



Hydrilla: “The World’s Worst Weed” Coming to a Lake Near You and how to prevent it



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Hydrilla forms thick dense mats:



<https://youtu.be/syyl039vAZA?si=m606lwPKXrNP5yel>



Hydrilla forms thick dense mats:



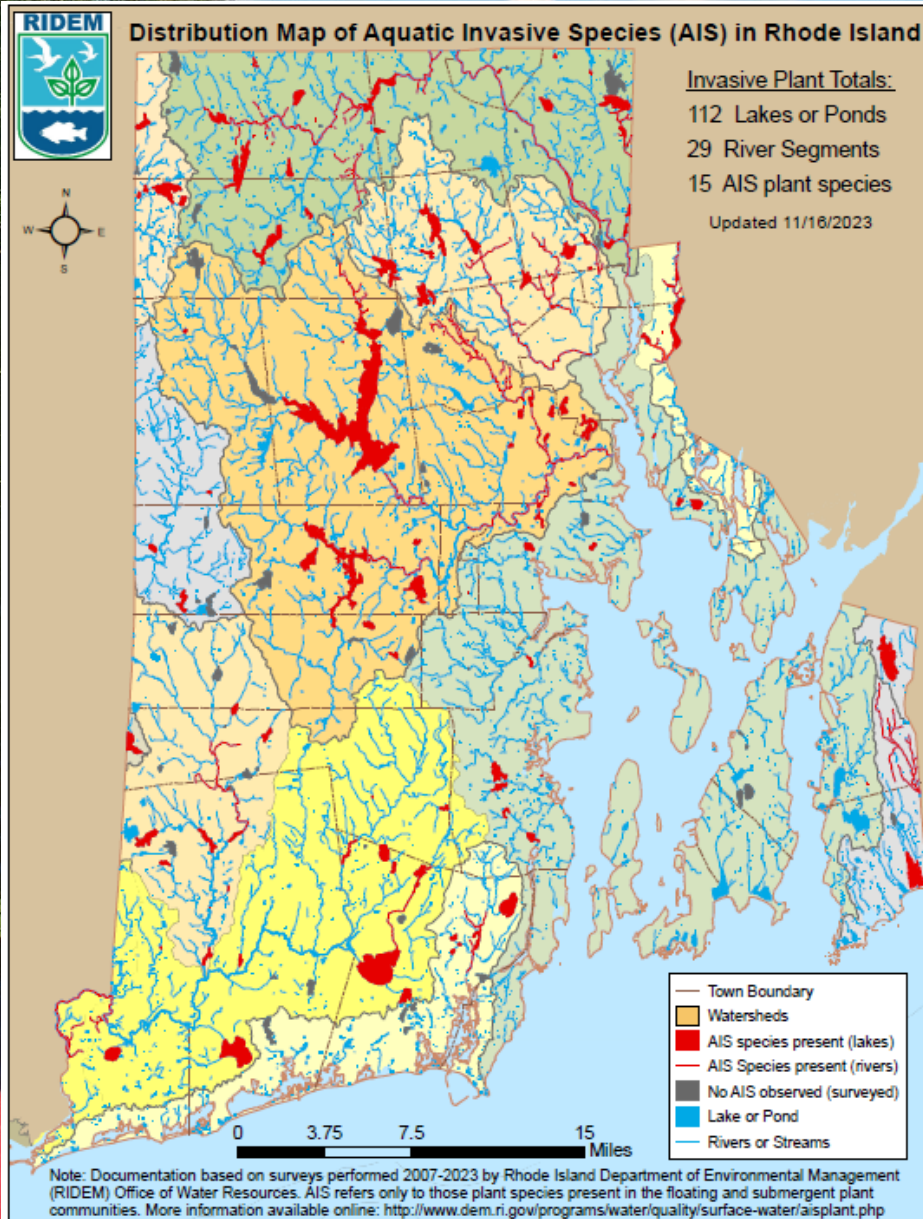
Monitor to detect stage of an Invasion



Invasive Plant Detected: Hydrilla



RIDEM monitoring to detect invasives



Invasive Species	Lakes/Ponds
1. Variable milfoil	72
2. Fanwort	63
3. Water chestnut	19
4. Curly-leaf pondweed	14
5. Mudmat	13
6. Eurasian milfoil	11
7. Spiny naiad	11
8. Inflated bladderwort	10
9. Water hyacinth	4
10. Brazilian elodea	5
11. Yellow floating heart	3
12. Hydrilla	3
13. American lotus	2
14. Parrot feather	1
15. Sacred lotus	1
16. Chinese mystery snail	29
17. Asian clam	20
wit	112

Hydrilla: in MA, CT, ME, NY



USDA Federal Noxious Weed

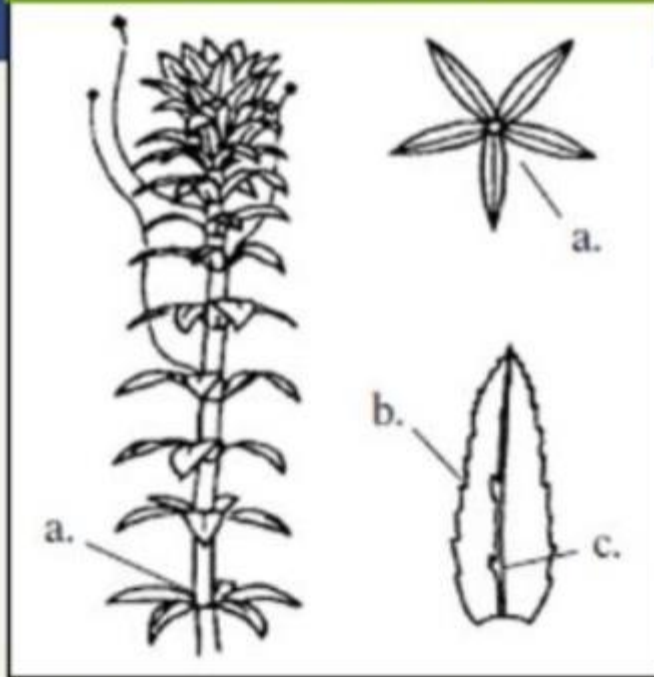


Invasive Plant Detected: Hydrilla

Hydrilla or Elodea?

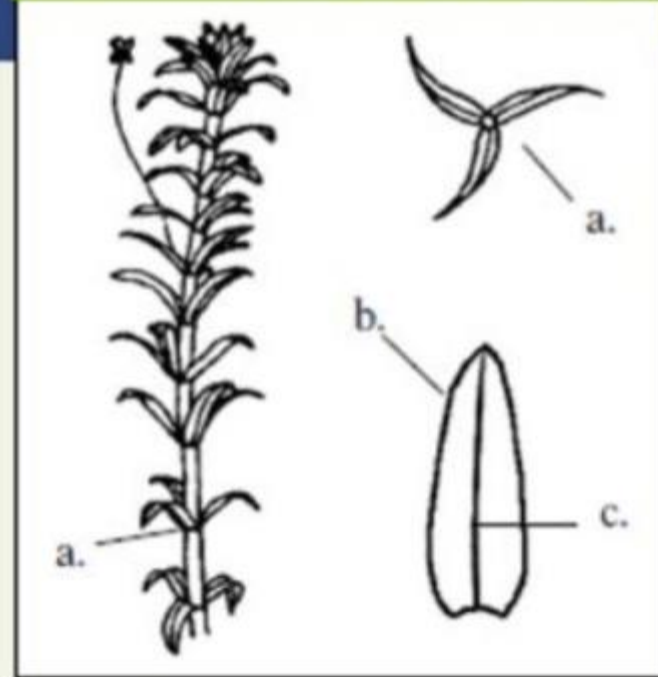
Read the Leaves to Tell the Difference

Hydrilla (Exotic)



- a. 4 or 5 leaves at each node
- b. Leaves have visible teeth
- c. Leaf vein has small spines

Elodea (Native)



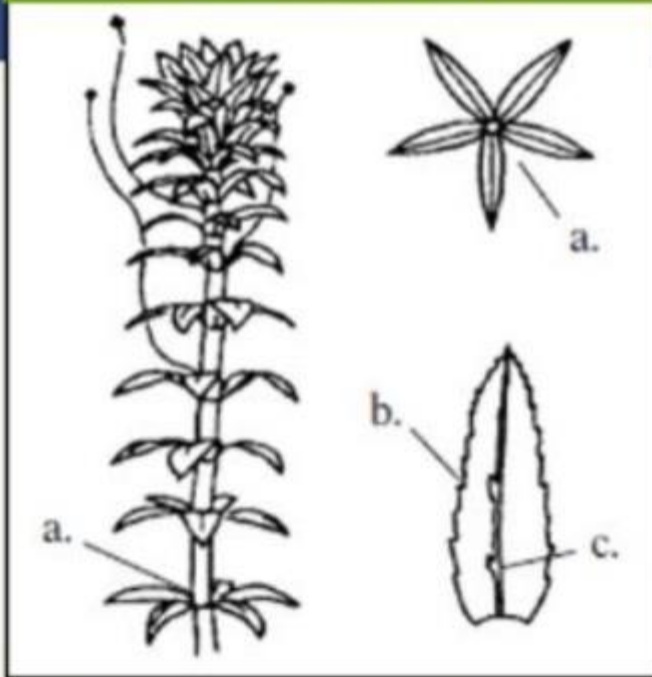
- a. Only 3 leaves at each node
- b. Leaf edges appear smooth
- c. Leaf vein is smooth underneath



Invasive Plant Detected: Hydrilla

Hydrilla or Elodea?
Read the Leaves to Tell the Difference

Hydrilla (Exotic)



- a. 4 or 5 leaves at each node
- b. Leaves have visible teeth
- c. Leaf vein has small spines



Hydrilla Basics: Multiple ways to Multiply

- Tubers →
- Turions
- Seeds
- Fragments



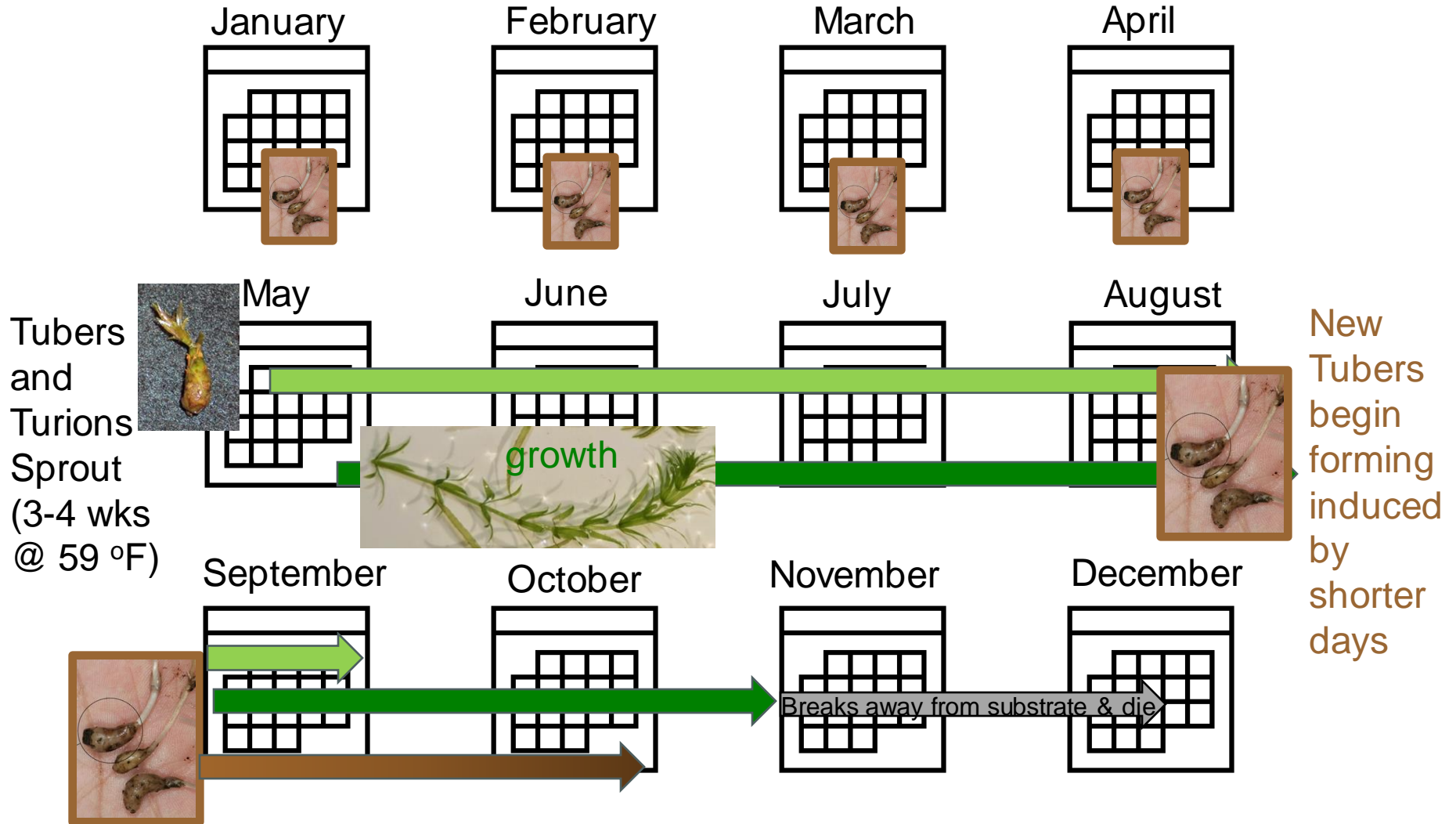
Leslie J. Mehrhoff, Univ. of Connecticut, Bugwood.org

Robert Vidéki, Doronicum Kft., Bugwood.org

- Tubers remain in sediment and are viable many years (need to be chilled)
- They may not always sprout
- Can be 6-12 inches deep in sediment



Monoecious hydrilla life cycle (in NC)



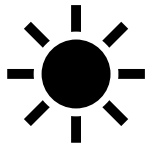
What is an invasive plant?



- Non-native or exotic (no natural predators in RI)



- Introduced (accidentally or intentionally)



- Adapt well to new conditions



- Have competitive advantages over native plants



- Growth threatens biodiversity



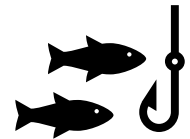
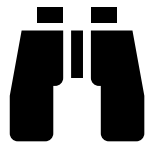
- Jeopardizes stability of a balanced ecosystem

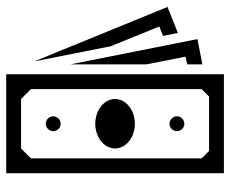


Problems with Invasives

1. Restrict Recreation

- Reduce aesthetics/visibility
- Become entangled around motors
- Obstruct access to boat ramps/lanes
- Snag fishing lines



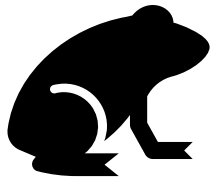


Problems with Invasives

2. Cause Economic Losses

- Require substantial funds to manage
- May devalue waterfront property
- Reduce tourism/recreation
- Effect local businesses
- Threaten Tax Revenues





Problems with Invasives

3. Alter Ecology of Lakes

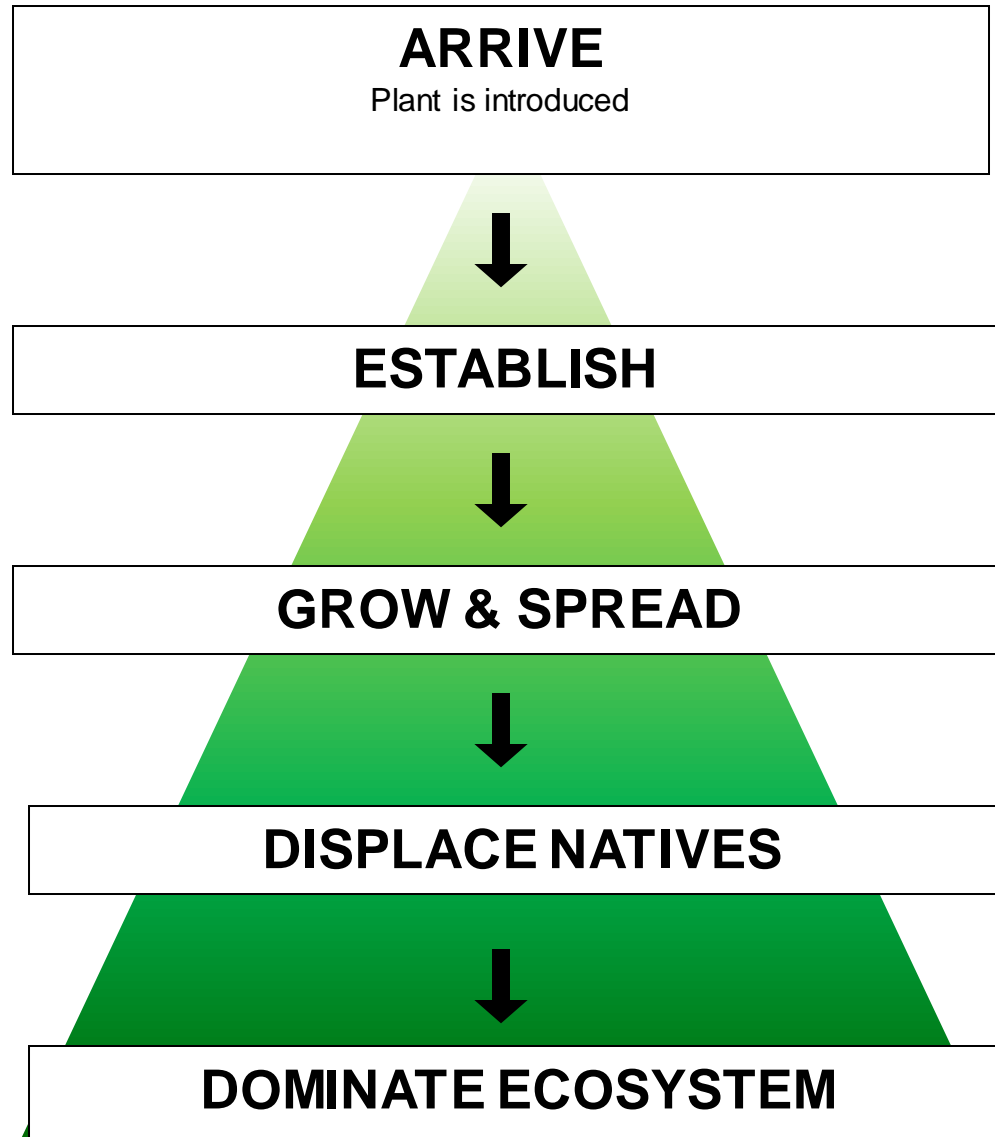
- Outcompete beneficial native species
- Decrease biodiversity (and angling opportunities)
- Reduce water quality
- Decompose slowly & reduce O₂
- May degrade conditions for fish



Monitor to detect stage of an Invasion



Stages of an Invasion



Monitor to detect stage of an Invasion

ARRIVE

Plant is introduced

ESTABLISH

GROW & SPREAD

DISPLACE NATIVES

DOMINATE ECOSYSTEM



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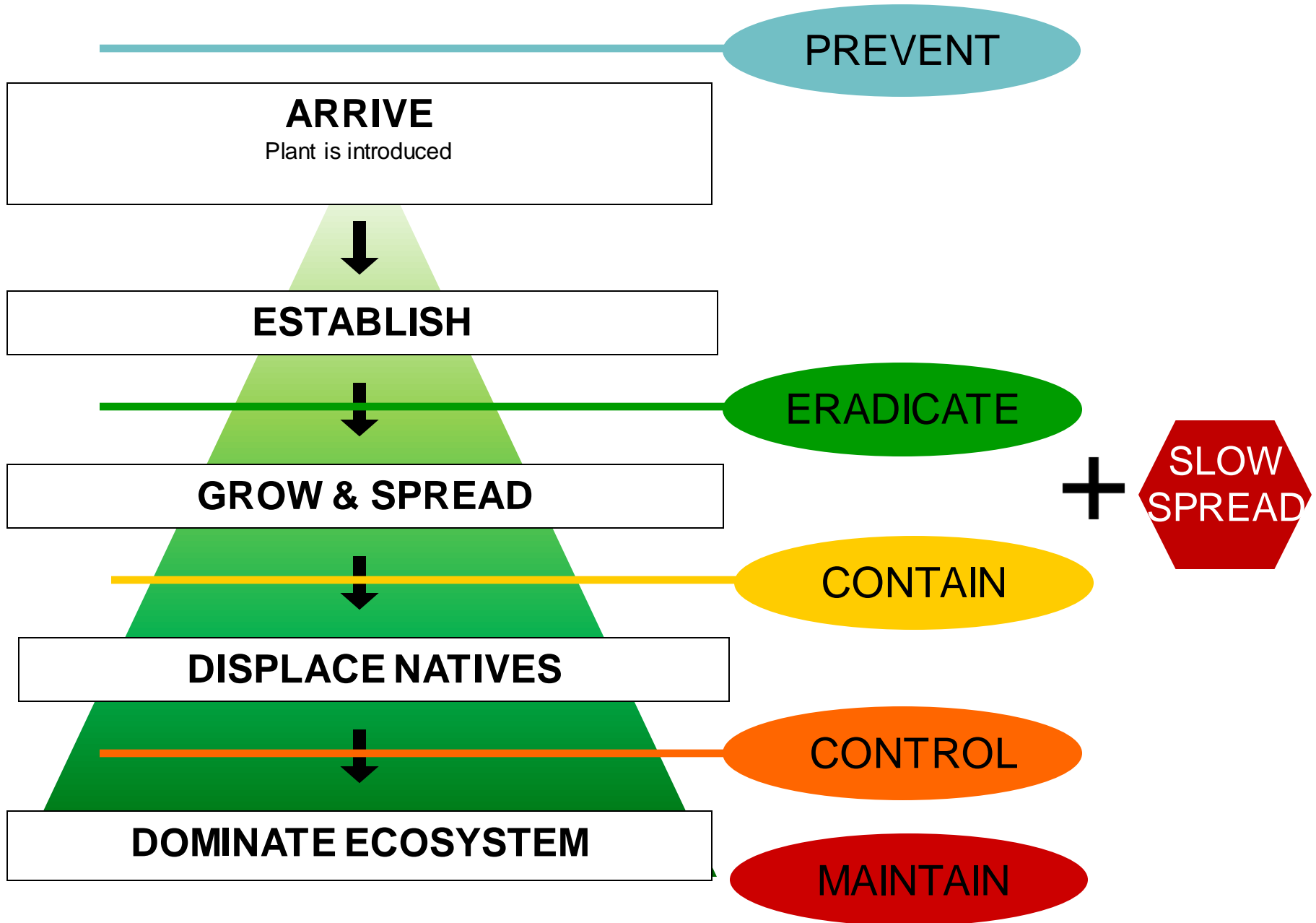


DOMINATE ECOSYSTEM



Valley Falls Pond, Central Falls, RI

Size Determines Management Goal



Ounce Prevention = Pound Cure

ARRIVE

Plant is introduced

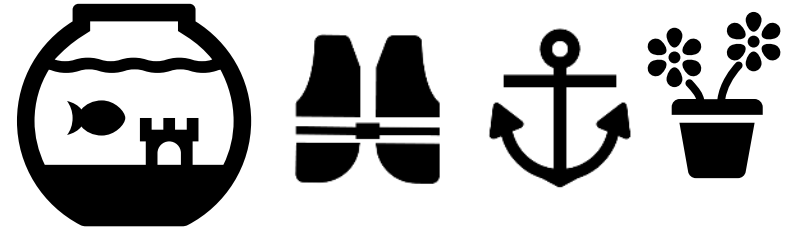
ESTABLISH

GROW & SPREAD

DISPLACE NATIVES

DOMINATE ECOSYSTEM

PREVENT



Ounce Prevention = Pound Cure

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Plant is introduced

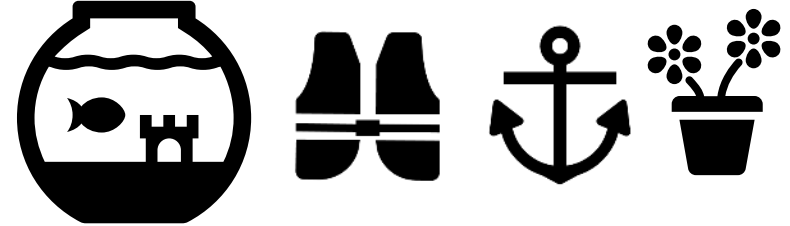
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GROW & SPREAD

DISPLACE NATIVES

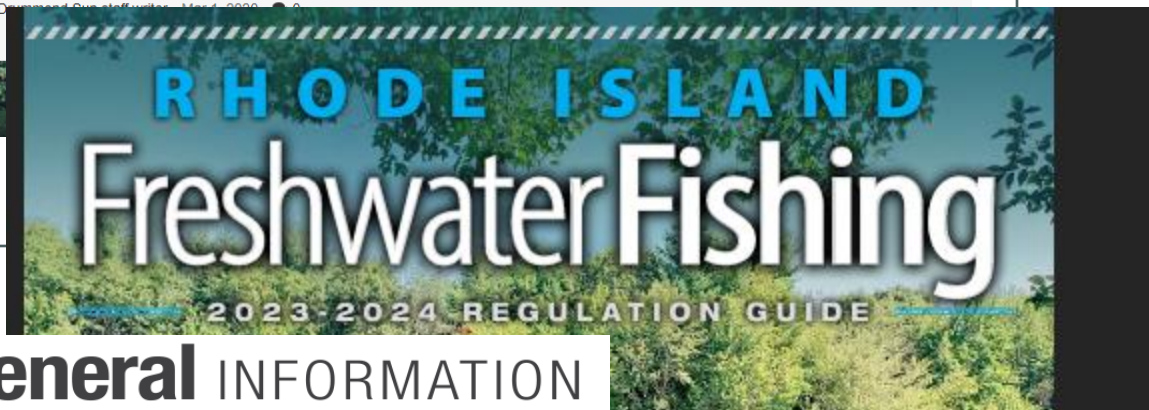
DOMINATE ECOSYSTEM

PREVENT



Prevention Strategies

• Regulate (RI: 2020)



General INFORMATION

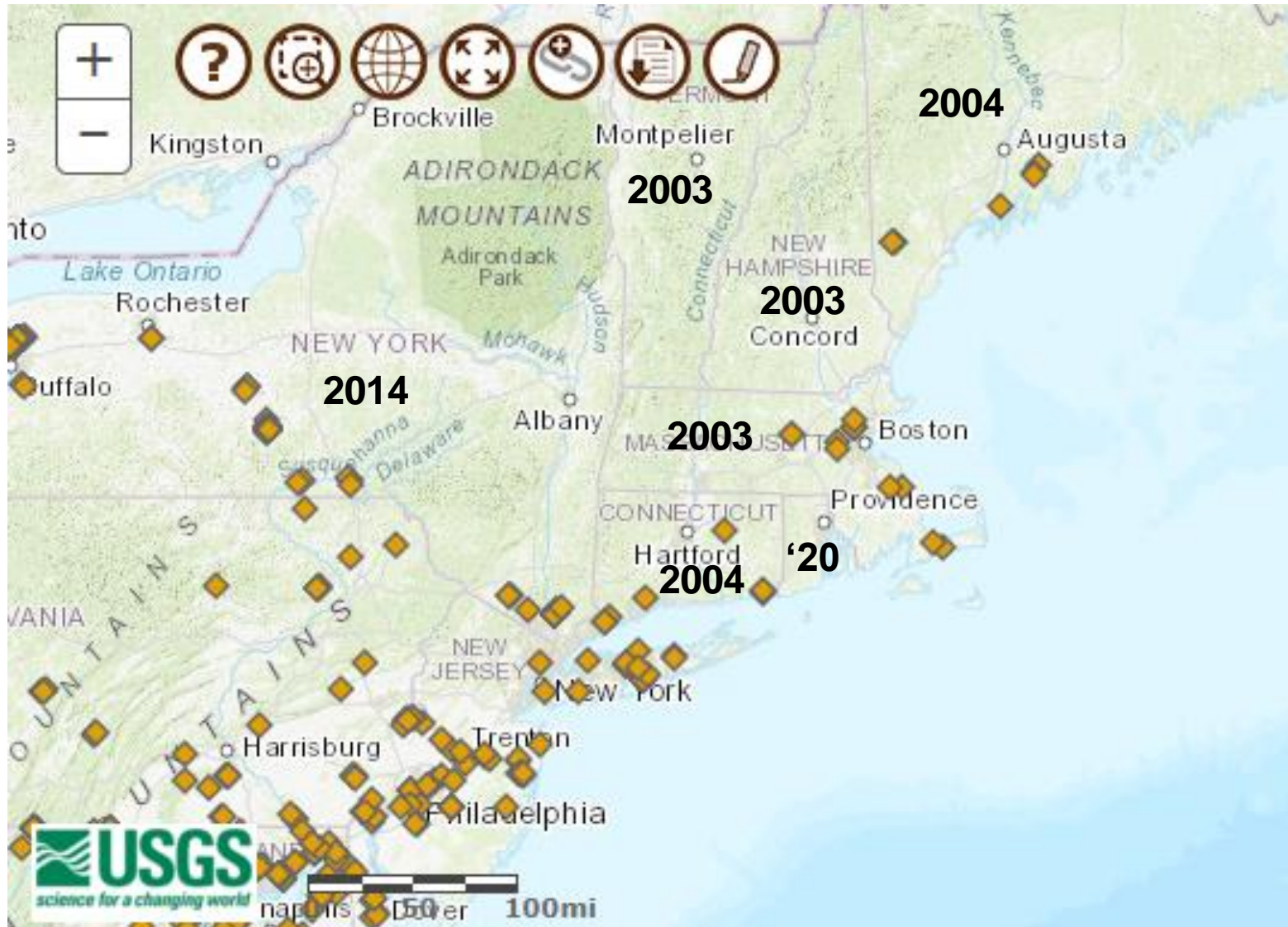
Prohibited Activities:



19. Transport of any plant or plant part into or out of any Rhode Island waterbody on boats, vessels, other water conveyances, vehicles, trailers, fishing supplies, or any other equipment, with the exception of authorized research activities, such as species identification and management activities.



Prevention Strategies



Regional Regulations: (YEAR) is when bans/prohibitions enacted



Prevention Strategies

- Regulate
- Educate
- Promote boat cleaning



**STOP AQUATIC
HITCHHIKERS!™**

Be A Good Steward.
Clean. Drain. Dry.

StopAquaticHitchhikers.org



ATTENTION!

Invasive Plants Here
Stop their spread to other lakes and ponds!

Decontaminate Your Gear:

CLEAN  **Remove all debris on:**

- Boat, Motor
- Trailer, Gear
- Anchors, Paddles
- Lines, Straps

DRAIN  **Pull boat plug & drain:**

- Motors
- Bait Buckets
- Live Wells
- Canoes & Kayaks

DRY  **Dry gear & equipment:**

- Hang or leave in sun
- Dry before traveling to another lake, pond, river, or reservoir

 **RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

To report invasive animals, contact: Division of Fish and Wildlife (401) 789-0281
To report invasive plants, contact: Office of Water Resources (401) 222-4700

Prevention & Containment Options

GREAT Boater Support Teams

Greeting Recreationalist to Empower & Train



Volunteers @ Ramp
help boaters & collect data

Greeting Recreationalists to Empower And Train Boaters
GREAT Boaters Program - Volunteer Handbook

RI DEM
Preventing the Spread of Invasive Species
A Partnership of Save the Lakes & Rhode Island Department of Environmental Management





GREAT Boaters Program

Preventing the spread of invasive species



2014 Smith & Sayles Reservoir Data:

- 1 ramp
- 4 volunteers
- 137 hours
- 21 days
- May 29 → Sept 28
- At least 11 tournaments
- Covered parts of 12% of all days in season





GREAT Boaters Program

Preventing the spread of invasive species



2014 Smith & Sayles Reservoir Data:

- 117 Boaters
- from over 30 lakes
 - 19% returned to lake
 - 40% traveled \leq 10 mi
 - 13% traveled 10-20 mi
 - 18% traveled 20-50 mi
 - 10% traveled $>$ 50 mi
- 25 Found plants





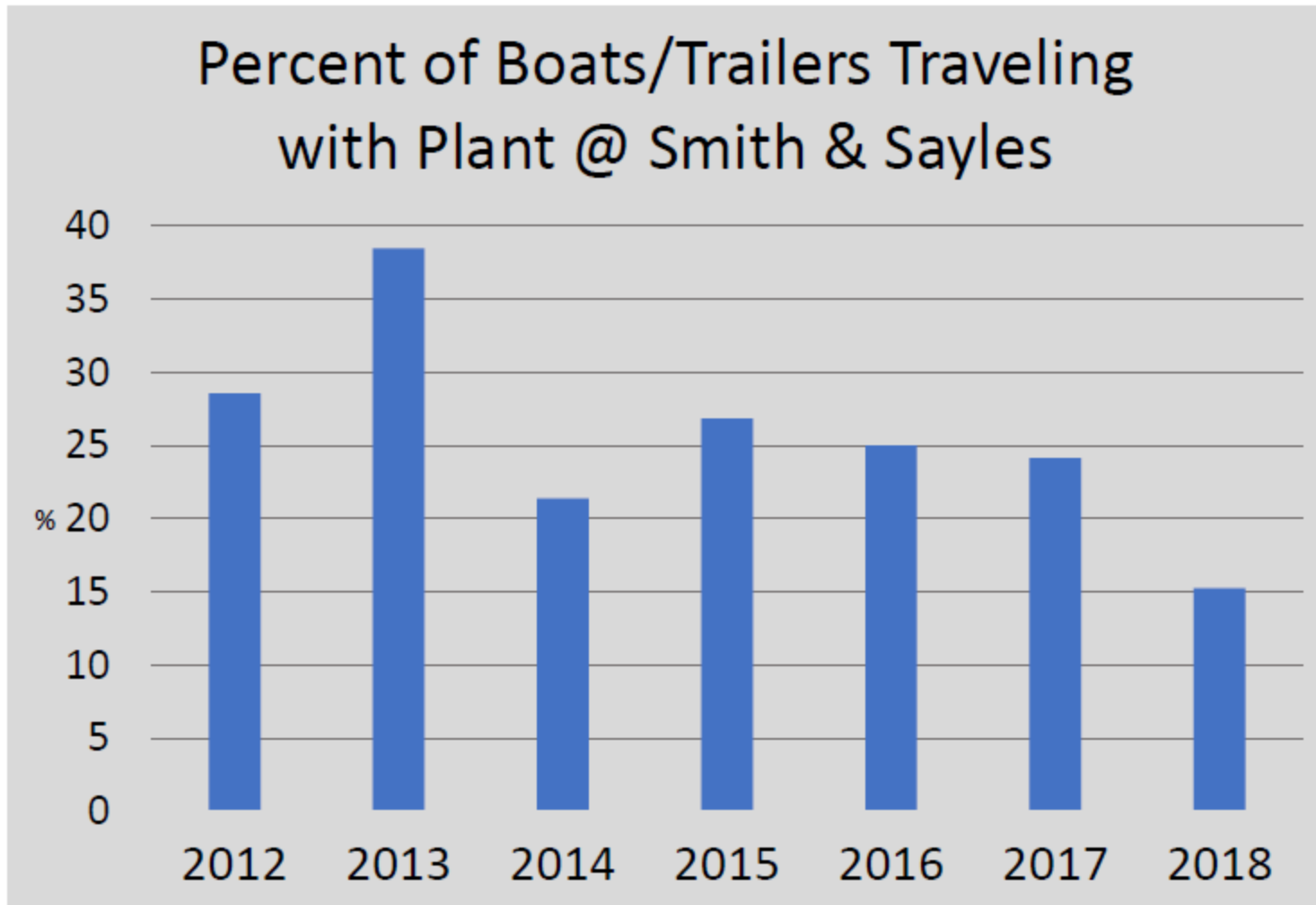
GREAT Boaters Program

Preventing the spread of invasive species



Data @ Smith & Sayles

Example of Data Collected by GREAT Boater Volunteers:





GREAT Boaters Program

Preventing the spread of invasive species



S&S Data – Take Home Messages:

- 1 ramp can have a lot of traffic
- Boat traffic may be from far away
- Plants do travel (found 21% of the time)
- Boaters need to be reminded to check
- Its impossible to have volunteers out all the time to do “courtesy inspections”
- Must encourage boaters to make a habit of checking for plants themselves



GREAT Boaters Program

Preventing the spread of invasive species

Other State Programs:

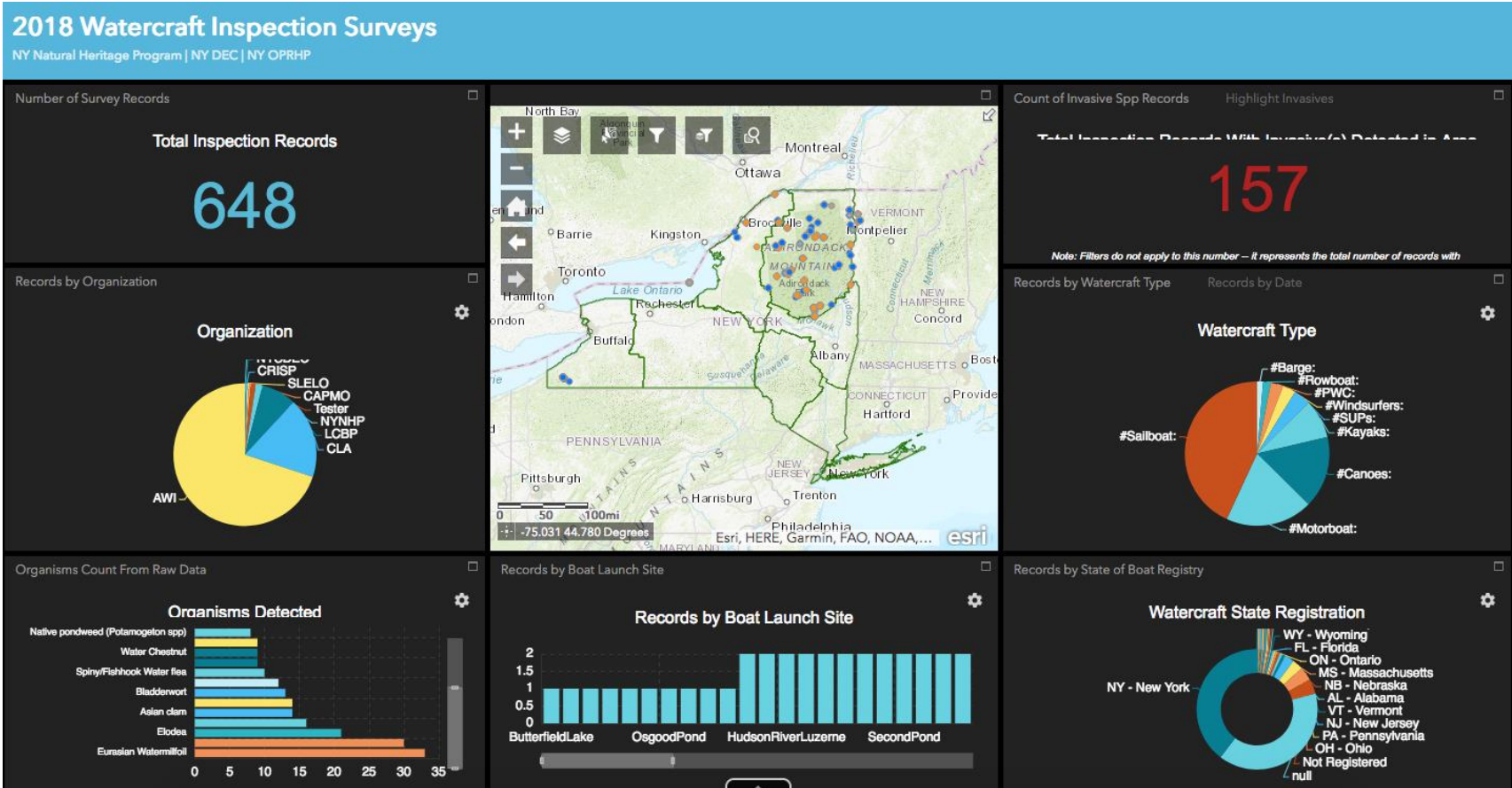
- NY – [Watercraft Inspection Steward Program](#)
 - 2023 stats: 218,735 boater interactions, 11,637 plant detections
- MA-[Boat Ramp Monitors in state parks](#)
- VT – [Public Access Greeter Program](#)
- [Lake Champlain Boat Launch Stewards](#)
- NH – [Lake Host Program](#)
- ME – [Courtesy Boat Inspection Program](#)
 - 278,000 interactions, 2,277 plants, 102 invasive "saves"
- NJ – [Boat Steward Program](#)
 - 2,910 inspections (2023)



GREAT Boaters Program

Preventing the spread of invasive species

2024 Plans: 1 paid staff @ Indian Lake + ?Volunteer Training in May or June?



Prevention & Containment Options



CD3 Boat Decon Machine @ Ramps



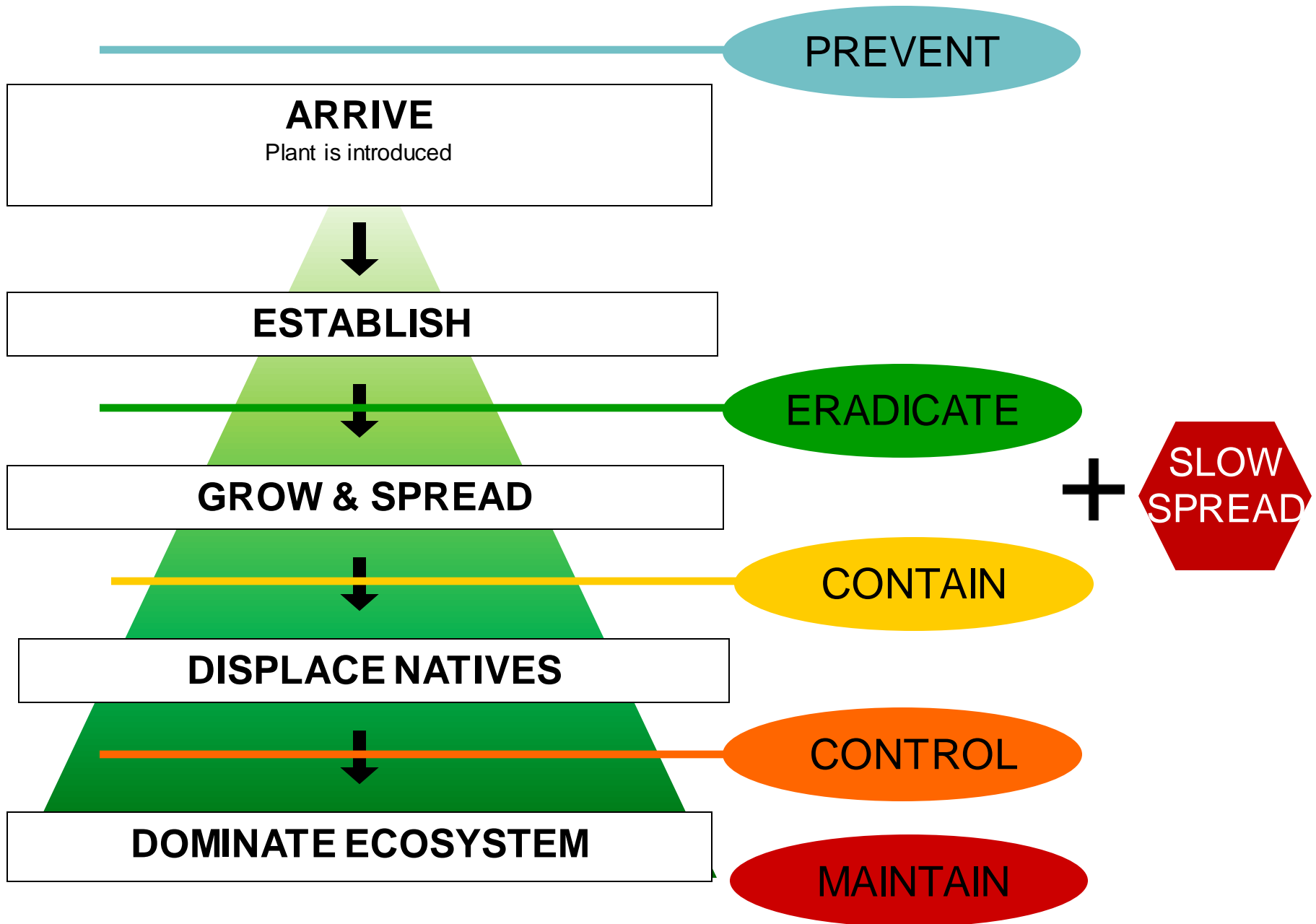
Chapman Pond, Westerly RI



Indian Lake, South Kingstown



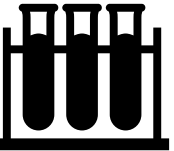
Size Determines Management Goal



Possible Eradication/Control Methods



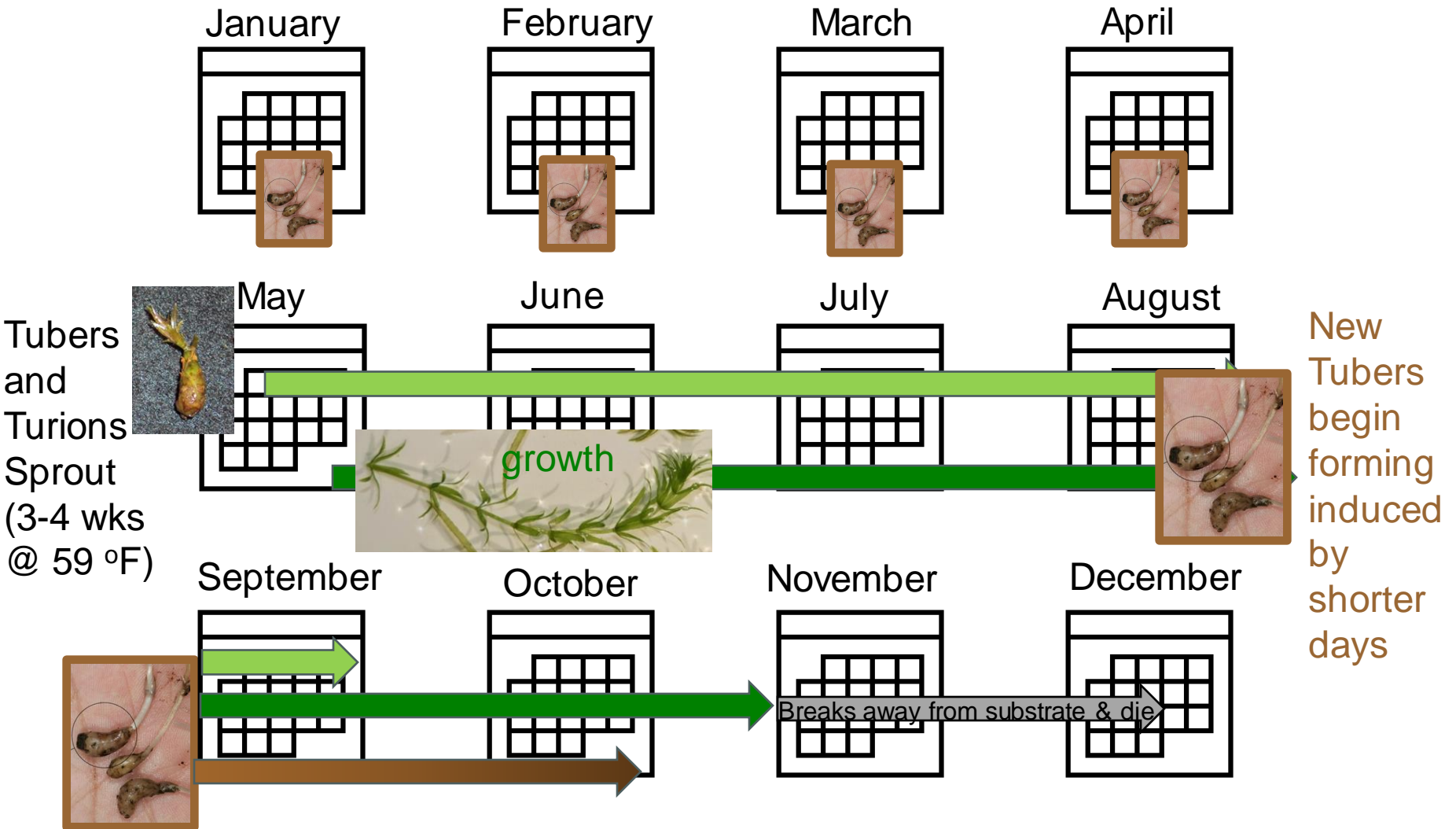
Diver-assisted Hand Removal



Chemical herbicides applied by licensed contractors



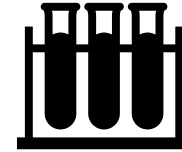
Monoecious hydrilla life cycle (in NC)



Possible Eradication/Control Methods



**Diver-assisted
Hand Removal**



Chemical herbicides

Permits?

DEM Wetlands

DEM Agriculture

Effective?

YES

YES

Practical?

Size-dependent

YES

Costs?

Size-dependent

Size-dependent

Timing?

Varies

May-June-July



Both will likely need to be done for at least a few years

Questions?

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Elizabeth Herron
URI Watershed Watch

