

White Sulphur Springs National Fish Hatchery Newsletter

Issue 16: February - March 2009



Leadership in Science and Technology

WSSNFH Organizing International Symposium of Freshwater Mollusk Conservation Society

Catherine Gatenby, Hatchery Manager at White Sulphur Springs National Fish Hatchery is organizing the International Symposium of the Freshwater Mollusk Conservation Society (FMCS). The symposium will be held April 20-24 in beautiful downtown Baltimore at the Marriot Waterfront hotel. The FMCS is devoted to the advocacy for, public education about, and conservation science of freshwater mollusks, North America's most imperiled fauna. Scientists from around the world (Europe, China, South America, etc...) will be giving over 100 presentations on freshwater mollusk biology, physiology, propagation technology and genetics followed by field trips to the Smithsonian Museum of Natural History, the Potomac River; Nanjemoy Creek, and three research facilities working on freshwater mollusk propagation; WSSNFH, the Freshwater Mollusk Conservation Center at Virginia Tech and the Aquatic Wildlife Conservation Center in Marion, VA.

International Symposium of the Freshwater Mollusk Conservation Society



International Symposium of the FMCS logo.

Mike Pinder, VDGIF

Friends of the White Sulphur Springs National Fish Hatchery

Friends Member and Treasurer, Ellen Broudy, Joins the Inaugural Board of the National Fisheries Friends Partnership



From the left: Richard Christian, Chief of Communications and Partnerships in Fisheries and Aquatic Resources Conservation, Kofi Fynn-Aikins Supervisory Fish & Wildlife Biologist at the Lower Great Lakes FRO, Ellen Broudy, Treasurer of the Friends of the WSSNFH and Stuart Leon, Division Chief for Fisheries and Aquatic Resource Conservation.

Matthew Patterson, USFWS

Ellen Broudy, Treasurer for the Friends of the White Sulphur Springs National Fish Hatchery, recently traveled to Washington D.C. to help form the first ever Board of Trustees for the National Fisheries Friends Partnership (NFFP). The partnership will bring together Fisheries Friends Groups from across the country to support the Fisheries Program and our mission to conserve America's fisheries. Fisheries Friends Groups have provided valuable support to individual national fish hatcheries and fisheries resource offices for many years, but for the first time they will band together and advocate for the Fisheries Program on a national level. The National Fish Hatchery System Volunteer Act of 2006 made the formation of the NFFP possible and when up and running the partnership will function much like the National Wildlife Refuge Association and other national friends organizations. In addition to serving on the Board of the NFFP, Ellen is Chair of Content Development for the partnership web site and electronic newsletter.

Aquatic Species Conservation

WSSNFH Propagates Rainbow Mussels for Toxicity Testing



Matthew Patterson USFWS

Recent studies have shown that some water quality criteria recommended by the U. S. Environmental Protection Agency (EPA) may not protect early life stages of freshwater mussels. The EPA uses standard test animals, such as water fleas and fathead minnows, in the lab to determine pollution limits but the early life stages of freshwater mussels are proving to be more sensitive to some chemicals than the standard test animals. For example, the EPA limit for ammonia, a common pollutant in sewage treatment plant discharge, is 1.24 milligrams per liter. Baby freshwater mussels, however, are sensitive to ammonia concentrations as low as 0.3 milligrams per liter, 75% less than the EPA limit. Because water pollution can be a major culprit in the decline of freshwater mussels across North America (more than 70% of the species in North America are declining), biologists with the U.S. Fish & Wildlife Service's Virginia Field Office, U.S. Geological Survey (USGS), universities and other agencies decided to investigate other pollution limits that may not protect freshwater mussels. For almost ten years scientists have looked at ammonia, chlorine, copper, lead, mercury and other pollutants and mussel sensitivity. Methods derived over the last several years for toxicity testing with freshwater mussels is now an

Rachel Mair, WSSNFH, uses a needle to extract larvae from the rainbow mussel.

American Society for Testing and Materials published methodology. Over the last three years, biologists at White Sulphur Springs National Fish Hatchery (WSSNFH) have shipped juvenile rainbow mussels (*Villosa iris*) to the USGS Columbia Environmental Research Center (CERC) in Columbia, Missouri to investigate the toxicity of coal mining-related effluents using juvenile freshwater mussels. The data collected from these studies may help re-evaluate practices used to control coal mining-related discharges to waters of the United States.



Matthew Patterson, USFWS

The needle is inserted inside the gills to remove the larvae, the white packets shown above.

Public Use

Fish Health Biologists Complete Bi-Annual Test for Fish Disease at WSSNFH

In the early 1970's, fish diseases from the western part of the United States began popping up in the eastern part of the country and vice versa. In an effort to prevent the spread of fish diseases, biologist with the U.S. Fish & Wildlife Service (USFWS) instituted a new fish health policy, mandating that all hatchery-reared fish be tested for common fish diseases on an annual basis.



Matthew Patterson USFWS

Because White Sulphur Springs National Fish Hatchery is part of the National Broodstock Program, our rainbow trout broodstock undergo a "fish health inspection" every six months to maintain our disease-free status. Kidney, spleen and cartilage tissues are tested for common bacterial diseases (bacterial kidney disease, furunculosis, enteric redmouth disease and whirling disease) as well as a variety of viral infections. If problems are detected in the tissue samples or if the hatchery reports fish mortalities, biologists with the USFWS's Fish Health Unit in Lamar, PA visit the site and carry out a "diagnostic inspection". During a diagnostic inspection, the fin, gill, skin, organ and brain tissues are tested for parasites, bacterial infections and other diseases. Annual testing insures that all fish stocked by the U.S. Fish & Wildlife Service in lakes and streams across the country are strong, healthy, and free of disease.

John Coll, USFWS, collecting tissue samples from rainbow trout.



Matthew Patterson USFWS

Kidney tissues are placed in test tubes to test for bacterial kidney disease.

Connecting People with Nature

STEP Student Shares Algae Production Technology with Microbiology Students

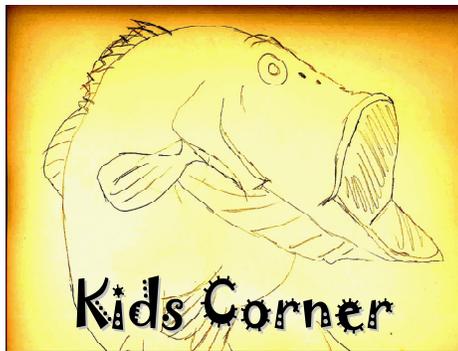


Sandi Miller, WSSNFH, shows students algal cultures under the microscope.

Megan Bradley, VDGIF

Sandi Miller is a U.S. Fish & Wildlife Service employee under the Student Temporary Employment (STEP) program. She recently visited Tim Hofmann's classroom at the New River Community and Technical College in Lewisburg, WV to teach microbiology students about algae identification and the algae production technology used at White Sulphur Springs National Fish Hatchery. Sandi also shared information about the freshwater mussel

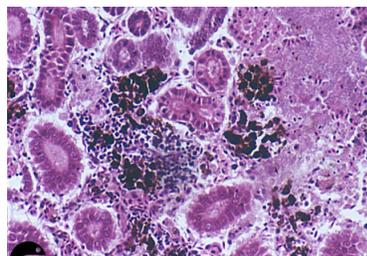
propagation program and how the federally endangered freshwater mussels held at the hatchery depend on algae production for proper health and nutrition. The class was so excited to see microbiology in action, they are planning a field trip to the hatchery next semester.



Furuncu-who?

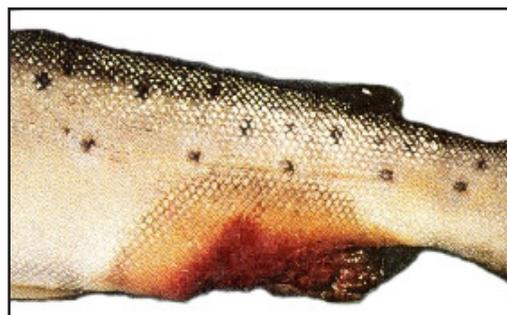
After reading the story about fish diseases you are probably thinking to yourself furuncu-who? What in the world is furunculosis? As it turns out, furunculosis is one of the most studied fish diseases in the world. The disease is caused by *Aeromonas salmonicida*, a tiny bacteria that costs fish farms

and hatcheries, especially those that grow salmon and trout, tons of money every year. *Aeromonas salmonicida* was recognized as a fish pathogen way back in 1894 during an outbreak at a Bavarian brown trout hatchery. The name furunculosis comes from the presence of "blisters" or furuncles on the surface of the infected fish. While furunculosis was originally thought to be a salmon and trout disease, scientists now know that this disease can be found in a wide variety of fish species (atlantic cod, catfish and minnows)



Necrosis in kidney tissue

FRS



An infected rainbow trout with lesions.

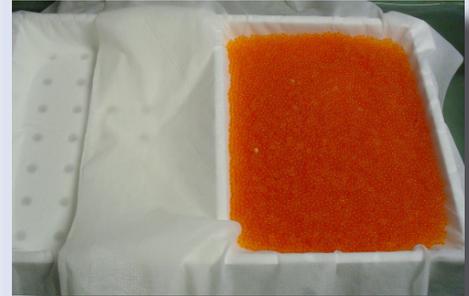
R. Roberts

and a wide variety of habitats (freshwater, brackish water and sea water). External lesions are common with *Aeromonas* infection as well as necrosis (premature death of cells) and hemorrhage (bleeding) in the liver, spleen and kidney.

Hatchery Mission

Our mission is working with the community of White Sulphur Springs and our partners to be good stewards of both the environment and the historical significance of White Sulphur Springs National Fish Hatchery by 1) providing recreational fishing opportunities, 2) recovering fish, mussels and other wildlife and their habitats and 3) promoting awareness and appreciation of our cultural and natural resources, for the benefit of all people.

Hatchery Information



Rainbow trout eggs ready for shipment.

Established in 1900 to produce fish for the American Public, WSSNFH became part of the National Broodstock Program in 1976. Since then we have shipped millions of disease-free rainbow trout eggs to hatcheries across the country. In 1995, the hatchery added a new program, freshwater mussel conservation. Today, we provide shelter for mussels threatened by pollution and raise baby mussels to improve wild populations.



1.5 year-old northern riffleshell (a federally endangered mussel) raised at WSSNFH.

Hatchery Tours

Tours are available free to the public M- F, 8AM to 3 PM. Call (304) 536-1361 one week in advance to schedule a tour.

For more information:

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To receive this bi-monthly newsletter via e-mail send your request to: matthew_patterson@fws.gov.

U.S. Fish & Wildlife Service
<http://www.fws.gov>
March 2009

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