



Devil's & Round Lakes: Aquatic Plant Surveys & Management Plan

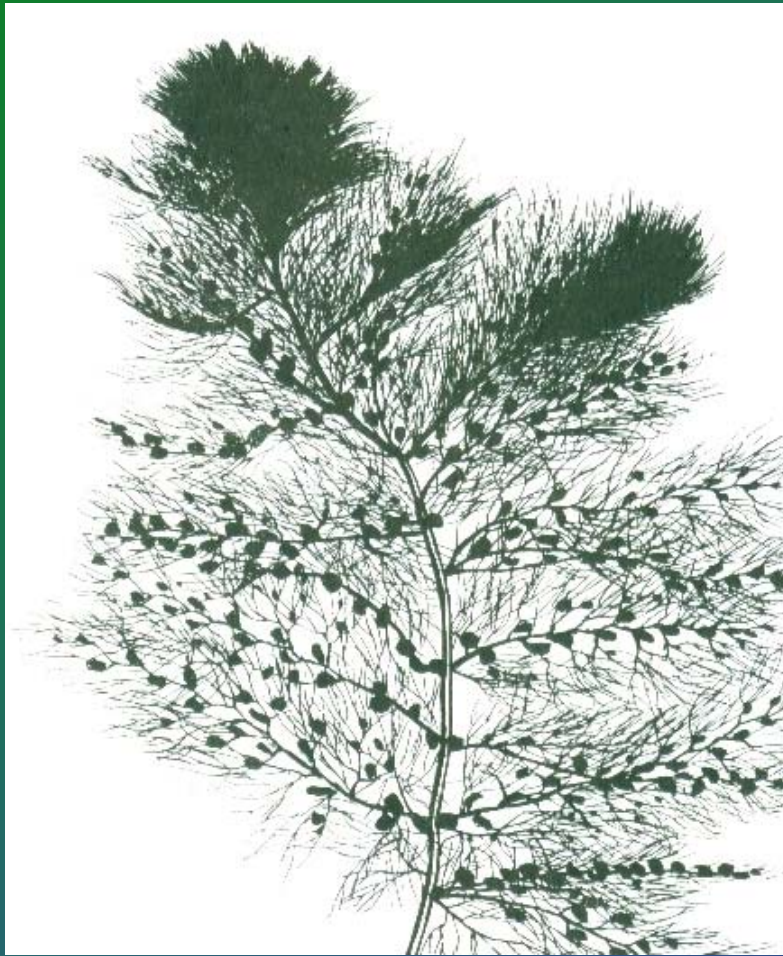
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Devil's Lake Aquatic Plants

- 21 native species; 14 submersed, 2 floating-leaved, 5 emergent
- 2 exotic species; Eurasian milfoil (submersed), Purple loosestrife (emergent)
- Low to Moderate aquatic plant density in lake



Bladderwort (*Utricularia vulgaris*)



- Native submersed, non-rooted
- Contains small bladders for trapping zooplankton for food
- Excellent macroinvertebrate habitat

Muskgrass (*Chara vulgaris*)



- Native macroalga, inhabits shallow areas
- Excellent fish spawning habitat and cover
- Can grow to nuisance levels and can be mechanically harvested

Variable-Leaved Pondweed (*Potamogeton gramineus*)

- Native, rooted submerged
- Low-growing, favorable fish cover
- Helps to stabilize sediments in shallow, turbulent areas



Round Lake Aquatic Plants



- 15 native species; 11 submersed, 2 floating-leaved, 2 emergent
- 2 exotic species, Eurasian milfoil (submersed), Purple loosestrife (Emergent)

Muskgrass (*Chara vulgaris*)



- Native macroalga, inhabits shallow areas
- Excellent fish spawning habitat and cover
- Can grow to nuisance levels and can be mechanically harvested

Southern Naiad (*Najas guadalupensis*)



- Native, low-growing submersed, rooted
- Favorable lake bottom cover; stabilizes sediments
- Rarely grows to nuisance levels

Variable-Leaved Pondweed (*Potamogeton gramineus*)

- Native, rooted submersed
- Low-growing, favorable fish cover
- Helps to stabilize sediments in shallow, turbulent areas



White Waterlily (*Nymphaea odorata*)

- Floating-leaved, native
- Excellent fish and wildlife habitat
- Possess large rhizomes that stabilize lake bottom sediments
- Can be harvested in areas where grow to nuisance levels



Eurasian Watermilfoil

(*Myriophyllum spicatum*)

- Exotic, invasive, fast-growing, submersed
- Forms a dense surface canopy—shades light from favorable natives and decreases dissolved oxygen levels
- Impedes navigation and recreation, and decreases property values



Eurasian Watermilfoil (*Myriophyllum spicatum*)



Purple Loosestrife (*Lythrum salicaria*)

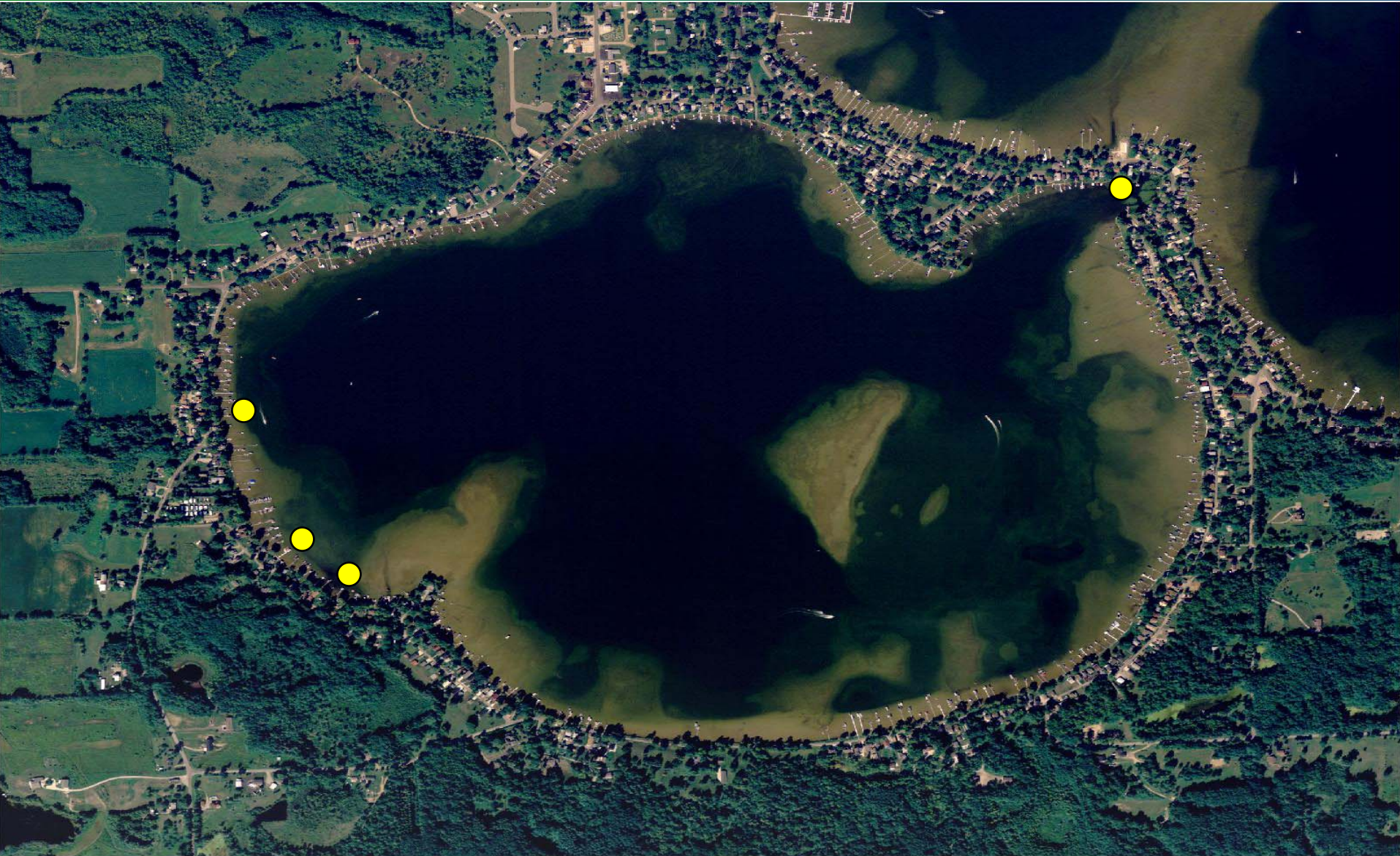


- Exotic emergent—out competes cattails and other favorable natives
- Decreases diversity of aquatic ecosystems
- Spreads rapidly, hand-pulling best method of removal; herbicides may be used or *Galerucella* biocontrol beetle

Purple Loosestrife Distribution in Devil's Lake



Purple Loosestrife Distribution in Round Lake



Eurasian Watermilfoil Distribution in Devil's Lake



Eurasian Watermilfoil Distribution in Round Lake



Chemical Herbicides

- Applied to both exotic and native aquatic plants
- Most commonly used: 2,4-D, Reward, Triclopyr, Fluridone, Aquathol-K, CuSO_4 , Glyphosate
- Requires MDEQ permit; residue sampling may be required (i.e. Triclopyr, Fluridone)
- Shallow well restrictions, swimming restrictions, watering restrictions- Notifications required



Mechanical Harvesting



- Removes nuisance aquatic vegetation to reduce organic matter accumulation
- Requires a dump site for plant debris
- No permit required by the MDEQ
- “Deep-cut” methods currently being researched

Biological Control

- Milfoil weevil
(*Euhrychiopsis lecontei*)
- Requires abundant over-wintering habitat, dense *M. spicatum* biomass, slow-acting
- Predation studies in progress



Management Recommendations

- Chemical herbicides for control of exotics
- Mechanical harvesting for nuisance native aquatic plant growth
- Publication and dispersal of a lakewide spring newsletter for educating riparians of new findings and upcoming treatments & surveys

Estimated Costs of Aquatic Plant Management

Improvement Strategy	Estimated Cost (Annual)
Mechanical Harvesting (30 acres)	\$13,500
Herbicides (150 acres)	\$59,000
Educational Newsletter	\$6,000
Administration/Management	\$17,000
Contingency Funds	\$14,325
TOTAL ANNUAL	\$109,825

Questions?

