Thompson - Spiny-Ray Eradication Project

Ministry of FLNRORD
Andrew Klassen

Recognizing That There Was a Problem

- British Columbia has had spiny-ray species for many decades the but the Thompson remained the last major southern drainage in the province without established populations.
- The first cases of spiny-ray fish in the Thompson drainage were reported and confirmed in 1996.
- By 2005 there were 9 lakes with established populations. (yellow perch, small and largemouth bass, and sunfish)
- Five of the 9 lakes have direct connection to the Thompson Drainage.
- The situation had become critical if efforts were going to be made to stop the spread.
- Funding was secured and Spiny-Ray Eradication Program was initiated in 2006.

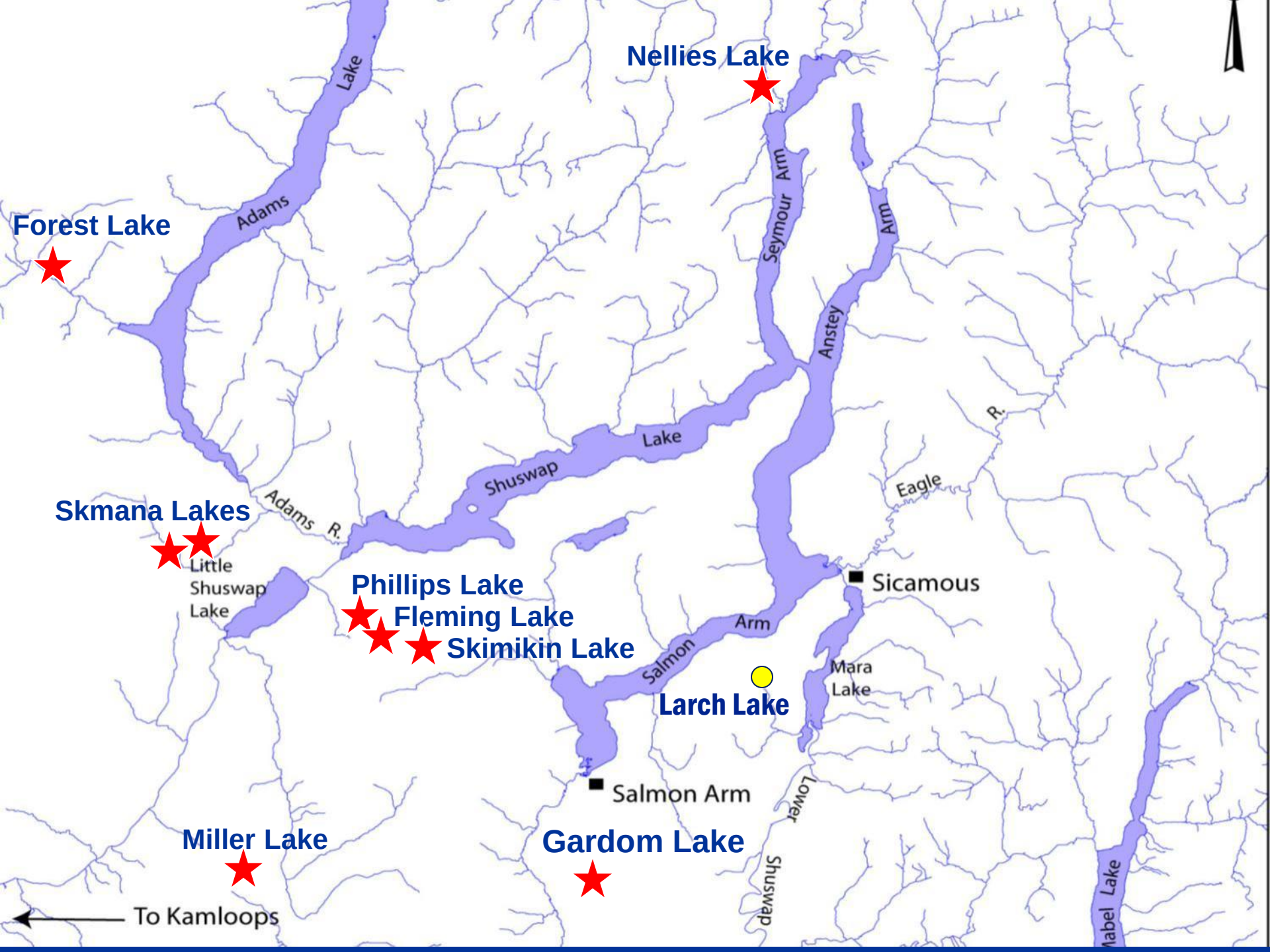

Smallmouth Bass


Yellow Perch


Largemouth Bass

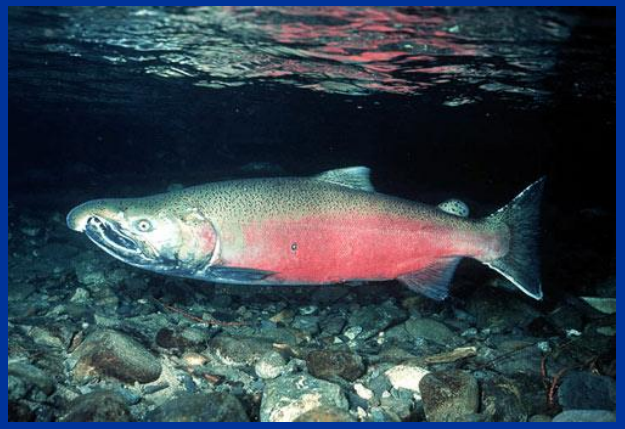

Pumpkinseed Sunfish


Goldfish


Nellies Lake
Forest Lake
Skmana Lakes
Phillips Lake
Fleming Lake
Skimikin Lake
Larch Lake
Miller Lake
Gardom Lake
Adams Lake
Seymour Arm
Anstey Arm
Shuswap Lake
Adams R.
Little Shuswap Lake
Eagle R.
Sicamous
Salmon Arm
Mara Lake
Lower Shuswap
Mabel Lake
To Kamloops

Impacts of Spiny-Ray Fish

- Very quickly the pre-existing trout were outcompeted and replaced by stunted perch.
- Impacts to ecosystem were becoming evident with population levels of amphibians and invertebrates crashing.
- Major downstream threat to Shuswap Lake which in home to the endangered Interior Fraser Coho and world famous Adams River Sockeye



Impact to Whole Ecosystem

Evidence

Stop Further Movement!

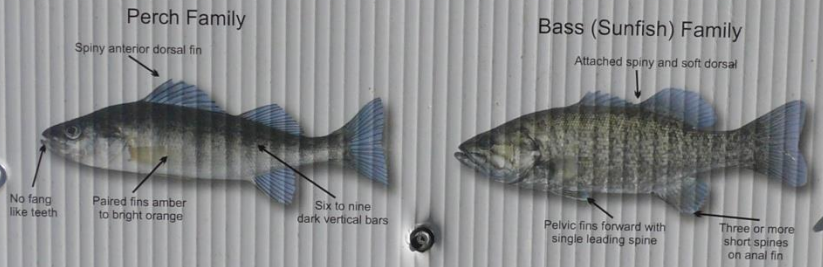
- **Reward up to $20,000**
- **Public Education and Awareness**
  - Public information meetings
  - Media & Signage
  - School curriculum has been developed
- **Increase Enforcement presence**
- **Closed all the Lakes with Spiny-Ray Species**
- **Eradicate**

Invasive Species ALERT

REWARD up to $20,000.00

Sponsored by: Ministry of Environment, Fisheries and Oceans Canada, and The BC Wildlife Federation

Bass, Pumpkinseed Sunfish and Yellow Perch have been **ILLEGALLY STOCKED** into several small lakes in the Thompson Basin



A reward of up to $20,000 is available to anyone providing information leading to the successful prosecution of the individual(s) responsible for the illegal transport or stocking of invasive fish species in B.C. waters. Report any suspicious activity relating to the illegal transfer of live fish to the Conservation Officer Service (1-877-952-7277).

B.C.'s Interior freshwater fisheries are prized by fishermen from around the world.

- Invasive species jeopardize B.C.'s unique native fish stocks and ecosystems.
- These invasive species are voracious predators that both feed on native fish, and can out-compete native species for limited resources.
- Invasive species reproduce quickly, resulting in a population explosion that can quickly upset the delicate balance in an ecosystem.
- Introducing Bass, Pumpkinseed, Sunfish and Yellow Perch can cause irreversible damage that can endanger native fish stocks, possibly resulting in a collapse of our world famous sport fishery.

REPORT A POACHER, POLLUTER OR ANYONE TRANSPORTING LIVE FISH
CALL THE RAPP LINE: 1-877-952-7277
OR CRIME STOPPERS AT 1-800-222-8477

BRITISH COLUMBIA CONSERVATION FOUNDATION

BCWF B.C. Wildlife Federation

BRITISH COLUMBIA

Fisheries and Oceans Canada

What Do They Look Like?

Smallmouth Bass

Smallmouth bass average 20-38 cm.

Largemouth Bass

Largemouth Bass average 20- 38 cm.

Perch

Perch range in size from 10 - 25 cm.

Sunfish (Pumpkinseed)

Sunfish (pumpkinseed) average 10 - 17cm.

What are Spiny-Rays?

Bass, perch and sunfish are called spiny-rays because of the spines which extend from their fins.

Spiny-rays are considered very aggressive and can deplete food chains if they become established. Historic ranges for spiny-rays do not include areas west of the Rocky Mountains.

The biology of spiny-rays is different from that of our native populations. Spiny-ray fish mature between the ages of 2-4 and females can produce between 10,000 and 40,000 eggs per year. In comparison, native trout, char and salmon mature at 3-6 years, producing an average of 3500 eggs per year per female. This along with aggressive spiny-ray feeding habits results in strong competition for native species.

Perch introductions to lakes in the Thompson and Okanagan regions have resulted in significant declines to trout populations.

What is an Invasive Species?

Invasive fish species are exotic or non-native species that have evolved elsewhere and been purposely or accidentally relocated outside of their native range. While some exotic species have little impact on their introduced environment, others can become strong competitors or predators with devastating effects on native species and ecosystems.

When a non-native introduced species aggressively competes with native fish and expands its range, it is defined as invasive.

Spiny-ray fish are an invasive species and have been introduced to the Thompson watershed by humans either through fishing gear, or intentionally and illegally, through the transportation and dumping of spiny-rays to increase personal recreational fishing opportunities.

In the lakes and streams of the Thompson Region, there is a growing concern about the presence and expansion of non-native spiny-ray species. These invasive fish are best known by their common names: bass, perch and sunfish.

Stop the Spread Of SPINY-RAY INVASIVE FISH SPECIES

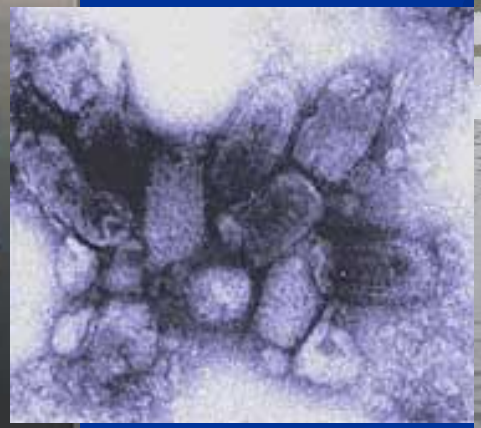
in the Thompson/Shuswap Region

Community Involvement and Support

Options For Invasive Species Management

Physical

Chemical



Biological

Rotenone

Even we didn't like the sound of it!

- Is derived from plant roots
- Was discovered by indigenous South Americans and used for fishing
- Is completely biodegradable
- Used in organic industry
- Has over 60 years of major use in the U.S.
- Has historically been used extensively in British Columbia.

History of Lake Treatments In British Columbia

- Since the 1940's there have been more than 170 lake treatments within the province. Toxaphene, Antimyicin, and rotenone have all been used.
- Historic treatments were done to remove non-salmonid species.
- The last treatment was in the late 1980's.
- Public perception of the treatments and the killing of native fish species ultimately forced managers to curtail treatments.
- We needed to convince the public and other agencies that that short term effects of a rotenone treatment would better than the long term biological pollutant of invasive fish species.

Consultation

Convincing the Public

- Hosted meetings with various groups including:
  - Local Residents
  - First Nations
  - Fish and Game Clubs
  - Naturalist Clubs
  - Community Groups

- Parkinson's Disease
  - Worked with Parkinson's Society of British Columbia to address public concerns.

Environmental Assessment

Assessment Surveys

- Amphibians and Reptiles
- Red and Blue listed species
- Aquatic Invertebrates
- Zooplankton
- Water Quality

Pre-treatment Sampling Results


Pacific Tree frog


Common Green Darner


Spotted Frog


Painted Turtle

Treatments
Huge Learning Curve

- With little to no experience completing rotenone treatments we had to learn quickly.
- We spent lots of time consulting with experts in the field.
- A number of staff attended the AFS – Rotenone and Antimycin Training Course.

- Months of onsite prep work was completed on each lake to ensure success of the treatments.
- Designed and build new equipment for injection under floating mats.

Treatment Planning

Drinking Water

- Worked closely with Health Canada and Interior Health to establish testing programs.
- Drinking water was supplied to all domestic water users.
- Water supplied to a Dairy Farm.
- Helped Health Canada to establish a drinking water standard of 40ppb for rotenone.
- Water supply is second biggest cost of project next to the cost of rotenone.

Interior Health

Health Canada Santé Canada


HONDA


BigTex

Rotenone Treatment

Boat Dispersal

- Pontoon Boat

  Pumps are used to mix rotenone into the water. Used for 90% of the lake treatment.

- Venturi System

  Similar pumping system. Best for shoreline treatment of the lake.

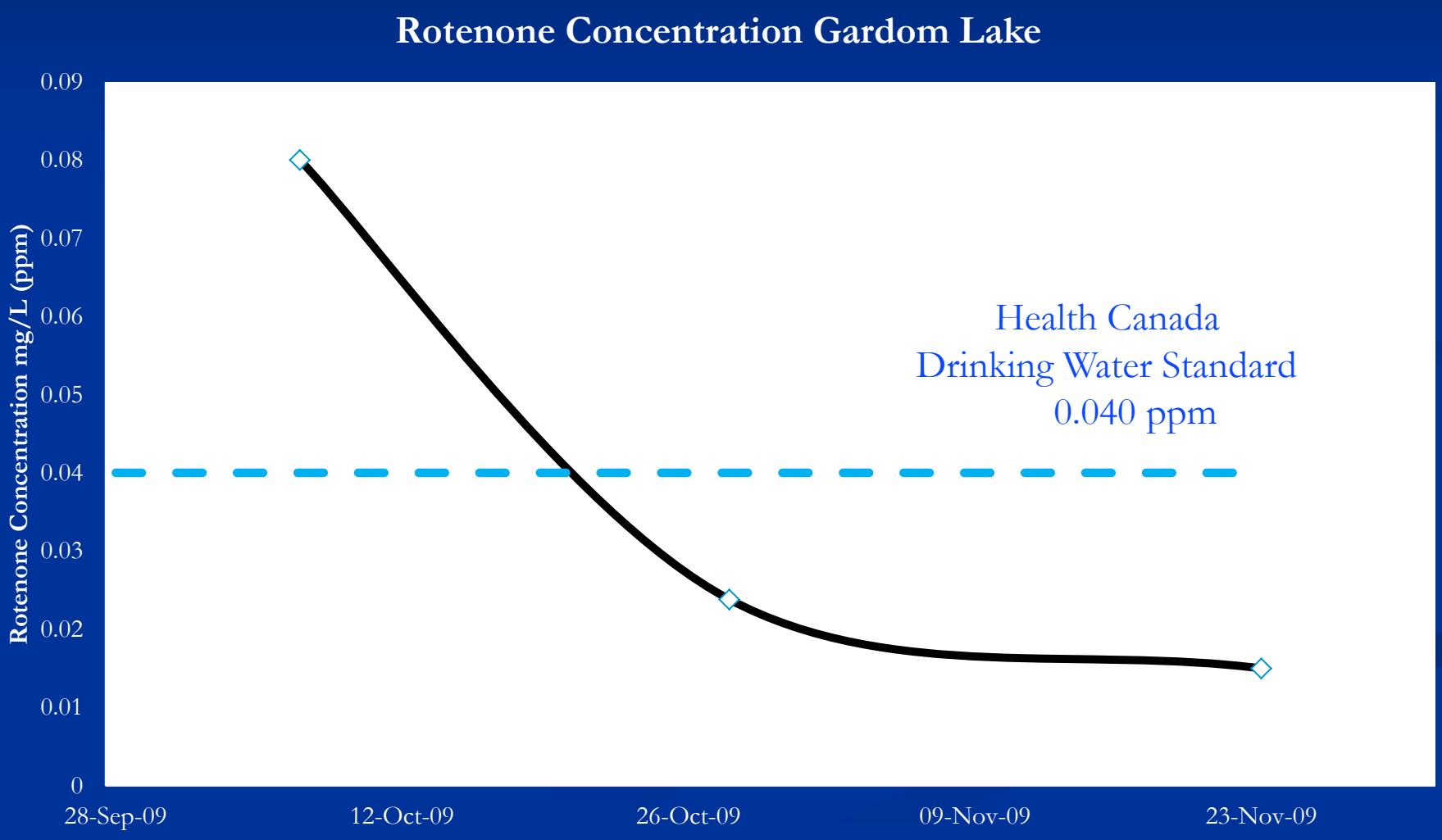
Phillips Lake Treatment - 2010

10 Hectares of Floating Cattails

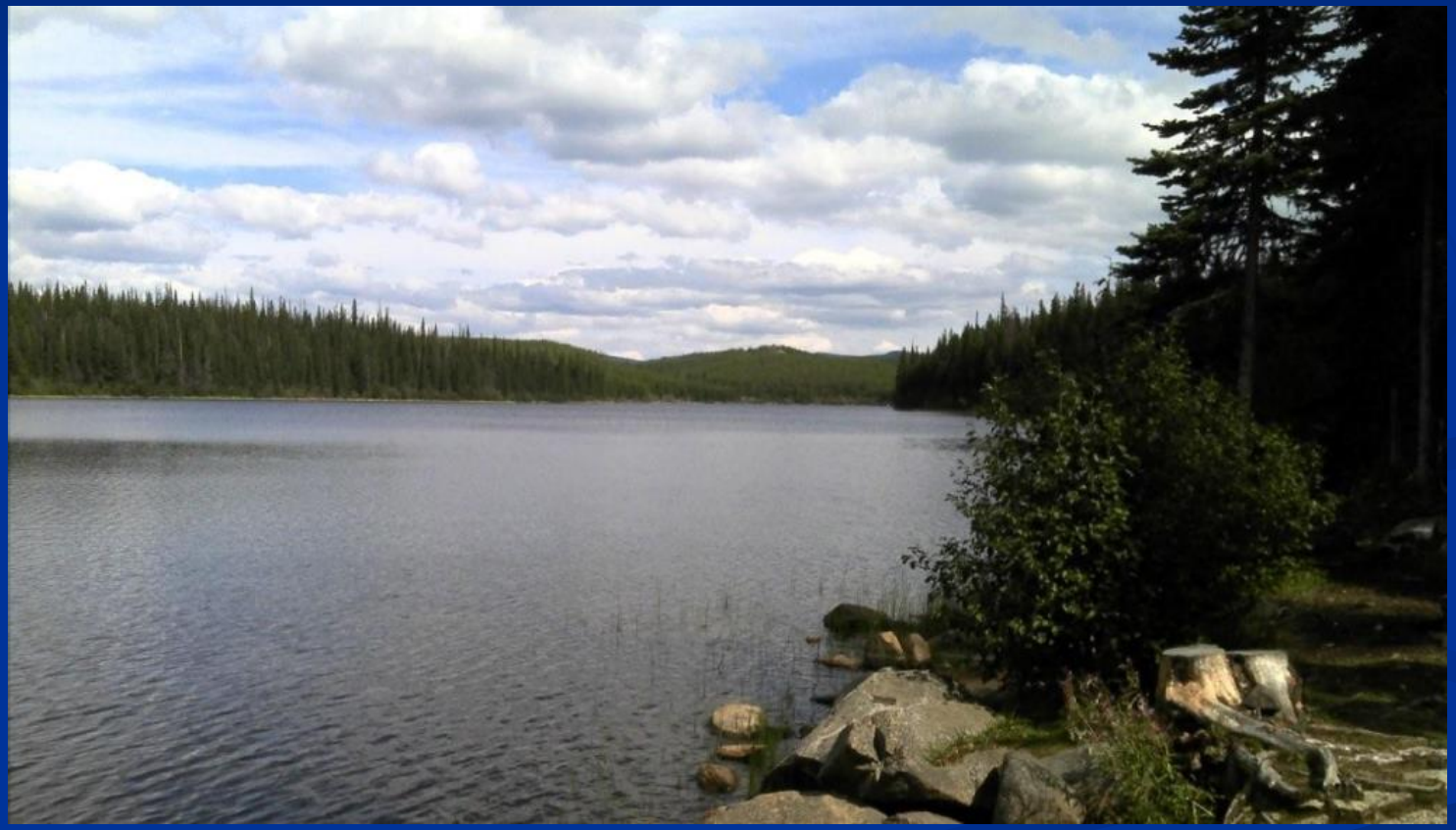
Rotenone Treatment

Results

Rotenone Water Testing



Windy Lake Rotenone Treatment



September 2017

Windy Lake

- A report was made to region 8 in the spring of 2016 of yellow perch in Windy Lake.
- Kamloops staff quickly confirmed their presence. 40 perch caught in an hour of sampling.
- Funding applications were made to HCTF ($95,000) and FLNRO ($40,000).
- Provincial Pesticide Use Permit
- Emergency Registration of CFT Legumine
- Section 32 Authorization no longer needed from DFO
- New ministerial authorization under the federal AIS Regulations (Amanda MacDonal)
- eDNA testing of Little Windy Lake in partnership with Cathryn Abbott at DFO


Windy Lake
Little Windy Lake

Okanagan area lake illegally stocked with perch will be poisoned

By Blaine Gaffney
Reporter Global News

Comments | Facebook | Twitter | Email | Print | ...

Listen

A mountain lake west of Kelowna has been closed to sport fishing and w
poisoned because it's infested with an invasive fish species.

APPLICATION FOR PESTICIDE USE

Application No. 402-0671-17/19

The Ministry of Forests Lands and Natural Resource Operations has submitted a Pesticide Use Permit (PUP) application under the Integrated Pest Management Act and Regulation for the use of the pesticide rotenone (Noxfish Fish Toxicant, or CFT Legumine) to rehabilitate Windy Lake (37 hectares), Little Windy Lake (10 hectares) and connecting tributaries. The purpose of this pesticide rehabilitation is to eradicate illegally introduced, non-native yellow perch. Eradication of all perch from Windy Lake will ensure that they cannot move downstream and become established in the main Thompson/Nicola watershed below.

The pesticide will be applied by boat, backpack sprayers and drip stations.

Pesticides proposed for use:

Trade Name	Active Ingredient	PCP#
Noxfish Fish Toxicant	Rotenone	14558
CFT Legumine	Rotenone	TBA

The term for this PUP application is September 1, 2017 to November 1, 2019.

The PUP application, and related maps, may be viewed at the Ministry of Forests, Lands and Natural Resource Operations regional office, 1259 Dalhousie Drive, Kamloops, B.C. V2C 5Z5.

For more information about this application, please contact: fisheries biologist Andrew Klassen at: 250 371-6237, via fax: 250 828-4000 or email:

Forests, Lands, Natural Resource Operations and Rural Development

PRINT

Invasive yellow perch means no fishing on Windy Lake

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Information Bulletin

Kelowna
Thursday, July 7, 2016 11:00 AM

Contacts

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Ministry of Forests, Lands and Natural Resource Operations
250 356-5261

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(flickr.com)

The Province is closing angling on Windy Lake and Little Windy Lake in an effort to prevent the spread of yellow perch to other parts of the Nicola River system. The closure begins on July 9, 2016.


Windy Lake


3M


PESTICIDES, LIQUID, TOXIC
N.O.S. (ROTENONE), 6.L
UN2902


mercury

Sanctuary Lake

- Located 50km down stream of Windy Lake
- Sampled late October and multiple age classes of perch found
- Directly connected to Douglas Lake and then Nicola Lake

Partner Groups

Working Together

Health Canada / Santé Canada

BCWF
B.C. Wildlife Federation

HABITAT CONSERVATION TRUST FUND

BRITISH COLUMBIA CONSERVATION FOUNDATION

Interior Health

Freshwater Fisheries Society of BC
gofishbc.com

Fisheries and Oceans Canada / Pêches et Océans Canada

THOMPSON RIVERS UNIVERSITY

PACIFIC SALMON FOUNDATION