GREAT LAKES FISH HEALTH COMMITTEE

Annual Agency Reports 2006

Fisheries and Oceans
Pêches et Océans

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Your file *Votre réference*

Our file *Notre réference*

9 January 2007

Annual Report to the Great Lakes Fish Health Committee from the Department of Fisheries and Oceans January 2007

Overview – DFO Activities (Central and Arctic Region)

1) National Aquatic Animal Health Program

The Winnipeg Fish Health Laboratory continues to work towards attaining Standards Council of Canada (SCC) accreditation for International Standards Organisation (ISO) 17025. Application for accreditation is anticipated for the spring 2008. To this end a number of Standard Operating Procedures have been written and are now in Document Control while several others are in draft form. The lab participated in the drafting of the NAAHP Diagnostic Protocol for the Isolation of Reportable Viral Agents

In 2006, four positions were staffed (3 technicians and 1 biologist). Two positions remain to be filled (1 biologist and 1 research scientist).

Lab renovation planning commenced in the Fall 2006. A functional plan for a Level II Biocontainment Lab has been prepared and accepted. Mechanical, electrical and structural drawings are now being prepared.

2) Winnipeg Fish Health Laboratory

In June 150 common carp from Hamilton Harbour, Lake Ontario were screened for VHSv prior to an anticipated shipment of live carp to France. VHSv was not detected in these fish, but Spring Viremia of Carp virus (SVCv) was isolated. The virus was isolated from 18 of 30 five fish tissue pools comprised of kidney, spleen and encephalon on

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EPC cells. CPE was not evident on CHSE cells. The virus was sent to the DFO Fish Health Lab at the Pacific Biological Station, Nanaimo, BC where RT-PCR and nucleotide sequence analysis identified the isolate as SVCv. Because SVCv is an OIE reportable disease agent, the virus was sent to CEFAS, Weymouth, UK for confirmation testing.

The isolate was confirmed as SVCv. Phylogenetic analysis of the 533 bp region of the glycoprotein gene grouped the Canadian isolate in SVCv genogroup Ia together with isolates from the United States and Asia. The isolate has been denoted as HHOcarp06 (GenBank accession # DQ226502). This isolation represents the first detection of SVCv in Canada. A paper entitled, First detection of spring viremia of carp virus (SVCV) in common carp, *Cyrinus carpio* (L.) from Hamilton Harbour in Lake Ontario, Canada has been submitted to the Journal of Fish Diseases.

In August 2006, 59 steelhead trout collected from the Wheatley area on Lake Erie were screened for VHSv at the request of OMNR. Two cell lines, EPC and CHSE were used to screen for the virus. No virus was detected in these fish.

3) Viral Haemorrhagic Septicaemia (VHS)

In 2005, VHS mortalities appeared in the Bay of Quinte, Lake Ontario and Lake St. Clair. In 2006, VHS was detected in an increasing number of freshwater fish in Lake Erie, in both Canadian and American waters. In October 2006, following these discoveries the US Department of Agriculture announced a federal order prohibiting interstate movement of live fish from Great Lakes States as well as the importation of live fish from the Canadian provinces of Ontario and Quebec.

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DFO and CFIA are working closely with the provinces as well as with US federal authorities assess the extent of the disease infection in the Great Lakes. The Winnipeg Fish Health Laboratory, together with the other laboratories in DFO's National Aquatic Animal Health Laboratory System, will be gearing up for VHS diagnostic work in support of the Great Lakes VHS surveillance being coordinated by CFIA.

4) Fish Health Certification Program

Four Ontario-based private sector hatcheries continue to participate in the hatchery inspection/certification program under the Fish Health Protection Regulations. No certifiable pathogens were detected in any of these facilities in 2006. However, clinical bacterial kidney disease, confirmed by DFAT, was detected in one lot of 2+ year old brook trout at one of these facilities during the Spring '06 inspection period.

Brian Souter
Stephen Stephen
Department of Fisheries and Oceans
January 9, 2007

Illinois
Department of Natural Resources
Fish Health Report
for Production Year 2006

This report is a summary of all diagnostic cases carried out by the fish pathology lab on salmonids for production year 2006. 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. Also the results of the 2006 largemouth bass virus testing are presented.

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 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 is also preserved for Fluorescent Antibody Testing (FAT) if required.

CHINOOK SALMON:

The FCS production began with collection of 795,500 eggs from the Little Manistee River Weir by personnel of the MI DNR with assistance from the Illinois DNR on October 12, 2005.
The health check exam took place on March 1, 2006. FCS production fingerlings were negative for all viral and cultured bacterial pathogens. The ELISA sampling for *R. salmoninarum* was done on analyzed March 31, 2006. The results were a **0.0% incidence of BKD**.

COHO SALMON:

The CHO production began October 25, 2005 with collection of 741,232 eggs at the Platte River Weir, Honor, Michigan.
The production lot received a health check examination on March 08, 2006, no pathogens were isolated on bacteriologic culture media. Virology results were negative for both lots. The ELISA testing for *R. salmoninarum* occurred on April 06, 2006 and resulted in a **0.0% incidence of BKD**. This is the sixth year in a row that BKD has not been detected in the coho.

RAINBOW TROUT:

Production of RBT began with the receipt of one lot of eyed eggs. One lot of 196,728 was received in December 2005. These eyed eggs were received from the Ennis National Fish Hatchery, Montana. After hatch, no diagnostic cases involving RBT fingerlings were initiated. The health check examination was performed on March 15, 2006. Virology was negative for all pathogens tested. Bacteriology produced no remarkable results. Sixty fish were sampled for *R. salmoninarum* by ELISA on April 13, 2006 no positives were detected resulting in **0.0% incidence of BKD**.

STEELHEAD TROUT:

In February 2006, a total of 156,244 eggs were received from the Bodine SFH, Indiana. The health examination was performed on July 18, 2006. Virology was negative for all pathogens tested. No bacterial pathogens were isolated. On August 17, 2006 , sixty were fish sampled for *R. salmoninarum* by ELISA no positives were found, resulting in **1.67 % incidence of BKD**.

BROWN TROUT:

Production of BNT (Plymouth Rock strain) began with two lots of eyed eggs. The first lot of 243,738 was received in November 2005.These eyed eggs were received from the Saratoga NFH, Wyoming. The health check examination was performed on March 23, 2006. No bacteria were cultured. All viral samples tested negative. ELISA sampling for *R. salmoninarum* occurred on May 23, 2006 with a result of **5.0% incidence**.

LARGEMOUTH BASS:

Largemouth bass fingerlings from two hatcheries were checked for largemouth bass virus (LMBv) . Sixty fish from each facility, Jake Wolf on August 9,2006 and Little Grassy on June 21, 2006, were sampled. Kidney, spleen and swimbladder were collected from each fish. Both of the lots were negative for LMBv.

HATCHERY CLASSIFICATION REPORT

Report Period: 1/**01/06 - 12/31/06** **Report Date**: **12/10/06**

Hatchery Name	Location	Pathogen Acronym
Jake Wolf SFH	Topeka, Illinois	B - BK

Report Prepared by: Larry Willis

Title: Microbiologist II
Phone Number 309 - 968 7531 Ext 235
Fax: 309 - 968 6017
E-Mail lwillis@dnrmail.state.il.us

EMERGENCY FISH DISEASES

Disease	Disease Pathogen	Disease	Pathogen
viral hemorrhagic septicemia	virus	VHS	VE
infectious hemopoietic 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* bacterium	ERM	BR
epizootic epitheliotropic disease	virus	EED	VL

SALMONID IMPORTATION REPORT

Agency: Illinois Department of Natural Resources Reporting period: 1/01/06 - 12/31/06

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/156,244	Eggs	B - BK	1-2/05 T. Lin	L. Michigan
2.Saratoga SFH, WY	BNT/243,738	Eggs	A	10/05 C.Hudson	L. Michigan
3.Erwine NFH, TN	RBT/196,728	Eggs	A	11/01/06 Norm Heil	L. Michigan
4.Platte River,MI	CHO/741,232	Eggs	B - BF,BK	10/25/05	L. Michigan
5.Little Manistee,MI	FCS/795,500	Eggs	B - BF,BK	10/05 Larry Willis	L. Michigan
6.Lynesville,PA	WAE/6,000,000	Eggs	N/A		N/A
7.Bryon,SFH,OK	STB/450,000	Fry	N/A		N/A
8.Bryon SFH,OK	SBH/300/000	Fry	N/A		N/A
9.RathbunSFH,IA	MUE/1,209	Fingerlings	N/A		N/A
10.Keo F.F.,AR	STB/450,000	Fry	N/A		N/A
11.Spirit Lake,IA	MUE/25,512	Fingerlings	N/A		N/A
12.Joe HoganSFH,AR	BCF/65,000	Fry	N/A		N/A

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

MEMORANDUM

State of Indiana • Division of Fish and Wildlife • Bodine State Fish Hatchery • (574) 255-4199

TO: **GLFHC**

FROM: **Dave Meuninck**

DATE: **1/11/2007**

SUBJECT: **2006 Annual Fish Health Report for Indiana DNR**

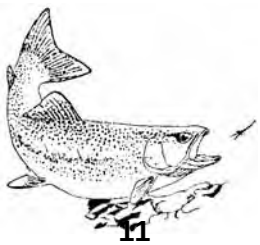
One program pathogen was detected in production fish in 2006 among Indiana's production facilities holding one or more salmonid species. *Renibacterium salmoninarum* was detected at two of four facilities. These facilities were Bodine SFH and Cikana SFH. At Bodine, young-of-year coho, young-of-year steelhead and one-plus steelhead tested positive. At Cikana, year-old rainbow trout held over-winter in an earthen pond tested positive. The unaffected facilities were Avoca SFH and Curtis Creek Trout Rearing Station.

Mixsawbah SFH was dewatered for most of 2006. They took on winter-run steelhead in September that were started at Bodine SFH. The winter-run lot was inspected at Bodine prior to the transfer and tested negative for all program pathogens. By the end of 2006, Mixsawbah was feed training chinook and coho.

Avoca and Cikana State Fish Hatcheries over-wintered rainbow trout. This usually not the case but explains why fish health inspections were conducted.

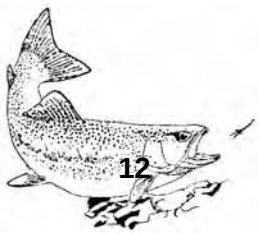
Summer run steelhead broodstock held at Bodine tested positive for one program pathogen. Two of sixty adults were positive for *Renibacterium salmoninarum.* These spawners were harvested from the St. Joseph River in 2005 and spawned early 2006. These adults produced the 06RBSTT lots currently reared at Bodine. Fish health samples were collected from the first three spawns. Illinois and Wisconsin received eyed-eggs.

A thiamine injection study on wild harvested summer-run steelhead broodstock began with their capture in 2005. Half of all adults taken over a three month summer period were injected with thiamine hydrochloride in a buffered saline solution. The working theory, per Dr. Dale Honeyfield, is thiamine will migrate into the developing green eggs and will stay there until spawning. Thiamine analysis of eggs at spawning four to seven months later, showed a two-fold increase in thiamine concentration. Eggs from injected females had an average concentration of 16.2 nana-mole/gram egg weight versus 7.9 for eggs from un-injected females. Differences in mortality rates from green egg through 21-days post first-day-of-feeding were insignificant. This



can be explained since the control group was not at risk to EMS given their thiamine levels were above the critical range of 2 to 4 n-m/gr. This study is currently being repeated.

Curtis Creek TRS did not obtain London strain rainbow trout from Ohio this year as is usually the case. Instead, and in an effort to not rely on captive broodstock, a small lot of eyed-eggs were obtained from Troutlodge, December, 2005. The remaining eggs for inland trout production came from captive broodstock. Both lots tested negative for program pathogens mid-year. The Troutlodge lot has visibly outperformed the London strain lot.



Hatchery Classification Report
Indiana Department of Natural Resources

Report Period: January – December, 2006 **Report Date**: 01/11/2007

Hatchery Name	***Location***	**Pathogen Acronym**
Avoca SFH	Avoca, IN	C-2
Bodine SFH	Mishawaka, IN	B-BK (10/06), B-BF (9/05)
Cikana SFH	Martinsville, IN	B-BK (2/06)
Curtis Creek TRS	Howe, IN	A-2
Mixsawbah SFH	Walkerton, IN	A-1- (BK) (10/06)
London Rainbow Broodstock (captive)		A-2
Skamania Steelhead Broodstock (wild)		B-BK (2/06)

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*

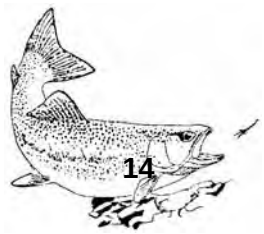
RESTRICTED FISH DISEASES

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, 2006

I. A. Known importations since last report.

1.							
2.							
3.							
4.							
5.							

B. Proposed

1.	Troutlodge Sumner,	RBT/10,000 Eyed Eggs					West Coast
2.							
3.							
4.							

II. Lab Findings

III. Other

STATE OF MICHIGAN

JENNIFER M. GRANHOLM
GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LANSING

REBECCA A. HUMPHRIES
DIRECTOR

January 12, 2007

TO: Great Lakes Fish Health Committee

FROM: Michigan Department of Natural Resources, Fisheries Division

SUBJECT: 2006 Report to the Great Lakes Fish Health Committee

A. Spring 2006 Inspection

Prestocking fingerlings: Twenty-eight lots of fingerlings (60 fish/lot) from six Michigan state hatcheries and the Lake Superior State University Aquaculture Research Laboratory (LSSU-ARL) were examined for reportable diseases as per the Great Lakes Fishery Commission (GLFC) model program. This includes six lots of brown trout, six lots of rainbow trout, six lots of chinook salmon, three lots of Atlantic salmon, two lots of coho salmon, two lots of lake trout, two lots of brook trout, and one lot of splake. No reportable diseases were found, with the exception of *Renibacterium salmoninarum*, (detected using quantitative ELISA assay, QELISA). The few lots that exhibited prevalence higher than 10% and/or had high antigen levels present were recommended to be treated with erythromycin. A number of other bacteria of no reportable significance were detected, such as *Flavobacterium*, *Carnobacterium*, *Shewanella*, and *Aeromonas* spp.

Returning steelhead spawners at the Little Manistee River Weir: Feral steelhead were in great health condition and only one fish out of sixty had a low level of *R. salmoninarum* antigens.

B. Summer/Fall 2006 Inspections

Broodstocks in Oden and Marquette SFH: From Marquette State Fish Hatchery (MSFH), seven lots of broodstock and one lot of future broodstock were inspected; eleven lots were inspected from Oden State Fish Hatchery (OSFH). The levels of *R. salmoninarum* antigens in broodstock from MSFH have dropped dramatically since last year. *Aeromonas salmonicida*, the causative agent of furunculosis, was **not** isolated from these stocks this year. *Carnobacterium maltaromaticum*, the causative agent of Pseudokidney Disease, was isolated from one MSFH lot and from several OSFH lots. The infection was associated with calcification of kidney tissues.

Prior to spawning, broodstock at OSFH and MSFH, the FDA approved vaccine Furogen® (Aqua Health, LTD), was administered. This treatment and vaccination regime was used to reduce *A. salmonicida* and has been very effective.

Eggs from these captive fish stocks were allowed to water-harden in erythromycin. Gametes from an additional 440 spawned Iron River brook trout from MSFH were also tested for *R. salmoninarum*. These lots had low prevalence (0-3%). Eggs from individual pairings were

kept separate until QELISA testing was completed. Only those fertilized eggs that tested negative for *R. salmoninarum* antigens were allowed for further indoor incubation.

Returning adult Atlantic salmon: *A. salmonicida* was isolated in 8 of 60 returning Atlantic salmon from LSSU-ARL this year. Only one fish out of sixty had a low level of *R. salmoninarum* antigen.

Returning spawners at weirs: Of the three weirs inspected, Little Manistee (LMRW), Platte River (PRW) and Swan River (SRW), only the inspection at the LMRW revealed the presence of *A. salmonicida* (prevalence of 8%). *R. salmoninarum* prevalence in the SRW chinook salmon and in both the Michigan-adapted and Hinchenbrook coho salmon from the PRW have significantly decreased since last year, while its prevalence in chinook salmon from the LMRW was 13%, which is higher than results of last year (6%).

Prestocking fingerlings: 60 fish each were sampled from lots of rainbow trout from Wolf Lake State Fish Hatchery (WLSFH) (2 lots), brook trout from MSFH (6 lots), and Atlantic salmon from LSSU-ARL (1 lot). No reportable diseases were found with the exception of *R. salmoninarum*, which was absent in the lots from WLSFH and MSFH, and detected in only 3% of the fish from LSSU-ARL.

Coolwater fish pre-stocking inspections: While no reportable diseases were detected during inspections of sturgeon and muskellunge from WLSFH, non-reportable bacteria such as *Citrobacter* and multiple *Aeromonas* species were isolated.

Private farms: In addition, approximately 1500 rainbow trout, brown trout, brook trout, bluegill, and koi from ten private aquaculture farms were inspected for health certifications for viral and whirling disease screenings. One farm had Infectious Pancreatic Necrosis Virus (IPNV).

C. Surveys of Potential Future Broodstock

Strains of brown trout from the Sturgeon River and brook trout from the Salmon Trout River were inspected for their potential use in hatcheries. After examination, the brook trout strain appeared to be a strong choice. The brown trout were high in *R. salmoninarum* antigen (prevalence of 36%). Of interest, a *Pantoea* sp. was isolated in these brook trout for only the second time in any fish (the first was also this year from a wild survey mentioned below). In addition, Lake Huron lake herring were examined for a pilot egg take.

D. Response to Reports of Fish Kills:

A number of fish kills have been reported. Viral Hemorrhagic Septicemia (VHS) was detected in a number of these cases. A case of mudpuppy die-offs was submitted to the laboratory. It was determined that the cause of death is an iridovirus, whose amplicon sequence was substantially homologous, but not exactly identical, to Largemouth Bass Virus (LMBV). This is not surprising since primers used for LMBV amplify most other iridoviruses.

E. Wild Fish Surveys and Pre-transfer Inspections:

The Michigan DNR wild fish surveys continued this year. Additional waters were identified to which LMBV and VHS has spread. Several non-salmonid species, including mottled sculpin, white suckers, walleye, and sea lamprey, were found to harbor antigens of *R. salmoninarum* in their kidneys, which may contribute to its spread among susceptible hosts. During the survey of multiple species from Gilchrist Creek, *Pantoea agglomerans* was isolated in a brown trout, the first time this bacterium has been found in fish.

E. VHS Surveillance:

In December, the first thousand fish of a broad VHS surveillance initiative were examined and will be ongoing into the following year.

F. Clinical:

25 cases were submitted by the Michigan state fish hatcheries for clinical diagnoses following episodes of elevated mortalities, erratic behavior, or other suspected disease. Findings included *Carnobacterium, Flavobacterium, Yersinia, Shewanella*, *Citrobacter*, and *Aeromonas* species. Based on results of antibiotic sensitivity testing performed in all cases, Investigational New Animal Drugs (INAD) or other approved antibiotics were recommended.

Prepared by: Mohamed Faisal and Michelle Gunn

cc: Hatchery Managers
Hatchery Biologists

DNR

HATCHERY CLASSIFICATION REPORT

Report Period: 01-01-06 to 12-31-2006 **Report Date: January 12, 2007**

HATCHERY NAME	Location	Classification-Pathogen Acronym
Harrietta SFH	Harrietta	B-BK
Marquette SFH	Marquette	B-BK, BF
Oden SFH	Oden	B-BK, BF
Platte River SFH	Beulah	B-BK
Thompson SFH	Thompson, Manistique	B-BK, BF
Wolf Lake SFH	Mattawan	B-BK
Lake Superior State U	Sault St. Marie	B-BK, BF

Report Prepared by: Mohamed Faisal, DVM, PhD
Title: Professor of Aquatic Animal Medicine
College of Veterinary Medicne
Michigan State University
Phone Number: 517-432-8259

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 fish from enzootic areas are know to have been made.

** Field diagnostic test not available.

DNR

HATCHERY CLASSIFICATION REPORT

Report Period: 01-01-06 to 12-31-2006 **Report Date: January 12, 2007**

FERAL STOCKS	Location	Pathogen Acronym
Coho salmon	Platte River Weir, Beulah	BK, BF
Coho salmon (HB)	Platte River Weir, Beulah	BK, BF
Chinook salmon	Little Manistee Weir	BK, BF
Chinook salmon	Swan River Weir, Rogers City	BK, BF
Steelhead trout	Little Manistee Weir	BK
Lean Lake Trout	Lake Superior	BK

Report Prepared by: Mohamed Faisal, DVM, PhD

Title: Acting State Fish Pathologist

Phone Number: 517-432-8259

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 fish from enzootic areas are know to have been made.

** Field diagnostic test not available.

SALMONID IMPORTATION REPORT

Agency State of Michigan

Reporting Period 01/01/06 – 12/31/06

I. A. Known importations since last report.

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin	Imported to:
	Erwin National	Eagle Lake RBT	Eggs	A	6/1/2006	Norman Heil	Lake Michigan	HSFH
1.	Fish Hatchery	337,103	16,713/L					
	Ennis National	Eagle Lake RBT	Eggs	A	12/06/2005	Crystal Hudson	Lake Michigan	HSFH
2.	Fish Hatchery	223,195	13,129/L					
	Enis NFH	Eagle Lake RBT	Eggs	A	12/06/2005	Crystal Hudson	Lake Michigan	OSFH
3.	Enis, Montana	81,932	12,171/L					
	Enis NFH	Eagle Lake RBT	Eggs	A	12/06/2005	Crystal Hudson	Lake Michigan	OSFH
4.	Enis, Montana	86,498	16,667/L					
	Red Cliff Tribal	Brook Trout Nipigon	Eggs	A	08/04/2005	Rick Nelson	Lake Superior	MSFH
5.	Fish Hatchery	80,000	16,000/L					
	Saratoga NFH	Lake trout LL	Eggs	A	05/09/2006	Crystal Hudson	Lake Superior	MSFH
6.	Saratoga, WY	515,421	7,800/L					
	Sullivan NFH	Lake trout Seneca	Eggs	A	08/02 to	Rick Nelson	Lake Superior	MSFH
7.	Brimley, MI	171,000	7,800/L		10/4 2006			
	Ennis National	Eagle Lake RBT	Eggs	A	05/17/2005	Crystal Hudson	Lake Michigan	TSFH
8.	Fish Hatchery	122,550	11,400/L					
	Jordan River	Lake trout Apostle Isl.	Fish	B (BK)	03/23/2006	Rick Nelson	Lake Michigan	WLSFH
9.	National Fish Hat	50,000 (forage for MUS)	373.4/kg					

B. Proposed importations:

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin	Imported to:
	Enis NFH	Eagle Lake RBT	13,000/L	A	11/14/2006	Crystal Hudson	Lake Michigan	OSFH
1.	Enis, Montana	350,000						
	Saratoga NFH	Lake trout LL	7,800/L	A	05/09/2006	Crystal Hudson	Lake Superior	MSFH
2.	Saratoga, WY	515,421						
	Sullivan NFH	Lake trout Seneca	7,800/L	A	08/02 to	Rick Nelson	Lake Superior	MSFH
3.	Brimley, MI	171,000			10/4 2006			
	Ennis National	Eagle Lake RBT	11,000/L	A	11/14/2006	Crystal Hudson	Lake Michigan	TSFH
4.	Fish Hatchery	120,000						

II. Lab Findings

III. Other

Minnesota Fish Health Update 1/12/07

Current Hatchery Classifications:

French River	B-(BK)
Crystal Springs	A-1
Peterson	A-1
Lanesboro	A-1
Spire Valley	A-1

Chinook Salmon Stocking Program Abandoned:

After failing to meet brood return management plan criteria for three consecutive years, Minnesota's Chinook salmon stocking program in Lake Superior was abandoned in 2006. These criteria had actually been meet in the late 1990's as well, however public interest then directed us to try a different stock of Chinook before program abandonment. After four years of rearing and stocking Lake Huron stock from Michigan DNR's Swan River weir and three years of monitoring returns, the results were the same. The final public review process on the Chinook program leading to program abandonment was part of the process to update and implement a new Minnesota Lake Superior Management Plan.

VHS surveillance:

In early August a joint effort between Minnesota and Wisconsin DNR sampled round goby, emerald shiner, and yellow perch, all species known to be susceptible to VHS, from the Duluth – Superior harbor. Cell culture work for VHS was done at the Minnesota path lab. The results were negative. This fall Minnesota completed two additional VHS surveillance events. In late October samples of chinook salmon and lake trout from Lake Superior near Duluth were screened for VHS at the Minnesota DNR pathology lab. The results were negative. In late November samples of lake herring and smelt from Minnesota waters of Lake Superior were sent to Cornell where Dr. Paul Bowser's group screened them for VHS using qRT-PCR. We received a "presumptive negative" on this screening using this very sensitive confirmatory testing procedure.

Vaccination:

Steelhead brood at French River and brook trout brood at Spire Valley were injected with Renogen in late summer.

Other events:

French River developed a mixed external bacterial infection in early September after an extended period of stress from incoming Lake Superior water temperatures in the 60's. A INAD for soluble terramycin was secured and helped get the fish through this period until temperatures moderated in late September.

Largemouth Bass Virus Report:

Detection of Largemouth Bass Virus in Minnesota

A Report Submitted by
Pathology Lab
Ecological Services Division
Minnesota Department of Natural Resources
October 2006

Introduction and Background Information

Largemouth Bass Virus (LMBV) was first discovered in United States in 1991 in Florida. It is a DNA virus of the Iridoviridae family. This virus has been detected in guppies, crappies, bluegills, sunfish, largemouth and smallmouth bass. Largemouth bass is the only species where it is known to cause fatalities, especially in trophy-sized fish. Since its discovery in 1991, it has spread to 20 states, mostly in the southeastern US, and the list continues to grow. LMBV has caused several major largemouth bass die offs in affected states. It is likely that the virus is being spread via various pathways, including upstream movement through waterways such as the Mississippi River.

Environmental stressors such as heat, handling, over crowding and pollution appear to trigger the onset of disease in largemouth bass. Infected largemouth bass show high levels of viral particles in the swim bladder and the mucus. This virus can be transmitted several different ways. It can occur via water, predation on infected fish, or by fish to fish contacts. Viral particles are capable of remaining alive in the waters for up to 7 days. Infected fish may not show overt signs of the disease, and thus may be carriers. As a result, several species may transmit the disease to largemouth bass even though they show no signs of the disease.

LMBV has never been monitored or reported in inland Minnesota waters. However fish with LMBV were documented in the upper Mississippi River just below the Twin Cities in 2002 and Wisconsin has confirmed the presence of the disease in its inland waters in recent years. Given the potential impact the virus could have on largemouth bass populations in Minnesota, the DNR's Pathology lab, in conjunction with the Section of Fisheries, felt that it was time to monitor some of Minnesota's wild largemouth bass populations. The Minnesota Bass Federation was contacted and agreed to provide assistance in the project.

Sample Collection and Results

Bass fishing tournaments were utilized for sample collection. Approximately 30 largemouth bass were collected from each of the lakes selected. The following are the lakes and dates of fish collection:

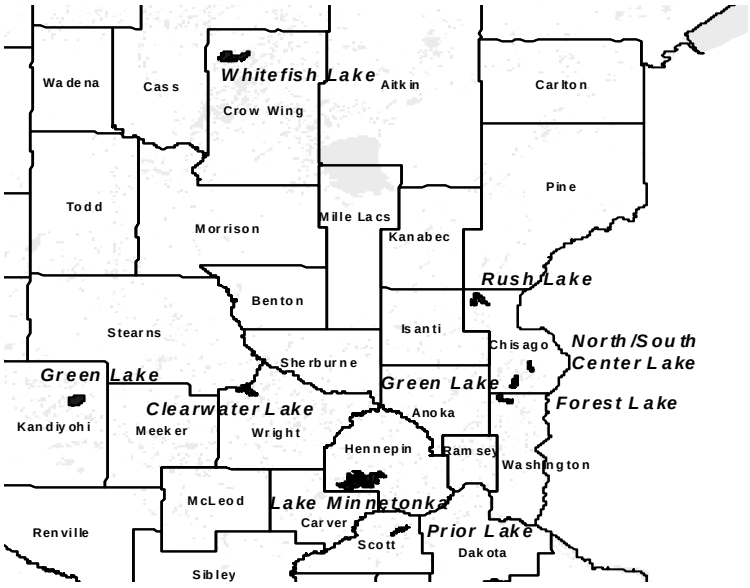
Name of the lake	Number of fish collected	Time of collection
Clearwater Lake (Wright Co. 86-252)	30	July 10
North/South Center (Chisago Co. 13-32)	30	July 10
Whitefish Lake (Crow Wing Co. 18-310)	30	July 17
Green Lake (Chisago Co. 13-14)	30	July 17
Prior Lake (Scott Co. 70-26, 70-72)	30	Aug. 07
Lake Minnetonka (Hennepin Co. 27-133)	28	Aug. 31
Rush Lake (Chisago Co. 13-69)	32	Aug. 21
Forest Lake (Washington Co. 82-159)	29	Aug. 21

Collected fish were packed on ice until the necessary tissues were taken. Tissue samples were tested for LMBV through cell culture on FHM cell line using standard protocols per the Fish Health Blue Book (Standardized testing procedures, American Fisheries Society). The DNR Pathology Laboratory and the Wisconsin Veterinarian Diagnostic lab confirmed the positive diagnosis of the virus using PCR-polymerase chain reaction on selected positive samples. Cornell University confirmed all positive samples using PCR.

Largemouth bass from five of the nine lakes tested positive for LMBV. The results are as follows:

Lakes positive for LMBV
1) Green Lake (Chisago Co)
2) Prior Lake
3) Lake Minnetonka
4) Rush Lake
5) Forest Lake

Lakes negative for LMBV
1) Clearwater Lake
2) North/South Center
3) Whitefish Lake



31 smallmouth bass samples were also submitted in August by DNR Fisheries (Spicer) from Green Lake (Kandiyohi Co.) for other sampling purposes; they were tested for largemouth bass virus. The results were negative.

Future Actions to Consider

LMBV is present in Minnesota's inland lakes and, based on our limited samples, may be widely distributed. Since this is the first detection of the disease, more monitoring would be warranted. Additional monitoring should be designed to enhance our understanding of its current distribution and provide a basis for assessing spread over time. Specifically, further actions can be divided into two categories. One is pathological monitoring of the spread of the disease and understanding the extent of damage it may cause to fish populations. This monitoring should attempt to get an accurate picture of the spread of the virus in largemouth bass, including lakes containing infected bass populations, as well as the severity of the infection. This will provide a basis for timely reaction, further investigation, and rapid reporting in the event of a large mouth bass die off. In order to do this effectively we need to work with Fisheries to come up with a comprehensive sampling and surveying plan. Fisheries is better equipped with the knowledge of bass lakes to sample from and the best methods of sampling, e.g. creel survey, participation in bass tournament, etc.

The second category of activities is to implement measures designed to minimize the spread of LMBV and its activation into lethal disease. These measures may include the following as recommended by the Largemouth Bass Virus Workshop.

- Clean boats, trailers and other equipment thoroughly between fishing trips to keep from transporting LMBV, as well as other undesirable pathogens and organisms, from one water body to another. Use special care to clean fishing equipment when leaving known locations of the virus.
- Do not move fish or fish parts from one body of water to another, and do not release live bait into any body of water.
- Handle bass as gently as possible if you intend to release them, and release them as quickly as possible.
- Refrain from holding the fish for long periods in live wells if you intend to release them.
- Minimize targeting of largemouth bass during the period from mid-July to mid-August, especially during exceptionally hot weather conditions.
- Report dead or dying adult largemouth bass to the DNR area Fisheries offices.

Lastly, we may need to institute educational efforts to let fisheries managers and the general fishing public understand the nature of this virus, how the disease spreads and how the general public may help in minimizing the spread of the virus.

Acknowledgement.

Jim Batin from Bass Federation coordinated all sample collection and submission for the entire project.

Dr. Rod Getchell from Cornell University, Ithaca, New York performed all PCR confirmation tests for us.

References.

Grizzle, J.M., Brunner, C.J. 2004. Review of Largemouth Bass Virus. Fisheries Vol. 28 No 11-13.

Largemouth Bass Virus III Session Transcripts, State Updates & Presentation Slides, Feb.22, 2002. Little Rock, AR.

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Bureau of Fisheries, Fish Disease Control Unit
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January 10, 2007

Agency Report to the Great Lakes Fish Health Committee for 2006

Overview of New York Fish Disease Issues

Fish kills related to VHS occurred in May 2006, in round gobies in the St. Lawrence River near Cape Vincent and Lake Ontario near Rochester. Another VHS-related fish kill was investigated in walleye from Conesus Lake in August. Both investigations were conducted by Dr. Paul Bowser and his staff at Cornell University. Dr. Bowser also has surveyed many fish species in New York's waters for the presence of VHS and those are summarized in the table below.

Table. Fish species testing positive for VHSv in cell culture

Date	Location	Fish Species
5-3-06	St. Lawrence River (Cape Vincent)	round goby (fish kill)
5-12-06	St. Lawrence River (Clayton)	burbot
5-15-06	Lake Ontario (Irondequot Bay)	round goby (fish kill)
5-15-06	Lake Ontario (Sodus Bay)	smallmouth bass
5-24-06	St. Lawrence River (Clayton)	muskellunge
6-3-06	St. Lawrence River (Garlock)	blugill rock bass
6-8-06	Lake Ontario (Tibett's Point)	smallmouth bass
8-3-06	St Lawrence River (Chippewa Point)	bluntnose minnow
8-5-06	Niagara River	emerald shiner
8-7-06	Lake Ontario (Barcelona Harbor)	emerald shiner
8-18-06	Conesus Lake	walleye

Aside from the VHS investigation, no other disease-related problems arose in New York in 2006.

Fish Pathogen Inspection Program

Due to the threat of VHS in New York waters, the New York State DEC enacted an emergency regulation (amendments to 6NYCRR Parts 10, 35, and 188) on November 21, 2006 to minimize the threat of VHS and other program pathogens from being introduced into the state's inland waters. The text of this regulation is posted on the NYS DEC website (www.dec.state.ny.us). This action will be effective for 90 days and then will be replaced by a permanent regulation. The public is welcome to make comments about this action by responding to the public comments section on the website. The other program pathogens being monitored include Infectious Hematopoietic Necrosis virus, Infectious Pancreatic Necrosis virus, Spring Viremia of Carp virus, *Renebacterium salmoninarum, Aeromonas salmonicida, Heterosporis* sp., and *Myxobolus cerebralis.*

In the past, the Fish Disease Control Unit (FDCU) surveyed blue book pathogens in all 12 state hatcheries including all wild brood collection waters plus whirling disease inspections for 30-40 private hatcheries. The FDCU has now agreed to inspect licensed private hatcheries (trout and bass) for pathogens listed in the emergency regulation and those inspections are currently underway. The FDCU has hired additional staff to assist in these inspections.

In the state hatchery inspections, *Aeromonas salmonicida* was isolated from wild Chinook (1 of 60) and Coho salmon (8 of 60) in the Salmon River Spawning Station, although no clinical disease was present. No other pathogens were detected in other state hatchery inspections.

INAD Projects

In 2006, we cooperated in one INAD study; Chloramine T (INAD 9321) to treat bacterial gill disease. In November 2006, we were approved to participate in an INAD to study the efficacy of Oxytetracycline (INAD 10-321) to treat numerous bacterial diseases. We suspended our Aqui-S trials (INAD 10-541) for 2006 due to our increased hatchery inspection effort.

Andrew D. Noyes
Pathologist 2 (Aquatic)

New York State Fish Hatchery Disease Classification Report

Report Period: Jan 1, 2006 to Dec 31, 2006

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
Chateaugay	Chateaugay, NY	A-2
Chatauqua	Mayville, NY	C
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 (10/06)
South Otselic	South Otselic, NY	C
Van Hornesville	Van Hornesville, NY	A-1
Wild Broodstock		
Coho Salmon - Lake Ontario	Altmar, NY	B-BF (10/06)
Chinook Salmon - LakeOntario	Altmar, NY	B-BF (10/06)
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
Lake Trout - Raquette Lake	Raquette 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

Report Prepared by: Andrew D. Noyes, Pathologist 2 (Aquatic)
Phone: 315-337-0910 Report Date: Jan 10, 2006

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 9, 2007

Ohio experienced several episodes of fish die offs during 2006. Large numbers of freshwater drum died in the western basin of Lake Erie during April and May. April 26, 2006 samples of dieing drum were positive for VHS virus. In May significant numbers of yellow perch showed up dead in the central basin of Lake Erie. May 22, 2006 samples of dicing yellow perch were positive for VHS virus. Commercial fishing by-catch was listed as the official cause of death. On June 14, 2006 several hundred hybrid stripped bass were reported dead at East Fork Lake. Samples were negative for VHS virus. Several hundred Freshwater Drum were reported dead at Caesar Creek Lake but no usable samples could be found.

Random sampling on May 31, 2006 from the central basin of Lake Erie yielded the following:

Freshwater Drum (25)	VHSV positive
Walleye (11)	VHSV positive
Gizzard Shad (1)	VHSV negative
White Suckers (2)	VHSV negative
Trout Perch (3)	VHSV negative
White Perch (3)	VHSV negative
White Bass (12)	VHSV positive
Yellow Perch (42)	VHSV positive
Smallmouth Bass (10)	VHSV positive

Random sampling on June 1, 2006 from the western basin of Lake Erie yielded the following:

Yellow Perch (82)	VHSV positive
Freshwater Drum (25)	VHSV negative
White Perch (25)	VHSV negative
White Bass (20)	VHSV positive
Walleye (20)	VHSV negative
Emerald Shiners (27)	VHSV negative
Smelt (26)	VHSV negative
Trout Perch (6)	VHSV negative

Random sampling on October 30 and 31, 2006 form Lake Erie for the following were all negative for VHSV.

Walleye (60), Yellow Perch (60), White Perch (60), White Bass (60), Gizzard Shad (60), Emerald Shiners (60), Smelt (7), Freshwater Drum (60), Steelhead (54)

Sampling from production fish all negative for VHSV.

Walleye SMSFH (60), Hybrid Stripped Bass HESFH (60), Channel Catfish HESFH (60), Channel Catfish SMSFH (60), Musky LOSFH (60), Musky KISFH (60), Musky HESFH (60).

Salmonid Hatchery Classifications:

London SFH	C-(A-2) 11/28/05
Kincaid SFH	C-(A-2)
Castalia SFH	C-(B-2) 5/16/06, BK 2/2004, VP 2/2003

Castalia was downgraded in May do to the transfer of fish from LOSFH.

Feral

Cold Creek	A, VP 2/2001

Submitted

David Insley

Ohio Division of Wildlife
Castalia State Fish Hatchery
7018 Homegardner Road
Castalia, Ohio 44824
Phone: 419-684-7499 Fax: 419-684-7513

HATCHERY CLASSIFICATION REPORT

Report Period: 2006 Report Date: 1/9/2006

Hatchery Name	Location	Pathogen Acronym
London SFH	London OH	C-(A-2) 11/28/05
Kincaid SFH	Latham OH	C-(A-2)
Castalia SFH	Castalia OH	C-(BS2) 5/16/06, BK 2/2004, VP 2/2003
Feral		
Cold Creek	Castalia OH	A, VP 2/2004

Report Prepared by: David A. Insley

Title: Hatchery Supt.

Phone Number: 419-684-7499

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 known to have been made.

** Field diagnostic test not available.

SALMONID IMPORTATION REPORT

Agency: Ohio Division of Wildlife

Reporting Period: 2006

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

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.	Wolf Lake SFH	Steelhead/250,000	eggs	B-Bk,	2/06	M. Faisal	Erie
2.	Wolf Lake SFH	Steelhead/225,000	Fish	B-BK	2/06	M. Faisal	Erie
3.							
4.							
5.							

B. **Proposed importations.**

	Source	Species/Number	Fish/Eggs Size	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1.	Wolf Lake SFH	Steelhead/250000	eggs				Erie
2.							
3.	Wolf Lake SFH	Steelhead/225,000	Fish				Erie
4.							

II. Lab Findings

III. Other

Ontario

Ministry of
Natural Resources

Ministère des
Richesses naturelles

2006
Annual Report to the Great Lakes Fish Health Committee

ONTARIO MINISTRY OF NATURAL RESOURCES

Summary of Fish Disease Occurrences and Control Measures:

Schedule II Detections

The Fish Health Laboratory included the Fathead Minnow cell line (FHM) as part of routine protocols for screening all viral samples.

Viral Hemorrhagic Septicemia virus (VHSV) was detected in moribund bluegill, freshwater drum, smallmouth bass and black crappie that were collected from Lake St. Clair in May (collections by Dr. J. Lumsden, Fish Pathology Laboratory, Ontario Veterinary College, University of Guelph). A repeatable cytopathogenic effect was found for all four species on Fathead Minnow cells (FHM) but was not found on Chinook Salmon Embryo cells (CHSE-214). A rhabdovirus was observed by electron microscopy and PCR (performed following the American Fisheries Society Bluebook of Suggested Procedures for the Identification of Certain Finfish and Shellfish Pathogens, 5th Edition) was positive for VHSV.

No virus was detected in samples of rainbow trout, round goby and muskellunge that were collected in May from Lake St. Clair. Bullhead and catfish collected in September were also negative for the virus as were emerald shiners collected from Long Point Bay, Lake Erie and perch tissues taken from Lake Erie.

Isolation of *Aeromonas salmonicida,* the causative agent of furunculosis, in salmon from the Credit River is an annual occurrence. In 2006, *A. salmonicida* was detected in 14 of 60 wild Chinook salmon from the Credit River collected during the fall egg collection. It was also detected in 15 of 60 Coho salmon collected October and November in the Credit River.

Yersinia ruckeri, the causative agent of enteric redmouth disease, was detected in 1 of 6 wild muskellunge collected in May during the egg collection from Gloucester Pool and in 2 of 37 wild lake trout from Killalla Lake in October.

Notifiable Agents

Bacterial Kidney Disease (BKD): *Renibacterium salmoninarum* was detected in only 1 of 30 walleye fry from Hills Lake Fish Culture Station (FCS) (for location see Figure 1) during routine monitoring in June using IFAT.

Detections at low levels by IFAT in routine monitoring continues and the facilities that had positive detections are listed in Table 1.

Table 1: Low level detections by IFAT of *Renibacterium salmoninarum* (2006).

Fish Culture Station	Date	Species
Blue Jay Creek	Feb. '06	Lake trout, Rainbow trout
Chatsworth	Jan. '06	Lake trout
	Feb. '06	Lake trout
Harwood	Mar. '06	Lake trout, Brown trout, Rainbow trout
Hills Lake	Jan '06	Lake trout, Brook trout
	Mar. '06	Aurora trout
Normandale	Feb. '06	Rainbow trout
Ringwood	Mar. '06	Atlantic salmon
Tarentorus	Jan. '06	Lake trout, Rainbow trout, Splake, Brook trout
White Lake	Jan. '06	Rainbow trout, Splake, Brown trout, Lake trout

Figure 1. Location of Ministry of Natural Resources hatcheries in Ontario.

Bacterial Gill Disease (BGD): A common issue at many facilities, BGD was found at OMNR facilities between May 1 and December 21, 2006 (Table 2).

Table 2: Confirmed outbreaks of Bacterial Gill Disease (2006).

Fish Culture Station	Date	Species	Comments
Blue Jay Creek	June '06	Lake trout	Mild infection
Chatsworth	July '06	Lake trout	Severe BGD, associated with mortalities.
	Aug. '06	Lake trout	Continued outbreak from July.
	Sept. '06	Lake trout	Severe BGD, associated with mortalities.
Dorion	May '06	Brook trout	Yearling production lot.
	Dec. '06	Brook trout	Very mild infection and probably not the primary cause of persistent low level mortalities in these post spawning fish.
Harwood	May '06	Atlantic salmon	Severe BGD, associated with mortalities. Brood lot
	June '06	Atlantic salmon	Severe BGD, associated with mortalities. Brood lot
	July '06	Atlantic salmon	Reoccurrence
	Aug. '06	Lake trout	Severe BGD, associated with mortalities.
	Aug. '06	Atlantic salmon	Low numbers observed but had been treated previously.
Normandale	July '06	Atlantic salmon	Severe BGD, associated with mortalities. Lot had been on creek water and exposed to run off event with silt prior to outbreak.

Miscellaneous Observations:

There were high mortalities of young of the year lake trout in January and February and in April of four month old lake trout at Blue Jay Creek FCS. Histology confirmed Chlamydia like organisms (or CLO). This facility has been diagnosed with CLO for the last couple of years and it is possible that historic mortality events have also been caused by undiagnosed CLO. This organism is not culturable and treatments are ineffective.

A high mortality event occurred at the North Bay FCS in May affecting Aurora trout fry following a runoff event in which large amounts of silt were observed in the hatchery water and poor water quality was detected. Some protozoa (*Icthiobodo* sp. also known as *Costia* sp.) and small amounts of bacteria typical of *Flavobacterium* sp. (possibly *F. psychrophilum* or *F. columnaris*) were observed on the gills.

Wild walleye collections were examined for gross abnormalities of fillet musculature in May. The fish were from Lake Manitou and Crooked Creek. There was no evidence of *Heterosporis* infection.

Skin scrapings from three year old rainbow trout with lesions revealed bacteria typical of a *Flavobacterium* sp. but it was not possible to determine if the lesions were of mechanical origin. These fish were brood fish from Tarentorus FCS and sampling was done in June.

In June, the first report of Spring Viremia of Carp (SVC) in Canada was reported from wild common carp (*Cyprinus carpio*) captured in Lake Ontario. The population was spawning but showed no clinical signs of the disease at the time that collections were made. 30 pooled samples, each with 5 fish, were collected at the same location and the virus was detected in 18 samples.

A large fish kill comprised almost entirely of channel catfish occurred on the Ottawa River in August. Samples of both dead and moribund fish from the Ontario and Quebec sides of the river were submitted for examination. Large amounts of bacteria typical of *Flavobacterium columnaris* were observed in skin scrapings and on gills. Conditions were reported to be ideal for an outbreak of Columnaris disease in the river. Catfish populations were at an all time high, water temperatures were high and crowding of catfish were reported in shallow waters prior to the fish kill. Algal blooms were likely to have caused transient anoxic conditions. There was no evidence of viral pathogens.

Walleye fillets were submitted from the Thunder Bay area by an angler in September. The fillets displayed an abnormal gross appearance. Although not a typical presentation, histology confirmed Myofibrogranuloma, also known as walleye myopathy or sandy flesh disease.

In October, 50,000-55,000 American eel elvers were stocked into Lake Ontario. These fish were wild caught in the Atlantic Canada commercial fishery and moved to a holding facility. Histology detected one nematode present in association with the gas bladder wall in a sample of 96 eels. The nematode species was not identified. Additional samples were collected and no nematodes were detected.

Ringwood Fish Culture Station was leased to the Ontario Federation of Anglers and Hunters using a Memorandum of Understanding. The Memorandum of Understanding also includes an agreement that fish health testing will continue under the MNR contract with the Fish Health Laboratory.

Regulatory Changes: None
Salmonid Importation Report: see attached

SALMONID IMPORTATION REPORT- GLFHC- 2006

A. Imports of Salmonid Fish and Eggs into Great Lakes Basin

1. Known imports from January 1-December 31, 2006

Source	Species	Number	Age/Size	Health Status	Certification Date	Official	Lake Basin
Washington, USA.	Rainbow trout	410,000	Eyed eggs	A	2005.08.26	K.R. Snekvik	Huron
Washington, USA.	Rainbow trout	600,000	Eyed eggs	A	2005.08.26	K.R. Snekvik	Huron
Washington, USA.	Rainbow trout	300,000	Eyed eggs	A	2005.08.26	K.R. Snekvik	Huron
Washington, USA.	Rainbow trout	172,000	Eyed eggs	A	2006.03.03	K.R. Snekvik	Huron
Washington, USA.	Rainbow trout	200,000	Eyed eggs	A	2006.03.03	K.R. Snekvik	Huron
Washington, USA.	Rainbow trout	350,000	Eyed eggs	A	2006.03.03	K.R. Snekvik	Huron
Washington, USA.	Rainbow trout	370,000	Eyed eggs	A	2006.03.03	K.R. Snekvik	Huron
PEI, Canada	Rainbow trout	86,000	Fingerling	A	2006.04.12	A.-M. MacKinnon	Huron
Washington, USA.	Rainbow trout	300,000	Eyed eggs	A	2006.09.26	K.R. Snekvik	Huron
PEI, Canada	Rainbow trout	35,000	Fingerling	A	2006.04.12	A.-M. MacKinnon	Huron
Maine, USA	Atlantic salmon	41,900	Green eggs	*			
Atlantic Canada	American eel	50,000-55,000	elvers	**			

*****Uncertified 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.
**Wild eels were imported, see Miscellaneous Observations section for additional details.

2. Imports to date for 2007

Source	Species	Number	Age/Size	Health Status	Certification Date	Official	Lake Basin
Washington, USA.	Rainbow trout	460,000	Eyed eggs	A	2006.09.26	K.R. Snekvik	Huron

Report prepared by: Elizabeth Wright
Title: Coordinator, Fish Health and Aquaculture
Tel: 1-705-755-1928
Fax: 1-705-755-1957

Pennsylvania Fish and Boat Commission
Fish Production Services
1735 Shiloh Road
State College, PA 16801-8495
814-355-4837

Annual Report to the Great Lakes Fish Health Committee

January 11, 2007

VHS:

In an effort to reduce the spread of VHSv from Lake Erie to inland waters, the PA Fish and Boat Commission discontinued the practice of moving adult steelhead out of the Lake Erie drainage for spawning purposes. Also discontinued was the use of Lake Erie esocid brood stocks.

Restrictions were placed on the sale and/or transport of Lake Erie emerald shiners to outside of the Lake Erie basin. Regulation has been proposed to prevent the transfer of any live fish outside of the Lake Erie basin through recreational fisheries. An educational effort is being developed in conjunction with PA Sea Grant to inform bait fish dealers and anglers of the dangers associates with the movement of fish and fishing equipment from areas were VHSv and other aquatic nuisance species are present.

IPN, Furunculosis, Coldwater Disease, and BKD:

In 2006, the effort to reduce the incidence of IPNv infection in Lake Erie steelhead by the use of lot spawning and the culling of eggs from infected steelhead brood fish was continued.

In the November 2005-March 2006 period, approximately 1542 Lake Erie steelhead brood fish were lot spawned and monitored for viral pathogens. IPNv was detected $\leq$ 3% of the brood fish. Egg lots from IPNv infected brood fish were discarded. Sixty of the brood fish were sampled for restricted bacterial pathogens and whirling disease spores. *Aeromonas salmonicida* was detected in one fish (1.7%).

During the November-December 2006 period, approximately 546 Lake Erie steelhead brood fish were lot spawned and tissue samples were assayed for viral pathogens using both CHSE and FHM cell lines. IPNv was detected $\leq$1% of the brood fish. The egg lots produced from the infected brood fish were discarded.

In an attempt to reduce the vertical transfer of coldwater disease bacteria from the steelhead brood fish to their progeny, approximately 1930, 2005-06 steelhead brood fish were injected with Liquamycin (20 mg/kg) and their eggs were water hardened in 100 ppm iodophor for 30 minutes. The 2006-7 brood fish are receiving similar injections prior to spawning. Injection and spawning activities will continue through March 2007.

Systemic coldwater disease in steelhead and rainbow trout continued to be a major cause of mortality and deformity in our hatchery reared stocks. Treatment with florfenicol under a USFWS INAD was an effective control at those facilities that participated in that INAD.

Whirling Disease:
In 2006, *Myxobolus cerebralis* spores were detected in rainbow trout reared at one PFBC state fish hatchery. The infection level was low and no clinical signs of whirling disease were reported. The fish produced at that facility are not stocked into the Lake Erie drainage.

The five Cooperative Nurseries involved in the Lake Erie steelhead trout stocking program and one rearing brown trout for the Lake Erie basin were monitored for whirling disease infections. All assays were negative.

Wild steelhead trout fingerlings from tributaries to Lake Erie were collected; however the assays for *M. cerebralis* have not been completed.

A total of sixty steelhead brood fish from the 2005-06 Lake Erie run were assayed for *M. cerebralis* spores. No spores were detected. Assay results for tissues collected from the 2006-7 brood fish are pending. Whirling disease spores had previously been detected in adult Lake Erie steelhead in 1989, 1991, and 1997.

INADs:
The PFBC continued to maintain INADs for therapeutic treatments with water soluble terramycin, chloramine t, Reward Diquat, formalin, Terramycin For Fish, and Lysol (Roccal).

The PFBC also participates in a hydrogen peroxide INAD sponsored by the USGS, the carp pituitary INAD sponsored by the Illinois DC and the florfenicol INAD sponsored by the USFWS.

Ken Stark

Fish Health Biologist

Cc: A. Shiels

Pennsylvania Fish and Boat Commission
GLFHC Hatchery Classification Report

Report Period: January 1 to December 31, 2006
Report Date: 1/8/06

Hatchery Name	Location	Disease Classification
Bellefonte SFH	Bellefonte	B-BF06, BK05 , SW05, VP06
Benner Spring SFH	State College	B-BF06$^{R\text{-}TM}$, (BK04), VP06
Corry SFH	Corry	B- BF06$^{R\text{-}TM}$, BK06, VP06
Fairview SFH	Fairview	B-(VP04)
Huntsdale SFH	Huntsdale	B-BF05, (BK05), (SW05), VP06
Linesville SFH	Linesville	B-(VP04)
Oswayo SFH	Oswayo	B-BF06, BK06, VP06
Pleasant Gap SFH	Pleasant Gap	B- BF06$^{R\text{-}TM}$, BK05, VP06
Pleasant Mount SFH	Pleasant Mount	B- BF05$^{R\text{-}TM}$
Reynoldsdale SFH	Reynoldsdale	B- BF06$^{R\text{-}TM}$, SW06, VP06
Tionesta SFH	Tionesta	B-(VP06)
Tylersville SFH	Tylersville	B-BF06, BK06, (SW04), (VP05)

Cooperative Nurseries

Ro-Ze	Girard	C
Platz	Fairview	C
Mitchell	Girard	C
Pomeroy	Sterrettania	C
Eagley(Strohmeyer)	Fairview	C
Sauers	Sterrettania	C

Wild Broodstock

Steelhead Trout	Lake Erie	B-BF06, VP06

Disease	Pathogen	Abbreviation
Whirling disease	Myxobolus cerebralis	SW
Infectious pancreatic necrosis	IPN virus	VP
Bacterial kidney disease	Renibacterium salmonarum	BK
Furunculosis	Aeromonas salmonicida	BF

BF$^{R\text{-}TM}$ = Terramycin resistant *Aeromonas salmonicida*

Report Prepared by: Kenneth Stark
Title: Fisheries Biologist
Phone Number: (814) 353-2227

SALMONID IMPORTATION REPORT

Agency: Pennsylvania Fish and Boat Commission
Reporting Period: January - December 2006

I. A. Known importations since last report.

Source	Lake Basin	Species/No.	Fish/Egg Size	Fish Health Status	Certification Date	Certification Official
Storey SFH WYGFD	Inland	LAT/101,000	Eyed eggs	SPF	10/30/06	Dave Ackerman
Tellico Trout Franklin, NC	Inland	RBT/123,000	Yearling	B-VP	8/22/06	Norm Heil

B. Proposed importations (2007).

Source	Lake Basin	Species/No.	Fish/Egg Size	Fish Health Status	Certification Date	Certification Official
Storey SFH WYGFD	Inland	LAT/100,000	Eyed eggs	SPF	10/30/06	Dave Ackerman
Tellico Trout Franklin, NC	Inland	RBT/123,000	Yearling	B-VP	8/22/06	Norm Heil
Lamar NFH	Inland	BKT/38,000	Yearling	C-BF	11/1/06	John Coll
USFWS		RBT/7,600 RBT/64,000	2 Year Old Yearling			

II. Lab Findings – Terramycin resistant *Aeromonas salmonicida* were detected at the Benner Spring, Corry, Pleasant Gap, and Reynoldsdale State Fish Hatcheries.

III.Other - N.A.

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
Jim Doyle, Governor
Scott Hassett, Secretary

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GLFHC Annual Report for 2006

There were several significant issues related to fish health in Wisconsin in 2006. The bad is followed by the neutral or good news.

Epizootic Epitheliotropic Disease Virus

In February 2006, 12 month old lake trout at the Bayfield WI hatchery experienced a low level chronic mortality with external signs of bacterial coldwater disease. The hatchery water supply is a combination of well water and Lake Superior surface water and the fish originated as eggs collected from wild Lake Superior Lake trout. Because the fish did not respond to treatments for CWD, skin samples from the fish were sent to Dr Ron Hedrick's lab at UC Davis to be processed by isopycnic centrifugation and electron microscopy to see if EED virus was present. A similar scenario occurred in 2003 and skin samples collected and frozen at -70 C at that time, were also sent to Dr Hedrick's lab to be tested for EEDv.

A herpesvirus of the same size as EEDv was observed in the skin from the archived 2003 sample, but not from the 2006 fish. Lake trout that were stocked in 2003 in the Duluth/Superior area of Lake Superior were likely infected with the virus. After the fish were stocked, hatchery staff disinfected the rearing units, which is routinely done between groups of fish. Since the 2006 lake trout tested negative, the hatchery was not depopulated and a whole facility disinfection was not done.

We will be watching the fish carefully this winter for signs of chronic mortality with or without signs of bacterial coldwater disease and will be working with Dr Hedrick to test fish for EEDv. There is still a critical need to have a rapid, easy to use diagnostic tool for EEDv. Dr Hedrick and I submitted a pre-proposal to the GLFC in which we describe how such a tool might be developed by applying technology/knowledge gained in the Hedrick lab. This is the closest we have ever been to having a useful diagnostic tool for EEDv. Yes, consider this a lobby for the pre-proposal…

Screening for VHSv

During Fall spawning, kidney/spleen and ovarian fluids from Chinook, Coho and Seeforellen brown trout from Lake Michigan and lake trout from Lake Superior were sampled for virology and cultured on FHM, CHSE-214 and EPC cells. Also, lake whitefish, bloater chubs and yellow perch from Lake Michigan were sampled for virology in November/December using the same cell lines.

No viruses were cultured from the whitefish, and results are pending for the bloaters and the yellow perch.

Spring spawning steelhead will be inspected as usual, and FHM cells will be used in addition to the EPC and CHSE-214 cell lines that are used routinely, to increase the chance to detect VHSv if it is present.

Non-lethal methods for sampling spotted muskies
For the second year, we collaborated with the La Crosse Fish Health Center to use non-lethal methods to sample spawning spotted muskies from the Fox River (tributary to the bay of Green bay). These methods were targeted to detect the Piscirickettsia-like organism, R. salmoninarum, and viruses. A copy of the protocol is attached. Using these methods, no viruses were detected; R. salmoninarum was not detected; and the Piscirickettsia-like organism was not detected.

Non-lethal methods for sampling lake sturgeon
Although our traditional lake sturgeon rearing program has focused on inland stocks of fish, there is interest and support to rear Great Lakes basin lake sturgeon for release into Lake Michigan. We plan to use the same methods developed for our inland program, on the Great Lakes. These include screening ovarian fluids for viruses (archiving a sample at -70C in the hope that a PCR method will soon be validated for white sturgeon iridovirus); snipping a small piece of pectoral fin and fixing ½ in 10% NBF for histology to screen for iridoviruses and archiving the other ½ at -70 C to be tested for iridoviruses by a PCR method.

Renibacterium salmoninarum
For the first time in many years, we did not have even a small outbreak of BKD in our Coho salmon in the hatcheries. We think that early thinning of the fish (reducing surplus) was a significant factor, reducing early stress.

We continue to collaborate with the Western Fisheries Research Center and Dr Diane Elliott on R.s. studies. Chinook parents from Strawberry Creek (Sturgeon Bay WI) were screened for R.s. and eggs from 5 families, from which both parents tested negative for the bacterium, were shipped to the Seattle lab.

For the first time in many years, I observed necrotic blebs in the kidney of one adult Coho and one adult Chinook during their fish health inspections.

Aeromonas salmonicida
We continue to have very good to excellent results using an autogenous vaccine for A. salmonicida to control/prevent furunculosis outbreaks. Microtechnologies produces the vaccine for us, and we feed the fish an immune enhancing feed from EWOS for three weeks before and three weeks after vaccination. Additionally, fish are thinned prior to vaccination so that they do not need to be handled for the three weeks after vaccination. This allows efficient production of antibodies by the immune system (no stress).

We continue to detect A. sal. in returning Coho salmon, which is surprising since we do not isolate the bacteria from the fish during the hatchery portion of their life.

Heterosporis
We collaborated with Dr John Lumsden's lab (U Guelph) on their studies related to Heterosporis by providing them fresh, infected tissue from Catfish Lake. Many thanks to CFIA for their help to prevent delays at customs. The parasite has not been reported/confirmed at any new lakes in Wisconsin.

We have not hired a second fish health person yet, but there is still hope that this may occur in 2007.

Respectfully submitted,

Susan Marcquenski

Protocol for collecting fish health samples from spawning spotted muskellunge in Wisconsin

The number of adult spotted musky are limited in the Fox River, and as well, they are long-lived fish. Therefore we are proposing to develop non-lethal methods to obtain information regarding egg transmissable pathogens, or regarding serious pathogens whose etiology is unknown, and therefore a risk to propagation and restoration efforts.

The proposed protocol is divided by tissue type and then by the various tests that can be conducted with the specific tissue.

Blood

Collect 3 cc of blood.

- *Piscirickettsia*
  1. Make a blood film for later staining with Giemsa or another similar blood stain. Screen for bacteria using 100X and oil immersion objective. Note other parasites or unusual cells.
  2. Express 0.25 to 0.5 ml of blood into a cryovial and snap freeze on dry ice for future molecular testing.
- *Renibacterium salmoninarum*

  Place 10 µl of blood on SKDM2 agar, incubate at 15C for 6 weeks

Remove the needle and express remaining blood into a serum separation tube and keep cool until it can be centrifuged and the serum harvested. Freeze at – 70 C for possible screening for antibodies.

Ovarian Fluids and Milt

Collect up to 3 cc of fluids in a sterile container. Split the sample equally for the tests below:

- *Piscirickettsia*

  Transfer 1/3 of the sample to a sterile cryovial and freeze at –70 C for possible PCR screening.
- General Virology

  Transfer 1/3 of the sample to a sterile tube filled with 0.2 cc pen/strep solution (same as that used for trout/salmon ovarian fluid screening for virology). Process according to AFS Blue Book procedures using CHSE-214, EPC and FHM cell lines. Do not combine milt and ovarian fluids.
- *Renibacterium salmoninarum*

  Transfer 10 ul of fluid to an SKDM2 agar plate and streak for isolation of R.s. Incubate at least 6 weeks at 15 C.

Skin Lesions

- *Piscirickettsia*

  Gently scrape the surface of any skin lesions using a sterile scalpel blade.
  1. Make an impression of the lesion using a frosted glass slide labeled with the ID number of the fish. Let this air dry and fix in methanol for 5 minutes. Stain with Giemsa.
  2. Using a bacteriological loop, collect a swab of the margin of the lesion and culture on TSA and a medium appropriate for yellow pigment producing bacteria (Flavobacteria)- such as Cytophaga, Hsu-Shotts, Ordals agar. Incubate at 20 C and identify the bacteria.

HATCHERY CLASSIFICATION REPORT
Wisconsin

Report Period: **January 1 to December 31 2006** Report Date: **January 12, 2006**

Hatchery Name	Location	Pathogen Acronym
Bayfield	**Bayfield**	**B-BF, (BK)**
Brule	Brule	B-(BK)
Kettle Moraine Springs	Adell	B-BK
Lake Mills	Lake Mills	B-(BK)
Lakewood	Lakewood	A-2
Langlade	White Lake	A-2
Nevin	Fitchburg	A-1
Osceola	Osceola	B-(BF)
St. Croix Falls	St.Croix Falls	A-1
Thunder River	Crivitz	B-BF,(BK)
Wild Rose	Wild Rose	B-(BF, BK)

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.
** Field diagnostic test not available.

SALMONID IMPORTATION REPORT

WISCONSIN

Agency: WI Department of Natural Resources
Reporting Period: **January 1 to December 31 2006**

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

	Source Certification Date	Certifying Official	Species/Number Lake Basin	Fish/Egg Size	Fish Health Status
1.	Ennis, MT May 2006	C. Hudson	Arlee RBT Michigan 130,000	egg	SPF
2.					
3.					
4.					
5.					

B. **Proposed importations**

	Source Certification Date	Certifying Official	Species/Number Lake Basin	Fish/Egg Size	Fish Health Status
1.	Ennis MT	C. Hudson	Arlee RBT Michigan 130,000	egg	SPF
2.					
3.					
4.					

HATCHERY CLASSIFICATION REPORT
Wisconsin- Wild Broodfish

Report Period: **January 1 to December 31 2006** Report Date: **January 12, 2007**

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

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.
** Field diagnostic test not available.

HATCHERY CLASSIFICATION REPORT
USFWS REGION 3

Report Period: January 1, 2006 to December 31, 2006 **Report Date:** 01-12-07

Hatchery Name	Location	Pathogen Acronym
Genoa NFH	Genoa, WI	BK
Genoa Isolation Facility	Genoa, WI	Class A
Sullivan Creek NFH	Raco, MI	Class A
Iron River NFH	Iron River, WI	Class A
Jordan River NFH	Elmira, MI	Class A
Neosho NFH	Neosho, MO	BK
Pendills Creek FH	Brimley, MI	Class A
Lac Du Flambeau TFH	Lac du Flambeau, WI	Class A
Keweenaw Bay TFH	L'Anse, MI	Class A
Keweenaw Bay Isolation Facility	L'Anse, MI	Discontinued - no fish in 06
Red Cliff TFH	Red Cliff, WI	Class A

Report Prepared by: Terrence J. Ott
Title: Fish Health Biologist
Phone Number: 608/783-8444

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 known to have been made.
- ** Field diagnostic test not available.

USFWS REGION 3 SALMONID IMPORTATION REPORT

Report Period: January 1 to December 31, 2006 **Report Date:** 01-12-07

I. A. Known importations since last report.

Source	Species	Fish/Egg Numbers	Fish Health Status	Certification Date	Certifying Official	Lake Basin
1. Saratoga, WY	LAT	2.90 mil	Class A	10/03/06	C. Hudson	Lake Michigan Lake Huron
2.						
3.						
4.						
5.						
6.						
7.						

B. Proposed Importations

1.

2.

3.

II. Lab Findings

III. Other

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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2006 Annual Report to the Great Lakes Fish Health Committee from Fish and Wildlife Service Northeast Region; Region 5

For the first time in the 32-year history of fish culture infectious pancreatic necrosis virus (IPNV) was isolated at Allegheny NFH. Sources of the infection were investigated, and through the assistance of Dr. Julie Bebak (Fresh Water Institute) and Dr. Phil McAllister (USGS-Leetown), bird droppings, raceway water, and well water samples were tested. Of these investigations, only the raceway effluent was definitively positive. The facility has been de-populated and following installation of some biosecurity structures (raceway covers, re-vamping water supply aeration tower, and possible water supply UV disinfection), a complete station disinfection will be scheduled for in spring 2007.

In order to take on production schemes for lake trout to Lakes Eire and Ontario, two USFWS Region 5 Atlantic salmon facilities have made accommodating space for lake trout. Surplus eggs and fish from several sources have been obtained. Pittsford NFH, in Vermont has received fish and eyed Seneca Lake Wild (SLW) strain lake trout eggs from NYDEC. White River NFH, also in Vermont has received SLW lake trout eggs from NYDEC as well as Superior Klondike Wild strain lake trout eggs from USFWS Region 3 Sullivan Creek NFH. Both White River and Pittsford are A-2 facilities, as depicted on the Hatchery Classification Report, and the progress of these lots will be monitored on future Great Lakes Hatchery Classification and Salmonid Importation Reports. Subsequent release of this fish will generate an importation to the basin report, during next year's reporting period.

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. This Center's work involving the Basin would be that conducted in Pennsylvania and New York. Particular for VHS in the Great Lakes, a walleye from Lake Eire and 58 lake trout from Lake Ontario assayed and no replicating viral agents were identified.

Due to the VHS virus concerns, the lake sturgeon program at Pittsford NFH, in North Chittendon, VT was suspended. This program had been done in cooperation with NY DEC where wild lake sturgeon broodstock were collected and spawned from the St. Lawrence River.

HATCHERY CLASSIFICATION REPORT

Report Period __Jan. 1, 2006 – Dec. 31, 2006_____ Report Date: __Jan. 12, 2006__

Hatchery Name	Location	Pathogen Acronym
_Allegheny NFH	Warren, PA	C, BF, BP*
	* facility is presently de-populated, awaiting biosecurity construction and disinfection	
_White River NFH	Bethal, VT	A-2 U-V treated
_Pittsford NFH	N.Chittendon, VT	A-2

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.