Dudley Pond Aquatic Management Program
Notice of Intent
Conservation Commission Hearing

Wayland Surface Water Quality Committee

February 14, 2008

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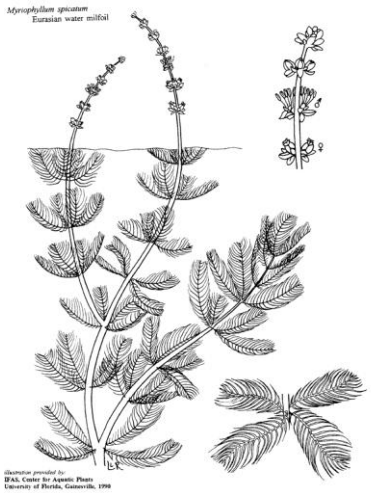
Sutton MA

The Problem – In Brief

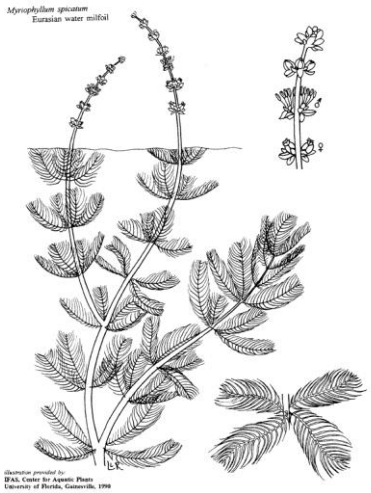


- Milfoil first discovered in Dudley Pond in 1991
- Dudley Pond – now heavily infested with Milfoil
- Milfoil infestation is epidemic throughout U.S.
- Previous programs and experiments at Dudley Pond were short-term, under-funded, and ineffective.
- Ongoing solution for milfoil infestation will be expensive and use multiple methods for effective control – limiting nutrients and weed control.

Dudley Pond - Nutrient Controls

- Nutrient load in sediment substantially greater than annual nutrient inflows.
- Nutrient reduction effective for very long term weed control.
- Two controllable sources: Leaking septic systems & runoff from lawn fertilizers
- SWQC is reviewing septic maintenance practices in critical areas.
- SWQC has recent studies for runoff identifying hot-spots
- Septic system maintenance plan in Wayland Master Plan - needs implementation. SWQC will cooperate with BOH and TOW Wastewater Management, and Housing Authority.
- The best effective runoff control would be ban on commercial lawn fertilizer companies in watershed. SWQC will work for nutrient reduction from lawn chemicals.
- SWQC will continue its education program on lawn chemicals and septic.

History of Milfoil Treatment in Dudley Pond



- Fluridone: 1992 / 1996+7, 1999, 2003
- Suction Harvest Experiment 2002
- Hand pulling: 1995, 2002
- Runoff Control (Middle School) 2005-2008
- Milfoil Weevils Experiment 2006-2007
- Circulator Experiment 2007
- Limited Mechanical Harvesting 2007

April 2002 – Conservation requests consideration of non-chemical alternatives

Dudley Pond – Circulator & Weevil Experiments

- Saw some stress on milfoil in circulator area –
- Improbable that circulators constitute a “stand-alone” solution
- Circulators may be repurposed for algae control, and in other areas.

- Consultant from GeoSyntec reports no visible effects from pin-head sized weevils.

Sumer 2007
Milfoil is out of control

Search for Alternatives - SWQC Methodology

- Detailed discussions with DNR managers responsible for invasive weed control in ID, MN, WA and WI

- Extensive literature review, results available to interested parties.

- Frequent meetings with DPA representatives and concerned Dudley Pond residents

- Working with Aquatic Control Technology (ACT) and Lycott Environmental to get estimates for alternate treatment schemes

Weed Management Option	Potential Use	Review Further	Drop
No Treatment			X
Hand Pulling	X		
Mechanical Harvesting (contract service)	X		X
Mechanical Harvesting (buy a harvester)		X	
Hand Cutting (“small iron”)	X		
Diver Operated Dredging			X
Rotovator			X
Grinder			X
Sonication			X
Weed Roller			X
Weevils			X
Pathogens		X	
Allelopathy			X
Restoration of Native Plants		X	
Grass Carp			X
Drawdown		X	
Dredging			X
Dyes		X	
Benthic Barriers	X		
Circulators		X	
Control of Nutrients	X		
Septic system testing, inspection and maintenance	X		
2,4-D		X	
Endothal		X	
Diquat		X	
Fluridone		X	
Glyphosate		X	
Triclopyr		X	
Copper Salts			X
Lime Treatment		X	
Alum Treatment			X
Prevention	X		
Assessment	X		
Site-specific Management	X		
Evaluation	X		
Monitoring	X		
Education	X		

Dudley Pond – Two Alternatives

- Only two techniques confirmed feasible for milfoil control: Mechanical harvesting & herbicide treatment
- Each requires complex and potentially expensive additional tasks to be effective for long term.

- SWQC chose herbicide treatment & follow up maintenance because:
  - Harvesting less effective in all areas, and can spread the weed.
  - Harvesting was much more costly & unlikely to be funded.
  - Our research convinced us that the recommended herbicide program did not pose significant risk.
  - Our research suggests that an aggressive, multi-year follow up maintenance program can significantly extend treatment life.

Dudley Pond - Proposed Management Program

- 2008 Spring fluridone treatment 12 ppb for 120 days
  - Longer retention time, using SePro PlanTEST™ to set ppb dosage (EPA limit is 150 ppb)

- 2009 – 2011 Aggressive Monitoring & Hand Pulling
  - Spotters, Shoreline, Snorkel, and Scuba Divers

Spot treatment with triclopyr (Renovate OTF Flake)
only if the weed 'gets away' from hand pulling.

What's different?

- Duration of dose: maintained 120 days
- Systematic and Budgeted Follow-up – beginning Fall 2008
- Paid project manager under SWQC control
- Fall-back strategy if the weed 'gets away'
- Strong support from abutters, neighbors and DPA.

Zone 2 Considerations

- Fluridone is specifically approved by DEP for Zone 2 well recharge areas.

- Triclopyr has been permitted for Zone 2 use by DEP and generic approval study is planned. Most studies report very limited mobility in soils.

http://www.mass.gov/agr/pesticides/rightofway/triclopyr2005.pdf
http://el.erdc.usace.army.mil/elpubs/pdf/tra-98-1.pdf

Conclusion

The proposed management program is the only practical and effective treatment that SWQC has been able to identify.

The program improves significantly in follow-on management to extend treatment life.

In our six months of study we have found no documented instance of human health harmed from the selected herbicides applied according to regulations and label instructions.

The alternative of no treatment may removes a potential risk of unforeseen human health and environmental impacts from chemical exposure. However the weed infestation, like a cancer, requires strong measures which involve a risk, minimized by proper dosage and monitoring.

Conclusion

Without this management program:

1. The pond will undergo additional eutrophication and become unusable.
2. There will be a real hazard for swimmers and boaters, especially children.
3. Property values of pond abutters can be expected to decrease, leading to a vocal outcry and a decrease in taxable valuation for a significant number of homes.
   (A political risk at a time when assessments around the Pond have risen sharply).

While it would be preferred to not implement an herbicide treatment program, SWQC finds no more desirable path.

The key factors are that the risks of the proposed herbicide treatment program are minimal and that the alternatives of doing nothing or harvesting are less attractive from any reasonable “risk-benefit” evaluation.

Start Date - Considerations

- There is an optimal time in the growth cycle to apply fluridone – mid to late April.
- To do the SePRO PlanTEST™, live plants must be collected, sent, grown, and tested – this can take three to four weeks.
- We would need your determination and conditions by the end of March in order to do the test to calculate the optimal dosage.