Managing Aquatic Invasive Species: Diving & DASHing

Presented by Alex Reiber
Squam Lakes Association

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Who am I?

- Alex Reiber
- Facilities & Access Manager
- Lakes Region Conservation Corps Alum
- Managed SLA dive program
- Built current DASH system

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Mission

- *The Squam Lakes Association is dedicated to conserving for public benefit the natural beauty, peaceful character and resources of the watershed.*
- Established 1904

SQUAM LAKES ASSOCIATION

Conservation

- Invasives, WQ Monitoring, Watershed Mgmt Plan

Education

- Environmental Ed. Programs, Youth summer camp

Access

- 55+ Miles public trails, Low impact camping & boat rentals, public boat launch

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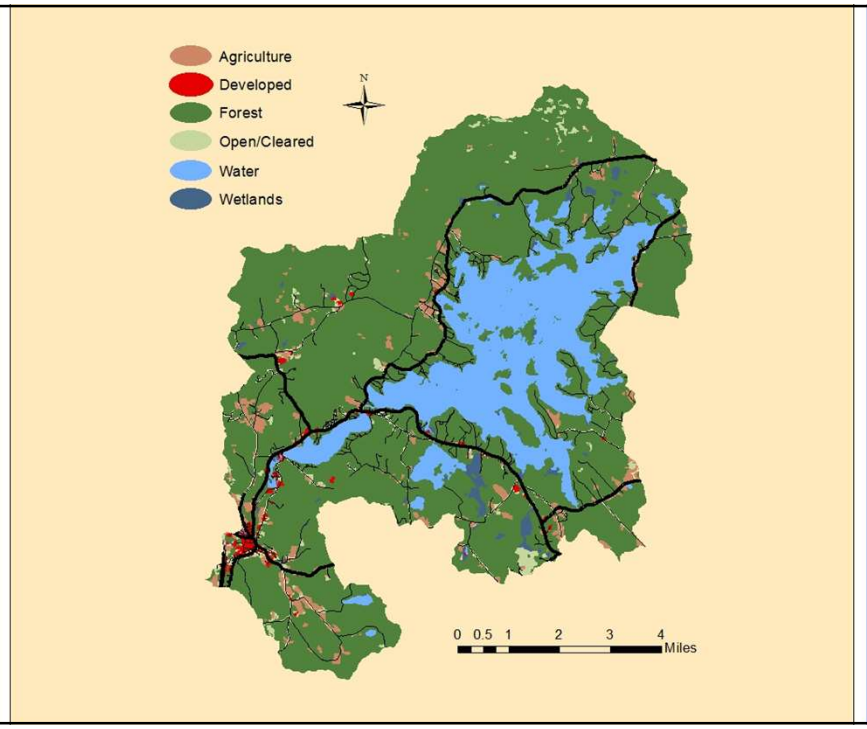
Squam Watershed
- 42,418 acres

Squam Lake:
- 6,765 acres
- 60.5 miles shoreline
- Max depth: 98 ft.
- Oligotrophic

Little Squam Lake:
- 408 acres
- 4.3 miles shoreline
- Max depth: 84 ft.



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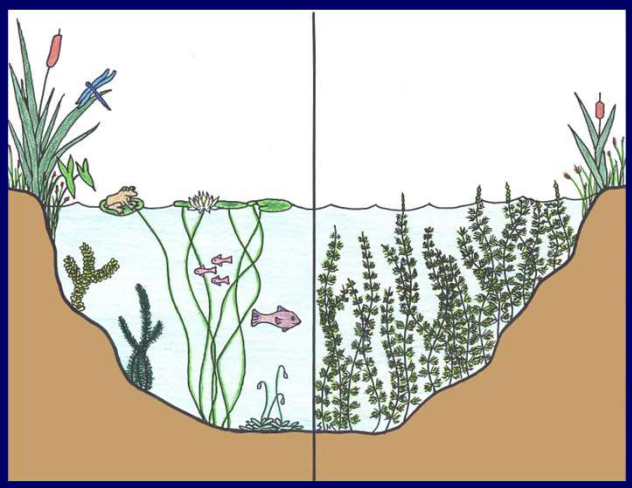
Aquatic Invasive Species

- Non-native
- Rapid reproduction
- Limited natural predation
- Highly competitive for resources
- Adverse effects:
  - Loss of native species
  - Loss of species diversity
  - Ecological, economic, & recreational impacts



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Variable Milfoil (*Myriophyllum heterophyllum*)

- Bright green w/ reddish stems
- Grow up to 15’ in length, up to 1”/day
- Leaves up to 2”, in whorls of 4-6
- Green, spike-like flower in July
- Spread by fragmenting

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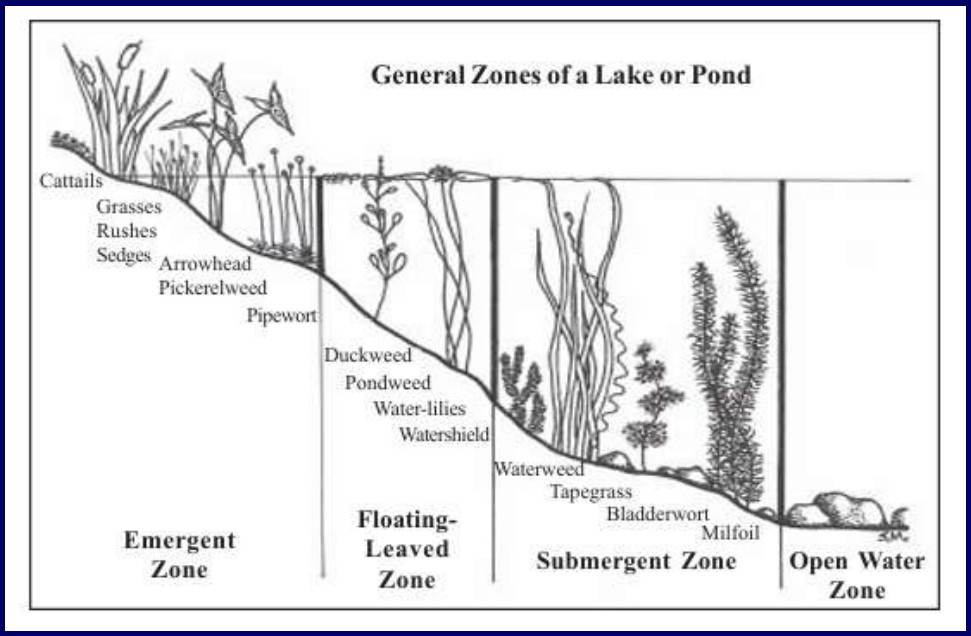

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Milfoil in the Squam Lakes

- Discovered in early 2000s
- Most likely introduced from boat traffic, dredging equipment, or home aquariums
- SLA partnered with NH DES to develop mgmt. plan

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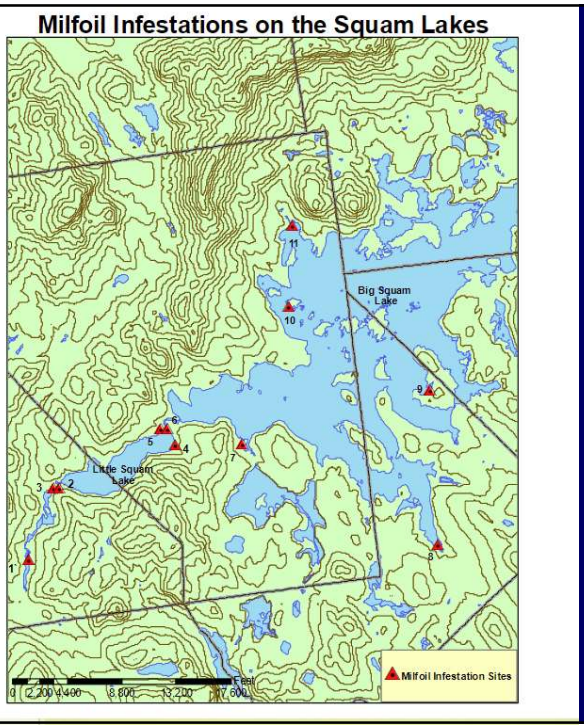
Milfoil Management Sites on Squam

- ~40 acres across 12+ sites
- Dive site depths range from 1' – 25'
- Site substrates generally silty to sandy. Occasionally rocky
- Bad infestations been pushed to downstream sections of Squam River



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Methods of Milfoil Management on Squam

- Education & Prevention
- Chemical treatment: Diquat dibromide & 2, 4-D
  - Limited overall effect on infestation, non-selective
- Floating entrance netting
- Benthic Barriers
- SCUBA Diving & Snorkeling
  - Handpulling
  - DASHing

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SCUBA Diving for Milfoil

- Considerations:
  - Surveying
  - Funding & Budget
  - Certifications & Regulations
  - Crews (Internal, volunteers, or hire out)
  - Method (DASH vs. Handpull)
  - Transport & disposal of plants

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Surveying

- Volunteer events & programs
- Snorkel & dive

Photos: UNH Cooperative Extension

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SLA's Dive Program: Funding

- $50-60k annually on training, equipment, and staff time
- NH Department of Environmental Services (Exotic Aquatic Plant Control Grant Program)
- NH State Conservation Commission Moose Plate Grant Program
- SLA General Funding
  - Memberships
  - Donations
  - Fee for service

NHDES

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Certifications & Regulations

- Open Water Diver Certification
- Weed Control Diver Certification (Required in NH)
- Work with state environmental agency to follow local regulations

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Dive Crews

- Lakes Region Conservation Corps members
- 3-4 members on crew in field
- Dive 5 days/week from June – September
- Diver, Tender, Topside

AmeriCorps

LAKES REGION CONSERVATION CORPS

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Methods: Handpulling

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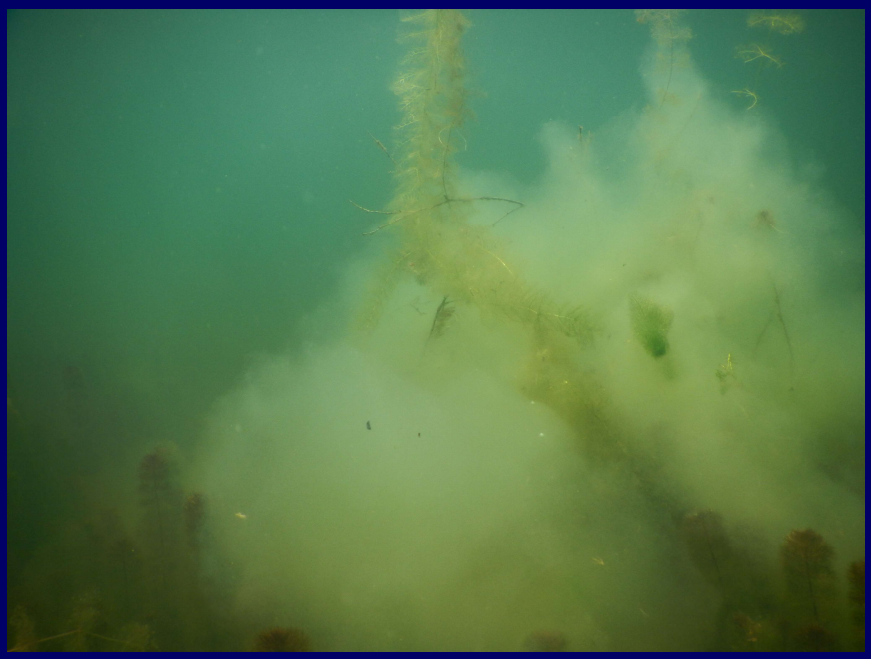

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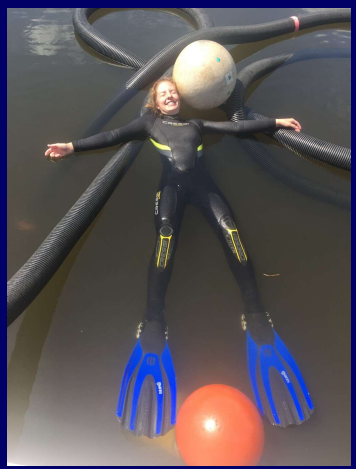
DASH: Diver Assisted Suction Harvester



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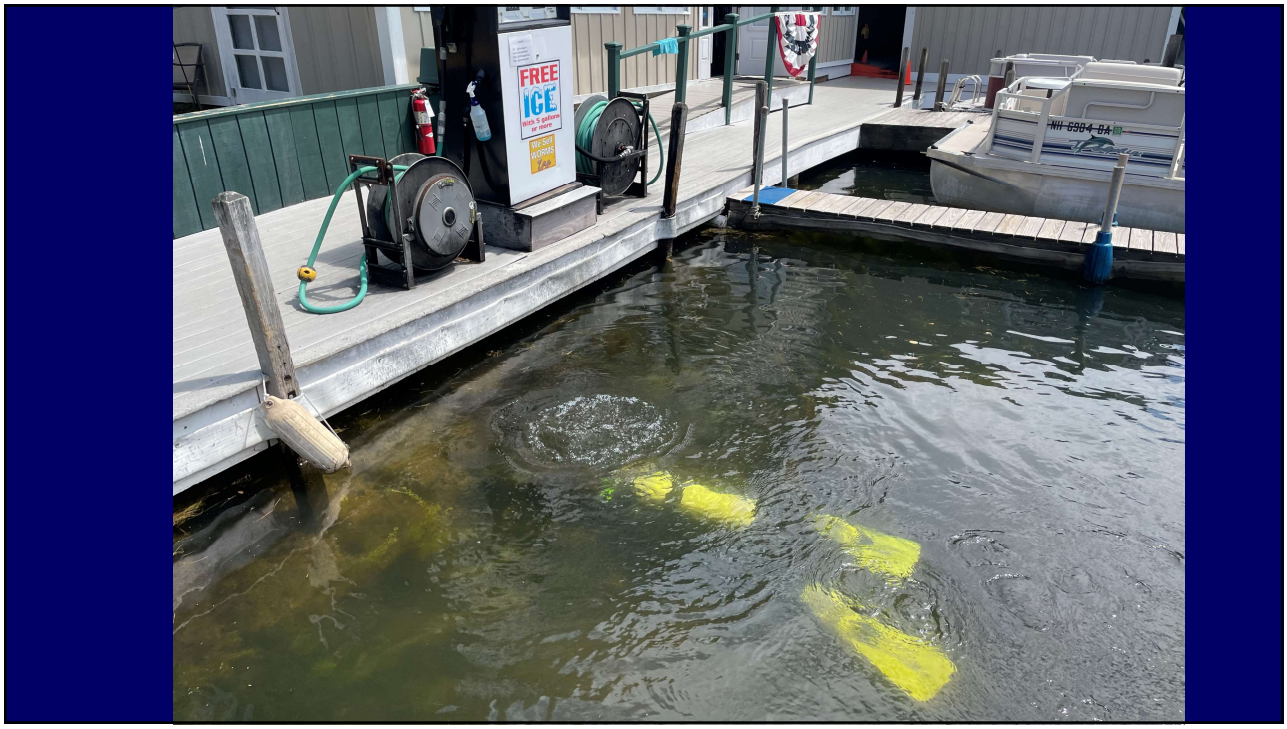

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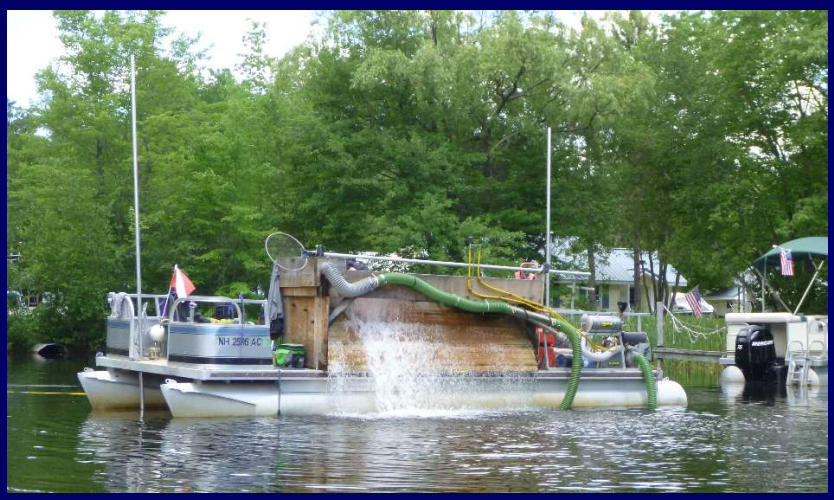
Millie – First Generation



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Keene Engineering

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Transport & Disposal

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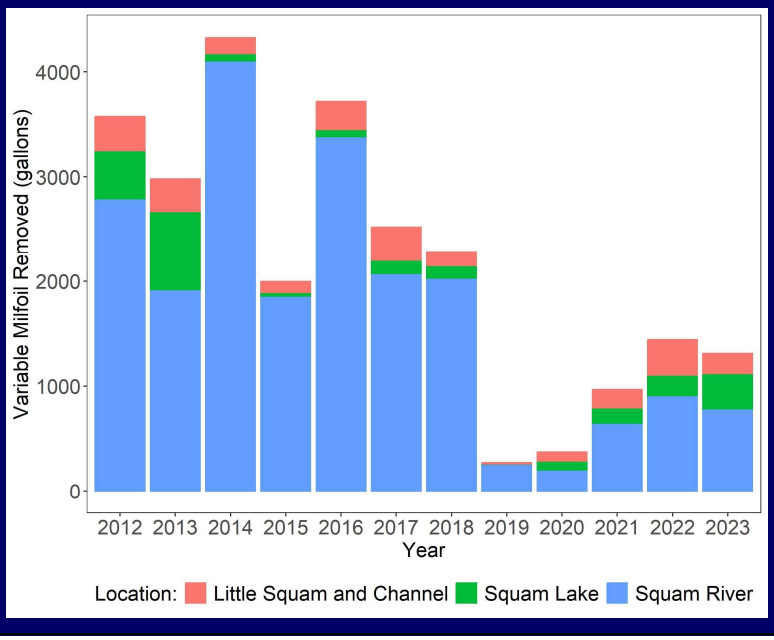
Total Milfoil Removed Per Year



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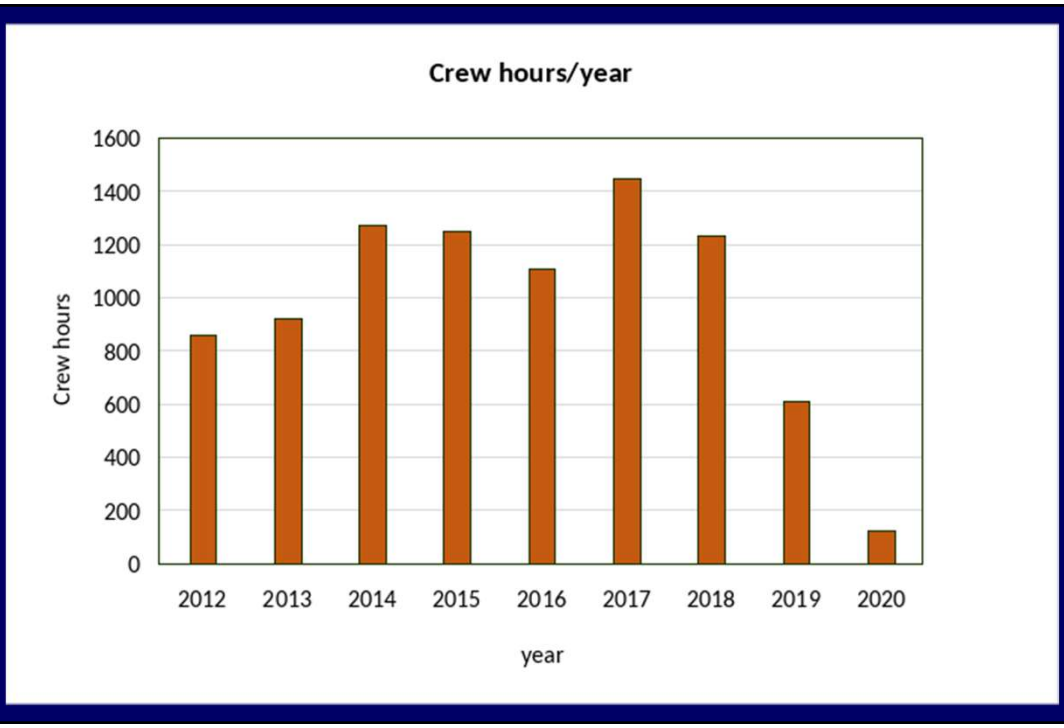

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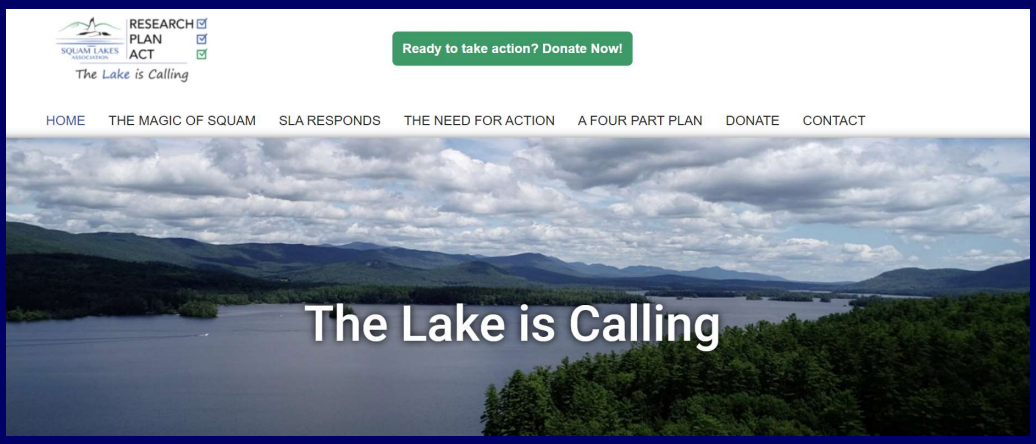
Squam Watershed Campaign

squamcampaign.org



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Sources

- New Hampshire Department of Environmental Services. Aquatic Plants & Algae of NH's Lakes & Ponds. 2007.
- Squam Lakes Association, and New Hampshire Department of Environmental Services. 2008. Long-Term Variable Milfoil Management and Control Plan for the Squam Lakes.
- Photos: University of New Hampshire Cooperative Extension

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Questions?

Email: areiber@squamlakes.org

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Video of Millie the Milfoil Boat

- https://www.youtube.com/watch?v=2sBz9tfl_Ks&t=3s

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