

Integrated Lakes Management
Environmental Quality Workshop
Prairie Crossing
2007



Aquatic Herbicides - Limited Areas



- **Sediment Curtain**
 - Works great!
- **Limited areas**

Target species

- **Curly leaf pondweed**
- **Eurasian watermilfoil**
 - Early season treatment prior to native emergence



2007 Proposed Aquatic Plant Control

Proposed Herbicide Areas 2007



1000 0 1000 2000 Feet



Herbicide areas.shp

- Herbicide areas where no plants are wanted
 - Beach
 - Fishing areas
- Herbicide North Bay to control extensive plant growth
- 1 treatment worked great at the beach!
- Plant N. Bay with desirable species

2007 Proposed Aquatic Plant Control



Installed over 6,000
EWM Weevils in 2006
to control
Eurasian watermilfoil
(EWM)

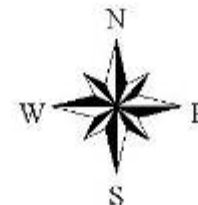
Lake Leopold
Eurasian Watermilfoil installation locations
June 21, 2006



600 0 600 1200 Feet

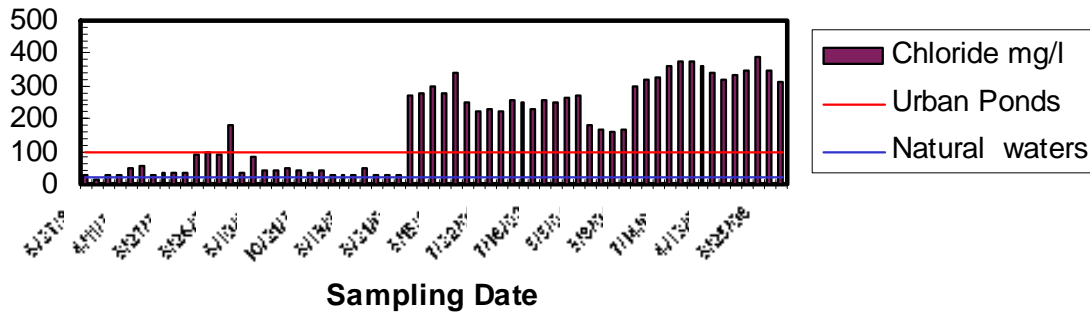


● Weevil loc.shp



Water Quality Testing

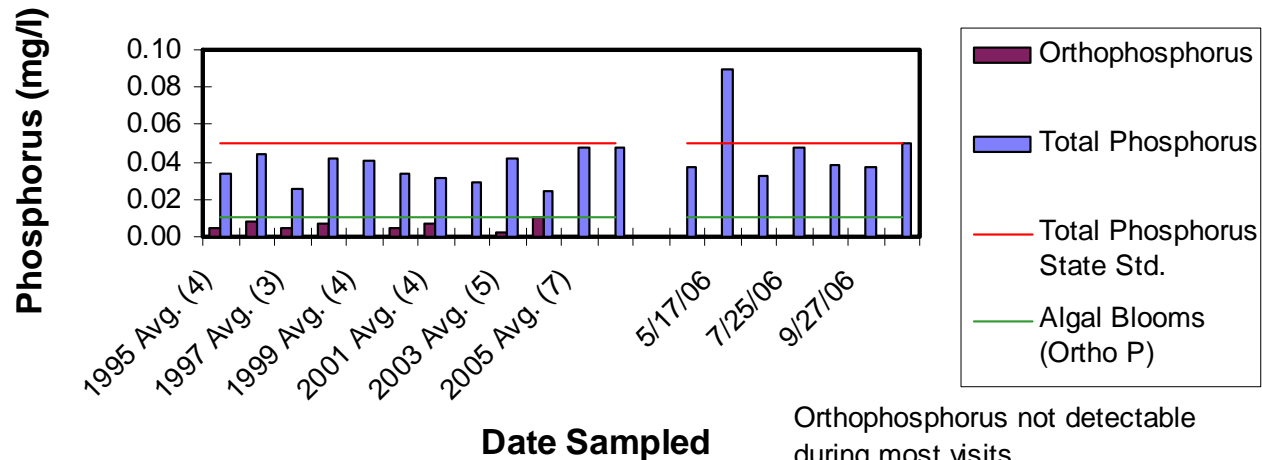
**Chloride Concentrations 1995 - 2006:
Lake Leopold**



- 11 Years of data
 - Proposed for 2007
 - Continue water quality monitoring
 - Lake management plan



Phosphorus Concentrations: Lake Leopold



Orthophosphorus not detectable during most visits.

Sediment Sampling

**Sediment Sampling Locations
August 11, 2006**



600 0 600 1200 Feet



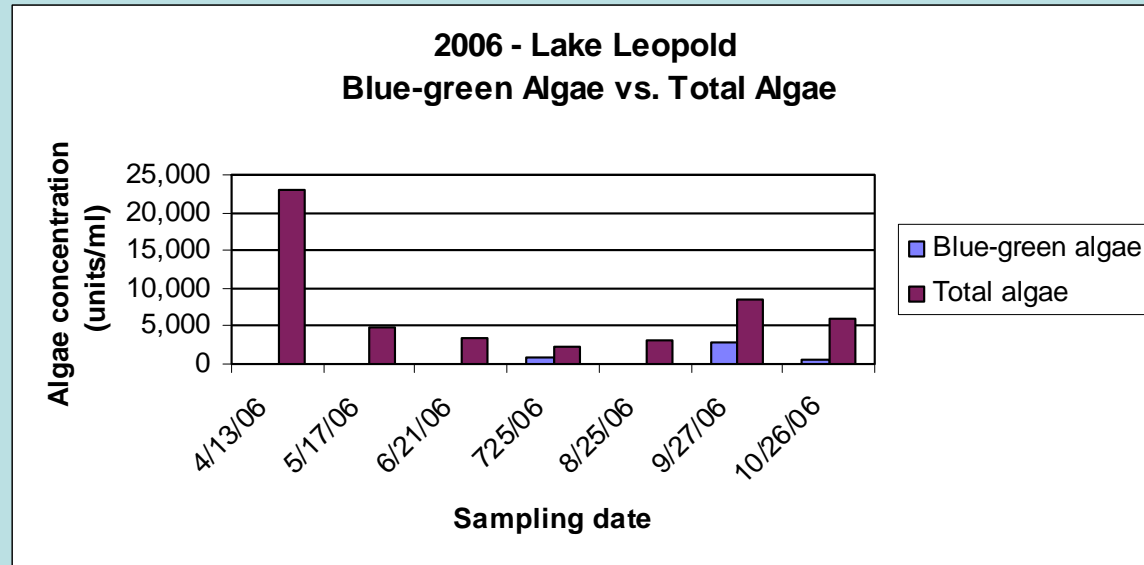
● Sediment Locations.dwg



- **Determine if sediment chemistry favors EWM or CLP**
- **Chemistry favors EWM**
- **Sediment nutrients fairly low**

Blue-Green Algae

- Periodic blue-green algal blooms
- Toxicity testing available if needed



- Toxins affect animals & people that drink the water.

Fisheries Surveys

- Surveyed last 3 years
- Bluegills dominant
- E/T fish larger than in pond, but less common



- Recommend yearly fish surveys

Stock Tiger Muskies to reduce predation on E/T



Aquatic Plant Mapping

Lake Leopold
June 2005
Eurasian Water Milfoil



Sediment thickness is based on interpolation between points probed with a 1.5 inch diameter PVC pole graduated in tenths of a foot. Map is based on 144 data points and should be regarded with some margin of error.

Drinking
Water

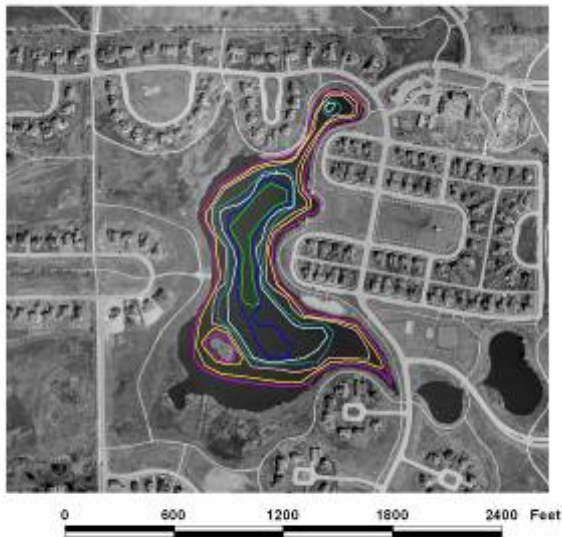
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- Recommend survey for 2007 with early and late summer visits
- Monitor for EWM weevils

Bathymetric & Sediment Mapping

Lake Leopold Bathymetric Map
October 4, 2005



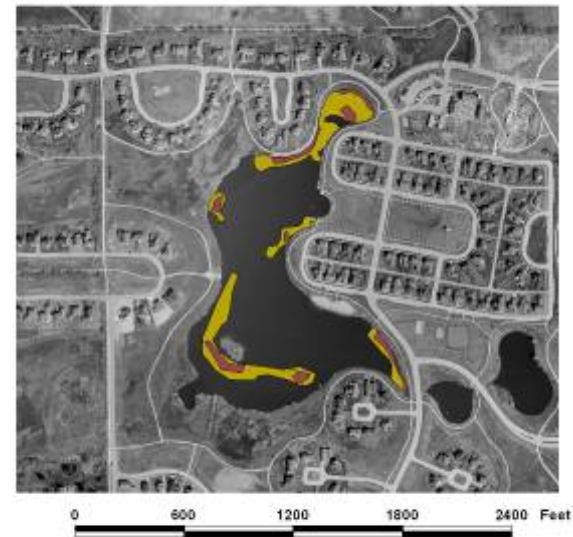
Isopleths based on interpolation between points probed with a 1.5 inch diameter PVC pole graduated in tenths of a foot. Map is based on 144 data points and should be regarded with some margin of error.

- 14 ft isopleth.shp
- 12 ft isopleth.shp
- 10 ft isopleth.shp
- 8 ft isopleth.shp
- 6 ft isopleth.shp
- 4 ft isopleth.shp
- 2 ft isopleth.shp

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Lake Leopold Sediment Thickness Map
October 4, 2005



Sediment thickness is based on interpolation between points probed with a 1.5 inch diameter PVC pole graduated in tenths of a foot. Map is based on 144 data points and should be regarded with some margin of error.

- 1 ft sediment.shp
- Half ft sediment.shp

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Repeat every 10 years

History of Studies at Lake Leopold – performed by ILM

	WQ	Plant	Fisheries	Herbicides	Bathymetric	Sediment	Exotic sp.	Misc
	testing	Surveys	surveys		Mapping	testing	monitor	
1996	X							
1997	X							
1998	X							
1999	X							EWM weevils
2000	X		X					E/T fish installed
2001	X		X					E/T fish installed
2002	X						X	
2003	X	X				X	X	
2004	X		X	X				
2005	X	X	X	X	X		X	
2006	X		X	X		X	X	EWM weevils

Where do we want to go?

- Maintenance

- Monitor and/or control exotic species
- Continue with water quality testing and other tasks
- Stay on top of the growing aquatic weed problem

- Unique Lake

- Find out why exotic plants are a problem
 - Create a lake management plan
 - Nutrient & hydrologic budget
 - Plant aquatic species
- Install more E/T fish from the pond