What It All Means – A Look into Vermont’s Public Access Greeter Program

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Vermont Department of Environmental Conservation
Aquatic Invasive Species (AIS)

What are they? How did they get to Vermont? What are they doing to Vermont waters? What should we do about them?
Nonnative + Nuisance = Invasive

- Japanese knotweed
- Zebra mussels
- Emerald ash borer
- Hemlock woolly adelgid
- Eurasian watermilfoil
Invasive Species Pathways

- Ballast Water Discharge
- Canals & Waterways
- Overland Transport
- Aquarium Dumping
- Home Gardening
- Illegal Stocking
Overland Transport
Greeter Program Goals

- To prevent the spread of aquatic invasive species by establishing a well-trained network of watercraft access greeters who:
  - Educate recreational boaters about the harmful effects of invasive species and what they can do to help prevent spread.
  - Provide watercraft inspections and decontaminations to help boaters “do the right thing” to prevent the spread of AIS.
  - STOP new invasive species introductions
History of the Program

Faucet Snails Show up in Vermont (1882)

Only Record of Brazilian waterweed in Townshend, VT (1913)

CLP in Champlain (1929)

Water chestnut in Champlain (1940s)

Banded Mystery Snail appears in Bomoseen (1962)

EWM shows up in Champlain (1962)

CMS now in Farlee and the Ottauquechee River (1965)

EWM spreads to Bomoseen (1982)

Brittle naiad appears in Sunset Lake (1984)


Carp are now in Coggman Pond (1989)

European Rudd show up in Champlain (1991)

Zebra Mussels are now in Champlain (1993)

European frogbit in Champlain (1993)

Rusty Crayfish in Champlain (1994)

Alewife population in St. Catherine (1997)

ZM spread to Bomoseen (1998)

Tench now in Champlain (2002)

Greeter Programs begin (2002)

VLM in Halls Lake (2008)

Big water Crayfish now in the White River (2010)

Starry Stonewart appears in Memphremagog (2015)

Asian Clam Appear in Derby (2016)

100th EWM infested lake (2021)
History of the Program
History of the Program
Status of Public Access Greeter Program
Greeter Program Data

Survey123 Watercraft Inspection Survey
Guide for Vermont Public Access Greeter Programs

Why is it important to collect this data using Survey123?
- We are able to create maps like the one above to better understand patterns of boat movement.
- To track invasive species movement and target monitoring efforts to catch invasive species spread.
- To better understand the number and types of species Greeters are able to intercept on boats entering or exiting waterbodies.
- Gathering more information on how familiar boater’s are with AIS, and how future education and outreach can be most effective.

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Greeter
Program Data

Watercraft Inspection Survey
Your filter is the right mouse-click to meet the deadline!

Greeted
62,745
Inspected
44,602
Decontaminated
7,415
Greeter Program Data
Greeter Program Data
Greeter Program Data
Greeter Program Data

Watercraft Direction

- Launch: 63%
- Retrieve: 37%
Greeter Program Data

Intercepts By Direction

- blue line: # watercraft w/ organisms while launching
- red line: # watercraft w/ organisms while retrieving
Greeter Program Data

Percent of Watercraft Carrying Plant or Animal Material

Year

Percent %
Greeter Program Data

Number of AIS Species Interceptions

- Eurasian watermilfoil: 451
- Curly leaf pondweed: 22
- Variable-leaf milfoil: 41
- Zebra mussel
- Brittle naiad
- Brittle naiad
- Hydrilla
- Starry stonewort
- Rusty crayfish
- Water chestnut
- Brazilian elodea
Greeter Program Data

- Boaters Greeted: 31,052
- Inspections: 21,917
- Not Inspected: 9,135
- Decontaminated: 5,666
- Organism Intercepts: 1,495
Greeter Program Data

Familiarity With AIS

- Yes: 98%
- No: 2%
Greeter Program Data

**Clean Boats Clean Waters**

**Before Launching AND Before Leaving**

- **Clean** off any mud, plants, and animals from boats, trailers, and equipment.
- **Drain** your boat and equipment away from the water.
- **Dry** anything that comes into contact with the water.

**Never** release plants, fish or animals into a body of water unless they came out of that body of water.

Under Vermont Law, you may be fined up to $1000 for transporting any aquatic plant or plant fragment, zebra mussels or quagga mussels.

Please report suspected aquatic invasive species sightings to:
- (802) 828-1535
- www.vtwaterquality.org
Will Boaters Check for AIS in the Future

- Yes: 30881
- No: 171

Greeter Program Data
Eagle Killer
_Aetokthonos hydriclicola_

**Science Journal: Hunting the eagle killer: A cyanobacterial neurotoxin causes vacuolar myelinopathy.** March 26, 2021

Occurrence of VM has been linked to a cyanobacterium (_Aetokthonos hydriclicola_) growing on an invasive plant (_Hydrilla verticillata_) in man-made water bodies.
Invasive Species Impacts

Ecological Impacts
• Loss of native species…competition
• Water quality deterioration

Recreation Impacts
• Boating/swimming
• Fisheries

Commercial Impacts
• Impede navigation
Greeter Program Data

Watercraft Direction

37% Launch
63% Retrieve
New Invasions
New Invasions
Vermont water bodies support over 170 different types of aquatic and wetland plants. Roughly 7% are non-native and considered invasive.
Champlain As a Source

Willoughby; 7/30/2022, 5:03 AM
Results: Dreissena_polyomorpha
Last waterbody: Champlain

Seymour; 7/29/2022, 4:45 PM
Results: Dreissena_polyomorpha
Last waterbody: Champlain

MemphreMagog; 7/24/2022, 12:05 PM
Results: Dreissena_polyomorpha
Last waterbody: MemphreMagog

MemphreMagog; 7/22/2022, 3:07 PM
Results: Dreissena_polyomorpha
Last waterbody: Champlain
Champlain As a Source

Clean Boats Clean Waters

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STOP AQUATIC HITCHHIKERS!

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Champlain As a Source
Connecticut River
Memphremagog

**Watercraft Inspection Survey**

Greeted 300
Inspected 300
Decontaminated 181

**Watercraft Type**

- Outboard Motorized
- Inboard Motorized
- Canoe
- Kayak
- Other
- Sailboat
- Rowboat
- Jet Ski/Personal Watercraft

**Filter records by station and state**

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Table notes: Download button at the bottom right. 5,000 maximum rows. Export table includes all fields.
Future of the State
Future of the State
Future of the State
Questions

• Can the AIS greeter database be made public by removing the requirement for a password?
• What are the best ways to work with a data on all devices (i.e., computers, tablets (including iPad), and smart phones) to obtain individual lake information?
• How to create informative summary data reports for individual Lakes?
• When does the DEC cleaned up and finalize data for use by others?
• How to read past and present greeter DEC “interconnectivity maps” that is based on data prior water body visited? Where is this online Map information?
• What are the implications to front line greeters with respect to the identification of high-risk lakes that boats encountered are coming from?
• Are there any plans to develop better decontamination protocols and greeter stations with greater washing capabilities? Is having greater washing capabilities primarily a funding problem?
• How do you see greeter programs evolving in Vermont over the future based on data being gathered to make programs more effective, efficient, and less costly?
• How can lake associations and FOVLAP help with the DEC’s with greeter data gathering?