



Year End Report for Eston Wilson Lake

Prepared By:

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Introduction

This report summarizes the findings during the 2010 treatment season. The findings are intended to provide you, as well as our scientists, an understanding of the current state of the aquatic environment. The information obtained should be used to provide baseline data to see how the aquatic environment has changed from previous years and to anticipate any future changes. Recommendations are made based on the anticipated future changes.

Methods

Lake Savers (LS) scientists used information collected from previous years of lake management to determine appropriate treatment and to obtain a permit for the use of algacides and herbicides from the Pennsylvania Department of Environmental Protection (DEP). LS scientists then collected physiochemical data that describes the quality of water and the health of the lake ecosystem. This information was collected prior to pesticide treatment each time the lake was visited throughout the season.

The following describes what parameters were observed and the accepted levels:

Biological Survey

LS scientists visually analyzed the entire lake for the presence of aquatic plant growth. Vascular plants were identified by species. Density was described by percent aerial cover within the region observed and as a percent of the total water surface. Filamentous algal growth was identified and qualitatively described as light, moderate or severe based on the relative abundance of observable plants. Planktonic algal blooms were described as light, moderate or severe based on the clarity of water.

Physiochemical Parameters

Dissolved Oxygen

Dissolved oxygen (DO) is a key indicator of lake health. A minimum DO concentration of 5.0 milligrams per liter (mg/l) is usually required to support most fish. The oxygen is produced during daylight by algae and respired by plants and animals at night. Oxygen levels at dawn can be dangerously low or nonexistent at lakes with hyper-abundant plant and algae growth. This has been known to cause fish kills, especially in small ponds with high nutrient loads. LS scientists measured surface water DO at random locations on every field visit to determine if oxygen levels were indicative of stable lake ecology and also to determine if pesticide applications could be made based on whether the level was above 5.0 mg/l or not.

Temperature

Temperature is important to regulating biological activity of plants and animals. In general, warmer water provides a medium for greater biological production. It also not only influences the productivity of the ecosystem, but also the oxygen content of the water, density, and the pH.

pH

Most forms of aquatic life tend to be sensitive to pH levels. The pH is the measure of the acidity or how basic the water is on a scale of 0-14. Water with a pH of 7 is considered neutral, below 7 is

considered acidic and above 7 is considered basic. The pH is the measure of the hydrogen ions. It determines the solubility (amount that can be dissolved in water) and biological availability. Most natural waters will have a pH value in the range from 5.0 to 8.5. The pH in the range of 7 is optimum, but the generally accepted range for pH is from 6.8 to 8.5 since at this range carbon dioxide is virtually non-existent. Fluctuating pH levels are an indicator of unstable pond conditions and warrant immediate attention since this can exceed the level of tolerance for some organisms and also greatly affect the availability and toxicity of nutrients. ES scientists measured surface water pH at every field visit at representative random locations throughout the lake.

Conductivity

Conductivity is a measurement of the water's ability to conduct an electrical current, with it being affected by the presence of inorganic dissolved solids and by temperature. It helps us note the changes in natural water or wastewater quickly. Generally, it is usually found to be between 50-1500 micromhos units (umhos).

Water Clarity

Water clarity is a measure of aquatic algae plant growth or sediment suspension in the water column. It was measured using a standard secchi disc and recording depth to visibility. Disc visibility of less than 2 feet was considered severe, disc visibility of 2 to 4 1/2 feet was considered moderate, and disc visibility of greater than 4 1/2 feet was considered light.

Observations/Treatments:

Location: **Eston Wilson Lake**

Service Category: Algaecide & Herbicide Application

Call Date: 06/08/10

Wind Direction: NW, 5-10 mph

Rainfall last 24 hours: No

Comments: Filamentous algae and pondweed are found in 1/3 of the lake - treated all.

	Eston Wilson Lake
DO:	6.61 mg/L
Temp:	22.53 °C
Secchi:	3 feet
pH:	8.24
Conductivity:	313 uS/cm
Material(s) Applied:	Copper Sulfate EPA #46923-4 at 0.85 lb/acre-foot, Reward EPA #100-1091 at 1 gal/acre
Total Amount Applied:	Copper Sulfate - 20 lbs, Reward - 3 gal
Arrival Time:	1145
Depart Time:	1215
Time of Application:	1150
Species Present:	Filamentous algae and pondweed



Location: **Eston Wilson Lake**

Service Category: Algaecide & Herbicide Application

Call Date: 06/30/10

Wind Direction: NW, 5-10 mph

Rainfall last 24 hours: No

Comments: Some filamentous algae and pondweed - treated both.

Eston Wilson Lake	
DO:	9.23 mg/L
Temp:	24.93 °C
Secchi:	3.5 feet
pH:	8.02
Conductivity:	327 uS/cm
Material(s) Applied:	Copper Sulfate EPA #46923-4 at 0.85 lb/acre-foot, Reward EPA #100-1091 at 1 gal/acre
Total Amount Applied:	Copper Sulfate - 20 lbs, Reward - 1 gal
Arrival Time:	1245
Depart Time:	1315
Time of Application:	1250
Species Present:	Filamentous algae and pondweed

Location: **Eston Wilson Lake**

Service Category: Algaecide & Herbicide Application

Call Date: 08/10/10

Wind Direction: E, 0-5 mph

Rainfall last 24 hours: No

Comments: Filamentous algae around backshore but can't put the boat in due to extremely low water level.

Location: **Eston Wilson Lake**

Service Category: Algaecide & Herbicide Application

Call Date: 09/02/10

Wind Direction: NW, 0-5 mph

Rainfall last 24 hours: No

Comments: Filamentous algae around the shore in the back but can't treat because water is too low to put boat in. Stump is exposed right at the launch.



Conclusions:

Eston Wilson Lake experienced filamentous algae all season and pondweed twice. We were able to get the pondweed under control after two treatments but not the filamentous algae, particularly since the water level was too low to even put the boat in the water. There was even a stump exposed at the launch. Although we did have these problems, the water parameters were consistent and within a reasonable range when we could take the readings. For the 2011 season, we do recommend increasing the application rate for copper sulfate to 1 pound per acre-foot. Another option would be to change from copper sulfate to a chelated copper product such as Cutrine-Plus. This is a more expensive chemical though and will be put on the proposal as just an option. We can even use Cutrine-Plus from a backpack sprayer and use a johnboat to make an application if we do experience the drought conditions as we did in 2010. Otherwise we recommend the same treatment for the pondweed.

Prepared By:

Lake Savers, LLC
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Greentown, PA 18428
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FISH AND BOAT COMMISSION - DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD



APPLICATION FOR USE OF AN ALGICIDE, HERBICIDE OR FISH CONTROL CHEMICAL
IN WATERS OF THE COMMONWEALTH

Submit one copy of the completed application to the Pennsylvania Fish and Boat Commission, Division of Environmental Services, 450 Robinson Lane, Bellefonte, PA 16823, Telephone (814) 359-5147.

This application will be reviewed jointly by the Pennsylvania Fish and Boat Commission (PFBC) and the appropriate Department of Environmental Protection (DEP) Region Office - Water Supply Management Program, and if acceptable, a permit will be issued under the PFBC Fishing and Boating Regulations, 58 Pa. Code, §51.61 and Department of Environmental Protection Regulations, §91.38.

Applicant Information (if completing on behalf of a corporation, association or club, that entity is the applicant)

1. Name of Applicant (owner or lessee): William Risse for Eston Wilson Lake	Daytime Telephone: 570- 676- 4330 Fax Number: 269- 585- 6177
Is the applicant the owner or lessee of all the land on which the water to be treated is located? <input checked="" type="checkbox"/> Yes or <input type="checkbox"/> No	
Address - Street: Lake Savers LLC, 115 Dutch Flats Road	
City: Greentown	State: PA Zip code: 18426
2. Person or organization conducting treatment (if other than applicant) Lake Savers LLC	Daytime Telephone: 570- 676- 4330 Fax Number: 269- 585- 6177
PA Dept. Agriculture Pesticide Certification #BU11371	
Address - Street: PO Box 68	
City: Greentown	State: PA Zip code: 18426

Water Body Information

3. Name of water body to be treated: Eston Wilson Lake	
4. County Location: Lackawanna	Municipality: South Abington Check one: <input type="checkbox"/> City <input type="checkbox"/> Borough <input checked="" type="checkbox"/> Township
5. Type of Water Body (Check one) <input type="checkbox"/> Pond, <input checked="" type="checkbox"/> Lake, <input type="checkbox"/> Impoundment, <input type="checkbox"/> Canal, <input type="checkbox"/> Other (specify)	
6. Water body uses:	Water supply: <input type="checkbox"/> Municipal <input type="checkbox"/> Private <input type="checkbox"/> Industrial <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation
Other uses: <input checked="" type="checkbox"/> Fishing <input type="checkbox"/> Fire protection <input type="checkbox"/> Swim <input type="checkbox"/> Water skiing <input checked="" type="checkbox"/> Other specify below:	
Other use(s): Recreation	
7. Does the impoundment contain fish or other aquatic organisms? (Check one) <input checked="" type="checkbox"/> Yes or <input type="checkbox"/> No If yes, check those that apply: <input checked="" type="checkbox"/> Warmwater species <input type="checkbox"/> Coldwater species (trout) <input type="checkbox"/> Triploid grass carp	
8. Is the water open to public fishing? (Check one) <input checked="" type="checkbox"/> Yes or <input type="checkbox"/> No	Stocked by PFBC? (Check one) <input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
9. Does the water body have an overflow of water? (Check one) <input checked="" type="checkbox"/> Yes or <input type="checkbox"/> No If yes, indicate time of year: Heavy Rain	
10. Name of receiving stream: (If unnamed, indicate "unnamed tributary to <u>insert name</u> Creek") UNT	
11. Water body characteristics:	Total area: 10.0 acres Average depth: 7.0 feet

Map Location or Coordinates

12. **Attach an 8.5" x 11" photocopy of a topographical map to show the location of the water-body to be treated.** This map can be printed from a site on the internet such as <http://topozone.com/> or a photocopy of a 7.5 minute USGS topographical quadrangle. The body of water should be clearly marked with a circle and a notation of its name. The map should also contain the name of the 7.5 minute USGS quadrangle which shows the body of water. This information will be used to compare the proximity of the treated body of water to receiving streams, other permitted treatment areas and other water users such as public water supplies.

OR

Provide the latitude and longitude of the area to be treated. The latitude and longitude of the outlet is the recommended point.
Latitude 41degrees 29 minutes 5.9 seconds North Longitude 75degrees 43 minutes 56.9 seconds West

Beginning in 2007, applications without map location information will be returned as incomplete.

**APPLICATION FOR USE OF AN ALGICIDE, HERBICIDE OR FISH CONTROL CHEMICAL
 IN WATERS OF THE COMMONWEALTH**

Treatment Information

13. Proposed treatment

Pesticide	Dose	Trt. area	Trt. depth	Amount each treatment	# trt.	Target plant(s)
1. Copper Sulfate Manufacturer Phelps Dodge EPA Reg. #46923-4	0.85 lb/af	5.0 acres	7.0 feet	29.75 lbs	6	Filamentous and planktonic algae
2. Reward Manufacturer Zeneca EPA Reg. #100-1091	1 gal	3.5 acres	7.0 feet	3.5 gal	2	Pondweed
3. Manufacturer EPA Reg. #		acres	feet			
4. Manufacturer EPA Reg. #		acres	feet			

14. Proposed date or dates of treatment: 5/25, 7/9, 7/29, 8/19

15. Additional information for reviewer consideration: Tentative treatment dates

Notification and Applicant Certification

16. Notification of potential users of treated water

Has occurred or Will occur prior to treatment

Potential users of treated water must be notified at least one day in advance of treatment.

Are you aware of any objections to treatment from potential users of treated water? Yes or No

If yes, describe:

17. The applicant (a) is responsible for any damages incurred as a result of pesticide treatment.
 (b) certifies the truth of the above statements.

Applicant Signature: _____

Date: _____

Name (print): _____

Title (if applicable): _____

GENERAL PERMIT APPLICATION INSTRUCTIONS

- Complete and submit one (1) permit application form for each water body to be treated.
- One application is required for a water body receiving several treatments by the same applicant, however, number of treatments and amount of pesticide to be used in each treatment must be clearly stated.
- A new permit application is required each calendar year. Permits are valid only for the calendar year of issuance.
- Send the permit application to the Pennsylvania Fish and Boat Commission at the following address

Pennsylvania Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823

- See page 3 for a checklist and specific instructions.
- Helpful websites for aquatic herbicide treatment include:

Pennsylvania Fish and Boat Commission
 Penn State / PFBC Pond Website

www.fish.state.pa.us
<http://water.cas.psu.edu/ponds.htm>