

2007 PATHOGEN REPORT

Donald,David [Reg]

From: Souter, Brian [Brian.Souter@dfo-mpo.gc.ca]
Sent: Tuesday, December 04, 2007 12:31 PM
To: Donald,David [Reg]
Subject: RE: LAKE WINNIPEG - FISH PATHOGENS

Attachments: Devils Lk (Red R., Lk Wpg) Pathogen survey Spr 2007 Table 3 Bacterial Id'n.doc; Devils Lk (Red R., Lk Wpg) Pathogen survey Spr 2007 Table 2 No. Bact Isolates.doc; Devils Lake (Red River, Lk Wpg) Pathogen survey Spring 2007 Collection data.doc; Devils Lk (Red River, Lk Wpg) Pathogen Survey Spr 2007 Table 4 Virus isolation results.doc

Hello David:

Attached are tables showing the species captured, numbers captured, and the respective collection dates; bacterial isolations and identifications; and virus isolation results. Screening for Renibacterium salmoninarum (causative agent of bacterial kidney disease) using IFAT (indirect fluorescent antibody staining technique) stained kidney smears has not been completed. Bacterial isolation results were similar to the fall 2006 findings with one notable exception; namely, the isolation of the opportunistic pathogen Edwardsiella tarda from the kidney of a covertly infected northern pike from the Red River. E. tarda is an enteric bacteria. It is a ubiquitous water-borne organism and the causative agent of edwardsiellosis. The pathogen has been isolated from a number of fish species including channel catfish, chinook salmon, mullet, carp, flounder, eels, as well as snakes, frogs, turtles, gulls and human beings.

Cheers.

Brian Souter

Fish Health Lab Manager/Gestionnaire du laboratoire d'ichtyopathologie
Central and Arctic Region/Région du Centre et de l'Arctique
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From: Donald,David [Reg] [<mailto:David.Donald@EC.GC.CA>]
Sent: December 4, 2007 10:57 AM
To: Souter, Brian
Subject: LAKE WINNIPEG - FISH PATHOGENS

Brian:

I need to brief the big-shots on the Lake Winnipeg parasite and pathogen project on December 13. Could you please prepare 1-2 POWERPOINT slides summarizing results from 2006-07, whatever information is available at this point. I do not need detailed information on methods. Information on sample size - what was found, should work.

David

2/25/2009

Table 1. Targeted species, numbers collected, and dates of collections

Species	June 27/07	June 28/07	July 4/07	July 5/07	July 9/07	July 11/07	July 16/07	July 17/07	July 18/07	July 19/07	July 23/07	July 25/07	Totals
Brook stickleback													0
Channel catfish		26	25		9								60 b/v* 30 histo
Emerald shiner	23 ⁽¹⁾	7 ⁽¹⁾	7		11	1	33		8				60 b/v 30 histo
Fathead minnow										74 ⁽²⁾	16		60 b/v 30 histo
Goldeye	10	50											60 b/v 30 histo
Northern pike					12 ⁽³⁾	3		11	2		13		50 b/v 30 histo
Sauger	44	16											60 b/v 30 histo
Walleye						2		9	4		36 ⁽⁴⁾		35 b/v 30 histo
White bass	9	10		4	10	11	10	6					60 b/v 30 histo
Yellow perch					12 ⁽⁵⁾	36 ⁽⁶⁾		42					60 b/v 30 histo

Totals

**505 b/v
270 histo**

* b/v: bacteriology/virology.

(1) Samples used for histopathology only.

(2) 44/74 fish processed for b/v, remaining 30 fish for histopathology.

(3) 9/12 fish processed for b/v All fish processed for histopathology.

(4) Due to small size of fish only 23/36 processed for b/v. All fish processed for histopathology.

(5) Due to small size of some fish only 3/12 processed for b/v All fish processed for

histopathology.

- (6) Due to small size of fish only 15/36 processed for b/v All fish processed for histopathology.

Table 2. Number of bacterial isolates cultured from each targeted fish species

<u>Species</u>	<u>Number of Isolates Cultured From Each Species</u>
Brook stickleback	0
Channel catfish	20
Emerald shiner	18
Fathead minnow	16
Goldeye	9
Northern pike	10
Sauger	9
Walleye	15
White bass	16
Yellow perch	<u>20</u>
Total	133

Table 3. Bacterial identification results and the fish species from which they were cultured

<u>Bacterial Identifications for Each Species of Fish</u>		
<u>Identified Bacterial Isolates</u>	<u>Fish Species</u>	<u>No. of Isolates Identified</u>
<u>Plesiomonas shigelloides</u>	S (1) CC (1) WE (2) FHM (1) NP (2)	7
<u>Pseudomonas aeruginosa</u>	S (1) WB (2) CC (1)	4
<u>Aeromonas hydrophila</u>	WB (1) CC (2) ES (4) YP (1) FHM (5) NP (1)	14
<u>Acinetobacter lwoffii</u>	WB (1) WE (1)	2
<u>Enterobacter agglomerans</u>	ES (1)	1
<u>Klebsiella oxytoca</u>	ES (1)	1
<u>Pseudomonas paucimobilia</u>	ES (1)	1
<u>Edwardsiella tarda</u>	NP (1)	1
Total		31

66 of 133 isolates were screened in for identification using the API-20E system. 31 of 66 isolates screened in were identified.

* Identification of isolate confirmed as *E. tarda* at the National Microbiology Laboratory, Canadian Science Centre for Human and Animal Health, Winnipeg, Manitoba.

Table 4. Virus isolation results.

Virus Isolation Results			
<u>Species</u>	<u># of Fish</u>	<u># of Pools</u>	<u>Virus Isolated (Y/N)</u>
Brook stickleback	0	0	N/A
Channel catfish	60	13	N
Emerald shiner	60	21	N
Fathead minnow	60	13	N
Goldeye	60	12	N
Northern pike	50	9	N
Sauger	60	13	N
Walleye	35	9	N
White bass	60	14	N
Yellow perch	<u>60</u>	<u>13</u>	<u>N</u>
Totals	505	117	0+

CHSE (Chinook salmon embryo) and EPC (epithelioma papulosum cyprini) cell lines were use for virus isolation from tissue pools prepared from all species of fish. In addition the CCO (channel catfish ovary) cell line was used for the detection of channel catfish virus (CCV) in channel catfish only.

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12/10/2007

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