

# Management of Eurasian Milfoil

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# How long will the burlap solution last?

- It will kill off the milfoil in the first season
- The milfoil will not return unless there is fragmentation in the area
  - It is this fragmentation that must be managed (stopped)
- The burlap will biodegrade in 1 to 3 years



The edge of an area treated with burlap after 4+ years. Showing treated v.s. untreated areas



The edge of another area treated with burlap after 4+ years.  
Showing treated v.s. untreated areas

# Limitations

- The burlap kills off the milfoil by compressing it to the lake bottom
  - Milfoil is a very fragile and weak plant
- The burlap solution is less effective over large rock beds
- It is not practical over sunken trees with branches
- The system is design to lay burlap to about 4m (12 to 14 ft) deep
  - Although milfoil can grow to 8m (25 ft) deep, it generally doesn't get close to the surface when deeper than 3m (10 ft).
  - The goal is to remove milfoil from boat traffic damage and swimming etc., so deeper than 4m is generally not required.

# Management of Eurasian milfoil

- A holistic approach is required – entire lake, public and private
- Primary focus is to reduce/eliminate fragmentation
  - Common causes are from boat propellers – all of them
- Target high boat traffic areas to be treated
  - Boat launches
  - Shallow passageways
  - Treat down to 4m (12 ft)
  - Use buoys to limit traffic in areas if possible
- Private docks
  - DIY kits – 3.8m (12.5 ft) X 10 m (33ft)
  - Treat down to 2.5m (6 to 8 ft)
  - Typically 1 to 3 per dock
- Avoid cutting and pulling of milfoil to remove it
  - It rarely gets all the fragments and usually makes it worse
  - Cutting is now illegal in some regions of Quebec
- *In general; anyone finding loose milfoil, should remove it from the water/shore and dispose of it on land*
- *Reducing lake phosphates alone will not manage the spread of milfoil*
- *Stopping boat traffic will not reduce milfoil and the lake will not recover on its own. The plant can still spread by autofragmentation and fragmentation from wind and wave action will still occur*

# Monitoring of Eurasian Milfoil

- A basic milfoil management indicator is finding less loose milfoil from year to year
- Milfoil should be properly surveyed every 1 to 2 years initially to quantify how well it is being controlled or not.
- It should be noted that there are many changing factors that affect the spread of milfoil including;
  - Lake chemistry, temperatures, physical conditions, traffic, population, etc.
- The spread of milfoil may slow down some summers and may increase in others due to changing conditions
- No 2 lakes can be easily be compared, due to the changing factors



The Lake Saver Barge on it's maiden voyage, May 2016



# Equipment

- Barge - 7.7 T (17,000 lbs) empty, but only draws 15" of water
  - 150 HP outboard motor
  - 4 computer controlled Hydraulic thrusters
  - Special thruster inlets used to minimize damage to milfoil while installing burlap
  - Able to lay burlap in very shallow water
  - On-board hydraulic system uses bio-degradable vegetable oil for added environmental safety
- State-of –the-art satellite guidance system(GNSS)
  - Semi-automatically controls burlap installation process
  - Compensates for low cross winds and light currents
  - Interfaces to on-board computer to control thrusters
- Burlap Roll – 3.8m (12.5 ft) wide X 1 Km (1093 ft) Long, 640 Kg (1400)
  - Burlap is produced in Asia so it is treated with ozone to ensure there are no living organisms in it
- Articulated arm – delivers burlap to lake bottom
  - Follows lake bottom during installation
  - Pre-wets burlap as it is installed to a depth of about 12 ft
- Burlap cutter – cuts installed burlap to any length
- Sand/gravel hopper and distribution system – to hold burlap down
  - Deposits sand or gravel on burlap as it is installed



The Lake Saver Barge on it's maiden voyage, May 2016

# Impact of not managing Eurasian Milfoil

- Significant environmental damage
  - Reduced fish habitats and fishing
  - Milfoil creates a huge biomass as it dies off each fall
  - Reduced enjoyment of lake
  - Reduced aesthetics of lake
  - Milfoil “pumps” excessive phosphates into lake
    - In some cases this has fed the growth of blue-green algae
  - A reduction of O<sub>2</sub> in lake
  - It will continue to spread
    - One powered boat can create 1,000’s of fragments in minutes
    - Up to 300 plants per m<sup>2</sup>
- Some literature has indicated a 10% to 16% drop in real estate values
  - A potential loss of \$3M to \$4.8M per 100 cottages/houses worth an average of \$300k
  - Leading to reduced taxes for region

# Regulatory

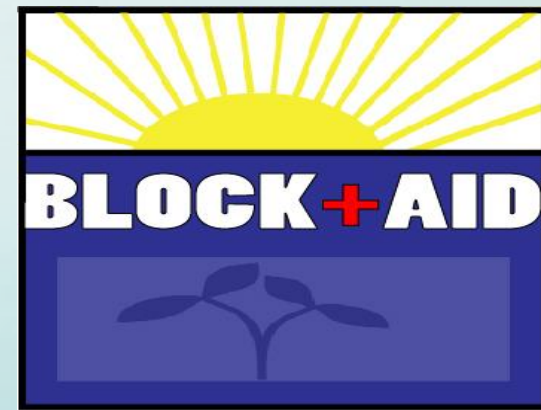
- Surveys should be done
  - To identify locations
  - To quantify and monitor
- Permits
  - Ensure adequate time to get permits
  - Apply for lake, not individual
  - Include private dock kits in lake permit

# Costs

- The Base cost is \$4/m<sup>2</sup>, but is discounted by \$2/m<sup>2</sup>
  - Giving a fixed cost of **\$2/m<sup>2</sup>** for installed burlap
    - Excessive Barge travel on the lake could incur added costs
    - \$2/m<sup>2</sup> Includes;
      - expenses for 2 person crew
      - local supply of sand / gravel
      - site equipment
    - Poor weather delays can incur extra costs
  - Travel and shipping costs are extra
    - Shipping burlap to site and sea freight container return after installation
    - Barge float fee to/from site
  - 2 additional helpers are required
- Full quotes are available on request
- DIY kits
  - \$195<sub>ea</sub> for online purchases
  - \$125<sub>ea</sub> for bulk sales to a lake getting industrial installation

# Funding

- Some regions / municipalities have contributed
- Some lakes have taken a vote for municipality to tax lake residents over 5-10 yrs
  - Up front loan is then paid by taxes over 5 to 10 years
  - This potential tax is insignificant compared to the potential impact on real estate



Thank you