

PPA Lake Management Program

The PPA lake management program is a comprehensive program designed to manage the ecology of the lake to specifically enhance the following three areas:

Esthetics
Fishing
Swimming and boating

These three areas are managed using 2 types of vegetation control; chemical, and mechanical.

The chemical program typically begins in mid-spring, with the first chemical application occurring about May 15-20, depending on the rate of weed growth.

This growth is determined primarily by the amount of sunlight present during the this time of year, and to some extent, the amount of ice cover in the winter.

The chemicals should be applied according to the maps prepared for the different parts of the lake, and at a time when the weeds are actively growing, with the optimum time being when they are about 12" below the surface. If Endothal products (Aquathol-Hydrothol) are used, the water temperature should be above about 65F.

All chemicals should be applied in accordance with the labels, and water use restriction signs should be posted in the appropriate places.

As these chemicals are often toxic, applicators should wear the appropriate protective covering....rubber gloves, long sleeves, etc.

The specific chemicals used will no doubt vary somewhat from year to year, but the proposed plan is now to alternate one year of Sonar (7 gal) with one year of spot treating with either Aquathol K or Reward. In either case, approximately 35 gal. will most likely be needed to treat the areas depicted on the lake maps.

Aquathol is very effective on curly-leaf pondweed, which is now the most dominant plant, but one that is easily controlled. It is also the first plant to appear in the spring.

Aquathol does have several more restrictions than Reward, but is a bit less expensive.

The current weed spectrum includes the following:

Curly-leaf Pondweed (early May)

Sago Pondweed (early June)

Large-leaf Pondweed sp. (late May throughout the summer)

Coontail (late August)

Elodea (very limited)

Chara (a rooted algae)

Various microscopic species of algae. (this causes water clarity to decrease, but limits weed regrowth due to sunlight filtration)

It is interesting to note that the most problematic of all the weeds that we have had to control, Eurasian watermilfoil, is now under complete control. Sonar has provided multi-season control of this plant, but the other plant species present require much larger concentrations of Sonar for control. As this chemical now costs about \$1,750.00/gal, it is not economically feasible to try to gain control of the other species with it:

When treating chemically, it is imperative that the weeds present in the lake be properly identified, as each species of weed usually requires differing chemicals in differing concentrations.

Several reference books of aquatic weed identification will be provided to the Association. These will allow anyone who is participating in the control of vegetation to accurately identify the differing species of plants found in Lake Papakeechee. This is, of course, the starting point in a chemical program of control.

Usually, about 2 weeks following the initial chemical application, about 600 lbs (12 bags) of powdered CuSO_4 should be applied around the shoreline of the lake, about as close to shore as is possible to get with the application boat.

This will control microscopic algae that often forms as the weeds reach the surface, or as the cottonwood trees shed fuzz into the lake.

About the only precaution needed by the applicator to ensure good results with Reward is to make sure that it is not applied in muddy or silty areas. Silt or soil particles immediately deactivate the ions of Reward, rendering it ineffective. This does not apply to Aquathol, or Hydrothol.

Hydrothol should not be used except by licensed applicators, as it is extremely toxic to both humans and fish.

It is probably unlikely that much will be required in the way of spot treating after the initial springtime application. When using Aquathol or Reward, the expected results should be seen in no longer than 14 days. Sonar takes about 30-45 days for maximum results to be observed. Control of algae with CuSO_4 is very rapid, with results obtained in a day or two.

The chemicals should be mixed in the dispensing tank at the rate of about one 2.5 gal jug per tank, for both Reward and Aquathol and the tank then filled to the top. This is enough to cover about 2 acres, an acre being approx. 208 X 208 feet. For spot treating, a minimum of one gallon is usually required, with this dispensed in the one acre area. It about always takes one acre's worth of chemical to control even a small area due to the rapid dilution of the chemical in the surrounding water.

Sonar is mixed at the rate of about 2 quarts of Sonar to the full dispensing tank. It is necessary to stir the tank mix frequently to ensure an even tank mix. Care must be taken not to dispense the mixture too fast, as only 7 gallons are needed to treat the entire lake. Accurate dispensing is not really necessary, as the chemical will diffuse throughout the entire lake. Spot treating with Sonar is not recommended. Care must be taken in handling, as each drop that is spilled costs approximately one dollar!

About 2 weeks prior to any proposed treatment, the dam gates should be removed and the lake level allowed to decrease to the maximum extent....this keeps the chemical from going thru the spillway.

The above information applies to submersed weeds. Emergent weeds are protected by the DNR, and only a limited area can be chemically treated. The statute reads, in part, ..."no person shall treat without a permit, an area exceeding 1/2 acre, or 1/2 of the existing area of vegetation, whichever is lesser." About the only emergent that is really a nuisance is Spatterdock, (yellow water lily). This is the type of lily that does not lay flat on the water, and has yellow buds. The association should probably leave the control of this type of vegetation to individual homeowner.

Mechanical Control of Vegetation

Lake Papakeechee was one of the first users of a self-propelled mechanical harvester in the state of Indiana, acquiring the present machine in 1983. This type of weed control offers the advantage of immediate results, as well as selective control of the existing weeds. Additionally, there are several species of weeds that are very resistant to chemical control.

Examples of this type of weed in Lake Papakeeche are large-leaf pondweed species, and eelgrass, neither of which respond to control by chemical means.

Harvested material is also useful for filling in eroded areas of roadways and dikes, and around eroding islands. The harvested weeds are also rich in nutrients, and make excellent fertilizer for gardens and flowerbeds. Harvesting should be viewed as only one part of an integrated lake management program. Due to the slow speed of harvester operation, about 1/4 acre per hour, very large areas of weeds require considerable time to harvest and to offload harvested weeds. Also, operator skills are very important, as the machine is complex, and maintenance costs can be high, if operated improperly or if adequate attention is not devoted to a good preventative maintenance program.

Certain types of weeds can reproduce by fragmentation, so care must be taken by the operator to pick up as much floating vegetation as possible. It is only possible to effectively harvest in water depths greater than about 3 feet. Attempting to harvest in shallower water usually results in the weeds just being pushed over rather than being cut.

One of the most effective and inexpensive types of weed control is by removal using hand tools, such as the hand-held cutters owned by the association, as well as rakes and other types of gardening tools. Many species of nuisance weeds will not regrow for quite a long time, following several cuttings. Once the nutrients that are stored in the root systems are exhausted, the plants will die out. Examples of this type of weed is, again, the largeleaf pondweed species, as well as many types of lillies and emergents.

The association should make every effort to encourage individual homeowners to make use of these tools, as it will greatly reduce the time and expenses required by the harvester, and in most cases, will be more effective in shallow areas, and small swimming areas. Individuals can also remove small amounts of emergent vegetation without the permit requirements that would be necessary if the association attempted to target protected emergent vegetation.

There is now available a small detachable cutter, powered by an electric motor that is easily attached to a small boat, such as our chemical boat. It cuts a 4' swath, and the cutting depth can be set at anything from surface to 4'. The cost of this attachment is about \$1,250.00, and could provide a means of dealing with some of our problem areas very quickly and inexpensively. It would be an excellent supplement to the large harvester. Information on this machine was provided to several association officers and directors. Phone number is: 1-888-298-5253.

Despite the best plans and intentions, there are times that professional guidance is necessary in dealing with unusual aquatic problems. It has been my experience that Aquatic Weed Control, located in Goshen, IN, is a valuable resource in the event that the association need such expertise. The contact phone number is: 219-533-2597. Jim Donahoe would be the contact person, and is familiar with the PPA program.

In summary, any effective lake management program must address a variety of interest groups. The ecology of the lake must be altered gently enough to avoid impact on fisheries, or to avoid introducing problem organisms and vegetation that is worse than what was present when the program began. It is virtually impossible, and certainly undesirable to attempt to eliminate weeds. Unfortunately, many people's expectations and desires for what they wish the lake to be is in contrast with sound ecological management principles and the mechanics of nature. One would hope that any ongoing management program will include time spent in educating and enlightening the residents as to reasonable expectations of what can and should be accomplished by an effective, sound lake management program.

Respectfully submitted
Ron Kerlin
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