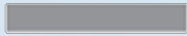


Emerging Invasive Aquatic Plants in New Jersey

By Chris Doyle, CLM
Director of Biology



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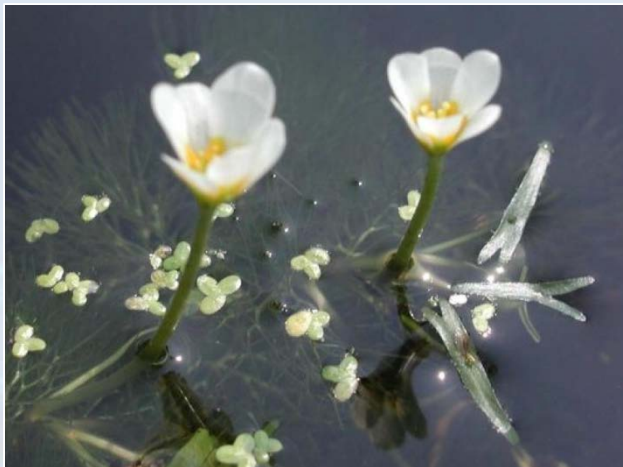
Restoring Balance. Enhancing Beauty.

April 19, 2018

Submersed Plant: **Fanwort**

Cabomba caroliniana

- Native to S. America and S. USA
 - **Not native in the Northeast**
- Very popular in aquarium trade
- Reproduces by fragmentation
 - Tiny white flowers
 - Floating leaves
- Northern vs. Southern strains?



Adirondack Watershed Institute

Cabomba caroliniana



- states where Fanwort is native
- states with non-native Fanwort infestations

Submersed Plant: **Fanwort**

- **Can Inhabit a Variety of Waters**
 - Prefers slow moving
 - Low pH (4-6)
 - Low Calcium
 - Soft substrates
 - Up to 10 m deep
- **Negative Impacts**
 - Dense matted beds
 - WQ alterations
 - Reduced diversity
 - Aesthetics/Recreation
- **Control Options:**
 - Herbicides
 - Grass Carp
 - Benthic Barriers
 - Hand Pulling



SLM



Macro-algae: **Starry Stonewort**

Nitellopsis obtusa

- Native to Europe and Asia
- Macroscopic algae
- Length 2 m+
- Smooth stem
- Many whorls of *branchlets*
 - Not forked at end
 - Typically 4-8 in whorl
- Reproductive Structure
 - White star-shaped *bulbil*
 - Reproduction: via fragmentation and bulbil spread
- Very similar to native macroscopic algae
 - *Chara* sp. (muskgrass)
 - *Nitella* sp. (stonewort)



Macro-algae: **Starry Stonewort**

- **Habitat**
 - Hard (marl) water
 - Up to 10 m deep
 - Tolerates low light
 - Persist under ice
 - Variety of substrates
- **New York: 14 Counties**
 - Not documented in NJ (yet?)
- **Control Options**
 - Hand Pulling
 - Diver Assisted Suction Harvesting (DASH)
 - Algaecides
 - Decreased efficacy with dense beds

Recent Funding for Starry Stonewort Research

2015 NEAPMS: \$5,000 scholarship grant to fund NE distribution of starry stonewort

2017 APMS/NEAPMS/MAPMS/Manufacturer Partners: \$60,000 to evaluate management options for starry stonewort (awarded to Clemson University)



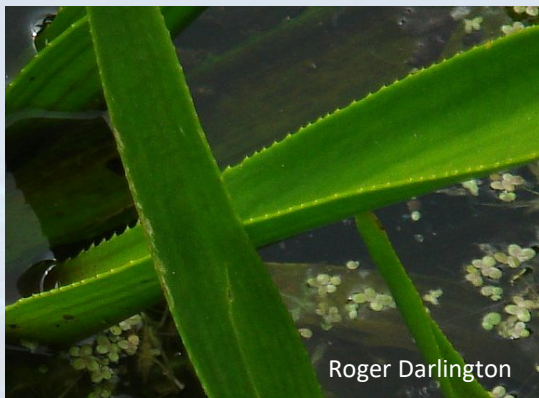
Floating/Emergent: **Water Soldier**

Stratiotes aloides

- **Only North America Infestation**
 - Severn Trent Waterway (2008)
 - Ontario, Canada
 - North of Lake Ontario
- **Water Garden Ornamental**
- **Description**
 - Leaves: 2-3 feet long (sword-like)
 - Serrated Edge
 - Large aloe or pineapple rosette
 - Large 3 petal white flower
 - Produces offsets
 - Household spider plant
- **Reproduction**
 - Fragmentation of offsets
 - Ave: 4.7 offsets/plant

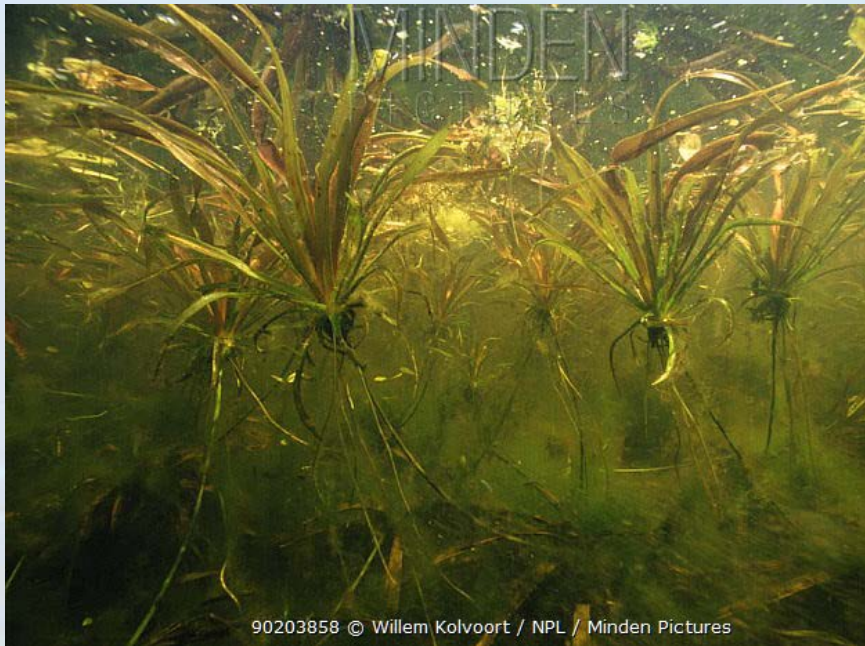


Floating/Emergent: **Water Soldier**



Floating/Emergent: **Water Soldier**

- **Unique Seasonal Distribution**
 - Submersed Plant
 - Buoyant during Summer
 - Air filled cells
 - Waterlogged as matures
 - Sinks to bottom to overwinter
- **Control Options**
 - Hand Pulling (?)
 - Benthic Barriers
 - Biological Controls (maybe)
 - Aquatic inverts/fungus
 - Chemical Control
 - Diquat only option in Canada
 - **Control Efforts (2014-2017):**
 - 2017: 725 acres
 - Evaluating other options (MNRF)



90203858 © Willem Kolvoort / NPL / Minden Pictures

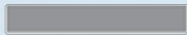
Partnership between the Ontario Ministry of Natural Resources & Forestry, the Ontario Federation of Anglers and Hunters, and Parks Canada

Thank you! Questions?

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