Florida's $2.8 Million Aquatic Plant Research And Control Program

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THE FLORIDA Department of Natural Resources, Bureau of Aquatic Plant Research and Control, like many other agencies and individuals, is dedicated to the control of noxious aquatic weeds in Florida waters. Conservatively, 200,000 to 300,000 acres are infested, thus rendering many of our water bodies useless. Recreational activities, such as boating and fishing, are hampered. Efficiency of potable water reservoirs is declining. Water qualities, resulting from natural death and decay of the aquatics, are threatened, sand clogged drainage ditches pose potential flooding problems.

Last year the Florida legislature bolstered the Aquatic Plant Research and Control Program by directing $2.8 million of the boat registration fees and gasoline taxes for spending in aquatic plant research and control.

Currently the program is threefold: research, matching funds and control. Research in aquatic plant control has drastically lagged in the past; therefore, a large portion of the budget is allocated to research needs. At present our control efforts entail biological, mechancial and chemical systems. Current research projects sponsored or co-sponsored by the Department of Natural Resources include:

Utilization of the white amur (a herbivorous fish) as a potential tool is presently underway. Determination of the effectiveness of the amur as a biological control agent at various stocking rates, observation of the aquatic plant preference of the amur on water quality, and influence of the amur on other fish and invertebrate organisms are some of the areas under investigation.

Presently our most effective biological tool has been insect attack. Release sizes for insects and mites host specific on water hyacinth have been established in order to study subcolonization and establishment of these biological agents. Then the effectiveness, and factors which might enhance or reduce their effectiveness will be evaluated.

The submersed aquatics, particularly hydrilla, are fast becoming perhaps our worst problem. Studies are underway to establish the native home of hydrilla, its worldwide distribution, and pathogens, insects and other arthropods which might show potential as a biological control agent. Travels to the native home of hydrilla hopefully, will reveal naturally occurring insect or pathogenic enemies. In addition, surveys are being conducted for naturally occurring enemies of hydrilla and *Myriophyllum* in Florida.

The biology and ecology of our most noxious species are to be evaluated. Attack on noxious aquatics by microbiological organisms poses another potential tool. Such possible attack is under investigation. Also, a survey for compounds which occur naturally in plants and may retard susceptibility to attack is underway. By reducing these natural compounds, the plants would thus be more susceptible to attack.

The Department of Natural Resources is designing and building a high capacity mechanical harvester for water hyacinth to be stationed on the St. Johns River. A crimper-type hyacinth harvester is also under investigation. Other research efforts entail the possible utilization of these aquatics once removed from the waterways.

Is the future printing on paper made from water hyacinth beyond the realm of possibility? Can hyacinths be used as a soil amendment and source of plant nutrients? Water hyacinth remove nutrients from the water. Are these nutrients retained during the processing of the plants, and if so, are the plants ac-

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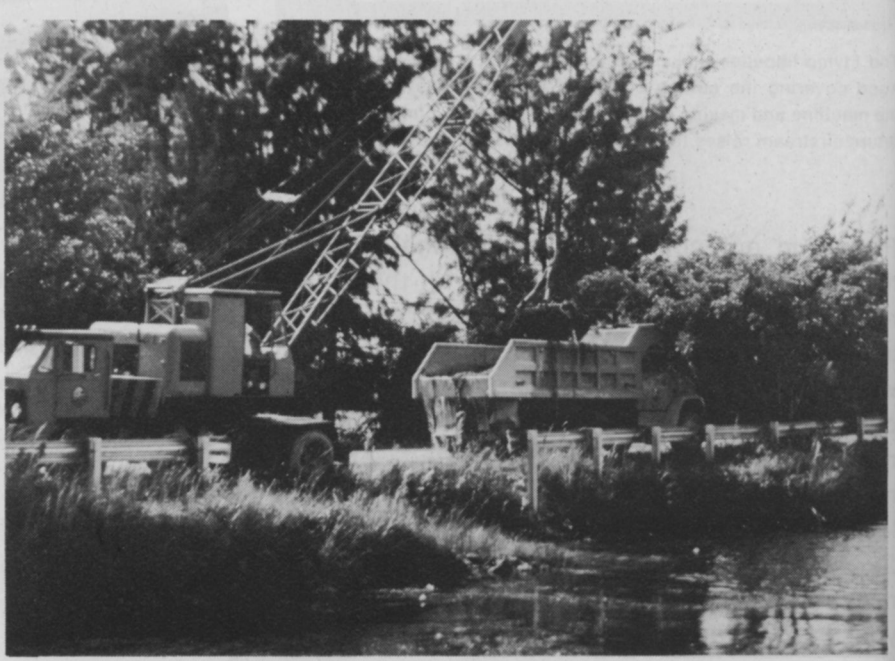

Mechanical control of aquatic plants is presently used in many areas where other means are not feasible.

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ceptable in the diets of meat-producing animals? We hope to answer these and other questions through research efforts.

The chemical control efforts have been primarily in the area of techniques of application; particularly treatment of submersed aquatics (especially hydrilla). Evaluation of the physiological aspects of herbicides applied through the bivert is underway. In addition, we see possibilities of using growth retardants or perhaps altering the ecological factors to limit the growth of hydrilla. The use of growth retardants, their desired concentration and the effect of these regulators on water quality and other desirable organisms is under study.

In addition, some "novel" chemical techniques are being evaluated. These techniques include the possible use of ion exchange agents to deprive hydrilla of certain elements needed for growth. Can we alter basic soil or water factors needed for the growth of hydrilla? Again, these are questions we hope to answer through our research efforts. Those agencies and/or institutions presently conducting research include the U. S. Department of Agriculture, University of Florida, University of South Florida, and Florida Technological University.

Secondly, funds are allocated to aid local aquatic control programs. Any public, city, county or district agency which has an approved aquatic plant control program and meets criteria established by the Department of Natural Resources is subject to participation in matching funds. These criteria are outlined in the "Guidelines for Aquatic Weed Control" available through the Bureau.

Lastly, the Bureau serves an informational function in control programs. Personnel work with the above local agencies in establishing new control programs and educating personnel in new products and techniques of applications. The number of state control crews working in the Florida Game and Fresh Water Fish Comm. has doubled. In addition, four Regional Botanists have been employed to work specifically in aquatic plant control.

The white amur, a herbivorous fish, is promising as a biological control for aquatic plants.