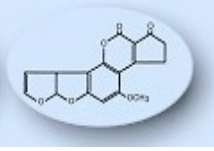



Fish Health Section


FHS NEWS – November 2022

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.

Membership notice: Starting in March 2023, only paid FHS members will receive newsletters and communications from the section. We are giving you several months notice to get your AFS & FHS membership up to date. Please join us and don't miss out on the connection to your peers. We will also be transitioning to a new listserv service so emails will be coming from fhs@afsmembers.simplelists.com soon. Keep an eye on those spam/junk mailboxes!

President's Message is attached, please read the message from our new section president, Anita Kelly!

S.F. Snieszko Distinguished Service Award Nomination Announcement

FISH HEALTH SECTION

As we approach the end of 2022, 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 (Isaac Standish, sirisaac_standish@fws.gov) by February 1, 2023. 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

Isaac Standish, Chair (sirisaac_standish@fws.gov)
Nicole Nietlisbach (nicole.nietlisbach@wisconsin.gov)
Luke Iwanowicz (liwanowicz@usgs.gov)

Special Achievement Award

We would like to solicit nominations for the Special Achievement Award. The award is presented to a Fish Health Section member who has made a significant accomplishment or advancement in the field of fish health. The award is for a one-time accomplishment and may be given for: (1) a unique contribution to the fish health field (such as a new diagnostic tool, a new technique to control disease, etc.), (2) a significant research accomplishment, or (3) outstanding leadership in resolving a major aquatic animal health problem.

If you wish to nominate an individual for the SDSA please send nomination packages to the Awards Committee Chair (Isaac Standish, sirisaac_standish@fws.gov). Awards recipient(s) will be honored at the Annual Fish Health Section Meeting.

Individuals must be nominated by a current FHS member and packages must include:

1. The accomplishment.
2. The significance of the accomplishment to the field of fish health.
3. Implication of the accomplishment to aquaculture (local, regional, national, or worldwide).

Copies of any articles or supporting documents related to the work should be included in the nomination package. Nominations for the Special Achievement Award should be made within one year of the accomplishment. Additional guidance can be found on page 21 of the FHS procedures manual.

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

Awards Committee

Isaac Standish, Chair (sirisaac_standish@fws.gov)
Nicole Nietlisbach (nicole.nietlisbach@wisconsin.gov)
Luke Iwanowicz (liwanowicz@usgs.gov)

MEETINGS, WORKSHOPS AND COURSES

Western Fish Disease Workshop
June 6-8, 2023
Parksville, B.C.

This is the first announcement for the 2023 WFDW to be held in Parksville, British Columbia. We are very excited to be hosting the 62nd annual meeting at the Tigh-na-Mara Seaside Spa Resort from

June 6-8, 2023. We hope to see you all in person at this event! More details will be forthcoming about accommodations, CE session, travel details, conference fees and more in the coming months. So please mark your calendars to join us on Vancouver Island, BC. Details will be posted on the AFS Fish Health Section website as they become available along with more email announcements through the AFS-FHS newsletter.

Fish Disease in Conservation Biology and Aquaculture (remote section: MB 591-002; CRN 41039)
Winter term 2022 (Jan 9 - March 24); Thurs 10-11:30
Oregon State University
Instructor: Dr. Jerri Bartholomew and guest speakers

The Salmon Disease Workshop will not be offered this coming summer. In lieu of that, 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. Many of the speakers are those that teach in the summer workshop, so there will be some overlap of information. Attached is the draft course syllabus and schedule.

The instructions for registration are:

1. Apply as a Non-Degree Student (https://gradschool.oregonstate.edu/admissions/non-degree): 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, which means you can register on Tues, Jan 3. Non-degree students do not need a PIN to register.

To register as non-degree grad student there is a standard one-time enrollment fee (I think $350) 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 Jerri Bartholomew (jerri.bartholomew@oregonstate.edu) so I can design appropriate exercises and content, and if you have any questions.

Northwest Fish Culture Concepts 71st Annual Meeting
December 6-8, 2022
Portland, Oregon

The NW Fish Culture Concepts Executive Committee and the Fish Culture Section of the American Fisheries Society invite you to attend the Northwest Fish Culture Concepts 71st Annual Meeting, December 6-8, 2022. This event will be held at the DoubleTree by Hilton - Portland, Oregon near Lloyd Center (same venue as 2018 meeting).

Northwest Fish Culture Concepts (NWFCC) is an excellent venue for presentation of technical fish culture applications and an excellent opportunity to visit with trade show vendors. Registration for participants and vendors is available online with payment by credit card and check accepted through this link: https://register.gtrnow.com/71st_Northwest_Fish_Culture_Concepts__Fresh-

Early conference registration fee is $150 through November 4, 2022. After this date, the registration fee increases to $175. Student/retired fee is $50.

Trade show exhibitor fee is $650/booth with opportunity for additional support for enhanced coffee breaks and socials.

A limited number of hotel rooms are blocked off for the NWFCC at the DoubleTree by Hilton - Portland, Oregon near Lloyd Center at or below current government per diem rates. Current rates start at $139/room. Please reserve through this link: https://www.hilton.com/en/book/reservation/deeplink/?ctyhocn=RLLC-DT&groupCode=CDTNWF&arrivaldate=2022-12-05&departuredate=2022-12-09&cid=OM,WW,HILTONLINK,EN,DirectLink&fromId=HILTONLINKDIRECT

A block of rooms, under “Group Name” of “NW Fish Culture Concepts”, has been reserved for December 5, 2022 - December 9, 2022. The special room rate will be available until November 4th or until the group block is sold-out, whichever comes first.

JOBS/GRADUATE ASSISTANTSHIPS

Fish Culture Coordinator - Technical Development
Ministry of Natural Resources and Forestry
Peterborough, Ontario
Closes December 5, 2022
Link: https://www.gojobs.gov.on.ca/Preview.aspx?Language=English&JobID=190980

In this role, you will:

• lead biological, statistical, information management and technological activities to support the successful development and implementation of operational policies, procedure, standards, guidelines and technologies for the provincial fish culture system
• you will provide administrative, scientific and technical assistance to the provincial fish culture stations

Shellfish Health and Disease Technician
AIS, Inc.
Milford, CT
Link: https://aisobservers.hrmdirect.com/employment/job-opening.php?req=2296050&&#job

Project Summary:

This project aims to characterize the seasonal and temporal dynamics of disease in natural and restored oyster populations in Long Island Sound. The Shellfish Health and Disease Technician will work with NOAA laboratory staff and collaborating organizations to collect oyster samples and environmental data in the field, and to process and analyze samples using molecular and histopathological methods in the laboratory.

Surveys will be used to estimate disease prevalence and reproductive fitness in intertidal and subtidal nearshore oyster beds in both Connecticut and New York waters. Environmental and structural data will be used to describe the environmental and biological factors associated with disease burden in the study populations.

Duties/Responsibilities:

- Regular travel to field sites to conduct oyster population surveys and to collect whole animal samples, oyster samples, population and environmental data.
- In the laboratory, the Shellfish Health and Disease Technician will process oyster tissues and run assays for histopathological, microbiological, and molecular analysis.
- Conduct research activities outdoors, often on boats or in marine intertidal environments.
- Conduct data entry, data management, and quality control of field and laboratory data using statistical and database management software.
- Assist in data analysis and reporting of results, including the preparation of peer-reviewed journal manuscripts and conference presentations.

Epidemiologist 1 – Fish Health Specialist

Washington Dept. of Fish and Wildlife
Ephrata, WA
Link: https://www.governmentjobs.com/careers/washington/jobs/3449350/epidemiologist-1-fish-health-specialist-permanent-03128-22?department[0]=Dept.%20of%20Fish%20and%20Wildlife&sort=PostingDate%7CDescending&pagetype=jobOpportunitiesJobs

Duties:

Clinical Health Monitoring: Provides clinical support to assigned facilities in an effort to protect humans and fish from zoonotic and non-zoonotic disease. With funding, conduct research designed to improve the fish disease diagnostic capacities especially for those with zoonotic potential. Occasional screening and diagnosis of wild fish. Tasks include:

- Conducts zoonotic and non-zoonotic fish disease investigations for hatchery or wild morbidity and mortality events at designated hatcheries and watersheds within regions 1, 2, & 3. Includes conducting surgical and other pathologist-related procedures.
- Conducts necropsies; collect, process, and submit appropriate specimens; and interpret findings from fish and wildlife morbidity and mortality investigations.
- May be required to euthanize animals using methods approved by the American Veterinary Medical Association.
- Recognizes and detects non-zoonotic and potentially zoonotic fish pathogens, including viral, bacterial, fungal, or parasitic pathogens.

- Recognizes environmental factors, including toxicants, or fish culture practices that may cause or contribute to fish disease.
- Collects the appropriate samples for detection, confirmation, and prevalence testing, ensuring that sampling is consistent with at least the Co-Managers Salmonid Disease Control Policy for regions 1, 2, & 3.
- Trains hatchery staff to correctly obtain samples when this position is unavailable. Directs hatchery staff to maintain compliance with the Policy when carrying out their fish culture duties.
- Ensures that for all stocks samples are taken properly, and they are packaged and labeled correctly for transport to the laboratory.
- When working with Veterinary Feed Directives (VFDs) and prescribed therapeutants, follows directions from VOR (Veterinarian of Record) and advises VOR as to effects of treatments.
- Communicates with hatchery staff and federal or tribal co-managers when regulated or reportable pathogens, as defined by the Policy, are detected and confirmed, and with appropriate state and federal public health agencies, including, but not limited to Washington State Department of Agriculture (WSDA), Washington Department of Health (WDOH), and United States Department of Agriculture – Animal and Plant Health Inspection Service (USDA-APHIS), when known zoonotic pathogens are detected and confirmed.

Microbiologist 2
Washington Dept. of Fish and Wildlife
Olympia, WA
Link: https://www.governmentjobs.com/careers/washington/jobs/3771088/microbiologist-2-in-training-option-fish-program-permanent-22-15217?department[0]=Dept.%20of%20Fish%20and%20Wildlife&sort=PostingDate%7CDescending&pagetype=jobOpportunitiesJobs

Some of what our Microbiologist will do:

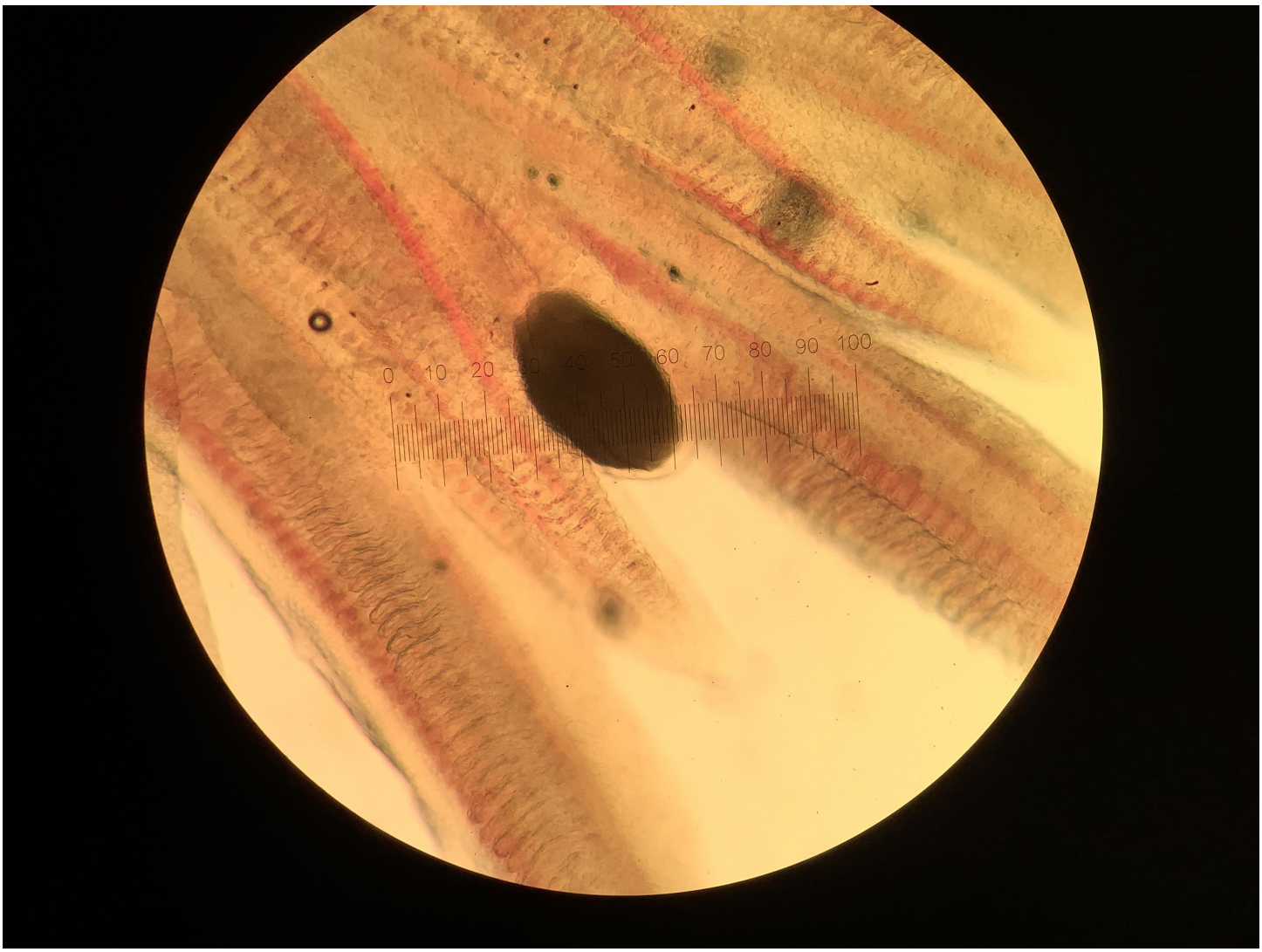
- Molecular Genetics: DNA extractions; end point PCR, nested PCR, qPCR methods; protocol development; instrumentation; and interpretation.
- Virology: Sample processing and plating, maintain cell culture and cell lines, microscopy, viral CPE, identification of certifiable aquatic animal pathogens, cryopreservation of viral positives and cell lines, dot blot, maintain records logs.
- Bacteriology: Sample processing, plating, streaking, and culture isolation, use of Gram stain, biochemistry, microscopy, antibiotic sensitivity testing, or API testing for identification of certifiable fish pathogens, ELISA for the identification of bacterial antigens, necropsy diagnostics submissions, maintain records log.
- Standard lab procedures: Media preparation, sample submission and record keeping, stocking and inventory of consumables, supply ordering, data entry and review, report preparation, establish procedures and tests, SOP (Standard Operating Procedure) development and writing, equipment maintenance, special project coordination and development as assigned.

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

Editor’s Random Pics



Scroll down for photo descriptions.

Glochidia (larva from freshwater mussel) in the gills of a juvenile summer steelhead, Lake Billy Chinook, 2022.

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
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, 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
Total possible points for 491	**500**

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
Total possible points for 591	**550**

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
1 **Jan 9-15** **In person Jan 12**	Introduction, disease transmission, host-pathogen relationship	Prezi: Overview of course Microlecture: Basics of the host-pathogen relationship Prezi: Disease transmission	Quiz 1 (Online) Assignment 1 Disease Transmission	Discussion of course expectations and additional topic background Aquaculture lecture Group exercise on disease transmission
2 **Jan 16-22** **In person Jan 19**	Bacterial pathogens - *provide list of pathogens* Immunology	Microlecture: bacterial pathogens Bacterial pathogens video Immunology review paper	Quiz 2 (O) Assignment 2 Population-Level Characteristics of Disease Assignment 3a Describe a bacterial pathogen	Group discussion: characteristics of bacterial pathogens How the host fights back – Brian Dolan, immunologist
3 **Jan 23-29** **In person Jan 26**	Viral pathogens - *provide list of pathogens*	Microlecture: viral pathogens Viral pathogens video	Quiz 3 (O) Assignment 3b Describe a viral pathogen	Group discussion: characteristics of viral pathogens ODFW: Melissa White on IHNV epidemiology
4 **Jan 30-Feb 5** **In person Feb 2**	Protozoan parasites - *provide list of pathogens* Treating diseases in hatcheries	Microlecture: protozoan parasites Protozoan pathogens video Prezi: Group projects	Quiz 4 (O) Assignment 4a Protozoan Parasites	Group discussion: characteristics of protozoan pathogens Treating diseases – ODFW – Sarah Bjork Group Projects
5 **Feb 6-12** **In person Feb 9**	Myxzoan and Metazoan parasites - *provide list of pathogens*	Myxozoan pathogens microlecture Review paper Other metazoan parasites microlecture	Quiz 5 (O) Assignment 4b Myxozoan and Metazoan parasites Group project assignment 1 (Due at 11:59 PM)	Group discussion: characteristics of myxozoan and metazoan parasites Mid-term Review

6 **Feb** **13-** **19** **In person Feb 16**	Midterm Myxozoan disease in wild populations	Midterm	Midterm(O) (Due at 11:59 PM) Group project assignment 2 (Due at 11:59 PM)	Myxozoan disease in Yellowstone Park – Julie Alexander Disease in the Klamath River – Sascha Hallett
7 **Feb 20-** **26** **In person Feb 23**	Disease in warmwater aquaculture	Warmwater aquaculture lecture	Quiz 6 (O) Discussion board – what is an emerging pathogen Group project assignment 3 (Due at 11:59 PM)	Group discussion of how disease differs between coldwater and warmwater aquaculture Disease in ornamentals – Aimee Reed
8 **Feb 27-** **March 5** **In person March 2**	Disease in the marine fish	Disease in wild marine fish microlecture Review paper Current press on disease interactions	Quiz 7(O) Discussion board – how big are the disease risks from aquaculture? Group project assignment 4 (Due at 11:59 PM)	Discussion on hatchery-wild interactions Disease in netpens – Mike Kent
9 **March** **6-12** **In person March 9**	Climate change and effects of stressors on disease	Climate change microlecture Review paper	Quiz 8 (O) Discussion board- Comment on another group's biosecurity plan Group project assignment 5 (Due at 11:59 PM)	Discussion on the variables that will affect disease under changing climate Carl Schreck – disease, stress and prespawn mortality
10 **March** **13- 19** **In person March 16**	Group presentation		Course survey	Group presentations
Finals Week **Mar 20-** **26**				