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**June 2007**

## Fish Health Update

# Now that VHS is here....

By *Myron Kebus, DVM*

*Wisconsin Aquaculture Veterinarian, DATCP-AH*

As your president has stated clearly and eloquently elsewhere in this publication, VHS has come to Wisconsin.

In response, as you've probably all heard by now, the Department of Natural Resources has banned removal of any live fish from the Lake Winnebago watershed. (To see where the DNR has drawn the watershed boundaries, go to <http://dnr.wi.gov/fish/documents/winnebagosystem.pdf>) The only fish farmers this will affect are those who harvest wild bait from that area. As of this writing, the Department of Agriculture, Trade and Consumer Protection does not plan to impose any new movement or testing restrictions. However, new findings of VHS elsewhere in Wisconsin could change that.

In the meantime, we at DATCP are trying to secure funding from the U.S. Department of Agriculture to support increased VHS surveillance in the state. We've worked closely with the USDA on fish health issues, especially since last fall when it adopted our VHS testing protocols to replace the ban imposed on fish exports from Great Lakes states. We'll continue to work closely with the DNR as well, both to try to find the source of the infection and where other exposure might have occurred, and to contain the spread of VHS.

What you need to do is protect yourself and your industry by implementing strict biosecurity measures on your farms. Remember that introducing new fish and contaminated equipment are your two biggest risks. Some other biosecurity basics:

Don't harvest fish or eggs from the wild, or acquire any fish or eggs harvested from the wild – even from outside the Lake Winnebago watershed.

Don't share gear, equipment or nets between your own sites, or lend/borrow them.

Remove sick or dead fish as soon as possible, and clean and disinfect anything that came in contact with them.

Test for VHS at least once a year.

We'll keep you posted as this issue progresses. Stay in touch.

## Natural Resource Board Emergency Rules to Control the spread of VHS

Ron Johnson,

Northern Aquaculture Outreach Specialist, NADF

On April 4, 2007 the Natural Resource Board met in emergency session and adopted Order FH-22-07(E) which was presented to aid the Department in controlling the spread of VHS virus from coming into inland water of Wisconsin.

### Summary of the Emergency Rule:

1. It prohibits the possession on the water and use of live bait (crayfish, frogs, and minnows) from Outside Wisconsin, except minnows imported in compliance with USDA APHIS and DATCP import and health requirements.
2. It prohibits the possession on the water and use of dead bait, except used on Lake Michigan or on the water the bait originated from, or when preserved in a way that would kill VHS virus.
3. It prohibits the transportation of live fish or fish eggs from water of the Great Lakes or the Mississippi River drainage, except a) fish being exported in compliance with USDA APHIS regulations and orders, b) fish or fish eggs tested and found to be free of VHS virus, and c) fish or fish eggs transported with the prior written approval of the Department.
4. It requires all boaters to drain water from bilges, ballast, buckets, and live wells immediately after leaving waters of the Great Lakes or of the Mississippi River drainage, unless exempted in writing by the Department.
5. It allows the Department to deny permits for the use of non-standard minnow gear to prevent the spread of invasive species or diseases.

There was a lot of confusion and questions being asked by the aquaculture industry, lake associations, fishermen and boaters about how these rules affected their activities. There are two sections of specific statutes from where the Department has drawn their authority that are of particular importance to the aquaculture industry:

*Section 23.22 (2) (a) and (b) confer on the department the authority to establish a state wide program to control invasive species in this state, including rules to classify invasive species for purposes of the program. The department states, "VHS virus may be considered an invasive species because it is not native to the Great Lakes". By defining VHS as an "invasive species" (viruses are not species) they have created authority for a disease vector that otherwise would be administered in ATCP 10.66 (a) and (i) administered by DATCP.*

In 1998, the Wisconsin legislature approved the transfer of Fish Health from WDNR to WDATCP. Administrative Cont on page 11

**The CREEL**

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The CREEL is published quarterly, March, June, September and December; serious and/or good humor letters and other submissions received by the first week of the preceding month WILL be printed. WAA welcomes input and involvement from all interested parties. Technical information, humor, stories, recipes, artwork, criticism, etc., are all requested.

Unless otherwise indicated, all articles are authored by *The CREEL* editor and/or WAA editorial committee. Editorial comments pertinent to other submissions are italicized and noted in parenthesis (ed.)

All opinions expressed in *The CREEL* are those of the contributor/author and not necessarily those of the Wisconsin Aquaculture Association, its officers or directors.

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**MEMBERSHIP**

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*The CREEL*

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Submit photo-ready ad copy and payment to the Secretary/ Editor by the 1st of February, May, August, or November, for inclusion in the upcoming issue.

Rates per issue are as follows:

1/8 page: \$30; 1/4 page: \$40; 1/2 page: \$60; Full page: \$100

# President's Message

Bill West - Blue iris fish farm

I was going to have a super charged message about the latest developments in rearing perch but recent events have suggested that I put that message aside.

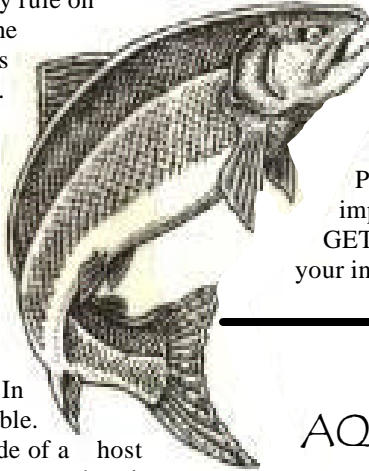
In the last two months we (anyone who has anything to do with fish) have been on the receiving end of horror stories related to the spread of viral hemorrhagic septicemia (VHS). The Wisconsin Department of Agriculture (WDATCP) has been informing the fish farmers and warning the WAA about VHS for over a year. In the last two months, the WDNR has come out with an emergency rule on the transport of fish and water out of the waters of the Great Lakes without taking the necessary procedures to ensure that VHS is not transported to inland lakes. While the WDNR was holding public hearings on the emergency order, it appears that VHS has already been transported inland to the Winnebago System. A definite case of too little too late.

This message however is not to point fingers at anyone. We have much more pressing issues here. As more and more information comes forward, it appears that aquaculture facilities in the State of Wisconsin are in real danger of becoming infected. In particular, outdoor facilities are extremely vulnerable. We now know that the virus can remain viable outside of a host for weeks. We know that mammals and birds can carry the virus from pond to pond (overland transport).

So what can we do? The first thing we can do is to ensure that we each have a biosecurity program on our farms. We cannot allow any untested fish or water onto our farms. Transporting fish in water that is an unknown source is problematical. We will need to discourage avian visitors which may come from infected areas. It is going to be very difficult to identify all potential sources. Fortunately, the WAA has been working to develop procedures to get our

arms around the biosecurity issues. The WAA is hosting a one day seminar at the Northern Aquaculture Demonstration Facility in June. If you are in aquaculture please plan to attend – details of the seminar are found elsewhere in this Creel issue.

WDATCP is the agency which is responsible to administering fish health programs in the State of Wisconsin. I encourage all of you to contact WDATCP to show your support for additional assistance in combating this major health problem. Moreover, we need to make it known that the State needs to provide more assistance to address this problem. We also need to enlist the support of the federal government on behalf of DATCP to put more resources where the resources can help our industry.



Please review the WAA website often to follow this important issue – [www.wisconsinaquaculture.com](http://www.wisconsinaquaculture.com) AND GET INVOLVED NOW for the sake of our industry and your investment.

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## Wisc. aquaculture assn— committees

WAA Committees report directly to the Board of Directors and are essential in performing the groundwork in achieving association goals. Members wishing to contribute or having a problem are encouraged to deliver their input through committees. The committees are the mechanism for members to address issues; new committees will be created as needs are identified. When in doubt, contact with any officer or board member (see p.2) will work.

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Chair: Dave Gollon; Members: Dan Gruendemann, Bill West, Mike Heilman, Dr. Myron Kebus  
Ruby Kettula, Jeff Taylor

**Marketing & Sales:**

Chair: Jim Pierce; Members: Bill West, Brad Tork, Jeff Taylor, Ron Johnson

## Melamine Found in Canadian Made Fish Food

Ron Johnson,  
Northern Aquaculture Outreach Specialist, NADF

On May 9, 2007 in a joint FDA/USDA joint news release it was acknowledged that melamine, an industrial chemical, was found in fish food manufactured in Canada. Bio-Oregon brand fish feed manufactured by Skretting in Canada has recalled all feed in a batch that has tested positive for melamine. The following two press releases are important to read in case you receive questions from the public. There has been **NO** US fish feed manufacturer implicated in the findings by FDA.

May 9, 2007

### AQUACONCONTACTS MAIL GROUP NEWS

Yesterday, the media released news about U.S. health officials learning that some farmed fish in the U.S. were inadvertently exposed to feed contaminated by an industrial chemical (melamine) linked to the recent pet food recall. The contaminated ingredient from China led to the recent massive pet food recall. U.S. government officials from numerous agencies are in consultation on this issue and will continue to track the distribution of contaminated feed batches and assess the need for any testing of feed and/or fish. It appears that a limited amount of fish feed reached the U.S. with some used at a state public hatchery rearing salmonid species. FDA has stated the contamination level in fish is expected to be too low to pose a danger to humans. The fish feed was manufactured in Canada. No U.S. fish feed manufacturers have been implicated in the use of this contaminated ingredient.

Fish is the third food animal in which the contaminated product was used to make commercial feed sold in the U.S. Recently, some pork and poultry were also inadvertently exposed to small amounts of contaminated feed. A risk analysis referenced below in yesterday's government press release reached the conclusion that in the case of pork and poultry, the exposure of the contaminant posed a very low risk for human health. Quarantined animals can be released for slaughter and sale.

Gary Jensen, CSREES-USDA

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FOR IMMEDIATE RELEASE –  
Vancouver, BC – May 8th, 2007

Recent testing by the USFDA has found a very low level of melamine in a batch of Bio-Oregon brand fish feed shipped to the United States. Although, melamine is not thought to be toxic to fish and does not bio-accumulate, [Skretting](#) is taking the precautionary step of voluntarily recalling all feed related to the batch in question. Customers who have received product from the related batch are being contacted by [Skretting](#) and offered replacement feed. To date, [Skretting](#) has received no complaints related to unusual fish health issues.

[Skretting](#) is working in close cooperation with the USFDA and Canadian Food Inspection Agency (CFIA) on this issue. The USFDA is currently carrying out a risk assessment on melamine contamination as it relates to both livestock and human health. Updates can be accessed through the FDA website [www.fda.gov](http://www.fda.gov)

Please be assured that [Skretting](#) takes any food safety issue

very seriously and that our tracking and tracing ability ensures that any emerging problems can be evaluated and dealt with quickly and efficiently.

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SFB Staff (May 16) - Two U.S. commercial fish farms purchased melamine-tainted fish feed from Skretting Canada, a Nutreco subsidiary, the U.S. Food and Drug Administration revealed during a press briefing yesterday.

A total of 198 U.S. fish farms and hatcheries received the feed that Skretting voluntarily recalled last week. The feed, sold under the Bio-Oregon brand, may have contained melamine-tainted wheat gluten from China.

Melamine is an industrial chemical used to inflate the protein content of animal feed. Fish quickly metabolize melamine; they do not accumulate it in their flesh.

The two U.S. fish farms that purchased the tainted feed are located in Washington and Hawaii. The fish are on hold and are being tested, according to the FDA.

Kona Blue Water Farms of Kailua-Kona, Hawaii, announced yesterday that its Kona Kampachi is "pure and untainted by melamine" after testing the fish. The FDA is also testing the kampachi, and the results will be posted on the company's Web site, [www.kona-kampachi.com](http://www.kona-kampachi.com) Kona Blue, which purchased melamine-tainted feed from Skretting, will now resume its harvest of kampachi (*Seriola rivoliana*), a yellowtail relative, in net pens off the west coast of Hawaii's Big Island.

The rest of the tainted feed was delivered to fish hatcheries, including six in Washington and seven in Oregon, and fed to young salmon, trout and other finfish species that will be released in the wild and caught by commercial, tribal and sport fishermen. There are no reports that the young fish were harmed by the tainted feed.

David Acheson, FDA's assistant commissioner for food protection, stressed during Tuesday's press briefing that eating fish fed the melamine-tainted feed poses a "very low human health risk." A 130-pound adult would have to consume in a day 800 pounds of food from animals fed the tainted feed to approach a level that would cause a health concern, said Acheson.

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### Melamine Contaminated Fish Feed Shipped to Wisconsin

On May 18, 2007 The Food Safety Division of Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has confirmed that there is an ongoing investigation concerning melamine in fish feed manufactured in Canada having been shipped to Wisconsin. At Press time there were no details available, go to WAA website [www.wisconsinaquaculture.com](http://www.wisconsinaquaculture.com) for the most current information.

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The **Yellow Perch Feed Training Workshop** will be held on July 12 at the Lake Mills State Fish Hatchery & Cool Water Farms. It will include presentations & hands-on demonstrations of several methods of pond harvest, fingerling sorting & grading, feed training techniques, feed & facilities for training as well as transitional strategies for returning the fingerlings to the pond for grow out. The workshop is scheduled to begin around 11:00am and wrap-up around 4:00pm. Cost is \$20 member & nonmember. More information will be available at the June workshop and on the WAA site.



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**Dave Gollon - Gollon Fish & Bait  
From The Chairman's Deck**

The issue on everyone's mind is VHS. We have all read about it in the Eastern Great Lakes. At that time it seemed so far away that it was a very remote possibility of Wisconsin ever finding the virus. After all, we do have the best fish health program in the country. So it was like everything else we tend to read or hear about, it's over there away from us and not really a concern. Things sure change fast.

Dr. Myron told me about three or four years ago to watch this and get prepared for it. This is the disease that will forever change how everyone does business. As far as regulations are considered we will refer to the "good old days." Little did I know the good old days were only going to be two years ago.

From now on everything will and must change. We will be confronted with new and ever changing regulations. We will all be implementing some sort of bio-security plans. How we handle and haul or fish, even with who and what manner we do business will change. All because of VHS.

We can do all the right things and may still end up with it, because of things beyond our control. Birds, other animals, even floods or someone else's carelessness may and probably will play a role. But we will pay the price.

So what do we do? We remain calm and continue to do what we do, raise and sell fish. We need to protect ourselves and use common sense. We must seek out and listen to advice from experts like Ag. We must convey our concerns to the regulators and help them to make the best decisions possible. We must get in line and trust the vets and Ag Department and rely on people like Dr. Myron Kebus. But most importantly we must police ourselves. We must do our best to conform to the rules and comply with the intent. We need to distance ourselves and report people who do not comply with the rules. Then hopefully we will not be referring to 2007 as the good old days.

Dave Gollon

**PLAN ON ATTENDING  
THESE GREAT EVENTS**  
**JUNE 14 — AQUACULTURE FIELD  
DAY AND VENDOR FAIR**  
**JUNE 15 — WAA/WAIAC MEETINGS  
AND WAA PICNIC**  
**JULY 12 — YELLOW PERCH FEED  
TRAINING**  
**Details in Creel and on WAA website**

# VHS FOUND IN INLAND LAKE IN MICHIGAN

**FOR IMMEDIATE RELEASE**  
**May 17, 2007**

CONTACT: Tammy Newcomb 517-373-3960, Gary Whelan 517-373-6948 or Richard Morscheck 517-373-9265

## **Fish Disease Discovered in Budd Lake, Clare County**

Department of Natural Resources (DNR) officials today confirmed the presence of Viral Hemorrhagic Septicemia (VHS) in an inland lake in Michigan.

Budd Lake, a 175-acre lake in central Clare County, experienced a very large die-off of fish beginning April 30 that included black crappie, bluegill and muskellunge. DNR biologists responded quickly to the lake to determine the cause of the die-off. Potential natural and human-induced causes for the die-off were evaluated.

Fish collected from Budd Lake were taken to Michigan State University for testing. Because of the nature of the testing process for VHS, several weeks are required to obtain results. The DNR learned this week that the fish from Budd Lake were positive for VHS. Although the exact cause of the fish die-off is yet to be determined, this is the first time that the virus has been found in inland waters in Michigan.

"We are disappointed that the disease has spread to Budd Lake, and clearly we are very concerned about protecting our inland waters from further spread of this virus," said DNR Fisheries Division Chief Kelley Smith.

Viral Hemorrhagic Septicemia is known to cause large-scale mortalities in fish populations over short periods of time. Infected fish may exhibit hemorrhaging in the skin including large red patches, small pin-point spots of minor external hemorrhaging or no external signs at all. Sick fish often will appear listless, swim in circles or hang just below the surface.

VHS likely was introduced into the Great Lakes around 2002 via ships that entered the Great Lakes and discharged ballast water that contained the virus. The virus is now known to be distributed in Michigan's waters of the Great Lakes from northern Lake Huron to Lake Erie.

Widespread mortalities in muskellunge and gizzard shad in Michigan waters of Lake St. Clair were observed in 2006 along with significant mortalities of yellow perch, white bass, freshwater drum and round gobies in lakes Erie and Ontario.

Internationally, VHS is a fish disease of concern and is a required reportable disease to the International Organization of Animal Health. In October 2006, the United States Department of Agriculture, Animal and Plant Health Inspection Service imposed interstate and international restrictions on the movement of fish to prevent the spread of VHS in the U.S.

As a result of this finding in Budd Lake, the DNR is modifying regulations proposed in the Fish Disease Control Order that was presented for information to the Natural Resources Commission May 10.

The Fish Disease Control Order identifies restrictions on the use of baitfish and fish eggs for different disease management areas. These regulations are necessary to protect the aquatic resources of the state, minimize the spread of disease to uninfected waters and protect the DNR's hatchery system.

"It is unfortunate that we have to take the steps required under the order, but those steps are similar to what other Great Lakes States and the Province of Ontario are enacting in an attempt to slow the spread of VHS in the Great Lakes Basin," Smith said. "The order, however, will not prevent anglers from fishing as usual anywhere in the state this summer."

Major changes to the order include an expanded certification process for facilities that maintain baitfish or other live fish that are known to be susceptible to VHS, as well as additional restrictions on the use of baitfish or eggs by anglers when fishing.

DNR Director Rebecca Humphries is expected to take action on the order at the June 7 meeting of the Natural Resources Commission. The order can be reviewed online at [www.michigan.gov/dnrfishing](http://www.michigan.gov/dnrfishing).

The DNR is committed to the conservation, protection, management, use and enjoyment of the state's natural resources for current and future generations.



## **CALENDAR OF EVENTS**

### **June 14**

Aquaculture Field Day and Vendor Fair  
Location: Bayfield, NADF

### **June 15**

WAA Board meeting, WAIAC meeting, WAA Picnic  
Location: Bayfield and NADF

### **July 12**

Workshop on Feed Training Yellow Perch  
Location: Lake Mills DNR Hatchery & Coolwater Farms

### **September 7**

WAA Board meeting and WAIAC meeting  
Location: Stevens Point

### **December 7**

WAA Board meeting and WAIAC meeting  
Location: Stevens Point

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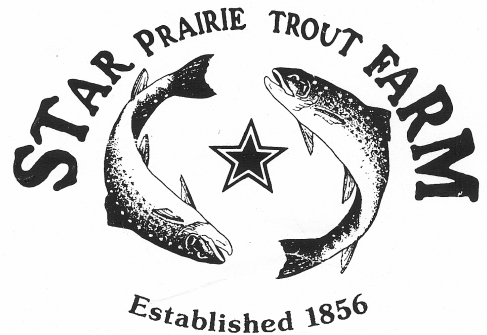
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## Updates on UW Research & Projects March 9, 2007 WAIAC Quarterly Meeting

### UW-Madison

**Primary Staff Contact: Jeff Malison**

Conducting 3 Yellow Perch projects on growth, spawning and feed training and a Spotfin Shiner project.

### UW-Milwaukee - Great Lakes Aquaculture

**Center @ the Great Lakes WATER Institute**

**Primary Contacts: Fred Binkowski and Rick Goetz**

Conducting research on feed training, baitfish, Yellow Perch breeding, molecular regulation of muscle growth, Great Lakes aquaculture, and mercury and fish farming.

### UW-Stevens Point

**Primary Staff Contact: Chris Hartleb (UWSP)**

Projects include developing aquaculture minor, culturing new species for WI aquaculture, and comparison of Brook Trout feeds.

### NADF

**Primary Staff Contacts: Greg Fischer, Ron Johnson, Sarah Kaatz, Jim Held**

Projects include Yellow Perch rearing, Brook Trout evaluation, Spotfin Shiner, wetland effluent and aquaculture classes/internships with Bayfield High School and Northland College.

## NEWS, ANNOUNCEMENTS AND UPDATES

Mike Bandli has taken on WAIAC responsibilities previously handled by Laurie Ross. He can be reached at 608-224-5136

Jerry Rodenberg, the Cooperative Environmental Assistance Bureau's aquaculture sector specialist, retired on May 1

DATCP is looking at the fee schedule for all programs this year and there may be an increase in fees for fish farm registration. At the March meeting Dave Gollon suggested this would be the time to make other changes and streamline the registration process. Dr. Kebus said the Department would certainly consider making changes. If a fish farmer has suggestions, please write them down and send them in to Dr. Myron Kebus WDATCP-AH, 2811 Agriculture Dr, PO Box 8911, Madison, WI 53708-8911

Dr. Kebus is working with DATCP Public Information Officer, Donna Gilson, to create a biosecurity document that will cover risk factors, critical points, BMPs for VHS, disinfectants and their use, and how to export and import fish in the VHS era. They hope to produce a farmer friendly version that can be distributed to all fish farmers in Wisconsin.

USDA has asked Dr. Kebus to help them develop key components of their National VHS Surveillance Program (ex. where states should test to give an idea of where VHS is and isn't).

Beverly Simonds was hired as the Aquaculture Permit/License Program Associate on Feb 5<sup>th</sup>. Her primary responsibility is on renewing fish farm registrations and serving fish farmers with the new import permit requirements in the State of Wisconsin.

## Pond Fertilization Workshop March 2007

Presentation were given at the March 2007 workshop by J.E. Morris, Iowa State University (**History, Theory, & Science of Pond Fertilization**),



Bob Fahey, WDNR Lake Mills Fish Hatchery (The Culver Method – adapted for the Lake Mills State Fish Hatchery)



and Jim Held, Southern Aquaculture Outreach Specialist, UW-Mad (**The Art and Subtle Science of Pond Fertilization**)

For more information on the workshops, please contact Sarah Kaatz, Central Aquaculture Outreach Specialist at 715-346-3037 or SKAATZ@UWSP.EDU. Jim Held can be reached at 920-648-2902 or JA-



## UWSP Approves New Aquaculture/Fish Culture Minor

Sarah Kaatz, Central Aquaculture Outreach Specialist, UW-SP

The University of Wisconsin – Stevens Point recently approved a new aquaculture/fish culture curriculum minor in the Department of Biology. The new minor includes a range of course choices that can be tailored to a career at a state or federal hatchery, or toward a career in private commercial aquaculture. The minor requires a minimum of 27 credits, 17 of which include classes in fish culture, water chemistry, and business. The remaining credits are made up of the student's choice of additional classes in aquatic biology, toxicology, entrepreneurship and marketing. There is also the option of doing an internship for credit. Students will be able to add the aquaculture/fish culture minor to their program of study starting the fall semester of 2007. For more information contact: Dr. Chris Hartleb (715) 346-3228 or CHartleb@uwsp.edu

# Highlights and Summary of the 2007 NCRAC Annual Program Planning Meeting

February 9-11, 2007

University Plaza Hotel & Conference Center, Columbus, Ohio

The NCRAC Board made decisions concerning three projects that had been developed since the last NCRAC Annual Meeting. The anticipated starting date for the projects will be September 1, 2007.

1 - The Bluegill Diet project will be undertaken by Rob Hayward and Jeff Firman at the University of Missouri-Columbia. The objective is to develop a least-cost bluegill diet.

2 - The Snail Management/Grub Control project will be undertaken by a work group consisting of Anita Kelly (Chair) at Southern Illinois University-Carbondale, Chris Hartleb and Todd Huspeni at the University of Wisconsin-Stevens Point, and Joe Morris and Rich Clayton at Iowa State University. The two objectives of that project are as follows:

- (1) Investigate one or more methods of potentially useful approaches to snail population management and/or grub control.
- (2) Assemble an updatable snail management guide which includes a literature review of known control options, a method of determining snail infestation levels in any water system, & a set of standard operating procedures to reduce snail populations & trematode infestations based on research cited in #1.

3 - The ABase@ Extension project will be chaired by Joe Morris at Iowa State University. The three objectives of that project are as follows:

- (1) Strengthen linkages between North Central Regional Aquaculture

Center (NCRAC) Research and Extension Work Groups.  
(2) Enhance the NCRAC extension network for aquaculture information transfer.

(3) Develop and implement aquaculture educational programs and materials for the North Central Region (NCR).

Oral presentations were made Saturday morning, many of which are based on the Center's White Papers which are available at <http://www.ncrac.org/Publications/>.

NCRAC Update - Ted Batterson

Status Reports

Regional Aquaculture Extension Specialist – JJ Newman Rode

Hybrid Striped Bass – Anita Kelly

Salmonids – Ron Kinnunen

Baitfish – Jeff Gunderson

Aquaculture Drugs – Roz Schnick

Yellow Perch – Jeff Malison

Non-NCRAC Federally-funded Ohio Aquaculture – Laura Tiu

Non-NCRAC Federally-funded Wisconsin Aquaculture – Chris Hartleb & Fred Binkowski

USDA/CSREES Update - Meryl Broussard, National Program Leader for Aquaculture

VHS – Gael Kurath, USGS's Western Fisheries Research Center, Seattle, Washington

Saturday evening the Board approved and set maximum funding levels for several different activities. They were as follows:

(1) \$200,000 for work on VHS that must have direct applicability and benefit to the aquaculture industry in the NCR.

(2) \$150,000 for efficacy studies of oral tetracycline and florfenicol to control *Aeromonas* in NCR warmwater & coolwater species

(3) Various Extension activities are as follows:

- (a) Fish Health/Disease Prevention
- (b) \$5,000 for a NCR Aquaculture Conference
- (c) \$15,000 for a live-feeding of fry workshop

(a) Fish Health/Disease Prevention

(b) \$5,000 for a NCR Aquaculture Conference

(c) \$15,000 for a live-feeding of fry workshop

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## VHS Emergency Rules, cont from page 1

authority for fish health is found in Wisconsin Administrative Code ATCP 10.60-10.67. These administrative codes define, among other things, fish farms, health inspectors, wild source, and define rules by which fish can be transferred, imported and exported from Wisconsin. These rules also define fish moved within the state, fish health certificate, fish diseases and reporting.

*Section 29.705(4), Stat., that authorizes the Department to seize and destroy any fish or fish eggs found to be infected with disease organisms (including fish or eggs at fish farms, in response to a request from DATCP).*

DATCP has confirmed they have authority to seize and destroy fish or fish eggs on fish farms and DNR does not unless asked by DATCP on a case by case basis.

**On April 25, 2007** at the regular Natural Resources Board Meeting they passed a revision of the emergency rules, Order FH-25-07(E).

### Summary of Revised Rule:

- 1. Clarifies definitions of “live fish” and “live fish eggs” for purposes of the previously adopted emergency rules.**
- 2. Clarifies the prohibition of the transport of live fish away from waters of the Great Lakes and Mississippi River drainages by stating that the prohibition also includes any fish possessed on those waters or the banks or shores of those waters.**
- 3. Clarifies and expands what equipment must be drained of water after removal from waters within the Great Lakes and Mississippi River drainages.**
- 4. Expands the emergency measures to ban the use of potentially infected fish, fish by-products, and fish meal as bait in crayfish traps.**
- 5. Clarifies limitations on use of imported live bait by permitting the use of imported live Bait from Minnesota or Iowa on the Mississippi and allowing minnows that die during a fishing trip to be considered live bait for purposes of these rules.**

The revised rules have helped clarify restricted activities especially for boaters and fishermen but there are still sections that need clarity. The issue of VHS is complex because the original stoppage of fish transportation was issued in November of 2006 by USDA APHIS, a federal agency, with authority in interstate transportation of livestock and when a livestock disease may have direct impact on the US food source. Since that time the original rule was revised, we are expecting an interim rule to be issued soon and several states, in the original eight affected states, have issued their own rules dealing with the risks and impacts within their respective states.

Clearly the potential impacts are high in Wisconsin, a state that has a 3 billion dollar sport fishing industry and a 53 billion dollar agriculture industry. The Wisconsin aquaculture industry is very fortunate to have had the infrastructure in place before VHS became an issue to deal with fish health certification and a certified method recognized by the federal government and other states to collect and test for specific pathogens.

Because of the importance of this VHS issue the three Aquaculture Outreach Specialists have written a letter to both agencies outlying areas of concern and questions that are being asked of us. We sug-

## PLAN ON ATTENDING THE YELLOW PERCH FEED TRAINING WORKSHOP JULY 12 AT LAKE MILLS HATCHERY AND COOLWATER FARMS. MORE INFORMATION WILL BE AVAILABLE AT THE JUNE WORKSHOP AND ON WAA WEBSITE.

gested that we facilitate a meeting between WDNR, WDATCP and us to cover these questions so we may then help disseminate the most accurate information.

**On May 11, 2007** the Wisconsin Veterinary Diagnostic Laboratory (WVDL) confirmed that VHS was found in two samples of fresh water drum taken from a fish kill in Little Lake Butte des Morts within the Lake Winnebago watershed.

**On May 17, 2007** the Natural Resource Board met in emergency session and adopted Emergency Order FH-28-07(E) because VHS was determined to be present in Little Lake Butte des Morts. This order extends those restrictions from the two previous orders to the Lake Winnebago system and the Fox River from Lake Winnebago to Green Bay, and allows extensions to other waters in the event that VHS virus is discovered in those waters. The order establishes a permitting and reporting system for the commercial harvest and distribution of wild bait collected in Wisconsin waters.

### Summary of Revised Rule:

NR 19.05 (3) No person may transport away from the waters of Lake Michigan, Green Bay, Lake Superior, Lake Winnebago, the Fox River from Lake Winnebago to Green Bay, the Mississippi River, any water identified by the department under s. NR 19.056 as infected with Viral Hemorrhagic Septicemia virus...any live fish or fish eggs taken from or possessed on these waters or on their banks or shores.

**NR 19.056 Identification of waters infected with Viral Hemorrhagic Septicemia virus.** The department shall identify waters that the department determines are infected with VHS, based on test results or other empirical evidence that the virus is present in a water body. The department shall notify the public that a water body has been identified as infected with the virus by issuing a press release and by publication of a notice in a newspaper.

**NR 19.057 Bait dealers' wild harvest permit required; records required.** (1) No bait dealer may take minnows, crayfish or frogs for use as bait from any inland or outlying water without a wild harvest permit issued by the department under this section...Permits shall be valid for the dates specified on the permit, not to exceed 14 days. (2) Each permit holder shall maintain a clear, legible daily record in English language on forms available from the department of all minnows, crayfish or frogs harvested from any inland or outlying water. (3) No bait dealer may possess farm-raised fish while engaged in the harvest of wild bait, or while transporting wild harvested bait from the water where it was harvested to the bait dealer's business location or from the water where it was harvested to the point of sale.

If VHS is found outside of the Lake Winnebago system the rules will automatically go into effect statewide.

Other changes in this rule clarify taking of crayfish in traps and changes in previous orders FH-22-07(E) and FH-25-07(E) to include the Winnebago water system.

This article was sent to press on 5-21-07 and is accurate up to this date. For more current information look at the WAA web site – [www.wisconsinaquaculture.com](http://www.wisconsinaquaculture.com)

# VHS PRESENTATIONS

WAIAC MEETING MARCH, 2007

The following presentations were given by

Dr. Peter Vanderloo,

WI Veterinary Diagnostic Lab

and

Dr. Myron Kebus,

DATCP, Fish Health Veterinarian

*Dr. Peter Vanderloo, Wisconsin Veterinary Diagnostic Lab spoke about VHS from a surveillance testing perspective. Surveillance testing (certification) is much more complex than diagnostic testing because in surveillance testing you are trying to assess with a high level of confidence that the disease is not prevalent within a population. With that high level of confidence, there is a required series of testing standards that need to be followed. As farms have more testing completed, there will be greater confidence in subsequent tests.*

*In 2006, the lab had about 1500 submissions and may do more in 2007, but the challenge is to have the people in place to do the work. A question was asked if there was an ideal size for testing. In general older fish are a better representation of the fish population.*

## **Viral Hemorrhagic Septicemia and the Wisconsin Veterinary Diagnostic Laboratory**

### **Why Do We care about VHS?**

The 2005 Journal Of Fish Diseases contained the report that VHSV had been isolated from Muskie in Lake St. Claire MI. Retrospective isolation of VHSV from Great Lakes fish back to 2003. Since 2005 VHSV has been isolated from die-offs & clinically normal fish. VHS has been found in 16 cool-water & 3 cold-water species

### **Why Do We Care?**

Oct. 24, 2006 Federal Order USDA-APHIS prohibited movement of VHS-susceptible species from Canada and between States from VHS-affected or at-risk states

Nov. 14 2006 Amendment permits interstate movement of fish tested negative for VHSV by Blue Book or OIE standards

VHS has not yet been isolated from commercially produced fish in the US.

VHS has become a pocketbook issue!

### **VHSV the Virus**

Is in the Rhabdoviridae family

Other members: IHNV, Rabies virus, Vesicular Stomatitis virus, plant viruses

Temperature sensitive: > 15°C inhibit growth

Inactivated by UV light & common disinfectants

Four genotypes (G & N genes), reflects geographic distribution

Type 1: European fresh and marine isolates

Type 2: Baltic Sea isolates

Type 3: North Sea isolates

Type 4: North American isolates

### **VHS the Disease**

Acute infection manifests in mortality, lethargy, hemorrhage, exophthalmia, distended abdomen, flashing, spiraling

Clinical signs not specific

There are no clinical signs of subclinical & chronic infection

Asymptomatic life-long carriers are the viral reservoirs

Parasitism, stress, age are factors

Transmission is via urine, feces, reproductive fluid, gill injury

There is probably no oral transmission

Virus can adhere to egg surface

Iodine is used as egg disinfectant

Transmission by birds is mechanical

Cases are reportable to OIE, USDA, DATCP

### **Diagnostic Testing**

Diagnostic testing is when you have sick animals

Your sample size is lower

You know which individuals to test

### **Surveillance/Certification/Screening**

Select representative "healthy animals"

How many & which individuals to test

Statistical calculation: sample size

5% disease prevalence in population, 95% confidence

More tests performed, more confidence in results

### **Overview of Surveillance for Virus**

Collect & process samples

Inoculate cell culture

Observe for CPE (cytopathic effects)

Do a Blind pass

CPE is a presumptive diagnosis

Perform confirmatory test, e.g., PCR

### **Two Testing Standards**

1. Blue Book: USFWS & AFS-FHS; quality control rather than regulatory

Cell line: ECP

Incubation: total = 28 days @ 15°C

Sample size = 60 fish/lot

Done once/year

2. OIE Aquatic Animal Manual: World Health Organization of Animal Health

Cell line: BF-2 or RTG-2

Incubation: total = 14 days @ 15°C

Sample size = 150 fish/production unit

Done twice yearly

The state or country of destination usually promulgates rules

USDA amended the federal order: either Blue Book or OIE protocol for VHS accepted

### **Players in Shipment Game**

For the producer the destination determines testing and the cost

Laboratory determines test options

Regulatory agency sets the rules

Ideal situation: all players communicate

**MAKE PLANS TO ATTEND THE  
BIOSECURITY AND FISH HEALTH  
WORKSHOPS  
ON JUNE 14**

Dr. Myron Kebus, DATCP, introduced VHS from the perspective of biosecurity and risk management. There were a lot of questions and discussion about the nature of the disease and precautionary measures. Although water, mud, amphibians, birds, eggs and other factors can provide some exposure risk to the disease, the primary high risk is exposing healthy fish to diseased fish. More discussion and training will be available at the June 14th workshop in Bayfield.

## Viral Hemorrhagic Septicemia

### Some Current Facts of VHS:

New virus in Great Lakes (2005)

High mortality at low temps

Isolated from yellow perch

Additional Fish VHS has been found in : muskie, small-mouth bass, northern pike, black crappie, bluegill, rock bass, and round gobies

### Risk Management and Biosecurity

#### Low Risk Vectors

1. Birds
2. Non-fish animals

#### High Risk Activities

1. Introducing new fish
  - A. Never move fish between VHS-suspect and VHS-positive sites and sites with unknown disease status
  - B. At the least perform yearly VHS test for VHS virus
2. Introducing contaminated gear, equipment, nets and vehicles
  - A. Hauling Vehicles
  - B. Maintain vehicle-specific gear, equipment and nets, or alternatively disinfect all equipment

### Equipment

To achieve maximum efficacy of disinfectant, all objects prior to disinfection must be thoroughly cleaned and free of all organic material.

Clean equipment using a detergent prior to disinfecting

Use separate equipment for separate sites.

### Effective Disinfectants

The following is a list of disinfectants that are effective against VHS:

1. Virkon S (1% solution)
2. sodium hypochlorite (100-1,000mg/l water for minimum of 10 minutes);
3. iodophor (100-250mg/l for 10 minutes);
4. formaldehyde (1.0% for 16 hours);
5. formic acid (pH <4 for 24 hours);
6. sodium hydroxide (pH > 12 for 7 hours);
7. heat (>55°C for > 5 minutes);
8. ozone (8 mg/l/min for three minutes – corresponding to a Redox potential of 600-750mV);
- 9 UV radiation (120mJ/cm<sup>2</sup>);
10. Sodium thiosulfate can be used to neutralize chlorine or iodine disinfectants.

The effectiveness of most disinfectants is greatly reduced by organic material. All objects must be thoroughly cleaned prior to disinfecting.

Note: The choice of a particular disinfectant should be based on

it's efficacy in a particular application, whether it is approved by EPA and USDA for that application, and what, if any, environmental or worker safety risks may be associated with it's use.

### Egg Disinfection

1. Contamination of gametes with urine, feces, blood or other organic matter should be avoided during spawning;
2. Fertilized eggs should be rinsed thoroughly with fresh water;
3. Disinfection of pre-hardened eggs should occur as soon after fertilization as possible, using a buffered iodophor at a concentration of 100ppm for 10 minutes;
4. Great care must be taken to separate pre-disinfection activities (dirty area) from fertilized disinfected eggs (clean area). No equipment or personnel should be allowed to cross these areas;
5. Disinfection of eyed eggs should be conducted using iodophor solution to give 100ppm prior to hatch or movement to another location

---

## From The Editor - Cindy Johnson

**Health Certificates** - Fish farmers who have current health certificates need to get me copies so I can have your farm listed under "Health Certified" on WAA's member search

The **Walleye Culture Manual** is now available through WAA. It is \$30, the same as the Yellow Perch Manual and that price includes shipping.

**The Cook's Corner** is back in Creel and on the web. If you have a favorite fish recipe you would like to share, please mail or email me and I will put it in.

WAA now has **advertising packages** to fit all levels of advertising and all media.

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Following a 33 year career in WDNR

# JERRY RODENBERG TRADES IN A DESK FOR A TRACTOR

Dave Gollon thanks Jerry for his efforts with the industry

I have enjoyed my career at WDNR and a lot of great things happened during my tenure. I obtained my B.S. in Chemical Engineering from the University of Wisconsin and prior to starting at WDNR I worked for 8 years as a chemical engineer in Milwaukee making lead acid batteries for automobiles. After seeing the lead and sulfuric acid dumped down the drain I soon realized I was in the wrong career. So I enrolled in civil engineering classes at Marquette University where I graduated with a M.S. in Sanitary Engineering right after the clean water act was passed and WDNR was staffing up to write WPDES (pollutant discharge elimination system) permits. When I came to DNR in 1973 to write industrial wastewater discharge permits, there were no in place the first regula- rule on water charge most only had treatment, if they have any treatment at all. Up to this time wastewater regulation came under the Dept of Health. In the course of gathering information to write the permits I toured paper mills, cheese factories, meat processors and vegetable canning plants which was a great learning experience.

"I particularly feel good about the development of a good land application of the waste program." Jerry - reflecting back on his 33 year with the WDNR

permits - it was real tory waste-dis- and plants primary



JERRY WAS SURPRISED BY THIS BASKET OF FINE PRODUCTS FROM WAAM-EMBERS, including some Bayfield specialties. Numerous people offered to give him a ride back to Madison (in hopes of sharing in the basket!)

and try to establish a cooperative working relationship with industries. I focused on several business sectors to learn about their environmental issues, get acquainted with their environmental managers and their trade associations and help them with any land, air or water environmental issues they had.. Helping to implement the Green Tier program, that recognizes an entity's superior environmental performance, was another special part of my career.

My work with the aquaculture, asphalt, military and food processing sec-

"I remember the first several WAIAC meeting I attended - I was considered to be a regulator from the state and I had to work to show the council and WAA members that I was there to help them with issues, not be the enforcer."

tors has been very rewarding. When I started in my position as the aquaculture section specialist, my role as a liaison between private aquaculture and the department was viewed with skepticism. My relationship with the farmers developed and we have grown to be friends and respect each other. Whenever there was a issue with a ruling, regulation or interpretation (and there were always 2 sides!), I would try to understand the fish farmers' perspective then go to the person in DNR who had made the decision and try to work something out.

I have been asked what I plan to do in retirement. I think I will keep doing what I like to do now but have more time to enjoy it. My wife Sandy and I like to travel, camp, hike, attend Badger games and spend time with our children and our grandson. I like to hunt and fish and putter around with tools. I am in a family partnership that owns our former dairy farm in Jackson County where we keep the big toys; a camper, boat, ATV and three tractors. So there is plenty of work with mending fences, working on tractors and helping family with their projects - I'm sure I will have

enough to keep busy but I know I will miss the friends I have made. Keep in touch—my home phone# is 608-274-5488 or email rodens@chorus.net

## THE COOK'S CORNER

the following recipe is from U.S. Trout Farmers Association 'Trout' recipe booklet

### Cheesy-Lemon Grilled Trout

- |                                   |                         |
|-----------------------------------|-------------------------|
| 1- 3oz pkg cream cheese, softened | 3 lbs pan dressed trout |
| 1/4 cup peeled, chopped cucumber  | 1/2 cup melted butter   |
| 2 Tbl peeled, chopped lemon       | 1/4 cup lemon juice     |
| 2 tsp grated lemon rind           | 1 1/4 tsp salt          |
| 1 tsp chopped fresh dill          | Pepper                  |
| 1/2 tsp dill seeds                | Paprika                 |

Mix together cream cheese, cucumber, lemon, rind, dill and dill seed. Put mixture in cavity of clean, dry trout. Combine butter, lemon juice, salt and pepper and baste trout. Sprinkle trout with paprika. Grill over hot coals for 8 to 10 minutes on first side, turn and baste. Cook about 8 to 10 minutes or until fish flakes easily. Serves 6.



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**Steve Abernathy – Owner of Til-Tech Aquafarm**, which produces Tilapia fingerlings in an indoor recirculating facility.



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**Paul Williams – Owner of Owen and Williams Fish Farm**, producers of game fish, grass carp, and catfish.



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**Peter Fritsch – Farm Manager for Rushing Waters Trout Farm**, the largest Rainbow Trout producer in the Midwest.

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# 2007/2008 advertising packages

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\$25 brochure display at all remaining 2007 workshops (June & July)  
\$15 website hot link

**Bronze** – full price \$160, package price \$140  
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\$15 website hot link

#### **A la carte prices:**

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– Brochure display at remainder of 2007 workshops (June & July)  
\$25, approx. 2' x 2' space

### 2008 VENDOR PACKAGES

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Phone \_\_\_\_\_ Fax \_\_\_\_\_

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Make check out to WAA, mail to WAA, P.O. Box 1408, Bayfield, WI 54814

## Woods & Waters Enterprises, Inc.

- ◆ Pond Management, Design & Consulting
- ◆ Pond Chemicals & Sprayers
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- ◆ Fish Feeders
- ◆ Fish Stocking

*Randal Roeseler*  
*W5259 Old 60 Road*  
*Juneau, WI 53039*  
*920-349-3318*

*thepondman@charter.net*

June 14  
Aquaculture Field Day & Vendor Fair  
June 15

WAA/WAIAC Meetings & WAA Annual Picnic  
Bayfield Pavilion, Bayfield &  
Northern Aquaculture Demonstration Facility, Red Cliff

**Sponsored by:** UW-Stevens Point College of Letters & Science; Northern Aquaculture Demonstration Facility;  
UW- Extension; UW-Madison

**In Conjunction with:** Wisconsin Aquaculture Association, Inc.; Wisconsin Dept of Agriculture Trade & Consumer Protection

**SPEAKERS**

**Greg Fischer**—Facility Manager— Operations & Research Projects, NADF, Red Cliff, WI

**Dr. Gretchen Gerber** - Owner Country Care Pet Hospital, Ashland, WI

**Dave Gollon, Jr.** - President Gollon Bait & Fish Farm, Dodgeville, WI

**Dr. Lori Gustafson** - Veterinary Epidemiologist National Surveillance Unit at USDA APHIS, Fort Collins, CO.

**Dr. Myron Kebus** - WI State Fish Health Veterinarian DATCP.

**Dr. Robert Smith** - Veterinarian Owner Clayton Veterinary Care, Clayton, WI

**Dr. Michele Walsh** - Staff Veterinarian for Micro Technologies, Inc. Richmond, ME.

*Two days of great events:*

- Protection from VHS & Other Diseases—get the latest information
- NADF Research Project Overview & On-site Interactive Review
  - Fish Health Assessment and Training
- Bio-Security Workshop—Learn about biosecurity measures you can implement at your farm
- Aquaculture Vendors Fair - see what's new and talk with manufacture reps about their products.
  - Optional Apostle Islands Charter Boat Tour on the greatest lake of the Great Lakes
  - Wisconsin Aquaculture Industry Advisory Counsel (WAIAC) Quarterly Meeting
    - Wisconsin Aquaculture Association (WAA) Quarterly Board Meeting
- WAA Annual Picnic/ Fish Fry (open to WAA/WAIAC members & family, vendors and workshop attendees)

**AGENDA**

**Thursday, June 14**

Morning Sessions: Bayfield Pavilion, Bayfield

- 7:30 – 8:30 Workshop Registration (WAA)  
8:30 – 8:40 Welcome and Introductions  
8:40 – 9:45 How to Protect Your Farm – protection from  
VHS & Other Diseases (Dr.'s Kebus, Gustafson & Walsh)  
10:00 – 11:00 NADF Project Reviews (Greg Fischer)

Afternoon Sessions: NADF, Red Cliff

- 11:00 - 4:00 Aquaculture Vendors  
11:15 - 12:30 Lunch at NADF (catered)  
12:30 – 1:50 Interactive Project Review (Greg Fischer & staff)  
2:00 – 3:00 Fish Health Assessment (Dr.'s Kebus, Smith & Gerber)  
3:00 – 4:00 Interactive Bio-security for the Farm – (Dr.'s Kebus,  
Gustafson & Walsh, fish farm owner Dave Gollon)

Evening (optional) 1.5 hour boat cruise of Apostle Islands - BYOB,  
soda, snacks or purchase on board. Open to workshop  
participants, vendors, WAA & WAIAC members and family.

**Friday, June 15**

Bayfield Inn, Bayfield

- 8:00 – 9:30 WAA Board Meeting  
10:00 – 12:00 WAIAC Meeting

NADF

12:00 – WAA fish fry picnic, open to workshop participants,  
vendors, WAA and WAIAC members and family

Evening optional

8:15 – Big Top Chautauqua New First Night Show  
[www.bigtop.org](http://www.bigtop.org) for ticket price and info

FOR REGISTRATION VISIT OUR WEBSITE  
[WISCONSINAQUACULTURE.COM](http://WISCONSINAQUACULTURE.COM)

EMAIL: [CINDY@WISCONSINAQUACULTURE.COM](mailto:CINDY@WISCONSINAQUACULTURE.COM)  
OR CALL 715-779-3081

MISC. SPRING  
PHOTOS



Dr. Gretchen Gerber, Country Care Pet Hospital, performing fish health assessment



Bayfield School Aquaculture Class stocking walleye fry into NADF pond

**MARCH POND  
FERTILIZATION  
WORKSHOP**



**Most of the Yellow Perch used in NADF research project have been sold. There are brook trout still available for sale.**



Yellow Perch Sold to Blue Iris Farm



Yellow Perch shipment ready to go. B. West, G. Fischer, K. Holmes, D. Duffy

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FISHERY, INC.**

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Fax 715-653-2271  
www.sevenpinesfishery.com**



## Memberships are a great value — Join Now

- ◆ Workshops, Annual Meeting, Conference and farm tour
- ◆ Internet visibility through member-interactive WAA website
- ◆ Advocacy & Policy Development

ASSOCIATE LEVEL—\$25

- ◆ Receive 4 Issues of *The CREEL*
- ◆ Name and address listed on members search

ACTIVE—\$50

- ◆ Active Members can vote and serve on board, as officers or on WAIAC
- ◆ Listed by Business Type/ Fish Species/Producer Type/ Processing Type/Sales Method

GROUP—\$75

- ◆ 1 active membership and up to 4 associate members— farm employees, vendor employees, agencies, university, etc.



### ADVERTISING OPTIONS AND RATES

#### Don't Have a Web Site? Get An Enhanced Web Listings

\$25 a year - mini web page, incl. photo gallery, w/map and link

Hot Links: \$20      Banner Ads: \$100

Advertise in "The Creel" • Full Page \$100; • ½ Page \$60; • ¼ Page \$40; • 1/8 Page \$20

## WAA MEMBERSHIP APPLICATION

The Wisconsin Aquaculture Association (WAA) is the voice of aquaculture in the state. Legislators and state officials look to the WAA for input on legislation and regulations and often seek opinions from the Board regarding new research, marketing and financing programs designed to assist the expansion of aquaculture in the state.

WAA is a membership association which is solely supported by membership dues and by advertising in *The CREEL* and on the [www.wisconsinaquaculture.com](http://www.wisconsinaquaculture.com) website. **Memberships expire each year in December; renewals for the coming year are due in January.** Be sure and mail your check today and help promote aquaculture.

Check here if your • name, • address, • phone, • fax or • email has changed

Name \_\_\_\_\_ Title/Position \_\_\_\_\_

Business Name \_\_\_\_\_

Address— Mailing \_\_\_\_\_ Physical \_\_\_\_\_

City, State Zip Code \_\_\_\_\_

Phone, Home \_\_\_\_\_ Work \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

Website \_\_\_\_\_

Nature of Business: • Hobby • Research • Active (Business) • Government • Aqua Supplies/Products

Species: • Currently • Intended • Other \_\_\_\_\_

Type of Membership: • Renewal • New

Active (\$50.00/year) \_\_\_\_\_ Associate (\$25.00/year) \_\_\_\_\_ Group (\$75.00/year) \_\_\_\_\_

(voting) (non-voting) (1 active member, up to 4 associates)

For Group level list members name (designate active member) \_\_\_\_\_

Send this form and a check or money order to: **WAA, P.O. Box 1408, Bayfield, WI 54814**