

Milfoil in Shawnigan Lk



Shawnigan
Basin Society

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OUTLINE

1. What we know:

- What is milfoil?
- Milfoil in Shawnigan

2. What can be done?

3. Final thoughts

4. Open for discussion



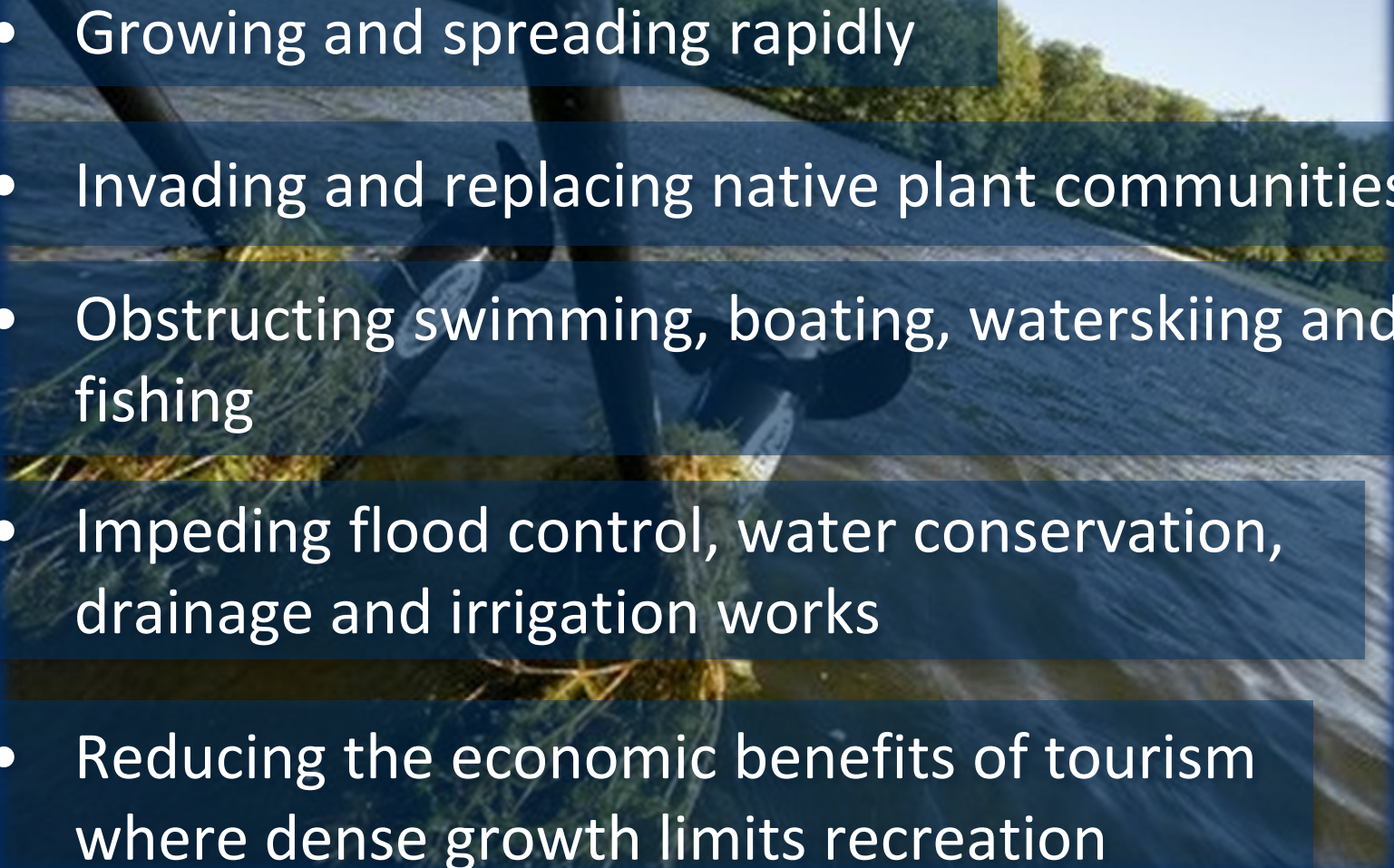
WHAT IS MILFOIL?

Milfoil is the common name for species of the submersed aquatic plant of the genus *Myriophyllum* (meaning "ten thousand", or figuratively "too many to count", and "phyllum" meaning "leaf").



IS MILFOIL “BAD” ?

Eurasian Watermilfoil (*Myriophyllum spicatum*)
IS a troublesome invader.

- 
- Growing and spreading rapidly
 - Invading and replacing native plant communities
 - Obstructing swimming, boating, waterskiing and fishing
 - Impeding flood control, water conservation, drainage and irrigation works
 - Reducing the economic benefits of tourism where dense growth limits recreation

IS MILFOIL "BAD" ?



- Each year there are a number of **drowning** deaths attributed to swimmers becoming tangled in the dense weed beds.
- Extensive milfoil growth on lakes can not only make the lake unusable, but will **reduce property values** around the lake.



IS MILFOIL "BAD" ?

- Infestations create **ideal habitat** for **mosquitoes** including *Culex spp.* which has been implicated in the spread of West Nile Virus in Manitoba
- Milfoil mats can **rob oxygen** from the water by preventing the wind from mixing the oxygenated surface waters to deeper water, and can also **increase the sedimentation rate** by trapping sediments



EURASIAN MILFOIL IS NOT GOOD!!!!

an aquatic
IT IS ILLEGAL TO POSSESS
THIS SPECIES ALIVE

IS MILFOIL “BAD” ?

- The Eurasian milfoil has **replaced** the native northern watermilfoil (*M. sibiricum*) over much of the North American range.
- Of major concern is the ability of these two plants to **hybridize**, creating even stronger hybrid plants that may be resistant to biological control agents.



WHAT DO WE KNOW?

1979: fire

Spontaneous combustion started a hog fuel fire at Dorman Industries in Cowichan Bay that sent smoke swirling through Duncan streets. Expected to smolder for months, the fire was extinguished just 10 hours after being spotted.

1979: algae

Fewer than 40 area residents responded to an appeal from Cowichan Valley Regional District planner Ron Smith to attend an information meeting about the encroachment of milfoil in Shawnigan Lake.

Friday, August 24, 2012

1979: firefighting

North Cowichan fire department won the coveted Fire Marshal's Trophy by placing first in the hose-lay and water-target contest, the major event at the Vancouver Island Firemen's Competitions in Campbell River.

Cowichan News Leader - "Dateline" piece on page 14 mentions three 1979 stories including a comment that CVRD planner Ron Smith's concerns about milfoil in Shawnigan

A14 Cowichan News Leader Pictorial




Sent by Dave Hutchinson

WHAT DO WE KNOW?

The Sep 2011 Shawnigan Focus (source: Dave Hutchinson)

The Shawnigan Focus wants to hear from you ...

- 
- What do you think of the South Cowichan Official Community Plan?
 - Incorporation: South Cowichan or could/should Shawnigan go it alone?
 - Where have the bullheads and crayfish gone?
 - Another acclamation for the Area Director?
 - If no one likes the Eco-Depot site then why isn't the CVRD listening?
 - Pros and Cons of wakeboarding?
 - Who drinks the water straight from the lake?
 - Should we limit the boat launches and charge a fee?
 - Should there be hours of operation for power boat activities?
 - What's wrong with clearcuts - trees grow back don't they?
 - What's to be done about the increasing pondweed and milfoil?
 - A few big parks or many small ones?
 - How to re-vitalize the village?
 - What about our roads?

**Live in Shawnigan?
You count - Send us
your opinion!**

editor@shawniganfocus.ca

WHAT DO WE KNOW?



2012 Coastal Invasive Species Committee

- had a Take Action Team (Clean Drain Dry) positioned at 3 Boat Launches on Shawnigan lake : Wharf park, Clearihue Rd and Recreation Rd
- for 3 months
- to promote the ISCBC Clean Drain Dry program and gather data on the behavior of boaters using this resource.
- The team interacted with 39 boaters over that time.
- Signage should still be there at these boat launches.
- The program did not continue after 2012 due to loss of funding and lower boater activity

Rachelle McElroy, BSc., MSLS (no longer with CISC)
Executive Director, Coastal Invasive Species Committee

WHAT DO WE KNOW?

Data Category	Deliverable	Boat Launch 9	Boat Launch 10	Boat Launch 12
Boat Launch Information	Boat Launch and Waterbody Name	Wharf Park - Shawnigan Lake	Recreation RD - Shawnigan Lake	Clearihue - Shawnigan Lake
	Level of Interaction	High	High	Control
	Jurisdiction	CVRD	CVRD	?
Premeasurement (Baseline) (May 17 to June 4)	# hrs spent completing baseline observations (do not include travel time)	5	4	4
	# of baseline observations completed	6	4	3
Sign Installation (May 31 to June 11)	Size of sign (small or large)	Small	Large	N/A
	Date of installation	Jun-10	Jun-18	N/A
	Location of Sign (Easting, Northing) Zone 10	453816, 5388974	453407, 5387533	N/A
Boater Interactions (June 14 to mid-August)	# of interactions completed	20	39	N/A
	# of verbal commitments	16	33	N/A
	# written commitments	15	20	N/A

WHAT DO WE KNOW?



Data Category	Deliverable	Boat Launch 9	Boat Launch 10	Boat Launch 12
Boat Inspections (June 14 to mid-August)	# boat inspections performed	0	0	N/A
	# boats inspected with plants or animals found during inspection	0	0	N/A
	# boats with AIS found during inspection (plants or animals found were positively ID'ed as invasive)	0	0	N/A
	Name(s) of AIS found through boat inspections	—	—	N/A
Post-Measurement (August)	# hrs spent completing post measurement (do not include travel time)	4.25	4.25	N/A
	# of post-measurement observations completed	3	4	N/A

The Invasive Alien Plant Program (IAPP) Application

Information sources for the IAPP Field Forms app (available for iPad only):

- [The User Guide for the IAPP Field Forms app](#) (pdf document)
- Two videos on the use of the app (wmv files):
 1. [Introduction to the use of the IAPP Field Forms app](#) (playing time: 5 min)
 2. [Entering data in the Site and Invasive Plant Survey Record](#) (playing time: 16 min)

Visit our new [IAPP Data Batch Loader](#) page, featuring a comprehensive overview of the new IAPP Batch Loader tool.

About the IAPP database

The IAPP database contains invasive plant surveys, treatments, and activity plans for the entire province of BC. The comprehensive data in IAPP is entered by a wide variety of user groups (ministries, regional districts, weed committees, forest licensees, utilities, conservation groups, federal departments and others) on an on-going basis. The data can be queried on a large number of criteria, using one or more of the 11 'canned' queries. In addition, data managers may run and print any one of the 5 activity summary reports.

Quick IAPP Links

Go to the [Data Entry](#) module
Go to the
[HTML5 Map Display](#) module

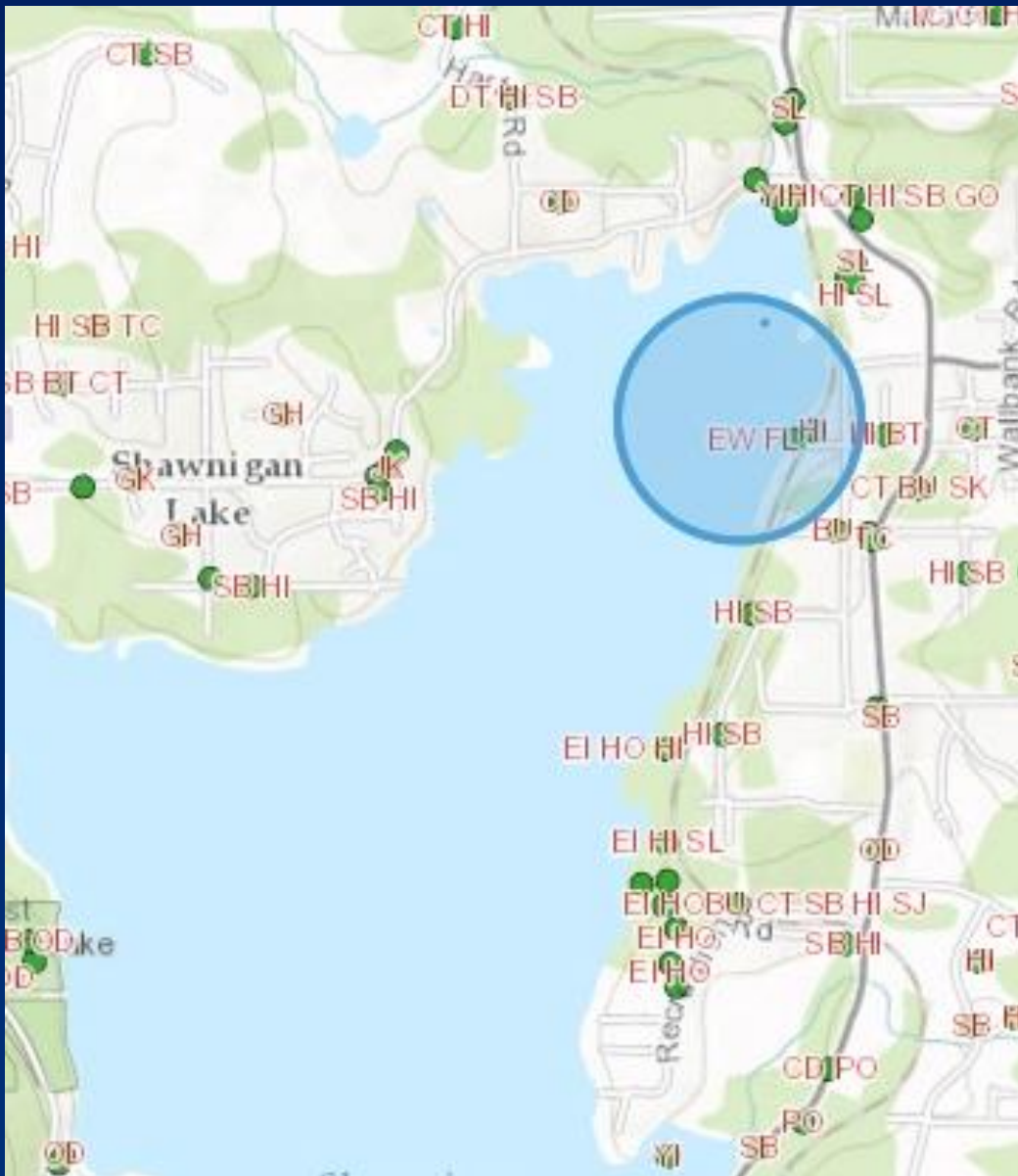


Invasive Alien
Plant Program

IAPP FAQ & Solutions:

- [Get data entry access to IAPP](#)
- [Add a plant species to IAPP](#)
- [Add a containment line to IAPP](#)
- [Upload polygons to Map Display](#)

WHAT DO WE KNOW?



- **15 Aug 2015 !**
- Chris Harkness (Principal at Harkness Aquatics and Environmental)
- IAPP survey taken at the north end of the lake.

Estimated area: **41 ha**

WHAT CAN BE DONE?

Past Control Methods Jetting and Dredging



(Image courtesy of the Maine volunteer lake monitoring program)

Jetting operations were intended to lift
Milfoil roots up out of the sediment

Suction pumps are used to
transport plant material and
mud into settling ponds on
shore.

Divers guide the suction head
along the lake bottom



WHAT CAN BE DONE?

Current Control Methods Harvesting



- Used during the summer to 'mow' dense Milfoil beds
- Machine cuts to a depth of approximately 3 metres
- Plant material is collected and transported to shore



WHAT CAN BE DONE?

- The BC government made a heroic attempt to eliminate milfoil in the Okanagan – spending up to \$2 million a year in the 1970s.
 - There were boat inspections to stop its transfer from lake to lake, and contests for inventors to build control machines.
 - ...tried 2,4-D, before public outcry brought it to a halt.
- Without so much as a pause, milfoil spread everywhere.



WHAT CAN BE DONE?

- Evaluating likely success vs. priorities, the Board's ambitions were scaled back to keeping the beaches clean.
- Now, milfoil control is like garbage collection. Instead of brute force, people figured out :
 - what's manageable and
 - what's most important to people
 - **winter rototilling** – bringing up roots that wash to the shore and die – and **summer harvesting** to clean up.



WHAT CAN BE DONE?

COMPOST



WHAT CAN BE DONE?

Meanwhile, on the other side of the Mountains...

In Christina lake, Diver hand-removal has been the primary method of control for over 25 years



Recently some investigation has taken place regarding the biological control agent known as the Milfoil Weevil



Due to the relatively small scale of Christina Lake, divers are able to patrol the entire shoreline each summer and remove the majority of Milfoil plants.

WHAT CAN BE DONE?

- A native aquatic weevil which lives exclusively on watermilfoil



WHAT CAN BE DONE?

Making Pond & Lake



Weeds Disappear Since 1977

We recommend using treatments once plants are established but before flowering occurs. [RestoreAccess®](#) and [Hydrothol Granular](#) provide excellent control on Milfoil. [RestoreAccess®](#) will also control many other submerged weeds.

[Navigate](#) is a very selective granular aquatic herbicide for control of Eurasian water milfoil. No swimming restrictions apply with this EPA approved herbicide.

Our [lake rakes](#), including our mechanical [LAKEMAID®](#), are an excellent mechanical alternative to keep plants from ever starting to grow.

WHAT CAN BE DONE?



CLEAN-FLO inversion oxygenation & bioaugmentation :

- will increase and stabilize oxygen levels throughout the water body,
- will reduce nutrients safely and naturally.
- Without reducing the source, NUTRIENTS, milfoil can be an on-going concern.
- This is an effective and long term approach to control and naturally reduce milfoil.

**THIS IS A
DESIGNATED INFESTED WATER**

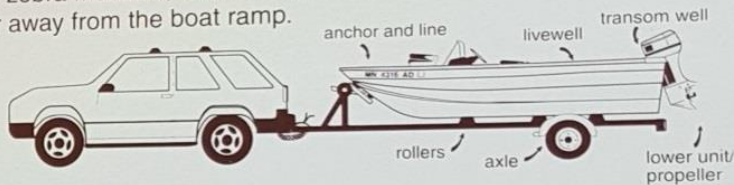


HELP STOP AQUATIC HITCHHIKERS!

It's the law: BEFORE launching ... BEFORE leaving you must

- **Remove** aquatic plants, zebra mussels, and other prohibited invasive species.
- **Drain** lake or river water away from the boat ramp.

inspect the
locations
shown



It is unlawful to:

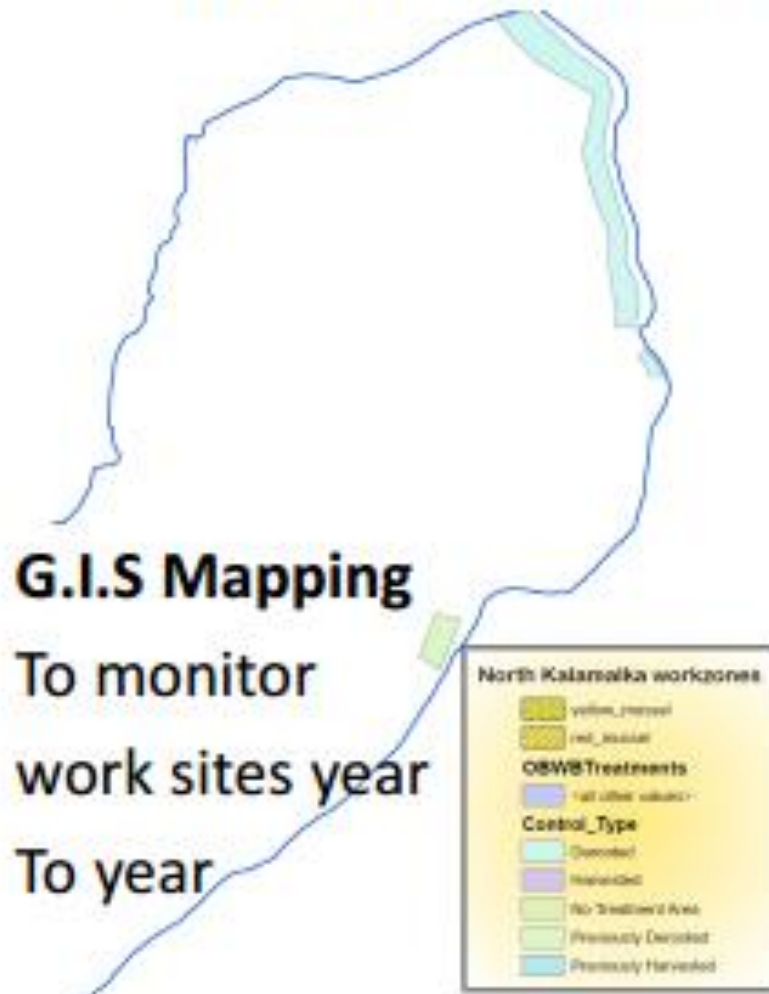
- Transport aquatic plants, zebra mussels, or other prohibited species on public roads
- Launch a boat or place a trailer in the water if it has aquatic plants, zebra mussels, or other prohibited or regulated species attached
- Transport watercraft without draining water, removing the drain plug, and opening water-draining devices
- Dispose of unwanted live bait in the water or on the ground.

Penalties up to \$1,000

Minnesota Department of Natural Resources

WHAT CAN BE DONE?

Using new technologies to assist in ongoing Milfoil Control operations



Aquatic Plant surveys



Helps determine efficacy
and inform best
practices

Investigating The Signs At The Three Docks

21 Sep 2016, Kelly & Mar (SBS)

SIGNS: GOVERNMENT WHARF

Shawnigan Lake Boating Regulations



8 km/h max speed 30m from shore or less

Stop shoreline erosion and private property damage by reducing speed and wake near shore



65 km/h max speed beyond 30m from shore



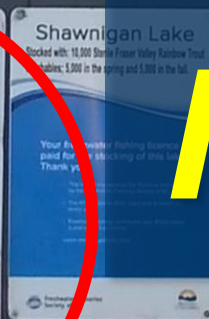
WARNING! Unmuffled Boats Prohibited
Small Vessel Regulation & CVRD Bylaw # 1278



Transport
Canada

Transports
Canada

SIZE MATTERS



SIGNS: RECREATION RD



SIGNS: RECREATION RD

This lake is NOT
infested with Eurasian
watermilfoil
Thank you for your
assistance



British Columbia
Handle with care

Boaters

Stop the spread
of Eurasian Water
Milfoil.

Remove all lake
weeds from boat
and trailer before
entering and after
leaving water.

This lake is NOT
infested with Eurasian
watermilfoil
Thank you for your
assistance



BC
Environment

???

NO milfoil ???

**The boat survey, 20 Sep 2016,
Kelly & Mar (SBS), Grant (SRA)
tells a different story**



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FINAL COMMENTS

- Milfoil has been present in Shawnigan at least since 1979 (first reported in the Okanagan in 1970)
- Milfoil is a problem – Do we want to ignore it?
At what cost?
- Lack of communication among the various agencies must be resolved



Photo by Shemama Shelagh Bell-Irving (2016)

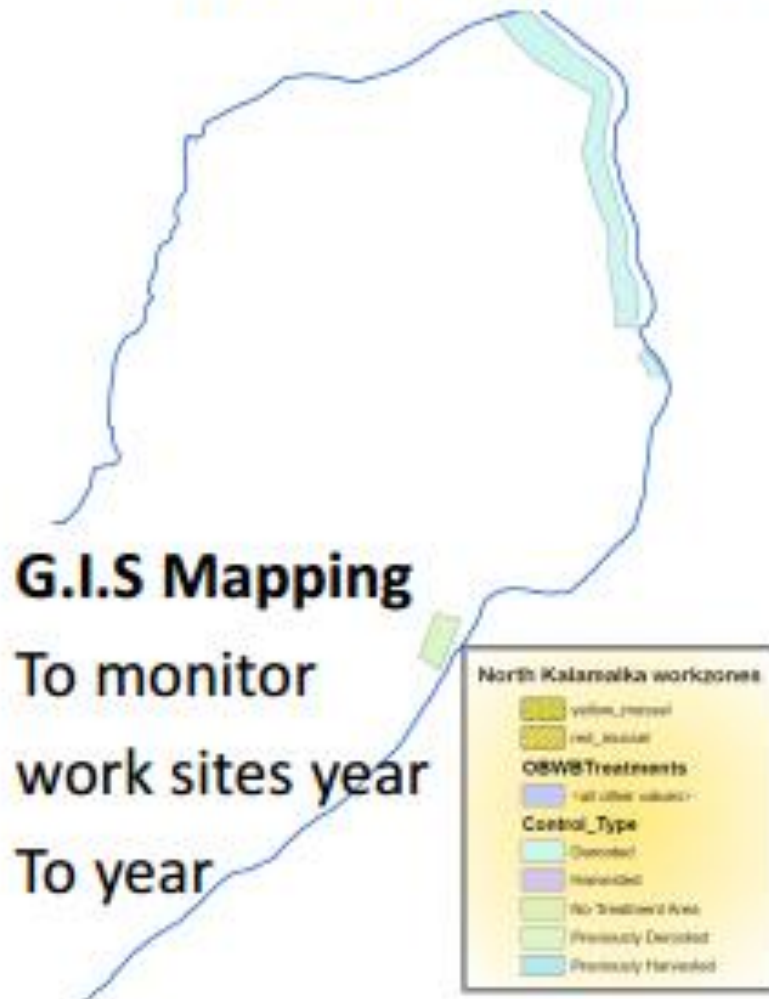
FINAL COMMENTS

- A trade-off in one community may not be accepted in another:
 - In the US, rototilling is frowned on,
 - in Canada, herbicides are off the table.
- Weed control, or (conversely) **invasion success**, depends as much on social context as on the natural environment
- **Leadership** changes everything:
 - To respond or adapt to any kind of environmental change, you have to have an **organized response**.



COORDINATED & METHODOICAL APPROACH

Using new technologies to assist in ongoing Milfoil Control operations



Aquatic Plant surveys



Helps determine efficacy
and inform best
practices

Pilot Story Telling

Milfoil at Shawnigan

by Mar



Milfoil is present in Shawnigan Lake; this tour shows locations where milfoil is present. More locations to be included throughout September 2016.

This tour was created using Tour Builder and can be viewed in your web browser at:

<https://tourbuilder.withgoogle.com/tour/ahJzfm3ZWltdG9>

If you are using the desktop version of Google Earth, Tour Builder may not work properly in Earth's internal web browser, so we recommend you copy the above link and paste it into your favorite web browser.

Pilot Story Telling

Shemama's wharf (1784 E Shawnigan Rd)



1 of 4 ›

Milfoil photos sent by Shemama Shelagh Bell-Irving

FINAL COMMENTS

Communicate | Remove | Educate | Monitor

Work together & find ways to adapt

Moving forward:
What do *you* consider the best approach?

QUESTIONS?



Shawnigan
Basin Society

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