GREAT LAKES FISH HEALTH COMMITTEE

Annual Agency Reports 2010

Illinois
Department of Natural Resources
Fish Health Report
for Production Year 2010

This report is a summary of all diagnostic cases carried out by the fish pathology lab on salmonids for production year 2010. This includes routine casework, health check evaluations, fluorescent antibody testing (FAT) and BKD ELISA results. Fish inspected include Chinook salmon (FCS), Coho salmon (CHO), Rainbow trout (RBT), Steelhead Trout (STT), and Brown trout (BNT). Each of these groups will be discussed individually.

Health check evaluations are comprised of 60 fish sampled from the population at random. These fish are necropsied and evaluated for bacterial pathogens. A portion is also pooled and sent to the USFWS LaCrosse Fish Health Center for evaluation of viral pathogens.

Enzyme Linked Immuno-Sorbent Assay (ELISA) testing or Direct FAT for *Renibacterium salmoninarum* (R. sal.), the etiologic agent in Bacterial Kidney Disease (BKD), is performed on a separate group of 60 fish. The kidney and spleen of each fish is sampled aseptically, diluted, and processed to ensure individuality. A portion of each sample from the ELISA sampling is also preserved for Fluorescent Antibody Testing (FAT) if required.

CHINOOK SALMON:

The FCS production began with collection of 1,090,836 eggs from the Little Manistee River Weir by personnel of the IL and MI DNR in October 2009.
The fingerling health check exam took place on January, 2010. FCS production fingerlings were negative for all viral and cultured bacterial pathogens. The ELISA sampling for *R. salmoninarum* was done on analyzed March 2010. The results were a **0.0% incidence of BKD**.

COHO SALMON:

The CHO production began in October 2009 with the collection of one lot of CHO. A total of 1,046,976 eggs were collected at the Platte River Weir, Honor, Michigan. The fingerlings received a health check examination in February 2010. No pathogens were isolated on bacteriologic culture media. Virology results were negative. The ELISA testing for *R. salmoninarum* occurred in March 2010 and resulted in a **0.0% incidence of BKD**.

RAINBOW TROUT:

Production of RBT began with the receipt of one lot of eyed eggs. This lot of 153,630 was received in November 2009. These eyed eggs were received from the Erwin National Fish Hatchery, TN. After hatch, no diagnostic cases involving RBT fingerlings were initiated.
The health check examination was performed in February 2010. Virology was negative for all pathogens tested. Bacteriology produced no remarkable results. Sixty fish were sampled for *R. salmoninarum* by ELISA in April 2010. No positives were detected resulting in **0.0% incidence of BKD**.

STEELHEAD TROUT:

In January 2010, a total of 148,580 eggs were received from the Bodine SFH, Indiana. The fingerling health examination was performed in June 2010. Virology was negative for all pathogens tested. No bacterial pathogens were isolated. ELISA sampling for *R. salmoninarum* occurred in July 2010, with a result of **1.75 % incidence of BKD**.

BROWN TROUT:

Production of BNT (Plymouth Rock strain) began with one lot of eyed eggs. This lot of 209,587 was received in November 2009. These eyed eggs were received from the Saratoga NFH, Wyoming. The fingerling health check examination was performed in May 2010. No bacteria were cultured. ELISA sampling for *R. salmoninarum* occurred in June 2010, with a result of **1.7% incidence**.

VHS Testing :

All susceptible species produced by the IDNR Fish Hatchery System were sampled for VHS prior to stocking in 2010. No positives were found.

HATCHERY CLASSIFICATION REPORT

Report Period: **!/01/10 - 12/31/10** **Report Date**: **12/08/10**

Hatchery Name	Location	Pathogen Acronym
Jake Wolf SFH	Topeka, Illinois	B - BK (BF)(VB)(ESC)

Report Prepared by: Larry Willis

Title: Microbiologist II

Phone Number 309 - 968 7531 Ext 235
Fax: 309 - 968 6017
E-Mail Larry.Willis@Illinois.Gov

EMERGENCY FISH DISEASES

Disease	Disease Pathogen	Disease	Pathogen
viral hemorrhagic septicemia	virus	VHS	VE
infectious hemopoietic necrosis	virus	IHN	VH
ceratomyxosis	*Ceratomyxa shasta* protozoan	CS	SC
proliferative kidney disease	sporozoan	PKD	SP

RESTRICTED FISH DISEASES

whirling disease	*Myxobolus cerebralis* protozoan	WD	SW
infectious pancreatic necrosis	virus	IPN	VP
bacterial kidney disease	Renibacterium salmoninarum bacterium	BKD	BK
furunculosis	*Aeromonas salmonicida* bacterium	BF	BF
enteric redmouth	*Yersinia ruckeri* bacterium	ERM	BR
epizootic epitheliotropic disease	virus	EED	VL

SALMONID IMPORTATION REPORT

Agency: Illinois Department of Natural Resources Reporting period: 1/01/010- 12/31/10

I. A. **Known importations since last report**.

Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.Bodine SFH, IN	STT/148,340	Eggs	B – BF,BK	1/09	T. Lin	L. Michigan
2.Saratoga SFH, WY	BNT/208,384	Eggs	A	10/10	Crystal Hudson	L. Michigan
3.Erwine NFH, TN	RBT/150,570	Eggs	A	06/10	Norm Heil	L. Michigan
4.Platte River,MI	CHO/895,108	Eggs	B - BK	10/09	M. Faisal	L. Michigan
5.Besandy SFH,WI	FCS/507,705	Eggs	B- BK,BF	10/10	S. Marcqunski	L. Michigan

B. **Proposed importations**.

Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.						
2.						
3.						
4.						

II. Lab Findings:

III Other:

Hatchery Classification Report
Indiana Department of Natural Resources

Report Period: January – December, 2010 **Report Date**: 01/24/2011

Hatchery Name	Location	Pathogen Acronym
Avoca SFH	Avoca, IN	B-BK(1/10)
Bodine SFH	Mishawaka, IN	B-BF(1/08), BK(8/10), (VP[10/09])
Curtis Creek TRS	Howe, IN	B-BK(6/10)
Fawn River SFH	Orland, IN	B-BK(2/08)
Mixsawbah SFH	Walkerton, IN	B-BF(8/08), BK(9/10), (VP[10/09])
Skamania Steelhead Broodstock (wild)	Mishawaka, IN	B-BF (1/08), B-BK (1/10)

Report Prepared By: Dave Meuninck

Title: Hatchery Manager/Fish Health Coordinator

Phone Number: 574-255-4199

EMERGENCY FISH DISEASES

Disease	Disease Pathogen	Disease Acronym	Pathogen Acronym
Viral hemorrhagic septicemia	Virus	VHS	VE
Infectious hematopoietic necrosis	Virus	IHN	VH
Ceratomyxosis	Ceratomyxa Shasta protozoan	CS	SC*
Proliferative kidney disease	sporozoan	PKD	SP*

RESTRICTED FISH DISEASES

Whirling disease	*Myxobolus cerebralis* protozoan	WD	SW
Infectious pancreatic necrosis	Virus	IPN	VP
Bacterial kidney disease	*Renibacterium salmoninarum* bacterium	BKD	BK
Furunculosis	*Aeromonas salmonicida* bacterium	BF	BF
Enteric redmouth	*Yersinia ruckeri* bacterium	ERM	BR
Epizootic epitheliotropic disease	virus	EED	VL**

* Inspectors within the Great Lakes basin do not need to include these pathogens unless importations of fish from enzootic areas are know to have been made.

** Field diagnostic test not available.

SALMONID IMPORTATION REPORT

Agency Indiana Department of Natural Resources **Reporting Period** January – December, 2010

I. A. Known importations since last report.

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.	Troutlodge	RBT/109,710 Eyed-Eggs	9,954/L	A	1/20/11	Jim Parsons	Erie/Michigan/ Ohio River
2.							
3.							
4.							
5.							

B. Proposed importations.

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.	Troutlodge	RBT/110,000 Eyed-Eggs	10,000/L	A	Jan ‘12	Jim Parsons	Erie/Michigan Ohio River
2.							
3.							
4.							

II. Lab Findings

III. Other

STATE OF MICHIGAN

RICHARD D. SYNDER
GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LANSING

RODNEY STOKES
DIRECTOR

January 19, 2011

TO: Great Lakes Fish Health Committee

FROM: Michigan Department of Natural Resources, Fisheries Division (MDNR) and Michigan State University Aquatic Animal Health Laboratory (MSU-AAHL)

SUBJECT: 2010 Fish Health Report

In 2010, MDNR continued the partnership with MSU Colleges of Veterinary Medicine and Agriculture and Natural Resources (Aquatic Animal Health Laboratory) to provide aquatic animal health services for Michigan. All lots were examined and tested for reportable diseases per the Great Lakes Fishery Commission model program. A summary of their findings is below.

A. Spring 2010 Inspections

Pre-Stocking

Twenty-four lots of fish (60 fish per lot) from six State of Michigan Fish Production Facilities and the Lake Superior State University Aquatic Research Laboratory (LSSU-ARL) were tested prior to stocking in spring 2010. This included six lots of brown trout, four lots of rainbow trout, three lots of Chinook salmon, two lots of Atlantic salmon, one lot of coho salmon, two lots of lake trout, four lots of brook trout, one lot of splake, and two lots of muskellunge. All lots were examined for reportable diseases as per the Great Lakes Fishery Commission (GLFC) model program. No GLFC reportable diseases were found, with the exception of *Renibacterium salmoninarum*, (the causative agent of Bacterial Kidney Disease, detected using quantitative ELISA assay, Q-ELISA). In addition, all lots from Platte River State Fish Hatchery (PRSFH) and one representative lot from each of the other State Fish Hatcheries were examined for *Myxobolus cerebralis* (whirling disease). Suspect spores were observed in coho salmon samples from PRSFH but were not confirmed to be *Myxobolus cerebralis*. Skin and gill scrapings revealed monogeneans, ciliates, and protozoans.

Captive Broodstock

Gamete samples from captive broodstock at Oden State Fish Hatchery (OSFH) were submitted to MSU-AAHL for testing after spawning was completed for captive broodstock lots, in January 2010.

OSFH: Gamete samples from 410 brown trout and rainbow trout broodstock were submitted

for virology testing. No viruses were detected.

Feral Broodstock

Steelhead, Little Manistee River Weir: *Aeromonas salmonicida* was isolated from three of thirty females tested and from zero of the thirty males tested. No *Yersinia ruckeri* was detected from the sixty steelhead. *R. salmoninarum* was detected in the kidney/spleen samples from one of thirty females tested, and in the milt samples from one of thirty males, both at medium titer levels. Non-reportable bacteria that were detected include *Carnobacterium* sp., *Flavobacterium psychrophilum,* and multiple motile *Aeromonas* spp.

B. Fall 2010 Inspections

Pre-Stocking

Ten lots of fish (60 fish/lot) from State of Michigan Fish Production facilities were inspected prior to stocking in fall 2010. These included steelhead trout and muskellunge at Wolf Lake State Fish Hatchery (WLSFH); Assinica brook trout at MSFH; steelhead at Thompson State Fish Hatchery (TSFH); Wild Rose brown trout at OSFH; coho salmon at PRSFH; Atlantic salmon at LSSU-ARL, and channel catfish from St. Mary's State Fish Hatchery, Ohio. All lots were examined for reportable diseases as per the GLFC model program. Low, medium, and high titer levels of *R. salmoninarum* were found in Wild Rose brown trout from OSFH. No other reportable diseases were found. Non-reportable bacteria detected include Motile *Aeromonas* spp., *Klebsiella* sp., *Morganella* sp., *Serratia* sp., *Enterobacter* sp. and *Carnobacterium maltaromaticum*. Skin and gill scrapings revealed nothing unusual.

Captive Broodstock

Inspections:

Prior to spawning, the FDA approved vaccine Furogen® (Aqua Health, LTD) was administered to broodstock lots at OSFH and MSFH. This treatment and vaccination regime was used to reduce *Aeromonas salmonicida* and has been very effective. Nineteen lots of captive broodstock were inspected in the Fall of 2010. From MSFH, one lot of Assinica strain brook trout, three lots of Iron River strain brook trout, and three lots of Lake Superior strain lean lake trout were inspected. From OSFH, four lots of Gilchrist Creek strain brown trout, two lots of Sturgeon River strain brown trout, four lots of Wild Rose strain brown trout, and two lots of Eagle Lake strain rainbow trout were inspected. *R. salmoninarum* prevalence was 20% in the Assinica and Iron River brook trout; Erythromycin treatment as per the FDA-INAD was recommended. *R. salmoninarum* prevalence of approximately 10% was detected in each of three Gilchrist brown trout lots, one Wild Rose brown trout lot, and in one Eagle Lake rainbow trout lot. *R. salmoninarum* was not detected in the Lake Superior lake trout or Sturgeon River brown trout samples. No other reportable pathogens were detected. Non-reportable bacteria detected include *Serratia* sp., motile *Aeromonas* sp., and *Flavobacterium psychrophilum*.

Additional Preventative Measures for Broodstock Screening *Renibacterium salmoninarum*: Gametes collected from two lots of broodstock at OSFH and MSFH were tested for the

presence of *R. salmoninarum* using Q-ELISA to minimize vertical transmission and incidence in hatchery stocks. This screening is done in addition to water hardening eggs in erythromycin, which is standard for all salmonid eggs. Gametes were collected from 820 fish and tested for *R. salmoninarum* in fall 2010. These included 544 Assinica brook trout from MSFH and 276 Sturgeon River brown trout from OSFH. Eggs from individual pairings were kept separate until Q-ELISA testing was completed. Only those fertilized eggs that tested negative for *R. salmoninarum* antigen were kept for development of future broodstock and production fish. *R. salmoninarum* was detected in Assinica brook trout gametes at 1% prevalence, and was not detected in the gametes from Sturgeon River brown trout.

Feral Broodstock

Chinook and coho salmon:
Examinations were conducted on returning Chinook salmon spawners from the Little Manistee River (LMRW) and Swan River (SRW) Weirs, and on returning coho salmon spawners from the Platte River Weir (PRW). Prevalence for *R. salmoninarum* was 1% for SRW and PRW, and was not detected at LMRW. Prevalence for *A. salmonicida* was 13% for LMRW, 8% for PRW, and was not detected at SRW. *Yersinia ruckeri* was not detected. Non-reportable bacteria isolated include *Serratia* sp, *Flavobacterium columnare*, and *F. psychrophilum* at LMRW; motile *Aeromonas* sp., non-motile *Aeromonas* sp., *Serratia* sp., *F. columnare*, and *F. psychrophilum* at PRW; and motile *Aeromonas* sp., *F. columnare*, and *F. psychrophilum* at SRW.

Atlantic salmon:
Returning Atlantic salmon spawners were examined from St. Mary's River, LSSU-ARL. *Renibacterium salmoninarum* prevalence was 3%. *A. salmonicida* was detected in 8% of adult Atlantic salmon examined. Additional pathogens found included motile *Aeromonas* sp., *Shewanella* sp, and *F. psychrophilum.*

C. Coolwater Broodstock Inspections

Full and non-lethal inspections were conducted on coolwater broodstock populations in the spring of 2010. These included northern pike from Sanford Lake and Little Bay de Noc; walleye from the Muskegon River, Tittabawassee River, and Little Bay de Noc; and muskellunge from Lake Hudson, Thornapple Lake, and Lake St. Clair. No reportable pathogens or *Heterosporis* sp. were detected.

D. Private Aquaculture Farms and Bait Fish

A total of 2,886 brook trout, brown trout, rainbow trout, golden rainbow trout, walleye, hybrid bluegill, rainbow smelt, emerald shiners and spottail shiners from private aquaculture farms were inspected for health certifications, including viral and whirling disease screenings. IPNV was detected in samples from three private facilities.

E. Response to Reports of Fish Kills

Fish kills were reported during April from Sanford Lake in Michigan. A pathogen was not identified as the cause of these mortalities. In addition, nine cases (524 fish) were submitted in association with the Kalamazoo River oil spill in August; results will be used as baseline

health assessment for upcoming sampling efforts in this area and no reportable pathogens or overt signs of disease were found.

F. VHSv Surveillance

The Michigan DNR VHSv surveillance initiated in 2006 continued into 2010 with 123 cases (6,421 fish) submitted to the MSU-AAHL for testing. Additionally, 12 cases (8,001 fry) of walleye fry were submitted for VHSv testing. No VHSv was detected.

G. Diagnostics

Fourteen cases (312 fish) were submitted by State of Michigan Fish Production facilities for clinical diagnoses following episodes of elevated mortalities, erratic swimming, or other behaviors suspect for disease. Findings included *Myxobolus cerebralis* (PRSFH), motile *Aeromonas* spp., *Flavobacterium psychrophilum* and other *Flavobacterium* spp., *R. salmoninarum*, *Carnobacterium* spp., and *Pseudomonas* sp. All positive lots with verified detections of *Myxobolus cerebralis* at PRSFH were destroyed and UV disinfection of water supplies will be installed in 2011. Antibiotic sensitivity testing was performed as appropriate, and Investigational New Animal Drugs (INAD) or other approved treatments were recommended.

H. Wild Inspections

Six cases (505 fish) were submitted for full examination from waters supplying PRSFH and MSFH, where *R. salmoninarum* was prevalent in most species. Suspect but unconfirmed *Myxobolus cerebralis* spores were found in PRSFH water supplies in these samples.

Six cases (153 fish) of bluegill, largemouth bass, green sunfish, yellow perch, rock bass, and smallmouth bass from Shupac Lake were submitted frozen and examined for pre-transfer inspection. No VHSv, LMBv, or *Heterosporis* sp. were detected.

Prepared by: Mohamed Faisal, Michelle Gunn, Robert Kim, Thomas Loch, Martha Wolgamood and Gary Whelan

cc: Jim Aho
Edward Eisch
Randy Espinoza
Roger Greil
Matt Hughes
Jon Jackoviac
Dan Sampson
Jan Sapak
Jan VanAmberg
Gary Whelan
Martha Wolgamood

DNR

HATCHERY CLASSIFICATION REPORT

Report Period: **01-01-09 to 12-31-10** **Report Date:** **01-7-11**

HATCHERY NAME	Location	Pathogen Acronym
Harrietta SFH	Harrietta	B-BK
Marquette SFH	Marquette	B-BK
Oden SFH	Oden	B-BK, VP
Platte River SFH	Beulah	B-BK, SW
Thompson SFH	Thompson (Manistique)	B-BK
Wolf Lake SFH	Mattawan	B-BK
LSSU-ARL	Sault Ste. Marie	B-BK

Report Prepared by: Martha Wolgamood

Title: Hatchery Manager

Phone Number: 269-668-2696

EMERGENCY FISH DISEASES

Disease	Disease Pathogen	Disease Acronym	Pathogen Acronym
viral hemorrhagic septicemia	virus	VHS	VE
infectious hematopoietic necrosis	virus	IHN	VH
ceratomyxosis	*Ceratomyxa shasta* protozoan	CS	SC*
proliferative kidney disease	sporozoan	PKD	SP*

RESTRICTED FISH DISEASES

Disease	Disease Pathogen	Disease Acronym	Pathogen Acronym
whirling disease	*Myxobolus cerebralis* protozoan	WD	SW
infectious pancreatic necrosis	virus	IPN	VP
bacterial kidney disease	*Renibacterium salmoninarum* bacterium	BKD	BK
furunculosis	*Aeromonas salmonicida* bacterium	BF	BF

DNR

HATCHERY CLASSIFICATION REPORT

Report Period: **01-01-09 to 12-31-10** **Report Date:** **01-7-11**

FERAL STOCKS	Location	Pathogen Acronym
Coho salmon (MI)	Platte River Weir, Beulah	B-BK, BF
Chinook salmon	Little Manistee River Weir	B-BK, BF
Chinook salmon	Swan River Weir, Rogers City	B-BK
Steelhead trout	Little Manistee River Weir	B-BF
Lake trout (lean)	Lake Superior	B-BK, BF
Atlantic salmon	Lake Superior State University	BK, BF

Report Prepared by: Martha Wolgamood

Title: Hatchery Manager

Phone Number: 269-668-2696

EMERGENCY FISH DISEASES

Disease	Disease Pathogen	Disease Acronym	Pathogen Acronym
viral hemorrhagic septicemia	virus	VHS	VE
infectious hematopoietic necrosis	virus	IHN	VH
ceratomyxosis	*Ceratomyxa shasta* protozoan	CS	SC*
proliferative kidney disease	sporozoan	PKD	SP*

RESTRICTED FISH DISEASES

Disease	Disease Pathogen	Disease Acronym	Pathogen Acronym
whirling disease	*Myxobolus cerebralis* protozoan	WD	SW
infectious pancreatic necrosis	virus	IPN	VP
bacterial kidney disease	*Renibacterium salmoninarum* bacterium	BKD	BK
furunculosis	*Aeromonas salmonicida* bacterium	BF	BF
enteric redmouth	*Yersinia ruckeri* bacterium	ERM	BR
epizootic epitheliotropic disease	virus	EED	VL**

* Inspectors within the Great Lakes basin do not need to include these pathogens unless importations of

SALMONID IMPORTATION REPORT

Agency State of Michigan Reporting Period 01/01/10 – 12/31/10

I. A. Known importations since last report.

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin	Imported to:
1.	Sullivan NFH Brimley, MI	Lake trout Seneca 480,000	10,941/L	A	07/28/2009	Ken Phillips John Whitney	Lake Superior	MSFH
2.	Sullivan NFH Brimley, MI	Lake trout Seneca 480,000	10,490/L	A	03/02/2010	Ken Phillips John Whitney	Lake Superior	MSFH
3.								

B. Proposed importations:

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin	Imported to:
1.	Sullivan NFH Brimley, MI	Lake trout Seneca 450,000		A			Lake Superior	MSFH

II. Lab Findings

III. Other

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Rome Field Station, Fish Disease Control Unit
8314 Fish Hatchery Rd, Rome, New York 13440-7530
Phone: (315) 337-0910 • **Fax:** (315) 337-0988
Website: www.dec.ny.gov

Joe Martens
Acting Commissioner

January 20, 2010

Agency Report to the Great Lakes Fish Health Committee for 2009

Wild Fish Pathogen Inspection Program

Two separate pathogen surveillance programs of wild fish are underway in New York. The first is an ongoing statewide survey to identify waters where regulated pathogens may be present in fish populations. Cornell University performs the second through a program to investigate diseases in wild fish populations.

For the statewide survey, a wide range of fish species were collected from 28 locations (1,200 fish) and clinical testing was done at the USFWS fish health center in Lamar, PA. No program pathogens were identified from any collection. Additional EEDv and *Nucleospora salmonis* screening was conducted of salmonids collected from Great Lakes waters and were negative.

Hatchery Inspection Program

The DEC's Fish Disease Control Unit (FDCU) annually inspects all lots of fish in DEC culture programs, both domestic and from wild sources. In 2010, our inspections included domestic trout cultured in our hatcheries, plus various species of wild fish used in egg collections intended for hatchery propagation. In all, we conducted 44 inspections in 2010 totaling 4,277 fish. *Aeromonas salmonicida* was isolated from chinook or coho adults during egg collections at the Salmon River State Fish Hatchery in 2010 after it was not detected in adults in 2009. No other program pathogens were detected in our hatcheries.

INAD Projects

The DEC participates in two INAD projects, Chloramine T (INAD 9321) to treat for bacterial gill disease and Oxytetracycline (INAD 10-321) to treat an assortment of bacterial diseases. A number of our hatchery culture programs have predictable BGD epizootics that include tiger muskellunge and South Otselic, walleye at Oneida, steelhead salmon at Salmon River and domestic trout at several hatcheries. In most cases, Chloramine T trials have been effective, although not always. Marginal diet quality has been implicated in many disease recurrences. Our Oxytetracycline trials have mostly addressed *F. columnare* and *F. psychrophilum* epizootics in a number of hatcheries. Our columnaris epizootics in walleye have been augmented by poor water quality and poor fish health because these epizootics occur while fish are transitioning from artemia to artificial diets, a process where fish often starve for days before adapting to new diet. We typically lose 70% of our fish at this point, but we lost 90% this year. Again, poor diet quality was implicated as transitioning fish fasted for days before adapting to manufactured diet, but the new diet seemed inadequate nutritionally. Because of this, columnaris and other diseases

persisted for a much longer period, resulting in higher losses. Columnaris events at our Salmon River hatchery often coincide with dramatic changes in water temperature resulting from dam discharge at the hatchery water source location. In addition, early mortality syndrome (EMS) was more severe this year than in years in the past. Bacterial cold water disease trials have been largely successful. In a number of hatcheries, OTC trials at the onset of cranial *F. psychrophilum* infection have been largely successful. Historically, OTC trials had occurred only after cutaneous lesions developed, typically in March, and losses are a concern. But by treating in early February, when bacteria are only found in the brain, we've been able to dramatically reduce losses and subsequent cutaneous disease rarely occurs.

Personnel Changes Due to State Budget Concerns

Due to budget restrictions, a targeted early retirement incentive and subsequent layoff occurred which depleted 20% of the DEC staff. The NYSDEC hatchery system was intended to be staffed by 80 personnel at minimum, but with reduction, the current staffing level is 66. Among those losses are the Biologist 1 position at the Fish Disease Control Unit. The FDCU is currently operating with only 1 professional and 1 technical level staff, which makes our current inspection program difficult.

Andrew D. Noyes
Pathologist 2 (Aquatic)

New York State Fish Hatchery Disease Classification Report

Report Period: Jan 1, 2010 to Dec 31, 2010

Hatchery	Location	Classification
Adirondack	Saranac Lake, NY	A-2
Bath	Bath, NY	A-2
Caledonia	Caledonia, NY	A-2
Catskill	Livingston Manor, NY	A-2
Cedar Springs	Caledonia, NY	A-2
Chateaugay	Chateaugay, NY	A-2
Chatauqua	Mayville, NY	A-2
Oneida	Constantia, NY	A-2
Randolph	East Randolph, NY	A-2
Rome	Rome, NY	A-2
Salmon River Culture Facility	Altmar, NY	A-2
Salmon River Spawning Station	Altmar, NY	B-BF (10/10)
South Otselic	South Otselic, NY	A-2
Van Hornesville	Van Hornesville, NY	A-1
Wild Broodstock		
Coho Salmon - Lake Ontario	Altmar, NY	B-BF (10/10)
Chinook Salmon - LakeOntario	Altmar, NY	B-BF (10/10)
Steelhead Salmon- Lake Ontario	Altmar, NY	A-2
Walleye-Oneida Lake	Constantia, NY	A-2
LLS - Little Clear Lake	Saranac Inn	A-2
Lake Trout - Cayuga Lake	Cayuga Lake	A-2
Rainbow Trout	Cayuga Lake	A-2
Round Whitefish	Little Moose Pond	A-2
Brook Trout	Twin Ponds	A-2
Brook Trout	Boot Tree Pond	A-2
Brook Trout	Big Hill Pond	A-2
Brook Trout	Mountain Pond	A-2
Brook Trout	Deer Pond	A-2
Brook Trout	Fish Brook	A-2
Cisco	Lake Ontario	A-2
Sturgeon	St. Lawrence River	A-2

Report Prepared by: Andrew D. Noyes, Pathologist 2 (Aquatic)
Phone: 315-337-0910 Report Date: Jan 20, 2011

Classification Designation:

A-1	Closed water supply, free of fish, no serious infectious disease
A-2	Open water supply, fish present, no serious infectious disease
B	One or more serious infectious diseases present
C	No inspection or clinical disease data available for the last twelve months

Disease Identification (acronym):

VP	Viral infectious pancreatic necrosis (IPN)
VH	Viral hemorrhagic septicemia (VHS)
WD	Whirling Disease
BF	Bacterial furunculosis
BK	Bacterial kidney disease (BKD)
BR	Bacterial redmouth disease (ERM)

Example:

B-BF (11/01): Furunculosis detected within the last 12 months and date of isolation in parentheses. Above example applies to classifications in 2002 when BF was isolated in most recent inspection.

A-2 (BF)(11/01): Furunculosis not present during previous inspection, but present within last three inspections. Above example applies to 2003 and 2004 classifications **IF** BF was not detected . If no BF was isolated in 2005, parenthetic disease acronyms and dates are dropped and hatchery is upgraded to A-2.

B-BF-T: A hatchery with an 'A' classification is downgraded to **B-BF-T** if it receives fish from a hatchery classified as B-BF. Note that a B-BF facility may transfer disinfected eggs to an 'A' facility without downgrading the receiving hatchery classification.

Ohio Division of Wildlife
Annual Report to Great Lakes Fish Health Committee
January 24, 2011

Hatcheries

London SFH	C-(A-2) Fish were transferred from Kincaid SFH 12/10
Castalia SFH	A-2
Kincaid SFH	C- (A-2) 05/16/06 Golden Shinner virus 6/23/09
St. Mary's SFH	Suspect Aquareovirus no confirmation available 5/09
Senacaville SFH	No virus's detected
Hebron SFH	No virus's detected 09 Bluegill virus suspect detected 4/08

September 30, 2010 Castalia SFH received 285,000 (163 fish/lb) steelhead from Wolf Lake SFH. Fish were a Combination of fish raised at WLSFH and Thompson State Fish Hatchery and transferred to WLSFH. The fish from WLSFH that been treated multiple times for Coldwater Disease. Treatments included Florfenicol and CHL-T.

After the transfer mortalities stayed at 20-30 fish per day for about two weeks.
By 10/19/10 mortalities had reached 100/day. On 10/19/10 started treating with Terramycin at 3.75g/100lbs. A second treatment was run with Florfenicol at 10 mg/kg of fish. A third treatment of Terramycin was given.

Mortalities reach a high of 371 fish per day on 10/28/10. By January of 2011 mortalities were back down to 10 to 20 fish per day.

Lab work showed Primary infection of *F. psychrophium* (bacterial coldwater disease) with a secondary infection of *A. hydrophila* (motile *Aromonas* septicemia). Drug sensitivity testing showed the *F. psychrophilum* to be susceptible to both Florfenicol and Terramycin.

Environmental conditions should not have been a problem. The steelhead are in 16,000 cubic feet of raceway. With 2,200 gpm of water. Temp 50.5 degrees Fahrenheit With total Gas Pressure less than 101% of saturation point. There are 30,000 trout lodge rainbows down stream of the steelhead that hatched in June and mortalities are averaging one per week.

Ohio has not experienced any fish die-off's attributed to VHSv during 2010.

Submitted

David A. Insley

Ohio Division of Wildlife
Castalia State Fish Hatchery
7018 Homegardner Road
Castalia, Ohio 44824
Phone: 419-684-7499
Fax: 419-684-7513
e-mail: Dave.Insley@dnr.state.oh.us

Ontario

Ministry of
Natural Resources

Ministère des
Richesses naturelles

2010
Annual Report to the Great Lakes Fish Health Committee

ONTARIO MINISTRY OF NATURAL RESOURCES

Testing is completed for Ontario Ministry of Natural Resources (OMNR) by the University of Guelph Fish Health Laboratory under the supervision of Dr. R. Stevenson. Wild adult fish used for spawn collections and fish from ten fish culture stations (FCS) (Fig. 1) are tested. There are nine MNR fish culture stations and a tenth facility, Ringwood Fish Culture Station leased to the Ontario Federation of Anglers and Hunters in 2006 using a Memorandum of Understanding.

In 2007, the OMNR established a direct phone line for public reporting of fish die-offs and OMNR responds to many of the die-off reports using site visits and sample collections when possible. Samples collected from fish die-offs were sent to the University of Guelph using a partnership with the Fish Pathology Laboratory under the supervision of Dr. J. Lumsden.

In 2010, surveillance samples were collected for VHS testing from five Ontario lakes where the OMNR had a Broadscale Monitoring program sampling fish. The surveillance samples were tested at the Fish Pathology Laboratory. Fish were also collected from Lake Superior as part of the Canadian Food Inspection Agency testing for VHS, but results have not yet been shared with OMNR.

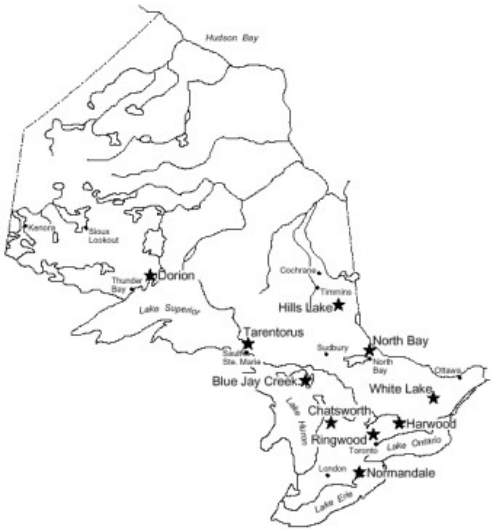


Figure 1. Location in Ontario of nine Ministry of Natural Resources hatcheries and Ringwood Fish Culture Station run by the Ontario Federation of Anglers and Hunters.

Emergency Fish Pathogens

Viral Hemorrhagic Septicemia (VHS)

Fish collected from wild die-off events (dead and moribund) were tested for Viral Hemorrhagic Septicemia (VHS) using nested and quantitative PCR. There were no confirmed detections of VHS.
Five Ontario lakes, Sharbot Lake, Christie Lake, Mink Lake, Crotch Lake and Lower Allumette Lake connected to the Ottawa River, were surveyed for VHS with samples collected between June and August. There were no detections of VHS.

Restricted Fish Pathogens

Aeromonas salmonicida

An outbreak of furunculosis, caused by *Aeromonas salmonicida,* occurred in yearling lake trout at Blue Jay Creek FCS in September and reoccurred in November requiring a second antibiotic treatment. *Aeromonas salmonicida* was detected in 1 of 48 wild coho salmon collected from the Credit River, a tributary to Lake Ontario, in fall 2010 during routine testing. There were no clinical signs of disease.

Infectious Pancreatic Necrosis (IPN) – Chinook salmon

Infectious Pancreatic Necrosis (IPN) virus was detected in 1 of 58 wild coho salmon collected from the Credit River and used for a spawn collection. The detection was made using viral isolation and confirmed with PCR and electron microscopy by the same lab. The eggs from this spawn collection were not used. This is the first detection of IPNv in Ontario since the 1980s.

Yersinia ruckeri

Yersinia ruckeri, the causative agent of enteric redmouth disease, was detected in the heart and kidney of 1 of 3 wild coaster brook trout collected in June from Nipigon Bay, Lake Superior.

Renibacterium salmoninarum and Bacterial Kidney Disease (BKD):

Renibacterium salmoninarum is considered to be endemic in Ontario and in OMNR fish culture facilities at low levels. Routine facility level monitoring is conducted annually using IFAT and detections are reported in Table 1 for 2010. There were no signs of bacterial kidney disease in fish with *R. salmoninarum* in 2010. Moderate to high numbers of bacteria detected in fish at Blue Jay Creek FCS, Chatsworth substation, Harwood FCS and White Lake FCS. Low numbers of bacteria were detected in fish from North Bay FCS.

An outbreak of bacterial kidney disease (BKD) occurred in spawning Atlantic salmon at Harwood FCS in the fall of 2009 and these fish were treated with erythromycin twice during 2010. One of these injection periods fell immediately before spawning to reduce the numbers of bacteria passed to offspring.

Table 1: *Renibacterium salmoninarum* detections by IFAT in 2010.

Fish Culture Station	Month	Species	Detection Details
Blue Jay Creek	January	Rainbow trout	Moderate to very high numbers in 36/64
Chatsworth substation	February	Brown trout	Low numbers in 3/4 Moderately high numbers in 1/4
Harwood	January	Atlantic salmon*	Moderate to high numbers in 6/9 one lot Low numbers in 1/9 in each of three other lots
	February	Brown trout	Low numbers in 1/38
	February	Lake trout	Low numbers in 2/13
North Bay	January	Brook trout	Low numbers in 1/64
	January	Rainbow trout	Low numbers in 1/32
White Lake	August	Rainbow trout	High numbers in 1/12

*All three strains of Atlantic salmon had detections of *R. salmoninarum*

Miscellaneous Detections

Aquareovirus detection – Chinook salmon

Wild Chinook salmon from the Credit River were used for a spawn collection in October, 2010. Due to the large number of fish used for this spawn collection samples were pooled for testing. Standard pool size was 5 fish, but in some cases pools contained as few as 2 fish. An Aquareovirus was detected in one pool on each of four collection days. The eggs from these collections were water hardened in iodophor following standing procedure. Stress testing following standard procedure will be used in February to determine if the virus is present in the offspring.

Virus detections – Muskellunge

Unusually high late summer mortality occurred in young of the year muskellunge being reared at a partner hatchery. The fish originated from wild egg collections from Georgian Bay, Lake Huron and Gloucester Pool. The fish were diagnosed with *Aeromonas* sp. (likely *A. hydrophila*) infections and were treated with an antibiotic. Histological lesions similar to lesions caused by lymphosarcoma were observed in 3 of 4 muskellunge of Georgian Bay origin. The presence of the virus could not be confirmed. Testing for VHS was negative. The fish were not stocked.

Possible virus detection – Yellow Perch

In May, yellow perch captured in an OMNR spring netting program on Lohi Lake near Sudbury, ON were reported to have raised white transluscent spots and mortality was estimated at 40%. The yellow perch were nearing the end of the spawning period and this condition was reported

from fish captured across the lake. Skin scrapes were examined and no protozoans were detected, therefore the condition was not consistent with white spot disease or 'Ich' as initially thought based on photographs of the diseased fish. Bacteriology was negative as was the PCR for VHS. Work completed to date, including use of light microscopy, suggests the possibility that a novel virus is the causative agent for the disease.

Bacterial Gill Disease (BGD):

Flavobacterium branchiophilum was found in bacterial gill disease outbreaks at the following OMNR fish culture stations in 2010: Blue Jay Creek, Dorion, Harwood, and Normandale.

Chlamydia-like Organisms (CLO):

Fingerlings were diagnosed with Chlamydia-like Organisms (CLO) in May at Tarentorus FCS (brook trout) and in June at Blue Jay Creek FCS (lake trout). There is no known treatment for CLO. Experimental work in collaboration with the University of Guelph Fish Pathology Lab to better identify and find an effective treatment for CLO continues as mortality is high in lots of fish with CLO.

Coldwater disease:

Coldwater disease outbreaks caused by *Flavobacterium psychrophilum* occurred in several lots of Atlantic salmon at Harwood FCS in September, November and December. Mortality was reported to be high in the fall when fish were spawning. Antibiotic treatment began in late January/early February of 2011.
Coldwater disease concurrent with fungal infection was diagnosed in late November and December in spawning brown trout at Tarentorus FCS. This concurrent infection also occurred in these lots during the 2009 spawning period. As in 2009, treatment was effective in 2010.

Vagococcus salmoninarum infections:

In November 2009, spawning lake trout at Chatsworth FCS were submitted for disease diagnosis from a lot of fish with higher than normal mortality. *Vagococcus salmoninarum* was detected around the heart from these fish. The source of the infection is unknown. Mortality declined, however the infection persisted and treatment began in June using florfenicol in feed or erythromycin by injection (two groups). The fish were examined in August and December to determine if either antibiotic effectively treated the infection. *Vagococcus salmoninarum* was detected present in heart, spleen and/or kidney samples in 9 of 10 fish examined in December.

Heterosporis sp.:

Histological examination of fillets from a yellow perch caught in August in Sabaskong Bay on Lake of the Woods detected lesions consistent with *Heterosporis* sp. infection.

Nodular Gill Disease:

Nodular gill disease, caused by an amoeba, was diagnosed in Atlantic salmon in September at Harwood FCS.

Walleye Myopathy:

Histological examination reported walleye myopathy in one walleye fillet submitted for examination in July after the fish was caught in 75 feet of water in the Central Basin of Lake Erie.

Updates

Aquareovirus detection – Coho salmon

In early 2010, a replicating agent was reported from one wild male coho salmon from the Credit River used for a spawn collection in November of 2009. The virus was very slow growing and was identified as an Aquareovirus.

Aquareovirus detection - Atlantic salmon

In 2009, a replicating agent was detected in reproductive fluids from Atlantic salmon from Lac Saint Jean, Quebec (female from Rivière-aux-Saumons and male from the Ashuapmushuan tributary to the Rivière-aux-Saumons). Eggs from the family were culled. The replicating agent has since been identified as an Aquareovirus.

Unidentified bacilliform virus - Chinook salmon

In the fall of 2008, a replicating, filterable agent was isolated from wild adult Chinook salmon from the Credit River used for a spawn collection. Tests indicated that between 8 and 45 adult fish were positive for this virus (exact number is not known because samples were pooled). The virus is an RNA enveloped bacilliform rhabdovirus approximately 45nm X 128-140nm in size. Several genome segments of the virus were amplified and sequenced with no significant homology to any published viral genome. Testing is ongoing to identify this virus. The virus was not found in 2009 or 2010.

SALMONID IMPORTATION REPORT - 2010

Imports of Salmonids into Great Lakes Basin from January 1-December 31, 2010

	Source	Species	Number	Age/Size	Health Status	Certification Date	Official	Lake Basin
1	Washington, USA.	Rainbow trout	360,000	Eyed eggs	A	2009.12.11	K.R. Snekvik	Huron
2	Washington, USA.	Rainbow trout	311,000	Eyed eggs	A	2009.12.11	K.R. Snekvik	Huron
3	Washington, USA.	Rainbow trout	600,000	Eyed eggs	A	2009.12.11	K.R. Snekvik	Huron
4	Washington, USA.	Rainbow trout	26,000	Eyed eggs	A	2009.12.11	K.R. Snekvik	Superior
5	Washington, USA.	Rainbow trout	59,000	Eyed eggs	A	2009.12.11	K.R. Snekvik	St. Lawrence River basin
6	Washington, USA.	Rainbow trout	100,000	Eyed eggs	A	2009.12.11	K.R. Snekvik	Erie
7	Washington, USA.	Rainbow trout	21,000	Eyed eggs	A	2010.03.10	K.R. Snekvik	St. Lawrence River basin
8	Washington, USA.	Rainbow trout	200,000	Eyed eggs	A	2010.03.10	K.R. Snekvik	Huron
9	Washington, USA.	Rainbow trout	94,000	Eyed eggs	A	2010.03.10	K.R. Snekvik	St. Lawrence River basin
10	Washington, USA.	Rainbow trout	426,000	Eyed eggs	A	2010.06.15	K.R. Snekvik	Huron
11	Washington, USA.	Rainbow trout	600,000	Eyed eggs	A	2010.06.15	K.R. Snekvik	Huron
12	Washington, USA.	Rainbow trout	225,000	Eyed eggs	A	2010.06.15	K.R. Snekvik	Erie
13	Washington, USA.	Rainbow trout	350,000	Eyed eggs	A	2010.06.15	K.R. Snekvik	Huron

14. Uncertified green eggs were imported into the quarantine unit at Normandale FCS with approval by Fisheries and Oceans Canada pursuant to Section 4 of the *Fisheries Act* for Canada Import Permit. A total of 20,000 eggs were imported in November from Nova Scotia, Canada.

15. Uncertified fingerling rainbow trout were imported to the University of Guelph with approval by Fisheries and Oceans Canada pursuant to Section 4 of the *Fisheries Act* for Canada Import Permit. A total of 600 fingerlings were imported between July and October from British Columbia, Canada.

Report prepared by: Elizabeth Wright
Title: Coordinator, Fish Health and Aquaculture
Tel: 1-705-755-1928 Fax: 1-705-755-1900

OMNR FISH CULTURE STATION CLASSIFICATION REPORT – 2010

Report period: January 1-December 31, 2010

Hatchery	Location	Pathogen Acronym: Emergency and Restricted Detections
Blue Jay Creek Fish Culture Station	Tehkummah	B2-BF(12/10) BK(12/10)
Sandfield substation		B2-BK(12/09)
Chatsworth Fish Culture Station	Chatsworth	B2-BK(12/09)
Substation		B2-BK(12/10)
3 Quarantine Units		C
Dorion Fish Culture Station	Dorion	B2-BK(12/09)
Substation		B2-BK(12/09)
Harwood Fish Culture Station	Harwood	B2-BK(12/10)
Hill's Lake Fish Culture Station	Englehart	B2-BK(12/09)
Normandale Fish Culture Station	Vittoria	B2-BK-T(12/10)
Substation		B2-BK(12/09)
3 Quarantine Units		C
North Bay Fish Culture Station	Redbridge	B2-BK(12/10)
Tarentorus Fish Culture Station	Sault Ste. Marie	B2-BK(12/09)
White Lake Fish Culture Station	Sharbot Lake	B2-BK(12/10)
Ringwood Fish Culture Station	Stouffville	C1(12/09)-BK(12/09)

Restricted Fish Diseases

Disease	Causative Pathogen	Pathogen Acronym
Bacterial kidney disease	*Renibacterium salmoninarum*	BK
Furunculosis	*Aeromonas salmonicida*	BF

Report prepared by: Elizabeth Wright
Title: Coordinator, Fish Health and Aquaculture
Tel: 1-705-755-1928 Fax: 1-705-755-1900

Semiannual Hatchery Classification and Importation Report

January 1, 2010 – December 31, 2010

Annual fish health inspections have been completed at 10 of Pennsylvania's 14 state fish hatcheries (SFH) in 2010.

All lots of PFBC production salmonids stocked into the Lake Erie Basin in 2010 were subjected to fish health inspections. No emergency or restricted pathogens were detected.

Restricted Pathogens

Aeromonas salmonicida with varying antibiotic resistance has been confirmed at one PFBC hatchery while conducting diagnostic examinations and fish health inspections. These findings however did not result in a change in hatchery classification since the restricted pathogen was already known to be present. Vaccination, improved biosecurity, and changes in hatchery SOPs should help to control mortality due to *Aeromonas salmonicida.*

Infectious pancreatic necrosis (IPNv) has been detected at seven PFBC hatcheries during 2010 fish health inspections and diagnostic examinations. Pair spawning, improved SOP's and an increased emphasis on biosecurity are being implemented at several hatcheries as a means to reduce the incidences of IPNv.

Myxobolus cerebralis spores were detected using the Pepsin-Trypsin digest procedure at the Bellefonte SFH and confirmed by PCR. No mortality was attributed to the presence of *Myxobolus cerebralis*, and the hatchery is located outside the Great Lakes Basin.

Renibacterium salmoninarum was detected at two hatcheries in 2010. The PFBC has resumed erythromycin injections to control BKD at its Oswayo SFH. Injections had been postponed for several years because the manufacturer had stopped production.

PFBC Cooperative Nurseries.

Viral monitoring was completed at seven PFBC cooperative nurseries within the Lake Erie Basin and a complete fish health inspection was conducted at one nursery site. No reportable pathogens were detected at these cooperative nurseries.

Lake Erie Winter Steelhead

Ovarian fluid and milt samples were collected from 1,110 Lake Erie winter steelhead broodstock spawned at the Fairview SFH. Samples were analyzed at the Penn State University Animal Diagnostic Laboratory (PSUADL). All samples were negative for IPNv and other viral fish pathogens. In addition, kidney and spleen tissues were sampled from 60 adult Lake Erie winter steelhead brood fish as part of the Fairview SFH annual fish health inspection. Samples were analyzed for viral pathogens at the USFWS Northeast Fish Health Center. No viral pathogens were detected in these samples. Whirling disease assay results are pending.

Wild Brood Monitoring

Depending on the species and availability of fish, lethal or non-lethal sampling techniques were employed to monitor for viral pathogens in all lots of wild brood fish used for production by the PFBC. To date, wild broodstock monitoring has taken place in seven bodies of water located in the Delaware River Basin, the Ohio River Basin and the Lake Erie Basin. Species sampled include steelhead trout, walleye, yellow perch, white crappie, bluegill, muskellunge, northern pike, fathead minnow, American shad, and golden shiner. Except for steelhead, the other species sampled were collected from waters outside of the Lake Erie Basin. However, since either these fish and/or their eggs are being brought into the PFBC production system, this preventative activity is applicable to this report. No viral pathogens have been detected.

Epizootic Epitheliotropic Disease virus (EEDv)

In response to the detection of EEDv at the Pleasant Mount SFH in 2009, the PFBC has stopped shipments of LAT eggs from the Wyoming Game and Fish Department, and is now obtaining all LAT eggs from the State of Vermont.

Egg Disinfection

Currently, all PFBC hatcheries involved in the production of cool/warm water species are following the GLFHC Basinwide Coolwater Egg Disinfection Protocol. The PFBC plans on conducting studies in 2011 to determine the effect of both iodophor concentrations and water chemistry on egg viability and fry development.

Salmonid Importation 2010

Source	Species/Number	Fish/Egg Size	Fish Health Status	Certification		Lake Basin
				Date	Official	
USFWS NE Fisheries Center	50,000 BKT	Yearling	BF, VP	8/4/2010	John Coll	Inland
Erwin National Fish Hatchery	RBT 140,000	Eggs	A	5/28/2009	Norman Hiel	Inland
NY State Hatchery Catskill	BNT 100,000	Eggs	A	9/2/2009	A. Noyes	Erie
Vermont-Salisburg FCS	LAT 120,000	Eggs	B-BF	11/4/2010	T. Jones	inland
NY State Randolf Hatchery	BNT 100,000	Sac fry	A	10/4/2010	A. Noyes	Inland

Proposed Salmonid Importation 2011

Source	Species/Number	Fish/Egg Size	Fish Health Status	Certification		Lake Basin
				Date	Official	
	BKT 50,000	Yearling	BF, VP	8/4/2010	John Coll	Inland
NY State Hatchery Catskill	BNT 100,000	Eggs	A	9/2/2009	A. Noyes	Erie
Vermont-Salisburg FCS	LAT 120,000	Eggs	B-BF	11/4/2010	T. Jones	Inland
Erwin National Fish Hatchery	RBT 140,000	Eggs	A	5/28/2009	Norman Hiel	Inland

Pennsylvania Fish and Boat Commission
2009 GLFHC Hatchery Classification report

Hatchery	Location	Disease Classification	Date (*Results Pending)
Bellefonte SFH	Bellefonte	C- BF08^{TMR,ROR},BK08, SW10, VP08	5/14/2008
Benner Spring SFH	State College	C- BF09^{ROR}, BK08, VP09, SW09	3/23/2010*
Corry SFH	Corry	C- BF10^{TMR},BK09, VP09	7/12/2010*
Fairview SFH	Fairview	B- (BK09), (VP08)	2/4/2010
Huntsdale SFH	Huntsdale	C- BK08, VP09	9/15/2008
Linesville SFH	Linesville	B- (BK09), (VP08)	1/28/2010
Oswayo SFH	Oswayo	C- BF08, BK08, VP08	8/19/2008
Pleasant Gap SFH	Pleasant Gap	C- BF09^{TMR,ROR}, BK08,VP10	9/2/2008
Pleasant Mount SFH	Pleasant Mount	B- VL09	6/7/2010
Reynoldsdale SFH	Reynoldsdale	C- BF09^{TMR}, SW06, VP08	4/29/2008
Tionesta SFH	Tionesta	B- (BK09), (VP08)	6/3/2010
Tylersville SFH	Tylersville	C- BF09^{ROR},BK09, VP09, SW09	9/15/2009
Union City SFH	Union City	A-2	6/3/2010
Van Dyke SFH	Van Dyke	A-2	6/7/2010
Cooperative Nurseries			
Eagley 3CU	Fairview	C	10/23/2009
Mitchel 3CU	Girard	C	10/23/2009
Ro-Ze 3CU	Girard	C	10/23/2009
Saures 3CU	Sterretania	C	10/23/2009
Mission 3CU	Girard	C	10/23/2009
Peck 3CU	Fairview	C	10/23/2009
Wesleyville	Wesleyville	C	10/23/2009

Wild Brood

Steelhead	Lake Erie	C - BF07, BK09, VP08	2/10/2010

Disease	Pathogen	Abbreviation
Whirling disease	*Myxobolus cerebralis*	SW
Infectious Pancreatic Necrosis	IPN virus	VP
Bacterial Kidney Disease	*Renibacterium salmonarum*	BK
Epizootic Epitheliotropic Disease	*EED virus*	VL
Furunculosis	*Aeromonas salmonicida*	BF

TMR -Terramycin Resistant, ROR-Romet Resistant

Report Prepared By: Coja Yamashita
Title: Fisheries Biologist
Phone Number: (814)353-4837

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott Walker, Governor
Cathy Stepp, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

22 January 2011

Annual Report to the GLFHC for the year 2010

We had mostly good news for 2010. No new isolations of VHS from Lake Michigan occurred, and the virus was not detected in inland waters sampled as part of USDA-APHIS VHS surveillance program.

Since 2007 there have been no VHS outbreaks or virus isolation from fish in Lake Winnebago (location of the first VHS detection in WI). VHS was not isolated from lake trout ovarian fluids and kidney/spleen samples collected during spawning from the Apostle Islands (Lake Superior), nor was it isolated from ovarian fluids or kidney/spleen samples from Steelhead, Chinook, Coho or Seeforellen brown trout at the Lake Michigan weirs. We will continue to participate in the APHIS VHS surveillance project in 2011. Based on the detection of several known and unknown viruses from commercial baitfish tested by the La Crosse Fish Health Center in 2010, we hope to increase our efforts to sample wild populations of baitfish species to find out how widespread these viruses are in Wisconsin.

Our furunculosis vaccination program continues to work very well to control this disease at two of our hatcheries. We have vaccinated fish for the past 15 years and in most years, we do not isolate A. sal. at all, despite vigilant testing of the few freshly dead morts that occur. The vaccination uses a 30 second dip in an autogenous vaccine made for us by Microtechnologies in Richmond Maine. As long as the skin and fins are not eroded or abraded at the time of challenge (A sal is present in the water supplies for the two hatcheries), we get excellent protection from infection by A. sal in vaccinated fish. In 2010 we did not isolate A sal from the Thunder River hatchery or the Brule hatchery.

For the third consecutive year, we have not isolated or detected R. sal in Coho reared at our new Wild Rose hatchery. I feel that this is related in part to rearing the fish under less crowded conditions during early rearing and having a very fast water velocity (short turnover times) during grow out, which may reduce the contact time between the bacteria and the fish, and thus impede successful infection of the fish. In 2010, Coho that were stocked from the Wild Rose hatchery in 2009 returned to spawn at our weirs and R sal was not cultured from the adult spawners (60 fish were tested at each weir).

The prevalence of A sal in spawning Coho continues to fluctuate annually. In 2010, A sal was isolated from 16/60 Coho sampled at the Root River spawning facility in Racine and from 2/60 Coho and 6/60 Seeforellen brown trout sampled at the Besadny spawning facility in Kewaunee. R sal was not isolated from any spawning Chinook, Coho or Seeforellen brown trout. However, we continue to see Ich infections in the spawning adults, which vary in intensity.

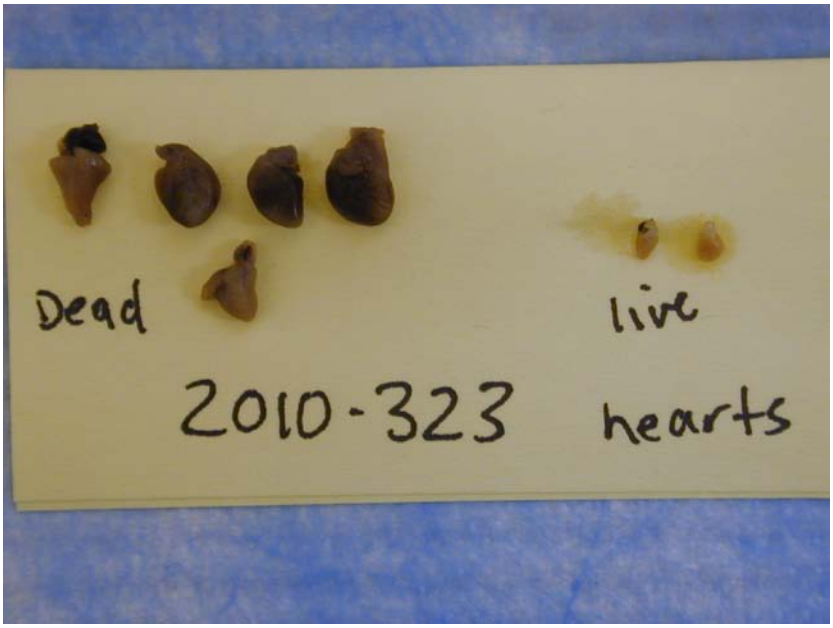
Having the EEDv PCR assay available has offered us the chance to test several groups of fish for the virus. Ovarian fluids, kidneys and fin snips were collected from lake trout and splake from the Les Voigt hatchery, spawning lake trout from the Apostle Islands, spawning lake whitefish from Lake Superior and spawning lake trout from Trout Lake WI for testing by the new EEDv PCR method at the La Crosse Fish Health Center. I just received the results from Terry Ott, but have not had a chance to

discuss them with him yet. I will send an update to the GLFHC after he and I compare notes.

We imported the Arlee strain of rainbow trout from the Erwin NFH in Erwin TN again and are very happy rearing this strain for stocking as yearlings in the nearshore waters of Lake Michigan. In the past, we obtained Arlee RBT eggs from Ennis MT, but due to concerns about cutthroat trout virus and Nucleospora, we chose not to get eggs from Ennis in 2008 and for the foreseeable future. The Arlee RBT provide a really nice nearshore fishery for anglers with smaller boats, or those who fish from the piers.

We held a short biosecurity workshop in June for WDNR fisheries administrators and HDR/Fish Pro consultants as part of our hatchery re-development project. John Schachte, Bruce Stewart, George Duckwall, Dale Bast, Myron Kebus, and Peter Vanderloo were the invited experts and we really appreciated their time and contributions to inform our administrators about biosecurity theory and practices.

We noted an interesting condition in 3-4 inch fingerling brown trout (inland egg source) in which the heart of the fish is unusually enlarged compared to "normal" fish of the same size. If the fish are moderately exercised (human activity, drawing down the raceway for cleaning, etc.), within an hour or so, they start to die. We are not sure if this condition resulted from a nutritional, infectious or heritable cause. Here are some images:



Any ideas?

Respectfully submitted,

Susan Marcquenski

HATCHERY CLASSIFICATION REPORT
Wisconsin

Report Period: January 1 to December 31 2010 **Report Date:** January 22, 2011

Hatchery Name	Location	Pathogen Acronym
Les Voigt (formerly Bayfield)	Bayfield	B-VL
Brule	Brule	B-(BF)
Kettle Moraine Springs	Adell	B-(BK)
Lake Mills	Lake Mills	A-2
Lakewood	Lakewood	A-2
Langlade	White Lake	Not in operation 2010
Nevin	Fitchburg	A-1
Osceola	Osceola	A-1
St. Croix Falls	St.Croix Falls	A-1
Thunder River	Crivitz	A-2
Wild Rose Great Lakes	Wild Rose	B-(BK)
Wild Rose Inland	Wild Rose	C, A-1

Report Prepared by: Susan Marcquenski
Title: Fish Health Specialist
Phone Number: 608.266.2871

EMERGENCY FISH DISEASES

Disease	Disease Pathogen	Disease Acronym	Pathogen Acronym
viral hemorrhagic septicemia	virus	VHS	VE
infectious hematopoietic necrosis	virus	IHN	VH
ceratomyxosis	*Ceratomyxa shasta*	CS	SC*
proliferative kidney disease	sporozoan	PKD	SP*

RESTRICTED FISH DISEASES

whirling disease	*Myxobolus cerebralis*	WD	SW
infectious pancreatic necrosis	virus	IPN	VP
bacterial kidney disease	*Renibacterium salmoninarum*	BKD	BK
furunculosis	*Aeromonas salmonicida*	BF	BF
enteric redmouth	*Yersinia ruckeri*	ERM	BR
epizootic epitheliotropic disease	virus	EED	VL**

* Inspectors within the Great Lakes basin do not need to include these pathogens unless importations of fish from enzootic areas are known to have been made.

** based on UC-Davis EEDv PCR assay

HATCHERY CLASSIFICATION REPORT
Wisconsin- Wild Broodfish

Report Period: January 1 to December 31 2010 **Report Date:** January 22, 2011

Hatchery Name	Location	Pathogen Acronym
BAFF	Kewaunee	B-BF, (BK)
Root River	Racine	B-BF
Strawberry Creek	Sturgeon Bay	B-(BK)
Lake Superior	Apostle Islands	B-(BK) VL

Report Prepared by: _Susan Marcquenski_____
Title: ___Fish Health Specialist_____
Phone Number: _608.266.2871_____

EMERGENCY FISH DISEASES

Disease	Disease Pathogen	Disease Acronym	Pathogen Acronym
viral hemorrhagic septicemia	virus	VHS	VE
infectious hematopoietic necrosis	virus	IHN	VH
ceratomyxosis	*Ceratomyxa shasta*	CS	SC*
proliferative kidney disease	sporozoan	PKD	SP*

RESTRICTED FISH DISEASES

whirling disease	*Myxobolus cerebralis*	WD	SW
infectious pancreatic necrosis	virus	IPN	VP
bacterial kidney disease	*Renibacterium salmoninarum*	BKD	BK
furunculosis	*Aeromonas salmonicida*	BF	BF
enteric redmouth	*Yersinia ruckeri*	ERM	BR
epizootic epitheliotropic disease	virus	EED	VL**

* Inspectors within the Great Lakes basin do not need to include these pathogens unless importations of fish from enzootic areas are known to have been made.

** based on UC-Davis EEDv PCR assay

SALMONID IMPORTATION REPORT

WISCONSIN

Agency: WI Department of Natural Resources **Reporting Period:** January 1 to December 31 2010

I A.. **Known importations since last report**.

	Source	Species/Number	Fish/Egg Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.	Erwin NFH TN	Arlee RBT 176,000	eggs	SPF	April 2010	Norm Heil	Michigan
2.							
3.							
4.							
5.							

B. **Proposed importations for 2011**

	Source	Species/Number	Fish/Egg Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.	Erwin NFH TN	Arlee RBT 176,000	eggs			Norm Heil	Michigan
2.							
3.							
4.							

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Lamar Fish Health Center
400 Washington Ave
P.O. Box 155
Lamar, PA 16848
(570) 726-6611
Fax: (570) 726-7379

Email: John_Coll@fws.gov

2010 Annual Report to the Great Lakes Fish Health Committee from Fish and Wildlife Service Northeast Region; Region 5

January 20, 2011

In the fall of 2005, infectious pancreatic necrosis virus (IPNV) was isolated at Allegheny NFH. The facility has been de-populated and disinfected. Following installation of some biosecurity structures (raceway covers, re-vamping water supply aeration tower, and possible water supply UV disinfection), a complete station disinfection and fish re-introduction will occur. Until Allegheny restarts lake trout production for the Great Lakes program, two USFWS Region 5 Atlantic salmon facilities have made accommodating space for lake trout. Eggs and fish from several sources have been obtained. White River NFH, located in Vermont has received SLW lake trout eggs from NYDEC and Seneca domestic from VT DFW. Berkshire NFH, located in western Massachusetts, received Seneca strain future broodstock from the isolation facility at Genoa NFH located in Wisconsin. These future broodstock are 06 year class and are doing well. It is planned that these fish (following disinfection and sentinel rearing /testing) will be transferred to Allegheny when that facility is ready. USFWS Regional Contracting and Engineering reports that the construction is progressing and should be completed in May 2011. Plans are for sentinel fish (brook trout) to be reared this spring/summer and tested for IPNv several times, including after fish are stressed by high density rearing.

Both Berkshire and White River are inspected in compliance with the Great Lakes Fish Disease Control policy and Model Program. As depicted on the Hatchery Classification Report, these hatcheries are A-2 facilities, and the progress of these lots will be monitored on future Great Lakes Hatchery Classification and Salmonid Importation Reports. (Annual fish health inspections March 29 and March 30, 2010, respectively.)

The U.S. Fish and Wildlife Service continues to perform pathogen surveillance as part of the National Wild Fish Health Survey. The Lamar Fish Health Center has performed many investigations throughout the Northeast for listed fish pathogens, including emerging diseases such as largemouth bass virus, spring viremia of carp virus, infectious salmon anemia virus, and most applicable to the Great Lakes Basin, viral hemorrhagic septicemia. The Great Lakes

watershed proper for Region 5 consists of a small area in extreme northwest Pennsylvania and the northern border of New York. Since most of Pennsylvania's (and a great deal of New York's) waters do not flow into the basin, surveillance efforts have been directed to attempt to demonstrate VHS-free "zones", as well as track the movement of this pathogen in the Great Lakes. More states in the Northeast Region have developed an interest in providing samples for the USFWS National Wild Fish Health Survey, VHS surveillance is probably a major reason. Among the species on the VHS susceptible species list, Black crappie, bluegill, brown bullhead, brown trout, emerald shiners, gizzard shad, largemouth bass, muskellunge, northern pike, pumpkinseed, rainbow trout, smallmouth bass, walleye, white perch, and yellow perch were tested. Additional species include brook trout, golden shiner, lake trout, and fathead minnow. For the second year in a row, no positive VHS findings occurred this year from routine fish collections in the Northeast.

Following the report of Nucleospora salmonis in USFWS facilities, the Lamar FHC conducted screening for this microsporidean at federal and state fish culture stations as well as from several feral stocks in the Northeast. Continued surveillance from additional fish collections and ovarian fluids have not yielded any Nucleospora positive results. This molecular test (PCR) continues to be refined and additional surveillance will continue. Another PCR assay has been developed (also at University of Cal-Davis) for EEDv, the herpesvirus causing mortalities in many upper lake hatcheries in the 1980s. Surveillance of wild lake trout for this agent is also planned and preliminary tests have been done on some recently provided samples (inland PA and Lake Eire, all negative). This past year, lake trout from the 09 Seneca and 09 Lake Champlain lots were tested for EEDv using the Kurobe PCR (Cal-Davis) and found negative. Testing for these emerging fish pathogens will be enhanced this spring through a Great Lakes Restoration Initiative (GLRI) project, funded by the US EPA.

Although coolwater fish have been added to the Model Program, no USFWS facility participating in the Great Lakes program in the Northeast, cultures these species. The Lamar Fish Health Center has been assisting the Pennsylvania Fish and Boat Commission with viral testing on wild warm and cool water broodstocks and their hatchery offspring. . Additionally, cold, cool, and warm water fish continue to be tested in the National Wild Fish Health survey.

2010 HATCHERY CLASSIFICATION REPORT

Report Period __**Jan. 1, 2010– Dec 31, 2010**_____ Report Date: __**Jan 20 , 2010**__

Hatchery Name Location Pathogen Acronym

_**Allegheny NFH**_____**Warren, PA** _____***_____
_____*** facility is presently de-populated & disinfected_____
__await construction(new aeration tower & water supply line); & disinfection____
_____
_____**White River**
NFH_____**Bethal, VT**_____**A-2** 3-30-2010__
_____**U-V treated**__

___**Berkshire NFH**_____**Great Barrington, MA**_____**A-2** 3-29-2010
_____
_____

Report Prepared by: _**John A. Coll**_____

Title: **Project Leader, Lamar Fish Health Center**

Phone Number: __**570-726-6611 x 221**_____

EMERGENCY FISH DISEASES

Disease	**Disease Pathogen**	**Disease Acronym**	**Pathogen Acronym**
viral hemorrhagic septicemia	virus	VHS	VE
infectious hematopoietic necrosis	virus	IHN	VH
ceratomyxosis	*Ceratomyxa shasta* protozoan	CS	SC*
proliferative kidney disease	sporozoan	PKD	SP*

RESTRICTED FISH DISEASES

whirling disease	*Myxobolus cerebralis* protozoan	WD	SW
infectious pancreatic necrosis	virus	IPN	VP
bacterial kidney disease	*Renibacterium salmoninarum* bacteria	BKD	BK
furunculosis	*Aeromonas salmonicida* bacterium	BF	BF
enteric redmouth	*Yersinia ruckeri* bacterium	ERM	BR
epizootic epitheliotropic disease	virus	EED	VL**

_____

* Inspectors within the Great Lakes basin do not need to include these pathogens unless importations of fish from enzootic areas are known to have been made.

** Field diagnostic test not available.