

Florida's Department of Natural Resources Policies And Plans As Related To Aquatic Weed Control And Research

ALVA P. BURKHALTER

*Aquatic Plant Research & Control Coordinator
Department of Natural Resources
Tallahassee, Florida 32304*

INTRODUCTION

During the State of Florida's 1970 legislative session, an act was passed relating to aquatic plant control, which authorized the Department of Natural Resources to direct such control. This act states:

1. It is declared to be public policy of this state that the Department of Natural Resources be vested with the authority to direct the control, eradication and regulation of noxious aquatic weeds and the research and planning related to said activities, as provided by law, so as to protect human health, safety and recreation and to the greatest degree practicable prevent injury to plant and animal life and property.
2. (a) The Department of Natural Resources shall guide and coordinate the activities of all public bodies, authorities, agencies and special districts charged with control or eradication of aquatic weeds and plants. It may delegate all or part of such function to the Division of Game and Fresh Water Fish.
- (b) The Department shall also promote, develop and support research activities directed toward the more effective and efficient control of aquatic plants. In the furtherance of this purpose the division is authorized to:
 - (1) Accept donations and grants of funds and service from both public and private sources.
 - (2) Contract or enter into agreement with public or private agencies or corporations for research and development of aquatic plant

control methods or for the performance of aquatic plant control activities.

- (3) Construct, operate and maintain facilities and equipment.
- (4) May also disburse funds to local agencies or special districts charged with aquatic weed control upon review and approval of project by Department of Natural Resources.

CONTROL PLAN

In establishing a control plan for the State of Florida, we must first look at what are generally believed to be the two main reasons for aquatic weed problems, and take these into account in establishing a weed control program.

The first factor is the introduction of exotic aquatic plant species into a new environment which is almost void of their natural checks and balances. In this category can be placed waterhyacinth (*Eichhornia crassipes* (Mart.) Solms), hydrilla (*Hydrilla verticillata* (L.F.) Casp.) and Eurasian watermilfoil (*Myriophyllum spicatum* L.). The other factor which aggravates the aquatic weed problem in many areas is the increasing enrichment (eutrophication) of our lakes and streams by industrial sewage and agricultural pollution. There are other factors which may lead to aquatic weed problems. For instance, because of specialized usage of water, natural aquatic growth may sometime be classified as a problem. However, the other factors, I believe, are of minor importance when considered in light of the two aforementioned ones.

The Game and Fresh Water Fish Commission, along

with the Corps of Engineers, has been involved in aquatic weed control for some time. However, the Corps of Engineers is reducing their control program, and therefore the state and counties must increase their operations. At present, the control program will consist mainly of herbicides, because chemicals, with few exceptions, are the most economic means. However, the Department of Natural Resources will be actively seeking new and better means of chemical, biological and mechanical controls; and as soon as these are proven feasible, they will be placed into use.

There is much public sentiment today against chemical control; some just, some unjust. Factors mainly responsible for the increased public opinion against herbicides in the past years are: (1) the over-use of chemicals, and (2) the improper use of chemicals.

The Department of Natural Resources plans to find better mechanical and biological controls which will substitute for some of the chemical controls and lead to a more balanced control system. Also, by establishing a permit system for aquatic weed control, a program for safer and more efficient use of herbicides can be developed.

The control program will be worked out in conjunction with the Game and Fresh Water Fish Commission and the Department of Natural Resources will work toward four goals.

1. To expand the present operation to take up the slack left by the Corps of Engineers. The Corps has indicated that they will reduce their spray operations possibly by as much as 50%.
2. To establish a "permit system" of aquatic weed control which is implemented and administered by people with professional training in weed control sciences. When this system is established, anyone carrying on aquatic weed control work, except in special cases, must first have the aquatic weed control method approved by the Game and Fresh Water Fish Commission. The functions of the Game and Fresh Water Fish Commission in this capacity would be closely coordinated with both the Department of Natural Resources and the Department of Air and Water Pollution Control. Guidelines to be followed in the "permit system" are nearing completion and should be ready for dispersal in the near future. In writing the guidelines, the Department of Natural Resources has worked closely with other agencies involved in permitting aquatic weed control operations. These agencies are Air and Water Pollution Control, Health and Rehabilitative Services, and Game and Fresh Water Fish Commission. Under the old system each of these agencies has certain responsibilities toward aquatic weed control operations and according to the type of aquatic weed control being carried out, each agency was contacted. The purpose is not to exclude anyone's authority over aquatic weed control operations, but to increase cooperation between the state agencies so that the "permit system" will be quicker and simpler. The "permit system" is not only intended for a regulatory purpose but will also help in coordinating the aquatic weed control operation for the whole state. It will also allow the Department of Natural Resources, in many instances, to give advice on how to use control measures so as to do the least amount of damage to the aquatic environment.
3. To move into the area of mechanical harvesting—probably at first in potable water areas, then into

other areas where mechanical removal is needed, as research and feasibility of operations indicate.

4. To broaden our weed control program to encompass hydrilla—this plant is becoming a bigger problem than hyacinth in many areas of Florida and has rendered many bodies of water unusable and unsafe.

STATE MATCHING FUNDS

Another important phase of the Department's program is that of the state-matching funds made available to local aquatic weed control programs. The funds are set up with the intent of encouraging local areas to become interested in the aquatic weed problem and set up their own agencies for control. Any city, county or other local authority that has an established weed control program charged with the responsibility of aquatic weed control may apply for these funds, and upon approval by the Department of Natural Resources of their control program and of the need for such funds, they can be granted. The Department of Natural Resources is now in the process of surveying the needs of the various drainage areas of the state and of the funds already available in these areas, so that the areas of greatest need can be determined and priorities established. The Department also wants to work each of these local programs into a coordinated state plan of control.

RESEARCH

The third area of active involvement is directed toward finding more effective and efficient means of aquatic weed control. Of particular interest is research directed toward finding better biological and mechanical controls, since these two areas of control have been drastically overlooked in the past. The Department of Natural Resources also will be sponsoring some chemical research directed primarily toward control of hydrilla. Safer and more economical chemical controls for hydrilla are needed so that its spread can be checked.

In mechanical harvesting research, the Department of Natural Resources intends to strive toward two goals at once, because to overlook either would be a mistake. These goals are: (1) try to improve on the efficiency and economy of the machinery, and (2) work toward utilization of the harvested material. The University of Florida is presently doing research on "Processing, Chemical Composition and Nutritive Value of Aquatic Weeds," which is jointly supported by the Department of Natural Resources, Southwest Water Management District and the U.S.D.I. Some of their preliminary findings look promising, especially the use of waterhyacinth as a cattle feed.

Another study which the Department of Natural Resources recently established with Game and Fresh Water Fish and the Corps of Engineers is the testing a harvesting system built by Sarasota Weed and Feed. It is a shore-based machine in which the hyacinths are either pushed or "boomed" to the harvester. This type of machine may have potential for a river where the current could be used to carry the hyacinth to the machine. The objectives of this study are to document the rate of harvesting with the machine, growth rate of hyacinths, feasibility of booming hyacinth to the machine and other factors.

Another area in which the Department of Natural Resources is taking a serious look is that of biological control. A study on the white amur (*Ctenopharyngodon idella* Val.) is now in progress. The fish has shown potential as an

aquatic weed control agent. However, there are some pressing and important questions which must be answered before it can be released in the State of Florida.

Another area of tremendous potential is the use of insect agents and plant pathogens for aquatic weed control. The three most economically important aquatic weeds—waterhyacinth, hydrilla, and Eurasian watermilfoil—are all exotics, and, for the most part, lack their natural checks and balances. Therefore, it is reasonable to believe that some control can be achieved with these plants if suitable biological agents can be introduced.

Biological controls have their benefits and hazards. This type of control can never be looked upon as the complete solution to the problem simply due to the fact that not all noxious aquatic plants have natural control agents which are sufficiently host-specific to allow introduction of these into a new environment. Biological control agents when established are usually very inexpensive and can give very

good control. But when biological control agents are used, there is the inherent problem of not knowing how the exotic organism will function under new conditions or if it will fill the niche of some beneficial organism. With proper research, the introduction of a new species can be objective and somewhat predictable, but there is always a risk involved. The urgency of the problem will always influence the amount of acceptable risk.

CONCLUSION

The Department of Natural Resources is striving to establish a well-balanced and well-rounded aquatic weed control program using mechanical, biological and chemical controls in the manner that will give the most effective and efficient results with the least possible damage to the aquatic environment.