



Spreading the Message and Not the Mussel

Prepared for YISC March 3, 2016
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Outline

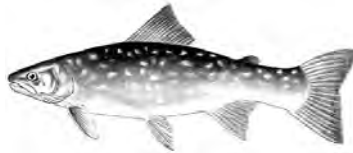
- Status of aquatic invasive species (AIS) in Yukon
- Developing a management framework
- Watch list: mussels & didymo
- Prevention through public education
- Field assessments

Status of Aquatic Invasive Species in Yukon

- Yukon waters appear to be free of invasive species
- Didymo algae may in fact be native to Yukon
- Introduced species:



rainbow trout



Arctic charr



threespine stickleback



goldfish

Status of Yukon Fisheries 2010

Developing a Management Framework

Plans for killing goldfish finalized

By LAUREL JENKINS
Star Reporter

A warm pond used as a humane alternative to flushing unwanted pets is posing a threat to local fish populations, and now, the flourishing goldfish will have to be killed.

The Yukon Fish and Game Association and the Department of Renewable Resources have been concerned about the problem for two years, said Joe Iles, an association spokesperson.

The department has been exploring the options for solving the problem of the exotic goldfish spreading disease and threatening natural fish populations including salmon and

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Fish

Continued from front

grayling in the Takhini and Yukon Rivers for about a year, said Don Toews, the department's chief of fisheries.

Toews couldn't specify what disease the department is concerned about nor what sort of interaction between goldfish and local fish threatens the natural population. "It's a general concern," he said. Iles said the biggest worry is the threat of parasites being spread to the indigenous fish by the exotic fish that are not in a closed system.

"We're supporting the eradication," he said. "This has been an ongoing concern, and we're glad that it's finally being cleaned up."

The pond adjacent to the Takhini Hot Springs and downstream of the hot springs outflow is warm enough to sustain the goldfish, and they're reproducing, said Toews. He estimates there are now hundreds of goldfish in the pond. It also contains some pet turtles placed there by a "well-meaning public."

There's a concern that the goldfish can get into the Takhini and Yukon Rivers through a series of sloughs linked to the pond.



DON TOEWS
'No choice.'

"Nobody likes the idea of killing goldfish, but when you weigh the level of risk of exotics and disease to the natural fish population, there's really no choice," Toews said.

It's illegal to put exotic fish into water bodies leading to other streams and rivers, he noted.

"It's been a problem in B.C. and Ontario, where goldfish are dumped

into the lake, establishing reproducing populations and affecting the other fish species."

Toews said an agreement has been reached with the land owner to use organic rhodoneone in the pond to kill the goldfish.

"It breaks down very quickly in natural waters, and there's no lasting effects."

Rhodoneone has been studied for many years, he added.

The association is assisting the department by applying to the Yukon Territory Water Board for a water licence to use a fish toxicant to a man-made pond for eradication of exotic species.

It has also applied for more than \$4,000 to carry out the goldfish kill through a Yukon government Fisheries Initiatives for Sustainable Harvest fund. Most of the money will be spent to hire consultants who are experts in fish management and diseases.

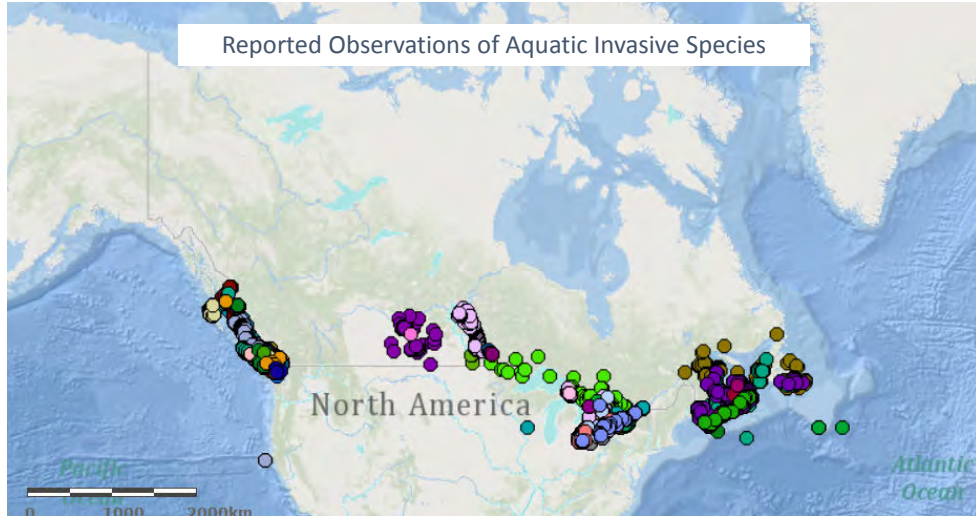
Members of the association who will use the chemical must be licensed under the federal Environment Act.

Toews said the government tries to involve public interest groups in situations like this.

Unless the water board objects, the goldfish will likely be killed in September, said Toews.

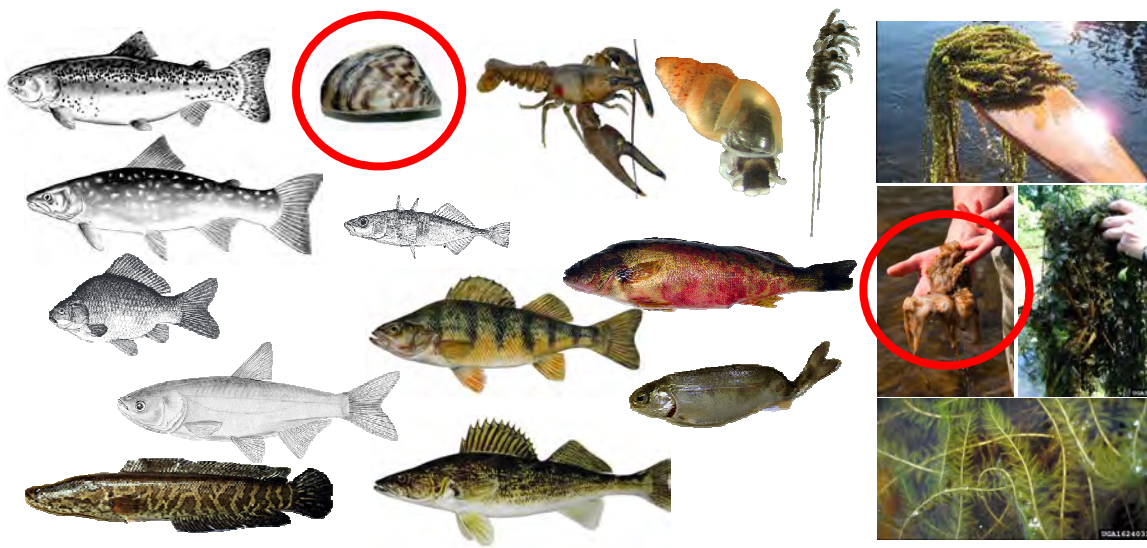
Whitehorse Star August 3, 1994

Developing a Management Framework



Fisheries and Oceans Canada: geoportal.gc.ca/eng/Maps/Viewer/3

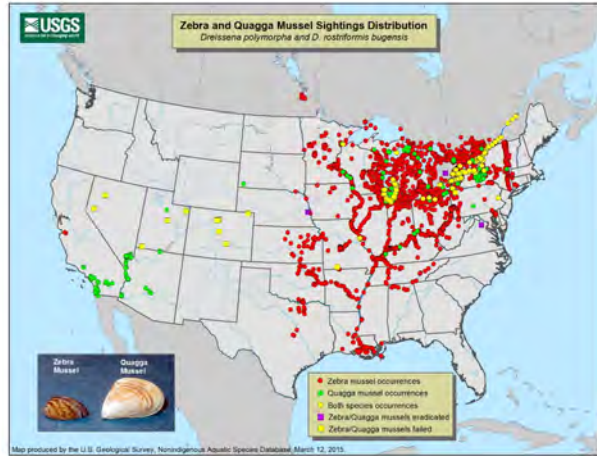
Developing a Management Framework



Watch List: Zebra & Quagga Mussels



Flickr user Townepost Network



Map produced by the U.S. Geological Survey, Nonindigenous Aquatic Species Database, March 12, 2015.

Probability of Mussel Invasion

Zebra Mussels

Quagga Mussels

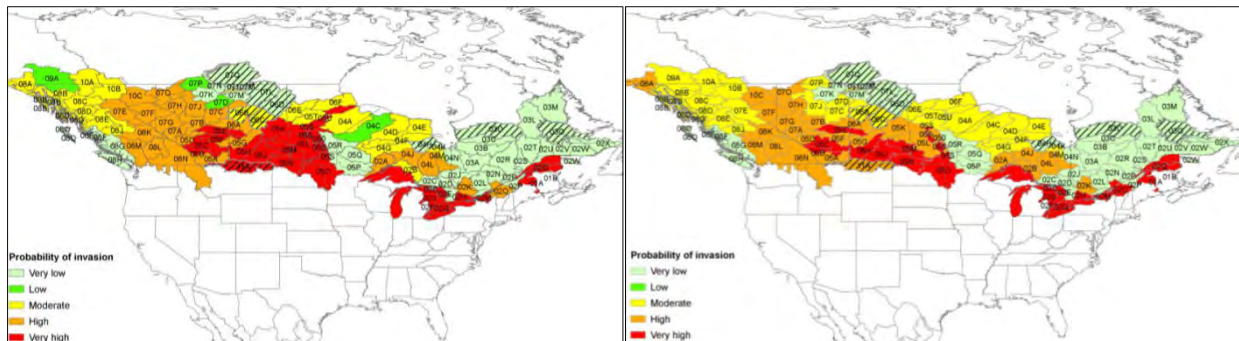


Fig. 1 The probability of zebra and quagga mussel invasion of Canadian freshwater drainages based on probability of survival and arrival (Fisheries and Oceans Canada risk assessment for three Dreissenid mussels in Canadian freshwater ecosystems 2012).

Watch List: Didymo (Rock Snot)

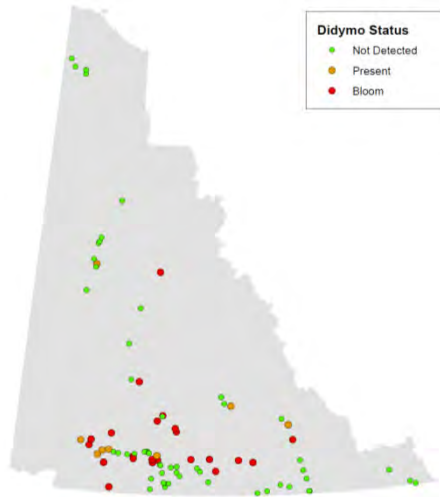
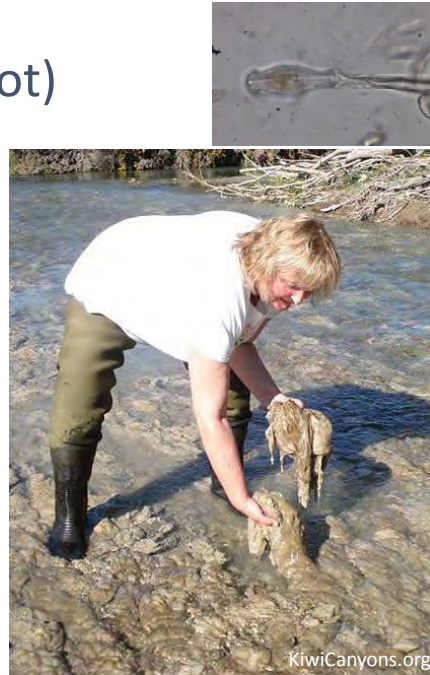


Fig 2. Known distribution of *Didymosphenia geminata* in 2014, map by Environment Yukon



Focus on Prevention: Boaters and Anglers

HELP PROTECT OUR WATERS

CHECK
and remove mud, weeds
and aquatic life

DRAIN
water from bilges, pumps,
coolers and buckets

CLEAN
boat and gear by freezing,
drying or power washing

Prevention Through Public Education



TAKE THIS QUESTIONNAIRE ABOUT AQUATIC INVASIVE SPECIES
ENTER A DRAW TO WIN A PRIZE!

Have you heard about aquatic invasive species?
 Yes No

How concerned are you about the spread of aquatic invasive species to Yukon waters?
 Very Concerned Somewhat Concerned
 Neutral Not Concerned

Which activities will you do this summer in Yukon waters?
 Fishing Motorized Boating
 Canoeing Kayaking

Other: _____

List the bodies of water where you use your boat or fishing gear most often.

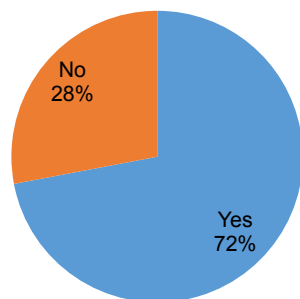
For what length of time is your boat or fishing gear typically out of the water before you use it again? (check all that apply). Within:
 48 Hours A Week
 A Month A Season
 Not Applicable

Quiz continues on other side



Survey Goal 1: Raise awareness in boaters and anglers

2010 – Recreational Fishing Survey



2014 – AIS Survey

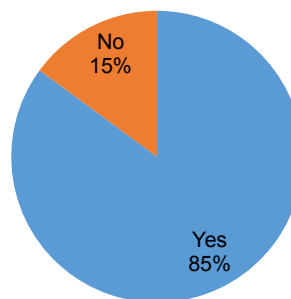


Fig. 3 The percentage of survey respondents that have heard of aquatic invasive species. Results from 2014 aquatic invasive species survey and 2010 survey of recreational fishing in Canada (Fisheries and Oceans Canada 2012).

Survey Goal 2: Identify barriers to desired preventative behaviours

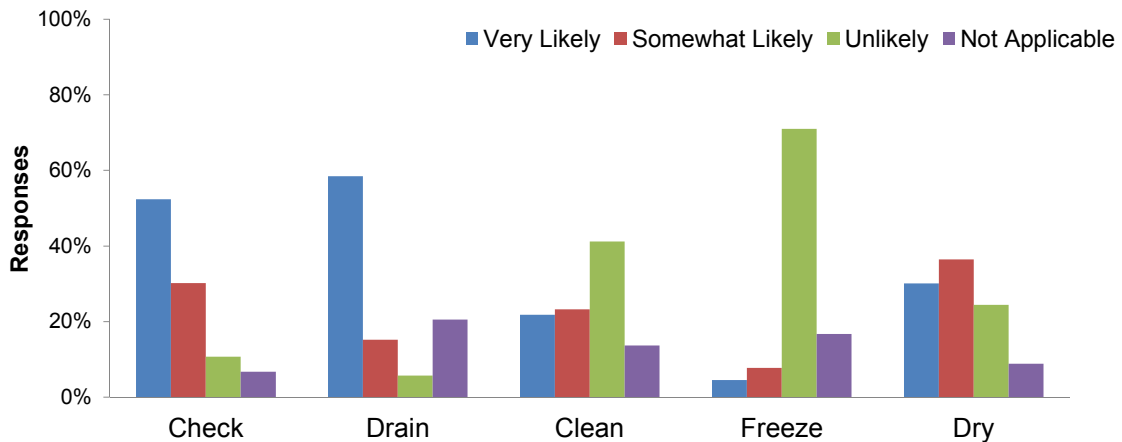


Fig. 4 Likelihood that respondents will take the following steps when they move from one body of water to another.

Survey Goal 3: Identify if signs increase awareness

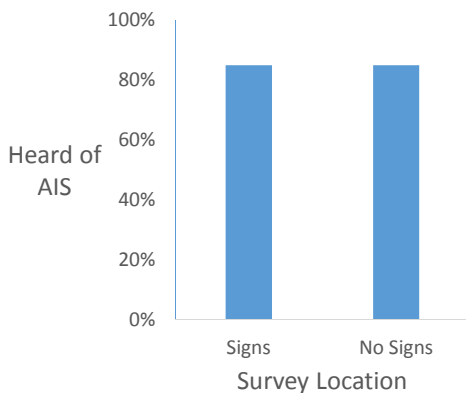


Fig. 5 Percentage of respondents that had heard of AIS when filling out surveys at locations with and without signs present at boat launches.

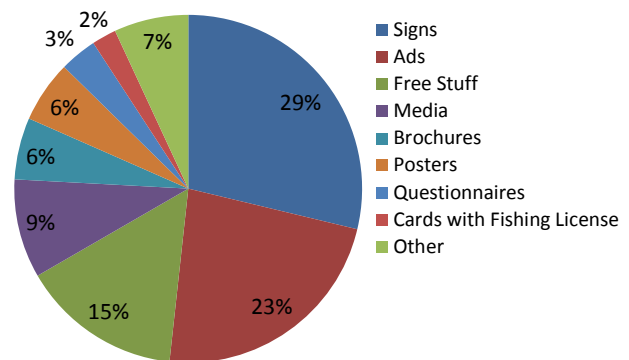


Fig. 6 Types of communication materials listed by respondents that would encourage others to prevent the spread of aquatic invasive species

Survey Goal 4: Identify angler and boater activity patterns to understand the likelihood of spread and introduction

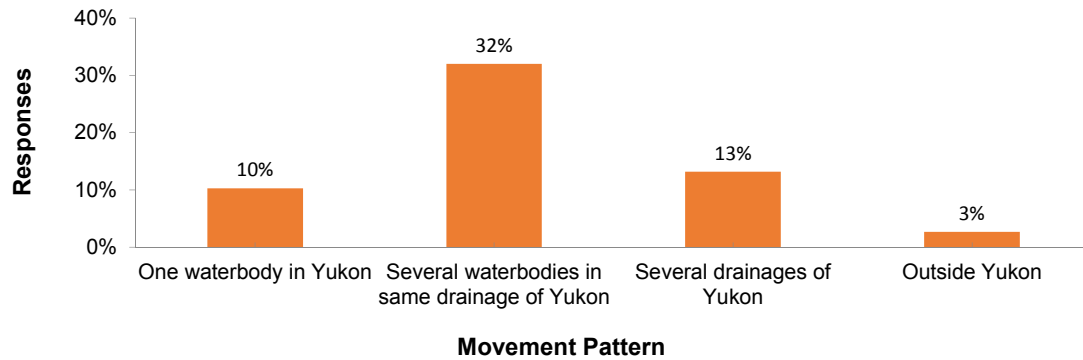
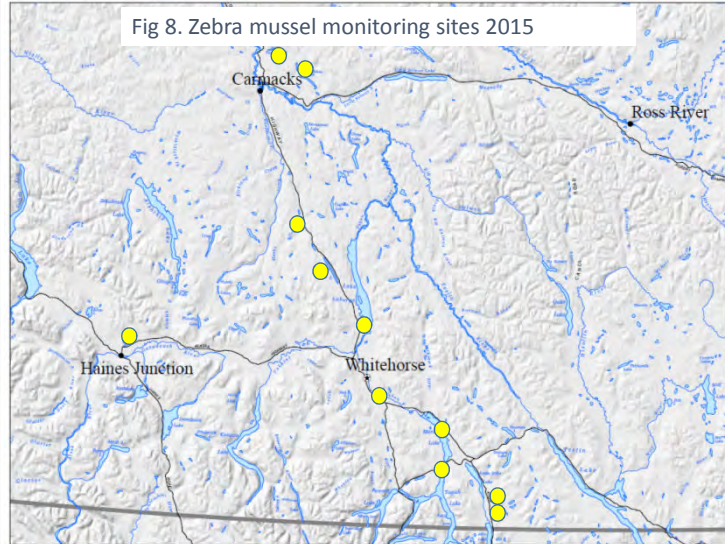


Fig. 7 The percentage of respondents that kept their boat or fishing gear out of the water for one week before using it again and their movement patterns among waterbodies.

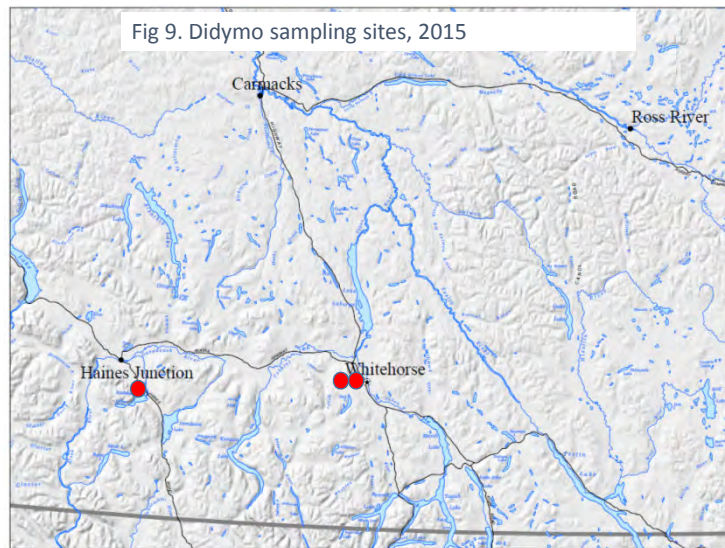
Public Education Next Steps:

- Continue public education through angler harvest surveys and public surveys
- Continue to track how knowledge of AIS and behaviours change over time
- Prioritize installation of signs in Yukon River and Alsek River drainages
- Learn more about species-specific risk to focus public education

Field assessments: Mussel Monitoring



Field assessments: Impacts of Didymo



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Contact

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- www.env.gov.yk.ca/animals-habitat/Stop-Aquatic-Invasive-Species.php