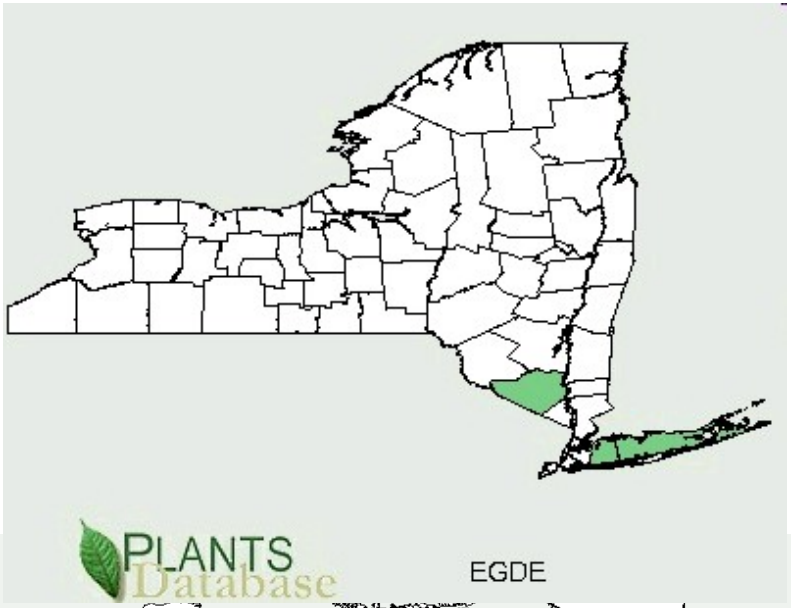
Brazilian Elodea
Egeria densa

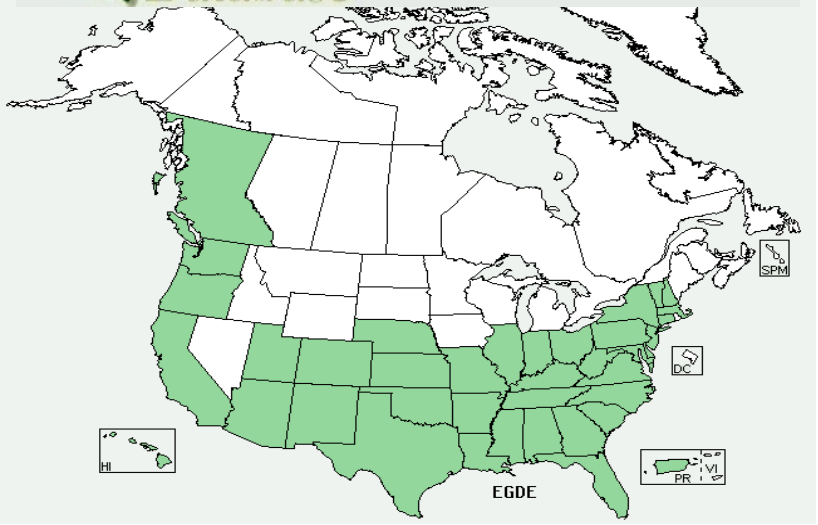
Invasive Aquatic Plant
Action Plan Meeting 9/19/08

Many charts are thanks to Scott Kishbaugh, NYS DEC

About Brazilian Elodea

- Origin: South America
- Habitat
  - Shallow and Deep Water
- Growth Patterns
  - Dense Bottom Cover
  - Surface Tangles
- Competitive Advantages
  - Aggressive Growth
  - Easily Moves By Fragmentation
  - Surface or Rooted Growth
- Spread to Waccabuc
  - Dumped aquarium?
  - Carried on boat or fish gear?





Quotes About Brazilian Elodea

One of NY's "10 most unwanted"

Outcompetes milfoil

Can cover 100 acres a year

Stalks can grow 1 foot a day

Worst aquatic plant in Oregon – degraded 60% of the lakes

Noxious weed in many states

First location in Westchester County

Third location in NYS (other than Long Island)

Photos: Harvesting Brazilian elodea

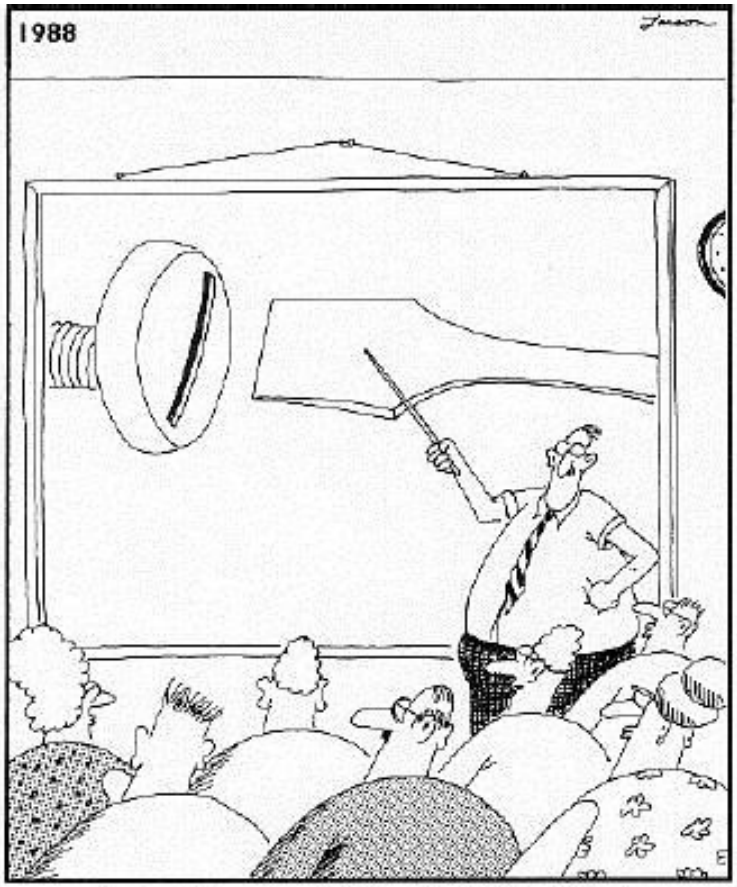
More Brazilian Elodea Photos

Brazilian Elodea Extent

- Appears limited to North Cove now
- Total area of cove approx 4.8 acres
- Littoral zone (to 16’) about 2.7 acres
- Smaller known BE area
- Should examine cove and continue to monitor lake
- Probably need to curtain entire cove during actions

Management Options

- Many treatment options are available
- All have some benefits and some downsides
- Need to assess many options as part of the permit process
- No answer is perfect



School for the Mechanically Declined

Do Nothing Option

- Principle – Let Nature or Apathy Work
- Pros – No $, No Effort
- Cons – Problem Will Become More Difficult or Impossible to Manage
- Permits – None
- Costs – Pay Later: Property values?
- DEC / DEP may object because this plant is a danger for spreading to other water bodies

Hand / Suction Harvesting

- Principle – Pluck 'Em Out, One at a Time (and Bag Em)
- Pros –
  - Can be Cheap
  - Might be Able to Target Individual Plant Species
- Cons –
  - Labor Intensive
  - Difficult and Costly in Large Areas or Deep Water
  - May Need Repeating
  - Spread Fragments
  - Disposal of plants and muck
- Permits – Hand If Large Scale, & Suction Permits Akin to Dredging
- Costs – Labor Only to $100-500/acre (Suction = $5-10k/acre) … May be higher!!

Aquatic Herbicides

- Principle –
  - Chemically Kill Weeds by Impact to Growth Pattern
- Pros –
  - Short to Long Term Control
  - Set up Curtains for Local Control
  - Often Effective
- Cons –
  - Controversial
  - Time Delays
  - Would Kill All Plants
  - Limits on Water Use
    - 2+? Homes Use Lake for Water
  - Maintain Dosage for 45 – 60 Days
  - Plan / Post Monitoring Required
  - May Need Repeated Applications
  - Plants Decompose in Lake
- Permits - DEC, Others
- Costs - $300-2500/acre + Permit

Grass Carp

- Principle - Stock Weed Eating Fish
- Invasive Target – Brazilian Elodea, Curly Leafed Pondweed, (Milfoil Less Palatable)
- Pros -
  - Perceived "Natural"
  - Less Expensive
  - Long-Term Control
- Cons -
  - Non-Native Fish
  - Non-Target Control, Outside Target Area
  - Will Eat Native, Desirable Plants
  - Control Not Eradication (unless all plants)
  - Risk of Algal Blooms & Plant Eradication
  - Habitat Alteration
  - Hard to Remove or Undo
  - EIS Required
  - Controversial
  - Impact Not Immediate
- Permits – DEC, Others
- Costs- $50-300/acre

Pros and Cons of Options

- **Diver and / or Suction Harvest**
  - Removes plants and roots from lake – along with some "muck"
  - Easily contained to area where plants are found – size for under 2 acres
  - Expensive
  - Need to install barrier to trap fragments while work is done – 2+ weeks?
  - Need to have place to dispose of removed plants and muck
  - May not be able to be selective in plant removal
  - Needs follow up monitoring
- **Herbicides**
  - Cheaper
  - Not selective – will kill all plants in cove
  - Need to contain to cove – size treatment for 5 acres, install barrier for 2 months
  - Must find alternative for drinking water users for 45 – 60 days
  - Plants will decompose in lake rather than being removed
  - May need to be repeated
  - Permitting potentially more difficult
- **Grass Carp**
  - Cheapest, but slow acting
  - Cannot limit to target plant or to cove, must size treatment for at least 140 acres
  - Fish travel and avoid active areas – eventually will be in all 3 lakes
  - Least predictable option for unforeseen impacts
  - May control, but will not eliminate BE (unless all plants are eliminated)
  - Need to install and maintain outlet barrier
  - Algae and turbidity possible, nutrients recycled in lakes
  - Permitting potentially more difficult

Advisors Consulted

- Chris Doyle, ABI
  - Found plant during plant survey of Three Lakes
  - Experience at Lake Guymard, Orange County
    - Brazilian elodea "took over lake" in under 5 years (not sure when it arrived)
    - Treated with herbicides this season – contact time 60 days
    - Anticipate need to repeat herbicide treatment in 2009
  - Treat quickly, hand / suction or herbicide, use barrier
- Scott Kishbaugh, DEC - Dept of Water
  - NYS authority on freshwater resources
  - Visited in August
    - Surveyed infested cove
    - Validated identification
    - Surveyed perimeter of Lake Waccabuc
  - Encourages a response while contained to cove
- Leslie Surprenant, DEC, Invasive Species
  - Grant documents are not yet available but this is good candidate
- Tom Flaherty, MA DCR
  - Treat quickly, hand pull or herbicide – 3 known sites in MA all treated

Recommended Actions

- **Aim for eradication of Brazilian elodea**
- **Method: Diver and / or Suction Harvest**
  - **Too deep and extensive for volunteer harvest**
  - **Professionals have knowledge, tools, and will keep at it**
  - **Install barrier to trap fragments**
- **Logistics**
  - **Get vendor proposals ASAP**
  - **Start permitting process – may take 6 months or more**
  - **Begin harvesting in early spring**
    - **May be cheaper if done before summer season starts**
  - **Identify disposal area**
- **Fiscal**
  - **Rough Cost Estimate 20K – 70K??**
- **Education and Monitoring**
  - **"Adopt a shoreline" to watch for Brazilian elodea's spread**
  - **Keep boats and fishermen from bringing more invasives**

Action Now!

Chris Doyle, Lake Manager:

"there is an opportunity for a success story at Lake Waccabuc regarding an invasive plant. Most lakes can never hope to claim such a success story. With much effort, I feel the goal is within grasp, but only if the action is swift and complete."