

Winter Park's Lake Weed Management Program

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The City of Winter Park is indeed fortunate to have many lakes making our city an attractive and pleasant place in which to live. Our city is also unique in that it is involved in a program of lake weed management, for there are few cities active in such a program of this size and magnitude. However, we are also faced with the age old problem of trying to prevent the lakes from going through their normal life cycle. We have for years enjoyed the lakes with few if any aquatic weeds, but in the last few years we were first bothered with water hyacinth, *Eichhornia crassipes*, and then vallisneria *Vallisneria americana*. We are now in another cycle of lake eutrophication. In this cycle, which we are not enjoying, we are experiencing problems with the encroachment of Florida elodea, *Hydrilla verticillata*.

To observe our three major lakes, Lake Virginia, Lake Osceola, and Lake Maitland, would indeed be a study in lake ecology. First in our natural chain of lakes is Lake Virginia which has changed from vallisneria to almost all Florida elodea in the past two years. Our next lake is Lake Osceola which has both vallisneria and Florida elodea in abundance. Lake Maitland now has only small patches of Florida elodea, but still contains a large amount of vallisneria. With the previously mentioned observations in mind, we can see before us a much speeded up deterioration of the lakes.

The City of Winter Park recognizes this problem of lake eutrophication as one that must be managed to preserve our lakes for their economic and aesthetic value. We have been aware of this problem even prior to 1963 when we began an active program of lake weed management (1). To actively fight the problem at hand, our city has embarked upon a three point program which includes applied research, scientific research, and operational methods.

Our city established a Lakes and Waterways Board in January of this year to aid in the development of the applied research branch of the program. This board is composed of active, enthusiastic lake front home owners who wish to save our lakes. In order to do this they were recommended to the city the purchase of an "Aquatic Scavenger," to supplement our weed harvesting program. They are also active in the research of available methods of weed management, both mechanical and herbicidal.

In the scientific research area of our program, the City of Winter Park is involved in an aquatic weed research group headed by Mr. C. W. Sheffield of the Orange County Water Conservation Dept. We are also involved at this time in individual research with the 3M Corporation of St. Paul, Minn. and with Mr. R. D. Blackburn of the U. S. Department of Agriculture, Crops Research Division at Ft. Lauderdale, Florida.

For the operational methods of lake weed management, the City outlined its program to the residents and lake front home owners at a meeting on lake weed management in March, 1968. At this meeting we basically relegated ourselves to the use of both mechanical and herbicidal methods of management, as we have in the past.

Along the mechanical lines of our weed management program, in the past 2½ years we have expended \$44,290 and removed a total of 4,305 tons of aquatic weeds from the lakes.

We have more than \$80,000 in lake weed management equipment at this time. One of our newest pieces of equipment is a \$38,000 "Aquatic Scavenger" which is a one man operated unit, combining the older cutter and the barge in one piece. This unit cuts aquatic weeds to a depth of 5 feet and has the capability of cutting to a depth of 8 feet. The "Scavenger" can harvest and remove from the lake about 100 tons of Florida elodea or 140 tons of vallisneria per week. It removes the weeds at the shore by reversing its process of collection.

By adding a second barge to the 1963 unit, we have now increased its efficiency by 100%. This older harvester is programmed to work near the shore while the new "Scavenger" is proposed to harvest in deeper water. With both units working in the same lake, we have created a new problem of excess weeds on the shore. We purchased a hydraulic grapple loader to load dump trucks for the removal of the weeds to the dump.

This mechanical operation cost the city approximately \$28,000 this year for labor, repairs, and operational expenses, not including the depreciation of the equipment.

This method of our operation has been questioned by some for its expense and practicality. We feel it is justified in its psychological and practical effects. The effort the city is expending not only removes a public nuisance, but also we feel it is no more harmful in spreading the weeds than the coots or the many boat propellers. For, after all, we are removing the cut weeds from the lakes, not leaving them behind to repropagate. We are also removing part of the seeding process and the turions of Florida elodea.

In the past 2.5 years we have spread a total of 17.5 tons of Hydrothol 191, (mono-[N,N-limithylallyl]amine salt of endothall, at a cost of \$14,425.00. In the past we have been treating the shore line on a hit or miss basis with the individual home owner purchasing the herbicide and the city spreading it for them. Many areas have been left untreated.

In our herbicide program we propose to treat the lakes from the shore outward 35 feet using 3 applications per year. The expense will be borne by the individual home owners. In this program we propose to use liquid Hydrothol 191 at 4 ppmw. We believe that the liquid will disperse among the thick roots of the Florida elodea better than the granules. We plan to treat as we have in the past only 300 to 400 feet along the shoreline and then skip a like area to reduce the possibility of fish kill. We also plan to notify the neighboring home owners of the herbicide operation and to make the plots for safety.

We have recently incorporated a trial program in Lake Osceola to apply herbicide to the lake perimeter by the volunteer cooperation of the individual lake front home owners. In this endeavor we have had only 2 refusals and

64 positive responses from 123 contacts. The people who have not responded are now being contacted personally by the Lakes and Waterways board members.

To treat the shoreline of Lake Osceola, 16,000 feet, will cost \$5,280 per application. Lake Virginia with its shoreline of 16,050 feet will cost \$5,296.50 per application. To treat Lake Maitland with its shoreline of 19,300 feet will cost \$6,369 per application. The treatment of these 3 major lakes, three times a year will cost 50,835.50.

Herbiciding has proven very effective in the shallow water but is far from being permanent, as it must be repeated. We believe that both a mechanical removal operation and the use of herbicides have a valuable part in our lake weed management program. In the Winter Park lakes

we do not desire to eliminate the weeds, but to be able to manage them so that the lakes may be used yet have adequate weeds remaining to remove the nutrients. We are hoping that a herbicide will be developed that will be less expensive and give better control of the weeds. We are not expecting the impossible, but are looking toward the day we will, through basic research, applied research, and operational methods manage our lakes for the citizens to use and enjoy.

LITERATURE CITED

1. Blanchard, Jay L. 1967. Economic Aspects of Weed Control in the Lakes of Winter Park, Florida. Hyacinth Control Jour. 6:21-22.