Aquatic Control Technology, Inc.

Summary of *Lost Lake& Knops Pond Baseline Assessment Survey Report November 2011*

- **"The average percent of area covered by non-native invasive weeds was 29% in Lost Lake and 43% for Knops Pond. This coverage is likely growing annually!"**
- Five non-native invasive aquatic weeds were found:
  - fanwort (Cabomba caroliniana)
  - variable milfoil (Myriophylium heterophyllum)
  - Eurasion milfoil (Myriophylium spicatum)
  - spiny naiad (Najas minor)
  - water chestnut (Trapa natans)
- In Lost Lake there were:
  - Moderate to dense patches of variable milfoil and fanwort
  - Dense patches of Eurasian milfoil
  - Two sections of spiny naiad
  - Two water chestnut plants (but water chestnut can spread like wildfire)
- In Knops Pond there were:
  - Variable leaf milfoil and fanwort prevalent in most of Knops Pond
  - Scattered sections of Eurasian milfoil
  - No spiny naiad and no water chestnut were found
  - Sparganium emersum was found in the embayment behind the town beach
- The average "muck" depth in Lost Lake was 3.3 feet and in Knops Pond was 1.9 feet
- Water quality was found to be OK in both Lost Lake & Knops Pond (i.e., pH, alkalinity, turbidity, ammonia nitrate, nitrate nitrogen, Kjeldahl nitrogen, total phosphorous, true color/apparent color, E. coli)
- Water Clarity was 13.3 feet for Lost Lake and 13.5 feet for Knops Pond (acceptable)
- Algae levels were relatively low.
- The brown/red sheen and suspension (looks like rusty water) fleetingly observed in Knops Pond in August in "Red Water Cove was found to be a flagellated euglenoid called Trachelomonas which is a single cell organism not an algae.
- Lost lake and Knops Pond are "characterized by high biological productivity, excessive aquatic plant growth, increased sedimentation, and a nutrient-rich mucky bottom"
- "Harvesting will not provide long-term plant control at Lost Lake and Knops Pond but does seem to provide some cost effective relief of nuisance conditions."
- Dredging both lakes would cost $14 to $28 million based on the estimates per acre in the report.
- Herbicide treatment with Sonar is the" recommended approach for control of invasive submersed weeds in Lost Lake and Knops Pond. Treatment with USEPA / State registered aquatic herbicides and algaecides does not pose an unreasonable risk to the environment or human health when used by licensed applicators in accordance with the product label."

- Sonar is a systemic herbicide that will provide control of Eurasian milfoil, variable milfoil, spiny naiad and fanwort for multiple years before a second treatment is required. Sonar works slowly and requires a 45-60 day contact time with the plants to work effectively. The toxicity of Sonar is considered to be very low and can even be used in drinking water reservoirs. In fact it has been used for years in a pond in Littleton that has an 800 gallon per minute town well at the water's edge.
- Cost of Sonar treatment would be $89,500 in year one (which should control the weeds for 2-3 years). Spot treatment will most likely be required in subsequent years.
- If required, because of the supposed presence of an endangered weed called Sparganium natans, the use of impermeable barriers could be used to inhibit the movement of Sonar into the areas where natans might be found. Such a technique has been used elsewhere in Massachusetts to protect at risk species.
- The report recommended that "the association look into possible funding for a boat-ramp monitor at the public launch. A boat-ramp monitor will not only help to catch invasive plants coming in and out of the lake but will also serve to remind users of the lake about the importance of invasive species control."
- Summary of management recommendation for aquatic weeds:
    - Whole lake Sonar treatment
    - Physical management techniques for small patches of re-growth in the years between treatments (Hand-pulling, suction harvesting and/or bottom barrier)
    - Spot-treatment with EPA approved herbicides for re-growth that is too extensive for physical management techniques
    - Limited winter drawdown (if permissible)
    - A volunteer effort to search for and hand-pull water chestnut
    - Annual water quality and vegetation monitoring