

New Research, Education Addresses VHS in Great Lakes Fish

Cornell University's Dr. Paul R. Bowser (left) receiving the S.F. Snieszko Award in June 2009 from Dr. Gael Kurath of the USGS Western Fisheries Research Center, Seattle, WA, and President of the Fish Health Section, American Fisheries Society.

Photo courtesy of Paul R. Bowser



In early June, NYSG-funded researcher **Dr. Paul Bowser**, was the recipient of the S. F. Snieszko Distinguished Service Award. This is the highest honor given from the American Fisheries Society's Fish Health Section and is a career achievement award for service and contributions to the field of aquatic animal health.

"Receiving such an award has to be described as an overwhelming experience," says Bowser, a faculty member of Cornell University's College of Veterinary Medicine since 1985. "I was truly fortunate to have met the late Dr. Snieszko on several occasions during my graduate program. He was a true giant in the field."

Bowser's research has included such topics as parasitic, bacterial and viral diseases of fish, tumor biology in fish, evaluation of new therapeutic compounds in fish, and emerging diseases of fish. Most recently, his laboratory group has been heavily involved in the investigation of Viral Hemorrhagic Septicemia (VHS), a fish disease that has been found in a wide diversity of species in the Great Lakes Basin.

In a newly-funded two year NYSG study, Bowser and **Dr. James Casey** are examining the transmission process of VHSV, the virus that causes the fish disease, so that better bio-safety protocols and decontamination methods can be developed.

"The virus destroys the cells that line the blood vessels (endothelial cells) in the fish and causes bleeding," says Bowser. "Bleeding along with other damage caused by the virus to internal organs, such as the heart, liver, spleen and kidneys, eventually kills the fish." Over the last several years, significant mortalities have been reported in several Great Lakes fish species: muskellunge (a kind of pike), round gobies, gizzard shad, smallmouth bass and freshwater drum.

"This research is a perfect example of Sea Grant being on the forefront of an emerging issue and addressing research needs on how this disease is affecting Great Lakes fisheries," adds NYSG Fisheries Specialist **Dave MacNeill**.

Earlier this summer, MacNeill and Bowser gave National Sea Grant's first "Ralph Rayburn Beltway Brown Bag seminar" of the year in Washington, D.C. on NYSG's proactive research on and extension of the VHS issue in the Great Lakes. MacNeill was also involved in the planning of an informative VHS workshop last fall for Marine Extension and Fish Health Professionals. Held at the University of Rhode Island, this workshop was sponsored by Sea Grant programs in New York and Rhode Island.

The appearance of VHSV in the Great Lakes has convinced many people that microbial pathogens could be treated like aquatic invasive species (AIS) as well. Aquaculturists, from shrimp farmers to walleye hatchery managers, are beginning to realize HACCP (Hazard Analysis and Critical Control Point, pronounced "hassip") planning – an approach best known for its use in food safety and seafood processing – is also very useful in their fight to stay pathogen free.

To that end, Sea Grant programs in New York, Michigan, Illinois-Indiana, Ohio, Pennsylvania and Wisconsin have partnered to create training curricula materials centered around the AIS-HACCP concept.

NYSG Coastal Education Specialist **Helen Domske** worked with others in the Sea Grant programs throughout the Great Lakes to produce, among other things, *A Field Guide to Fish Invaders of the Great Lakes Region*. The guide includes full-color illustrations for 38 invasive and common look-a-like native fishes.

"The purpose of this guide is to assist private and public fisheries personnel in identifying and reporting potentially invasive fish species that pose threats to the recreational, environmental and economic value of the Great Lakes region," says Domske. The guide is also designed to accompany AIS-HACCP training workshops (for which Domske and others in the Great Lakes Sea Grant network have given and continue to offer), curriculum, video and other program materials. Copies can be requested through NYSG Communications at 631-632-9124.

— Paul C. Focazio



for more on VHS disease and AIS-HACCP training materials