

Northwest Indian Fisheries Commission Experience

Despite a life-long interest in fish, I entered vet school interested in lab animal medicine because I had never realized that a career as a fish vet was feasible. A weeklong fish medicine course at UW-Madison, put on every year by Dr. Mike Collins and Dr. Myron Kebus, opened my eyes to the world of fish veterinary medicine. Since then, I've continued to explore the field and each experience has bolstered my desire to pursue a career as a fish veterinarian.

Thanks to the AAFV student scholarship, I was able to do an externship with Dr. Nora Hickey at the Northwest Indian Fisheries Commission this summer. It was my first substantial experience with salmonids. I had a small amount of previous experience from learning sampling techniques on rainbow trout and visiting a large rainbow trout farm during the Fish Health course at UW-Madison (where I first met Dr. Hickey, who TA-ed the course the year I took it). Those experiences got me interested in salmonid aquaculture, so I was excited to see what Dr. Hickey's daily work was like.

We spent some of the time at Dr. Hickey's office, where I got to learn about NWIFC and the roles of both Dr. Hickey, who is the program veterinarian for NWIFC, and her colleagues who are mostly fish pathologists. I learned about how, in the U.S., fish pathologists have historically practiced fish veterinary medicine instead of veterinarians. We discussed the resistance to veterinary involvement in aquaculture from some fish pathologists and how that is slowly changing, due to developments like the Veterinary Feed Directive and the work to improve aquatic animal medicine education opportunities for veterinarians.

We also spent time discussing helpful resources for fish health in general, for rules on drug use in aquaculture, and the importance of consulting with colleagues. Dr. Hickey gave me a few research assignments in which I looked up information on drugs commonly used in aquaculture. She also had me research parasites she had recently found at some of her hatcheries that we would be rechecking for on visits that coming week. It was extremely helpful for me to practice using resources and to talk through what I found with Dr. Hickey. She also had me practice calculating doses for various treatments and water flow systems which is something I hadn't had much experience with previously. This is obviously a crucial skill for an aquaculture veterinarian and I am very glad to have gotten some practice with these calculations.

I was lucky enough to be at NWIFC on the day of an annual workshop put on for hatchery technicians. This year, the theme was fish health. I got to sit in on the lectures that day and learn about the role veterinarians play in the education of hatchery staff.

Most of my externship was spent visiting a number of different hatcheries all over the state with Dr. Hickey and her colleagues. Most raised Coho salmon and two of them had brood stock programs for Chinook salmon. One also raised Steelhead. I got to see examples of different tank setups, such as large concrete ponds, concrete raceways, and large circular tanks. Most of the farms had flow through systems fed by nearby stream water, while one of the newer facilities had a partial recirculating system, which was helping them cut down on water usage. I also got to see different egg incubation techniques and learned the pros and cons of each. I learned about water sources and biosecurity measures, as well as the life cycles of the different salmonid species the NWIFC tribes raise. Most importantly, I got to see Dr. Hickey's process for visiting hatcheries and how she interacted with hatchery managers and staff. Dr. Hickey and I spent a lot of time discussing the importance of working as a team with the hatchery staff and realizing that, in the end, it is up to the hatchery managers to

decide what they will do with their fish. It is a veterinarian's job (in this situation) to suggest and advise, not demand.

I also got a considerable amount of hands on experience, from necropsying large adult Chinook to taking samples for bacteriology and fluorescent antibody technique (FAT) for *Renibacterium salmoninarum*. It was great to see what Dr. Hickey includes in her tool kits and how she sets up her equipment for diagnostic work. I got to see and learn about many different pathogens and other medical problems including Bacterial Kidney Disease (caused by *Renibacterium salmoninarum*), Bacterial Cold Water Disease (*Flavobacterium psychrophilum*), *Hexamita sp.*, *Ichthyobodo sp.*, *Anisakis sp.*, *Gyrodactylus sp.*, steatitis, sunburn, *Saprolegnia sp.* and *Aeromonas salmonicida*. One of my favorite parts of my experience was getting to anesthetize and recover fish for my first time. It was great to get a feeling for what fish look like as they get anesthetized and how to monitor their recovery.

These farm visits were also great because I got a glimpse of the kind of travel a job like Dr. Hickey's entails. We spent a lot of time driving, even doing an overnight trip up to hatcheries in northern Washington. It's important to see the hardships inherent to a job, and I'm glad I got a better sense of the amount of travel time that is likely required of an aquaculture vet working for tribes, state, or government.

Dr. Hickey also set up a few experiences for me outside of NWIFC. I got to shadow Dr. Caitlin Hadfield at the Seattle Aquarium for a day. During that experience, I got to see Dr. Hadfield check on quarantined fish that were just delivered from Hawaii, see her do a physical exam on a sea otter, helped her prepare otter fecal samples to send to a diagnostics lab, and got to help perform a necropsy on a canary rockfish. Dr. Hadfield also spent time answering the many questions I had about the life of an aquarium veterinarian. She showed me that aquarium vets really do spend a large portion of their time working with fish, and not just charismatic marine mammals.

I also got to spend a day with shellfish inspectors from the Department of Health. I accompanied them on a trip to an oyster farm on the Olympic Peninsula where they were conducting a study on methods to reduce the amount of *Vibrio parahaemolyticus* in oysters. I have almost no knowledge of shellfish, so this was a great introduction. Oysters as well as other shellfish, are important and highly sustainable aquaculture species and I hope to gain more knowledge about them in the future.

This externship was outstanding. I gained so much knowledge and hands on experience in just two weeks. Dr. Hickey is an excellent teacher and it was particularly helpful to get to spend time with a young vet. I feel like I really got a sense of the kind of work I could be doing in a few short years. Dr. Hickey also really understands the point I am at in my veterinary education and can give great advice about externships, the job hunt, salary negotiation, and managing student loans.

My goal in doing this externship was to see what a job as an aquaculture vet could be like and whether I thought it could be the right kind of job for me. I am now confident that I want to pursue a job as an aquaculture veterinarian and that I am very interested in working with salmonids.

Thank you so much for the scholarship that made doing this externship possible. I would not have been able to afford an experience like this on my own and am so thankful the scholarship committee chose me as a recipient.



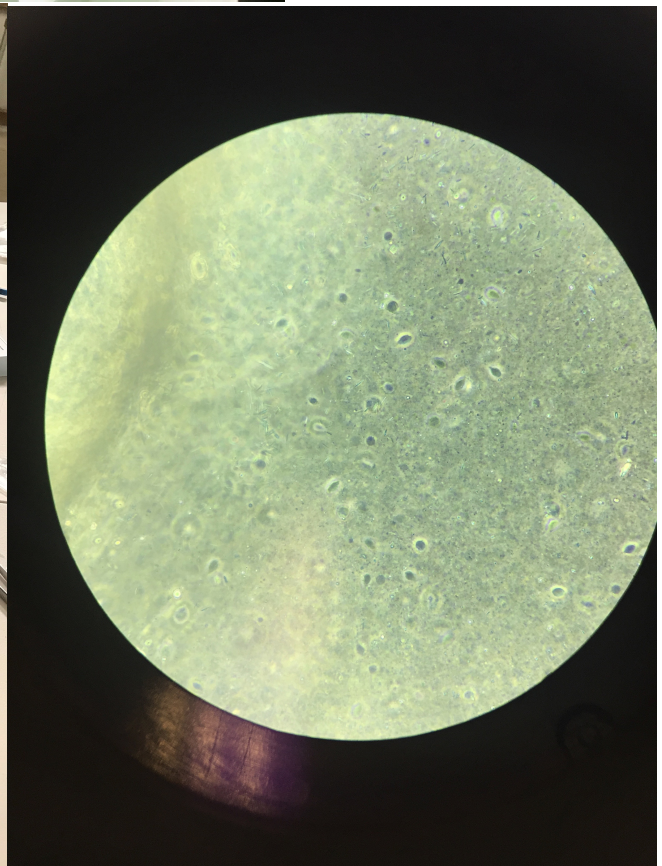
Adult Chinook Salmon



Anasakis sp.



Anesthetizing chinook fingerlings to perform gill clips, fin clips, and skin scrapes. We also euthanized and necropsied a few individuals and found *Hexamita* sp. In their intestines (pictured).





Dr. Hickey's set up for performing necropsies, taking bacteriology, and FAT samples from Coho salmon.



Working with oysters on the Olympic Peninsula. I helped collect oysters for a study and learned some basic skills like how to properly shuck an oyster.

