgs.gov](mailto:liwanowicz@usgs.gov))

**Call for New Content**

Do you have a puzzling diagnostic case? Or do you have a new diagnostic finding that might interest others? How about newly published research? I am starting a new feature to highlight Fish Health Section Members' current conundrums and accomplishments. Think about what you could submit and contact me at [stacy.a.strickland@odfw.oregon.gov](mailto:stacy.a.strickland@odfw.oregon.gov) with your ideas. Limit to be around 1 page including graphs/pictures. Especially during these virtual meeting and conference times, let's share our work and keep our peers up-to-date on what's happening in the world of fish health!

Thanks in advance for your submissions!

Stacy Strickland, AFS-FHS Newsletter Editor

**MEETINGS, WORKSHOPS AND COURSES**

**61st AFS FHS Western Fish Disease Workshop**  
May 16-18, 2022, with a day of CE on May 19  
Hood River, Oregon  
Best Western Hood River Inn and Conference Center

Save the date! Come to Oregon!

Registration and call for abstracts will come late winter. Keep an eye out on the website for more information.

<https://units.fisheries.org/fhs/wfdw/>

**9<sup>th</sup> International Symposium on Aquatic Animal Health (ISAAH)**  
Santiago, Chile  
September 4-8, 2022



RE: Call for Special Sessions

The 9<sup>th</sup> International Symposium on Aquatic Animal Health (9<sup>th</sup> ISAAH) will be held September 4 – 8, 2022, in Santiago, Chile. The ISAAH is a truly unique event, held every four-years, and hosted in conjunction with the Fish Health Section of the American Fisheries Society. The ISAAH typically attracts 300–400 aquatic animal health professionals from around the world covering all manners of discipline and scientific inquiry. This is an exciting event you won't want to miss!

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 9<sup>th</sup> ISAAH will bring together scientists and aquatic animal health specialists from across the globe, to open new avenues of research and help foster international collaborations. This will also be the first time ISAAH is held outside of North America!

The organizing committee is still taking suggestions for special sessions. If you have a topic for consideration or would like to organize a session of particular interest, please contact Matt Griffin ([matt.griffin@msstate.edu](mailto:matt.griffin@msstate.edu)) with the subject heading "ISAAH 2022 Special Sessions".

The following topics have already been submitted for consideration:

WAVMA/AAFV (Continuing Education Opportunity)	Parasite Life Cycles
Zebrafish/Lab Animal Models	Applications of Modeling in Aquatic Animal Health
Genomic Applications in Fish Health	Emerging Diseases
Immune modulation in Fish Health Management	Myxozoa
Microbiomes: Applications in Fish Health	Climate Change: Impacts on Fish Health
Polymicrobial Infections	

We look forward to hearing from you and hope to see you in Santiago!

### **The Organizing Committee**

Fernando Mardones, School of Veterinary Medicine, Pontifical Catholic University, Chile  
Marilia Salgado Caxito, School of Veterinary Medicine, São Paulo State University, Brazil  
Natalia Zimin-Veselkoff, School of Veterinary Medicine, Pontifical Catholic University, Chile  
Matt Griffin, College of Veterinary Medicine, Mississippi State University, USA.  
Esteban Soto, School of Veterinary Medicine, UC Davis, USA

### **Fish Disease in Conservation Biology and Aquaculture (FW/MB 491/591)**

Winter term 2022 (Jan 2 - March 24); Thurs 10-11:30  
Oregon State University  
Instructor: Dr. Jerri Bartholomew and guest speakers

This hybrid lecture course will have a remote option this year and will be open to non-degree students. As a hybrid course, half of the course content is available online and there is one 80 min lecture that will be in person or accessed remotely. Attached is the draft course syllabus and schedule.

The instructions for registration are:

1. [Apply as a Non-Degree Student](#): can do so as graduate student if they've previously earned a bachelor's degree or an undergraduate if they have not.
2. [Priority Registration](#): Non-Degrees students can begin registering typically one full week before the term starts. During Spring Term for example, non-degree students can register beginning March 22 and classes start March 29. Non-degree Corvallis/Cascades students do not need a PIN to register. Non-degree Ecampus students will receive a PIN after completing [online orientation](#).

To the best of my understanding, to register as non-degree grad student there is a \$35 fee plus tuition for 3 credits at the graduate level (resident rate as long as less than 8 credits), which is \$1,494.

If you are interested in taking the class please contact me ([jerri.bartholomew@oregonstate.edu](mailto:jerri.bartholomew@oregonstate.edu)) so I can design appropriate exercises and content. See attached .pdf for syllabus and schedule.

### **Interdisciplinary PhD Programme in Veterinary Medicine**

<https://www.cityu.edu.hk/jcc/education/postgraduate-programmes/interdisciplinary-phd-programme-veterinary-medicine>

City University of Hong Kong (CityU) is a dynamic, fast-growing university that is pursuing excellence in research and professional education. As a publicly-funded institution, the University is committed to nurturing and developing students' talents and creating applicable knowledge to support social and economic advancement. Currently, the University offers postgraduate research programmes in various disciplines, including business, creative media, energy, engineering, environment, humanities, law, science, social sciences, and other strategic growth areas, including veterinary medicine.

The Jockey Club College of Veterinary Medicine and Life Sciences (JCC) was launched in spring 2014 in collaboration with Cornell University's College of Veterinary Medicine. The JCC is the first of its kind in Hong Kong and is envisioned as a centre of excellence in animal health education, research and discovery, and clinical care in China and the Asia-Pacific region. A key part of CityU's Life Sciences Initiative, the college offers a postgraduate research programme leading to interdisciplinary PhD degrees in veterinary medicine.

This is an interdisciplinary programme open to outstanding graduate students who wish to conduct state-of-the-art basic, clinical and translational life sciences research alongside research professionals. The programme is student-centred and led by faculty who are accessible, engaged and committed to ensuring that our postgraduate students reach their full potential in research, teaching and professional development. The students will participate in research programmes leading to PhD degrees in one of the following areas:

- Comparative Biomedical Sciences
- Immunology and Infectious Disease
- Molecular and Systemic Neuroscience
- Public Health and Epidemiology

## **JOBS/GRADUATE ASSISTANTSHIPS**

### **Paid Internship with US Fish and Wildlife Service**

The US Fish and Wildlife Service is partnering with MANRRS to provide students at (1) Oregon State University, (2) University of Idaho, and (3) Washington State University with an opportunity to step into a career with our agency!

The MANRRS internship program is a **diversity-seeking, program** for interested students **from diverse backgrounds, including women and historically under-represented populations such as Black, Hispanic/Latino, Asian and Pacific Islander, and Native American.**

This program is a pipeline into the U.S. Fish and Wildlife Service. Students joining this internship program may have the ability to be directly placed into a permanent job with the agency following their graduation. All majors are encouraged to apply!

### **About the summer internship**

-Weekly stipend of \$540. Housing is provided, and rent is reimbursed up to \$1500/month at sites where no housing is available.

-Projects are available in the Pacific Northwest and Pacific Islands (Hawaii).

-Conservation projects range from biological field work to environmental policy, and community outreach.

See the list of available projects here:

<https://drive.google.com/file/d/1eNoXJ6QJthMwhkaUAK10X-NY6z6W7uK/view?usp=sharing>

**To be eligible, students must:**

- (1) Be an undergraduate **-AND-** not graduate before December 2023.
- (2) Be available for 12 weeks in Summer 2022
- (3) Join your campus MANRRS chapter. Learn more about MANRRS here --> [MANRRS.org](http://MANRRS.org)
- (4) Be a US Citizen, 18 years or older

**To apply:**

Eligible students should email their campus MANRRS advisors (contact info below) to be referred to the program hiring managers. Students will be evaluated for positions on a rolling basis, so you are encouraged to act on this opportunity ASAP.

In your email, please indicate (1) your major, (2) expected graduation date, and (3) your first, second and third project choice

Oregon State University students should contact Wanda Crannell at [Wanda.Crannell@oregonstate.edu](mailto:Wanda.Crannell@oregonstate.edu)

University of Idaho students should contact Chloe Wardropper at [cwardropper@uidaho.edu](mailto:cwardropper@uidaho.edu)

Washington State University students should contact Colette Casavant at [colette.casavant@wsu.edu](mailto:colette.casavant@wsu.edu)

**For more information:**

If you have questions regarding the MANRRS internship, U.S. Fish and Wildlife Service or how this internships may lead to a permanent position, please contact Nicole Hams ([nicole\\_hams@fws.gov](mailto:nicole_hams@fws.gov)) or Chelsea McKinney ([chelsea\\_mckinney@fws.gov](mailto:chelsea_mckinney@fws.gov))

**Fish Health Technician**

**Pacific Seafoods**

Nespelem, WA

Link: <https://jobs.fisheries.org/job/fish-health-technician-nespelem-washington-0560>

**Summary**

Under the direction of the Veterinarian and/or Fish Health Manager, work as a team or independently

to complete disease specific projects, and assist in research related to fish health in the steelhead division.

### **Essential Duties and Responsibilities**

Duties include but not limited to:

- Be a role model in projecting and applying The Pacific Group Diamond Philosophy (Productivity, Quality, Excellence and Teamwork) and promote teamwork at all times.
- Assist with research projects in conjunction with NCCWA group, WFRC and others. Must keep meticulous records as results will be published.
- Assist in maintaining database or other effective record keeping system.
- There will be shared daily responsibilities in data collection and recording. Must be able to collaborate in the team structure and work independently.
- Assist with vaccine research when needed.
- Must be able to perform bacterial culture and regularly test for antimicrobial resistance.
- Must be able to appropriately categorize mortality. Loss categorization requires the ability to identify diseases based upon clinical symptoms.
- Must possess basic microscopy skills to make and stain slides and identify bacterial and parasite agents.
- Must be able to perform regular cleaning and standardization of all lab equipment.
- Will be a point of contact for hatchery related fish health questions regarding treatments and questions that may arise.
- Ability to manage good aquaculture practices as part of the effort to prevent aquaculture related fish disease.
- Strong written and oral communication skills.
- Must be organized and detail-oriented.
- Possess strong analytical skills.
- Ability to make independent decisions as well as exercise professional judgement.
- Should be able to drive a boat.
- Track and monitor the health of steelhead fingerlings raised from 25gms to 3kg in size in accordance with the Fish Health Plan.
- Work under the Veterinarian, Fish Health Manager and/in conjunction with the Site operation managers.
- Work closely with site management to identify and remedy the challenges to fish health that are present.
- Perform other duties, as assigned.

### **PhD Programs in Aquatic Animal Health**

#### **City University**

Hong Kong

City-University in Hong Kong want to fill Two PhD openings for the 2022 Fall semester. One of these positions is an interdisciplinary PhD program with collaboration in Cornell Veterinary College, USA, where the candidate will spend three years in CityU in Hong Kong and one year in Cornell.

<https://www.cityu.edu.hk/jcc/education/postgraduate-programmes/interdisciplinary-phd-programme-veterinary-medicine>

Interested students should contact Dr Wenlong (Colin) Cai, Assistant Professor of Aquatic Animal Health, Department of Infectious Diseases and Public Health , Jockey Club College of Veterinary Medicine and Life Sciences, 31 To Yuen Street, City University of Hong Kong, Kowloon, Hong Kong

<https://www.cityu.edu.hk/ph/staff/dr-cai-wenlong>

### **Assistant Professor of Fish Pathology or Immunology**

**Department of Rangeland, Wildlife and Fisheries Management College of Agriculture and Life Sciences**

**Texas A&M University**

College Station, TX

Link: <https://apply.interfolio.com/96875>

**GENERAL DUTIES AND RESPONSIBILITIES:** The successful candidate will be expected to enhance a faculty addressing various aspects of aquaculture and fisheries management in the Department of Rangeland, Wildlife and Fisheries Management (RWFM). They also will be expected to collaborate with and enhance existing faculty with expertise in the areas of fish nutrition, physiology, and fisheries management as it pertains to fish health and diseases. This position will be an integral component of the Department's research and teaching programs in aquaculture and fisheries management. Included duties will be the development and leadership of an independent, extramurally-funded, internationally recognized applied research program with a focus on warm water finfish that directly addresses disease management or diagnostic issues facing aquaculture producers and private pond owners within Texas and the U.S. The appointee will be expected to teach courses related to their expertise in the recently established undergraduate curriculum. Courses (or a portion of the course) may include Fish Health and Diseases, Principles and Practices of Wildlife/Fisheries Management, and a summer Aquatic Field Experience course. Graduate courses in the candidate's area of expertise that may include Fish Immunology, Pathology, or Health and Diseases. RWFM is an applied management focused department and as such the successful candidate is expected to work with aquaculture producers, private fisheries owners, pond management companies, as well as support state and federal agencies such as the Texas Parks and Wildlife Department.

See attached .pdf for more information.

### **Director of Fish Health**

**Syndel**

Nanaimo, BC

Link: <https://syndel.bamboohr.com/jobs/view.php?id=42&source=aWQ9NA%3D%3D>

Syndel's Director of Fish Health is a member of the Product Management Team. As part of the team, the Director will assist with and/or lead in all aspects of Product Management, including but not limited to leading the company's technical fish activities, consulting and training the Commercial team members, advising the Regulatory team members and contributing to their regulatory functions, technically supporting our partners and customers, and contributing to product development and strategic planning. This position is a technical administrative position and involves managing proprietary files and projects which may include verbal and written communication with our internal teams, with our customers, strategic partners, state and federal groups, as well as with regulatory agencies (e.g., US Food and Drug Administration (FDA) and Health Canada (HC)), consultants etc.

In addition, this position will include the general administrative management for the Syndel Nanaimo office operations.

### **Veterinarian of Fish Health**

**Syndel**

Nanaimo, BC

Link: <https://syndel.bamboohr.com/jobs/view.php?id=33&source=aWQ9NA%3D%3D>

Syndel's Veterinarian of Fish Health (DVM) is a member of the Product Management Team. As part of the team, the Specialist will assist with and/or lead in all aspects of Product Management, including but not limited to leading the company's technical fish activities, consulting and training the Commercial team members, advising the Regulatory team members and contributing to their regulatory functions, technically supporting our partners and customers, and contributing to product development and strategic planning. This position is a technical administrative position and involves managing proprietary files and projects which may include verbal and written communication with our internal teams, with our customers, strategic partners, state and federal groups, as well as with regulatory agencies (e.g., US Food and Drug Administration (FDA) and Health Canada (HC)), consultants etc.

**Laboratory Manager – Aquatic Health Section**  
**WA Animal Disease Diagnostic Laboratory (WADDL)**  
Pullman, WA

The Washington Animal Disease Diagnostic Laboratory (WADDL) within the Washington State University (WSU) College of Veterinary Medicine is offering an Aquatic Health Laboratory Manager position. This unique position is fully emersed in an American Association of Veterinary Laboratory Diagnosticians (AAVLD) accredited veterinary laboratory and supervises critical aquatic diagnostic and regulatory testing for both aquaculture (primarily salmon/ trout) producers and wild fish natural resource agencies throughout the Pacific Northwest and western United States. The laboratory manager is a key team member in an Aquatic Health Core that includes the Aquatic Health Section composed of 8.5 staff FTE (microbiologists and one laboratory technician) overseen by the position, three American College of Veterinary Pathologists (ACVP) boarded veterinarian pathologists focused on aquatic animal necropsy and histopathology, and faculty and staff within the WADDL bacteriology/ antimicrobial susceptibility testing and molecular diagnostics/ whole genome sequencing sections. The primary responsibility of the manager is oversight of the Aquatic Health Section operations including scheduling and organizing regulatory and diagnostic sample submission and testing, staffing, laboratory procedures, budget management, quality assurance and short and long-term planning in close collaboration of the Aquatic Health Section head. The Aquatic Health Core is client focused, and the laboratory manager is expected to interact and support producers, veterinarians, and state, federal, and tribal regulatory officials regarding interstate and international movement of fish or fish gametes and the reduction of disease risk in production systems. Growth opportunities Washington Animal Disease Diagnostic Lab, College of Veterinary Medicine for this position include expansion of the WADDL Aquatic Health Section testing to support aquaculture involving other freshwater and marine fish and non-fish species, food safety testing, and enhancing the understanding of pathogen transmission at the interface of wild aquatic populations and aquatic production facilities. The successful applicant is expected to have a strong background in fish health and diagnostic assays with an understanding of laboratory quality assurance.

See attached .pdf for more information.

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

## **RESOURCES/NEWS**

### **Publication of articles from the 3rd Sea Lamprey International Symposium (SLIS III)**

The full supplemental volume from SLIS III has been fully published in the Journal of Great Lakes Research 47[Suppl.1]:S1-S814. The final articles are now available on-line at:

<https://www.sciencedirect.com/journal/journal-of-great-lakes-research/vol/47/suppl/S1>

All of the articles are open access and free to download. Please circulate this link to interested individuals, including co-authors and colleagues who may not have been able to attend SLIS III.

**Aquatic Animal Drug Approval Partnership (AADAP) Updates are now available online:**  
[https://www.fws.gov/fisheries/AADAP/aadap\\_update.html](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**



Miracidia of *Sanguinicola* spp., larval trematode, in the gills of a juvenile rainbow trout, cropped from 100x objective picture, Oak Springs Hatchery, OR, December 2021.

**Laboratory Manager:  
Aquatic Health Section  
Washington Animal Disease Diagnostic Laboratory (WADDL)**

**Title:** Laboratory Manager

**Location:** The position is located on the Pullman Campus of Washington State University

**Appointment:** The appointment is permanent, 12-month, Administrative Professional (AP)

**FTE:** 1.0 Full-time equivalency

**Salary:** Commensurate with training and experience

**Screening Begins:** September 15, 2021

**Position Available:** October 15, 2021

The Washington Animal Disease Diagnostic Laboratory (WADDL) within the Washington State University (WSU) College of Veterinary Medicine is offering an Aquatic Health Laboratory Manager position. This unique position is fully immersed in an American Association of Veterinary Laboratory Diagnosticians (AAVLD) accredited veterinary laboratory and supervises critical aquatic diagnostic and regulatory testing for both aquaculture (primarily salmon/ trout) producers and wild fish natural resource agencies throughout the Pacific Northwest and western United States. The laboratory manager is a key team member in an Aquatic Health Core that includes the Aquatic Health Section composed of 8.5 staff FTE (microbiologists and one laboratory technician) overseen by the position, three American College of Veterinary Pathologists (ACVP) boarded veterinarian pathologists focused on aquatic animal necropsy and histopathology, and faculty and staff within the WADDL bacteriology/ antimicrobial susceptibility testing and molecular diagnostics/ whole genome sequencing sections. The primary responsibility of the manager is oversight of the Aquatic Health Section operations including scheduling and organizing regulatory and diagnostic sample submission and testing, staffing, laboratory procedures, budget management, quality assurance and short and long-term planning in close collaboration of the Aquatic Health Section head. The Aquatic Health Core is client focused, and the laboratory manager is expected to interact and support producers, veterinarians, and state, federal, and tribal regulatory officials regarding interstate and international movement of fish or fish gametes and the reduction of disease risk in production systems. Growth opportunities

for this position include expansion of the WADDL Aquatic Health Section testing to support aquaculture involving other freshwater and marine fish and non-fish species, food safety testing, and enhancing the understanding of pathogen transmission at the interface of wild aquatic populations and aquatic production facilities. The successful applicant is expected to have a strong background in fish health and diagnostic assays with an understanding of laboratory quality assurance.

WADDL is a fully accredited (AAVLD), full service veterinary diagnostic laboratory within College of Veterinary Medicine at Washington State University, Pullman, WA. Divisions of the laboratory include aquatic health, bacteriology, histopathology (including immunohistochemistry), molecular diagnostics, necropsy, parasitology, serology, toxicology and mammalian virology. The Aquatic Health Core performs over 44,000 assays per year including viral culture, bacteriology, ELISA, PCR testing, whole genome sequencing and necropsy/ histopathology.

**Minimum Qualifications:** Master's degree in an appropriate related scientific discipline and four (4) years of progressively responsible professional experience involving fish health which has included at least two (2) years of supervisory experience or equivalent education and experience. Certification as an American Fisheries Society, Fish Health Inspector would be expected within 6 months of employment.

**Preferred Qualifications:** Advanced degree in microbiological/ biological sciences such as a DVM and/or PhD. Experience in an aquatic diagnostic laboratory. Familiarity with laboratory procedures and QA/QC required for official health inspection of aquatic animals. Interest in continuing education in the field of aquatic animal health and diagnostic assay development.

For more information, contact:

Kevin Snekvik, DVM, PhD, Diplomate ACVP  
Director of Operations, Washington Animal Disease Diagnostic Laboratory  
Professor, Department of Veterinary Microbiology and Pathology  
e-mail - [ksnek@wsu.edu](mailto:ksnek@wsu.edu)  
Phone - (509) 335-6331  
FAX – 509-335-7424

**Assistant Professor of Fish Pathology or Immunology**  
**Department of Rangeland, Wildlife and Fisheries Management**  
**College of Agriculture and Life Sciences**  
**Texas A&M University**

**POSITION:** The Department of Rangeland, Wildlife, and Fisheries Management, in the College of Agriculture and Life Science at Texas A&M University in College Station, Texas invites applications for an Assistant Professor position with an emphasis in fish pathology or immunology. This is a 9-month tenure-track academic appointment with (60%) research, (30%) teaching, (10%) services with an anticipated start date of no earlier than 1 August 2022.

**GENERAL DUTIES AND RESPONSIBILITIES:** The successful candidate will be expected to enhance a faculty addressing various aspects of aquaculture and fisheries management in the Department of Rangeland, Wildlife and Fisheries Management (RWFM). They also will be expected to collaborate with and enhance existing faculty with expertise in the areas of fish nutrition, physiology, and fisheries management as it pertains to fish health and diseases. This position will be an integral component of the Department's research and teaching programs in aquaculture and fisheries management. Included duties will be the development and leadership of an independent, extramurally-funded, internationally recognized applied research program with a focus on warm water finfish that directly addresses disease management or diagnostic issues facing aquaculture producers and private pond owners within Texas and the U.S. The appointee will be expected to teach courses related to their expertise in the recently established undergraduate curriculum. Courses (or a portion of the course) may include Fish Health and Diseases, Principles and Practices of Wildlife/Fisheries Management, and a summer Aquatic Field Experience course. Graduate courses in the candidate's area of expertise that may include Fish Immunology, Pathology, or Health and Diseases. RWFM is an applied management focused department and as such the successful candidate is expected to work with aquaculture producers, private fisheries owners, pond management companies, as well as support state and federal agencies such as the Texas Parks and Wildlife Department.

**REQUIREMENTS:** Ph.D. in Aquaculture, Fisheries Science, Veterinary Medicine, or related field is required. A Doctorate of Veterinary Medicine (DVM) with aquatic animal health coursework or experience preferred, but not required. Postdoctoral or clinical veterinary experience is preferred. Evidence of outstanding research and publishing capacities is required, along with the potential to establish and maintain strong teaching and graduate education programs.

**RESOURCES:** Texas A&M University (TAMU) is a public, land-grant institution with many high-quality academic units conducting research in areas of natural resource conservation and management. The successful candidate will be offered a competitive salary, startup package and laboratory space and/or field equipment, as well as access to research facilities at the Aquacultural Research and Teaching Facility (ARTF) associated with the Department of Rangeland, Wildlife and Fisheries Management, Texas A&M AgriLife Research, and the College of Agriculture and Life Sciences. The candidate will have opportunities to collaborate with a broad range of TAMU System researchers around the state including the Aquatic Diagnostics Laboratory within RWFM, the Texas A&M Veterinary Medical Diagnostic Laboratory, and the Texas A&M College of Veterinary Medicine and Biomedical Sciences.

**APPLICATION PROCESS:** Applications will only be accepted through *Interfolio* [apply.interfolio.com/96875](https://apply.interfolio.com/96875). Applicants must submit: (1) a cover letter of interest, (2) detailed curriculum vitae, (3) a two-page statement of teaching and research plans, and 4) contact information for three professional references who can provide a critical evaluation of the applicant's qualifications for the position. Review of applications will begin January 1, 2022, and continue until the position is filled.

For questions, email inquiries to the attention of Dr. Del Gatlin, Search Committee Chair, Department of Ecology and Conservation Biology, Texas A&M University, College Station, TX 77843, via Ms. Theresa Nemec e-mail: [tnemec@tamu.edu](mailto:tnemec@tamu.edu).

Texas A&M University is committed to enriching the learning and working environment for all visitors, students, faculty, and staff by promoting a culture that embraces inclusion, diversity, equity, and accountability. Diverse perspectives, talents, and identities are vital to accomplishing our **mission** and living our **core values**.

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Sept, 2022 Santiago, Chile

*“Enhancing Aquatic Animal Health  
towards One Health”*



UC | Chile

## RE: Call for Special Sessions

The 9<sup>th</sup> International Symposium on Aquatic Animal Health (9<sup>th</sup> ISAAH) will be held September 4 – 8, 2022, in Santiago, Chile. The ISAAH is a truly unique event, held every four-years, and hosted in conjunction with the Fish Health Section of the American Fisheries Society. The ISAAH typically attracts 300–400 aquatic animal health professionals from around the world covering all manners of discipline and scientific inquiry. This is an exciting event you won't want to miss!

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 9<sup>th</sup> ISAAH will bring together scientists and aquatic animal health specialists from across the globe, to open new avenues of research and help foster international collaborations. This will also be the first time ISAAH is held outside of North America!

The organizing committee is still taking suggestions for special sessions. If you have a topic for consideration or would like to organize a session of particular interest, please contact Matt Griffin ([matt.griffin@msstate.edu](mailto:matt.griffin@msstate.edu)) with the subject heading “ISAAH 2022 Special Sessions”.

### The following topics have already been submitted for consideration:

WAVMA/AAFV (Continuing Education Opportunity)	Parasite Life Cycles
Zebrafish/Lab Animal Models	Applications of Modeling in Aquatic Animal Health
Genomic Applications in Fish Health	Emerging Diseases
Immune modulation in Fish Health Management	Myxozoa
Microbiomes: Applications in Fish Health	Climate Change: Impacts on Fish Health
Polymicrobial Infections	

We look forward to hearing from you and hope to see you in Santiago!

### **The Organizing Committee**

Fernando Mardones, School of Veterinary Medicine, Pontifical Catholic University, Chile  
Marilia Salgado Caxito, School of Veterinary Medicine, São Paulo State University, Brazil  
Natalia Zimin-Veselkoff, School of Veterinary Medicine, Pontifical Catholic University, Chile  
Matt Griffin, College of Veterinary Medicine, Mississippi State University, USA.  
Esteban Soto, School of Veterinary Medicine, UC Davis, USA

# Fish Diseases in Conservation Biology and Aquaculture

**Course Number:** FW/MB 491/591

**Term Offered:** Winter

**Credits:** 3

**Classroom:** Remote and in person Thurs 10-11:30 am

**Instructor name:** Jerri Bartholomew

**Instructor email:** [jerribartholomew@oregonstate.edu](mailto:jerribartholomew@oregonstate.edu)

**Instructor phone:** 7-1834

**Instructor office:** Nash 524

**Website:** <http://microbiology.science.oregonstate.edu/content/dr-jerri-bartholomew>

## Course Description

**Prerequisites:** 9 credits of upper division fisheries or biology

**Course Content:** In this course we'll cover a broad array of diseases of marine and freshwater fishes, covering important pathogen groups (viruses, bacteria, parasites, fungi), host/parasite relationships and disease ecology. Diseases important to aquaculture and ornamental industries as well as wild fish populations and conservation programs will be included. The course includes a comprehensive overview of important pathogen groups, host responses to infection (including the role of immune and stress responses), diseases of importance to various aquaculture species, diseases in natural populations, epidemiology and treatments. Guest lectures will cover selected current topics of regional interest, emerging diseases, the effects of climate change and group presentations.

## This is a Hybrid Course

This is a hybrid class and incorporates a range of course materials (microlectures, videos, literature, web pages) and an assortment of activities and assignments. Half of the traditional class time is replaced with these online activities.

Class time is for:

- 1) Expanding on the online material to include newer and more advanced information
- 2) Overviewing major concepts, minor points, and how they fit together
- 3) Group discussions
- 4) Guest speakers

Online activities include:

- 1) Pre-lecture quizzes so the instructor knows which topics to concentrate on
- 2) Videos and lectures that provide examples of key concepts
- 3) Study guides
- 4) Peer review of group assignments

This table compares the allocation of time in a hybrid course compared to a traditional 3 credit course

	HYBRID	Traditional
Class meetings per week	1	3
Classroom minutes per week	80 minutes	150 minutes
Required online activity per week	60-120 minutes	0-20 minutes
Recommended study time per week*	6-9 hours	6-9 hours
Total time per week	9-12 hours	9-12 hours

\* This is in addition to the class meetings and required online activities. It may include reading text and articles, preparing for exams and reading quizzes, preparing and completing assignments.

## **Communication**

Please post all course-related questions in the Q&A Discussion forum so that the whole class may benefit from our conversation. Please email me for matters of a personal nature. I will reply to course-related questions and email within 24-48 hours.

I encourage you to ask any questions you may have about the course schedule or content, no matter how basic — others may have the same question; but please check the Announcements, General Discussion Forum and [read the syllabus first!](#)

In addition to the General Discussion Board, there will be [specific Discussion Board conversations](#) developed around particular topics, for which you will receive directions with that week's course material.

## **Learning Resources**

Microlectures (narrated powerpoint), videos, study guides, review papers and relevant journal articles, online Blue Book <http://www.afs-fhs.org/bluebook/bluebook-index.php>, European Fish Pathogens Database <http://www.fishpathogens.eu/>, and Online Hospital [http://www.jbl.de/en/online-hospital/text\\_diag](http://www.jbl.de/en/online-hospital/text_diag), current newsletters and aquaculture magazines, websites: fishnet.com and <http://fishpathogens.net/>

## **Canvas**

This course will use an online portal where you will interact with your classmates and with your instructor. Within the course Canvas site you will access the learning materials, such as the syllabus, class discussions, assignments, projects, and quizzes.

## **Measurable Student Learning Outcomes**

### Undergraduate student learning outcomes:

By the end of this course, students will be able to

1. Describe the different types of pathogens that affect fish in culture and in the wild.
2. Outline important similarities and differences in the pathology, epidemiology, and control and treatment for different pathogens and pathogen groups.
3. Interpret and explain fundamental concepts in host-parasite interactions and disease ecology.
4. Assess a current biological problem and recommend an approach for solving the problem.
5. Communicate scientific concepts and analytical arguments clearly and concisely both verbally and in writing.

### Graduate student learning outcomes:

In addition to the above learning outcomes for undergraduate students, by the end of this course, graduate students will be able to

1. Synthesize concepts and demonstrate an understanding of disease interactions at the ecosystem level.
2. Manage group activities and play a leadership role.

## Evaluation of Student Performance

### Undergraduate students

1 mid-term exam (weeks 1-5 inclusive)	100
1 final exam (cumulative, but focus on weeks 6-10)	100
Small group exercise	150
Attending and contributing to online discussion	60
Online quizzes and survey	90
<b>Total possible points for 491</b>	<b>500</b>

### Graduate students

Graduate students taking the course as 591 will be graded separately and the final exam will be oral. In addition to the above requirements, you will be required to act as leaders of small group exercises. You will also be required to lead 2 discussions (in class and online) sometime during the term.

Leading discussions	50
<b>Total possible points for 591</b>	<b>550</b>

### Point Distribution

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 60 - 69%
F = 0 - 59%

I will endeavor to grade assignments within one week.

## Course Schedule

Week	Topic	Online Learning Activities	Assignments Due Wed prior to class at 5 pm	Thurs Classroom Learning Activities
<p><b>1</b> <b>Jan 3 – 9</b></p> <p><b>In person</b> <b>Jan 6</b></p>	Introduction, disease transmission, host-pathogen relationship	<p>Prezi: Overview of course</p> <p>Microlecture: Basics of the host-pathogen relationship</p> <p>Prezi: Disease transmission</p>	<p>Quiz 1 (Online)</p> <p>Assignment 1 Disease Transmission</p>	<p>Discussion of course expectations and additional topic background</p> <p>Aquaculture lecture</p> <p>Group exercise on disease transmission</p>
<p><b>2</b> <b>Jan 10-16</b></p> <p><b>In person</b> <b>Jan 13</b></p>	<p>Bacterial pathogens <i>- provide list of pathogens</i></p> <p>Immunology</p>	<p>Microlecture: bacterial pathogens</p> <p>Bacterial pathogens video</p> <p>Immunology review paper</p>	<p>Quiz 2 (O)</p> <p>Assignment 2 Population-Level Characteristics of Disease</p> <p>Assignment 3a Describe a bacterial pathogen</p>	<p>Group discussion: characteristics of bacterial pathogens</p> <p>How the host fights back – Brian Dolan, immunologist</p>
<p><b>3</b> <b>Jan 17-23</b></p> <p><b>In person</b> <b>Jan 20</b></p>	<p>Viral pathogens <i>- provide list of pathogens</i></p>	<p>Microlecture: viral pathogens</p> <p>Viral pathogens video</p>	<p>Quiz 3 (O)</p> <p>Assignment 3b Describe a viral pathogen</p>	<p>Group discussion: characteristics of viral pathogens</p> <p>ODFW: Melissa White on IHNV epidemiology</p>
<p><b>4</b> <b>Jan 24-30</b></p> <p><b>In person</b> <b>Jan 27</b></p>	<p>Protozoan parasites <i>- provide list of pathogens</i></p> <p>Treating diseases in hatcheries</p>	<p>Microlecture: protozoan parasites</p> <p>Protozoan pathogens video</p> <p>Prezi: Group projects</p>	<p>Quiz 4 (O)</p> <p>Assignment 4a Protozoan Parasites</p>	<p>Group discussion: characteristics of protozoan pathogens</p> <p>Treating diseases – ODFW – Sarah Bjork</p> <p>Group Projects</p>
<p><b>5</b> <b>Jan 31- Feb 6</b></p> <p><b>In person</b> <b>Feb 3</b></p>	<p>Myxzoan and Metazoan parasites <i>- provide list of pathogens</i></p>	<p>Myxozoan pathogens microlecture</p> <p>Review paper</p> <p>Other metazoan parasites microlecture</p>	<p>Quiz 5 (O)</p> <p>Assignment 4b Myxozoan and Metazoan parasites</p> <p>Group project assignment 1 (Due at 11:59 PM)</p>	<p>Group discussion: characteristics of myxozoan and metazoan parasites</p> <p>Mid-term Review</p>

<p><b>6</b> <b>Feb 7-13</b></p> <p><b>In person</b> <b>Feb 10</b></p>	<p>Midterm</p> <p>Myxozoan disease in wild populations</p>	<p>Midterm</p>	<p>Midterm(O) (Due at 11:59 PM)</p> <p>Group project assignment 2 (Due at 11:59 PM)</p>	<p>Myxozoan disease in Yellowstone Park – Julie Alexander</p> <p>Disease in the Klamath River – Sascha Hallett</p>
<p><b>7</b> <b>Feb 14-20</b></p> <p><b>In person</b> <b>Feb 17</b></p>	<p>Disease in warmwater aquaculture</p>	<p>Warmwater aquaculture lecture</p>	<p>Quiz 6 (O)</p> <p>Discussion board – what is an emerging pathogen</p> <p>Group project assignment 3 (Due at 11:59 PM)</p>	<p>Group discussion of how disease differs between coldwater and warmwater aquaculture</p> <p>Disease in ornamentals – Aimee Reed</p>
<p><b>8</b> <b>Feb 21-27</b></p> <p><b>In person</b> <b>Feb 24</b></p>	<p>Disease in the marine fish</p>	<p>Disease in wild marine fish microlecture</p> <p>Review paper</p> <p>Current press on disease interactions</p>	<p>Quiz 7(O)</p> <p>Discussion board – how big are the disease risks from aquaculture?</p> <p>Group project assignment 4 (Due at 11:59 PM)</p>	<p>Discussion on hatchery-wild interactions</p> <p>Disease in netpens – Mike Kent</p>
<p><b>9</b> <b>Feb 28-March 6</b></p> <p><b>In person</b> <b>March 3</b></p>	<p>Climate change and effects of stressors on disease</p>	<p>Climate change microlecture</p> <p>Review paper</p>	<p>Quiz 8 (O)</p> <p>Discussion board- Comment on another group's biosecurity plan</p> <p>Group project assignment 5 (Due at 11:59 PM)</p>	<p>Discussion on the variables that will affect disease under changing climate</p> <p>Carl Schreck – disease, stress and prespawn mortality</p>
<p><b>10</b> <b>March 7-13</b></p> <p><b>In person</b> <b>March 10</b></p>	<p>Group presentation</p>		<p>Course survey</p>	<p>Group presentations</p>
<p><b>Finals Week</b> <b>March 14-18</b></p>				