AQUATIC ANIMAL HEALTH

VETERINARY TRAINING: PLANETARY IMPACT

For over 40 years we have trained Cornell DVM students in aquatic animal health, particularly as it relates to conservation. AQUAVET® was the first course of its kind in the world focused on helping students to recognize that veterinary medicine has a huge role to play in the health of the oceans, other aquatic environments, and the planet itself. AQUAVET® is available to veterinary students in North America and around the world.

The AQUAVET® program attracts forward thinking students and instructors, producing leaders in the field of aquatic animal medicine – breaching any presumed boundaries regarding what it means to be a veterinarian.

AQUATIC HEALTH SUPPORT

The Aquatic Animal Health Program (AAHP) focuses on the health of all aquatic animals, from invertebrates to marine mammals. Our scientists undertake research, perform diagnostics, teach students, and provide outreach to the public to improve and sustain aquatic ecosystem health – targeting economically and environmentally important issues in fish health in particular. The AAHP offers rapid response fish pathology services to the citizens of New York State (NYS) whenever unexplained fish mortalities or abnormalities are found in the wild.

New York State Department of Environmental Conservation (NYSDEC) biologists bring us live and deceased specimens for testing, and we provide services such as physical exams, tissue biopsies, bacterial isolation, viral culture, and histopathology. We strive to understand what starts and drives epidemics, with a focus on preventing future harm to our fisheries.

INNOVATIVE DIAGNOSTICS

For over a decade, we have been developing tools to tackle aquatic animal disease. Our long-term research focus has been on investigating emerging diseases, such as the deadly Viral Hemorrhagic Septicemia of fish, VHS, which impacts Great Lakes conservation efforts, and the *Novirhabdovirus*, which can infect the brain of many fish species and has killed millions of fish in the Great Lakes region.

By creating diagnostic assays to detect diseases, isolating unique viral strains, and using DNA sequencing, we have been able to employ molecular epidemiological techniques to track pathogen spread.

For example, our NYSDEC collaborators intensely sampled dying round gobies, an alien invasive species, in May of 2017. Our AAHP staff found all gobies were infected with VHS virus at very high levels. Five VHS viral isolates from the outbreak are currently being sequenced to discover where the virus-infected gobies came from.

ENGAGING COMMUNITIES WITH CITIZEN SCIENCE

FishTracker is a student-oriented citizen science project based at Cornell University and funded by the USDA National Institute of Food and Agriculture Hatch Project. New York teachers and students play a critical role in monitoring a range of invasive fish species, such as the round goby, using materials, protocols and training from this program. Students collect environmental DNA (eDNA) by filtering water samples from nearby lakes, streams, or ponds, using GPS coordinates to identify each site surveyed.

Citizen scientists have recently assisted in providing eDNA samples to follow the gradual migration of the invasive round goby through the Erie Canal system – which ultimately led to the 2017 VHS outbreak at King Ferry and Long Point on Cayuga Lake.

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Aquatic Animal Health

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