

Presidential Address

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Welcome to the 1968 meeting of the Hyacinth Control Society. Seven years ago at Useppa Island, Florida, I tried to convince many of you that there was no need for the Hyacinth Control Society. I emphasized that there was already a national weed society, a southern weed conference, and an aquatic weed group. I asked your active support of one of these organizations. Today I am glad that some of you had better foresight than I to see the unique need for this society. Since its inception (and I am a Charter Member) I have seen this Society gradually broaden its foundation until today I think we can all agree that it is a recognized organization. It is in closer touch with the people on the aquatic weed firing line and with the people concerned about aquatic weed problems than are the larger regional and national organizations.

I am grateful for the opportunity to have served as your President in the past year. During this time I have tried to introduce this Society to the many fine people interested in aquatic weed control. I would like to thank each of you for the effort and cooperation that you have put forth in helping me accomplish this objective.

During the 1966 meeting the name of the Society was amended to include the statement: Dedicated to the Control of Noxious Aquatic Weeds. As a Director of the Society at that time, I actively supported this change because I felt the name "Hyacinth Control Society" was limiting our membership. Since that time the membership of the Society has more than doubled. Today I stand before you as the President of a flourishing Society that I tried to prevent.

During this year I have not forgotten that this Society was founded for the purpose of providing practical information for solving aquatic weed problems for the individual as well as the applicator, whether he be a drainage district supervisor, mosquito control district director, individual applicator, or a crew chief of a spray boat. As President, it seems only natural that I should try to leave with each of you something of a profound nature and of infinite wisdom. I thought of reviewing the accomplishments and needs of this Society, but found that this had already been done by Presidents Miller, Dryden, Friedman, Woods, Grant, and Gorman. I could talk of the tremendous debt that I owe this Society for ideas gained, ideas which have added immeasurably to my research program, and for associations with people and for the fast friendships made here. Let this be, if you will, a declaration of my own personal belief in the Hyacinth Control Society and in the people of whom she is comprised. Let this be a declaration of my belief in the importance of aquatic weed control.

Now, on to the topic—"Aquatic Weed Control—Milestone 1968". The field of aquatic weed control is not a new one. Man has been struggling with aquatic weeds for many years. Herbicides were first used on aquatic weeds about 65 years ago. Mechanical and hand-cleaning methods have probably been used on aquatic weeds about as long as they have on terrestrial weeds.

Extensive use of various mechanical methods of control have been used by the Department of the Army, Corps of Engineers since 1900. Chains, drags, and disks were used in irrigation ditches by 1940. Today in many areas we are still depending on mechanical control of aquatic weeds, even though we have chemical methods that are more effective, convenient, and economical.

In 1945 the herbicide 2,4-D (2,4-dichlorophenoxyacetic acid) was first used successfully on water hyacinth, yet today in many areas we are still using the more expensive mechanical methods. In Florida, it is not uncommon to see a dragline removing water hyacinth from a canal. It has been shown that it costs 5 to 10 times more to remove hyacinth mechanically. The standard reason for using the more expensive mechanical methods is the danger of 2,4-D drift onto surrounding vegetation. My answer to this reasoning is: there are safe herbicides that can be used in such areas.

Recently I have seen the statement that the herbicidal control of water hyacinth has failed. I show you the following pictures (Figure 1) of an area in 1960 in the State of Florida, and the same area today, and ask you: Is this failure?

Successful control of water hyacinth and other aquatic weeds has been obtained with herbicides. The misconception of eradication of aquatic weeds when herbicides are used has caused the public to draw the conclusion that herbicides are a failure. We can seldom kill or remove the seeds or other propagules from the bottom of a lake or stream. Man has seldom eradicated any undesirable plant or animal. The point is, you and I have failed in our efforts to explain modern aquatic weed control. We have not shown the public that we are doing a job.

The cotton farmer applies herbicides to his field several times each year for the control of weeds, yet in a lake or stream one application of a herbicide is expected to keep it forever free of vegetation. We know that regardless of what method we use, the same plant or some other plant will soon reestablish in the body of water.

Why should we concern ourselves with aquatic weed control? How important is the problem of aquatic weeds? Surveys have shown serious and increasing water weed problems in our lakes, canals and rivers. Water weeds are more than a nuisance to individual owners and users of water resources. They are a national problem, of major importance, which is rapidly growing more serious.

Surveys show serious and increasing water weed problems in our 170,000 miles of irrigation canals and 190,000 miles of drainage canals and ditches. Soil conservationists tell us that one of the greatest problems in the 2 million farm ponds and small reservoirs is aquatic weeds. All areas of lakes, reservoirs, streams and waterways 10 ft. or less in depth are subject to growth of all types of aquatic weeds, and all waters to floating aquatics. In Florida we have found *Hydrilla verticillata* growing in 30 ft. of water.

The usefulness and value of our inland waters are rapidly being deteriorated by increased growth of algae,

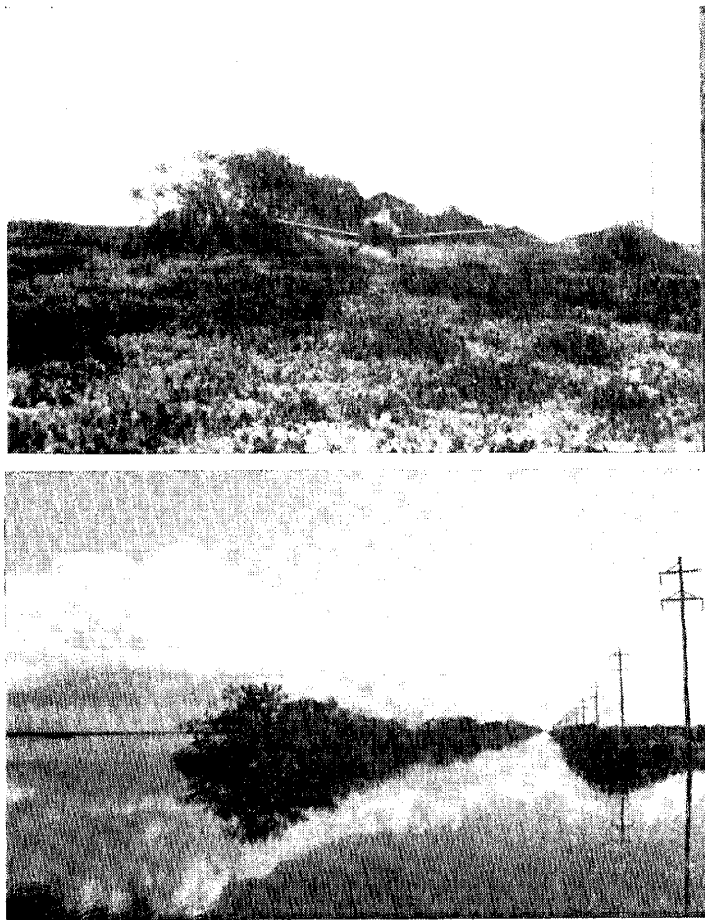


Figure 1. The upper photograph shows the aerial spraying of a mixed stand of water hyacinth and water lettuce with a herbicide; and the lower photograph shows the area 6 weeks after application.

submersed, emersed, and floating aquatic weeds. The input of nutrients from sewage effluent, increased rates of fertilizer in farmlands, and other urban practices are increasing aquatic weed growth.

A recent study shows the effect of water quality on aquatic weed growth is proportionate to the nutrient level. The estimated 45 tons of nitrogen and phosphorus entering the Potomac River each day below Washington, DC, is believed to contribute to the increasing plankton, milfoil and sea lettuce problems. In 1968 you and I can no longer turn away from the problem of aquatic weeds. The home owner, the sportsman, the civic clubs, in fact the entire population has become familiar with names like water hyacinth, elodea, sea lettuce, alligatorweed, and eurasian watermilfoil. We are at a milestone in aquatic weed control. A challenge, "Proper Management of Aquatic Vegetation", has been presented to us. The question is, will we accept the challenge, or will we stick our heads into the aquatic vegetation and ignore the problem?

We, in Florida, are very much concerned with aquatic weeds. The Governor of the State has organized an Aquatic Research and Development Committee. Representative Edward Gurney, who has just addressed this Society, has introduced House Bill 15621 requesting additional help for control of aquatic weeds. State, county and municipal agencies are under tremendous public pressure to free

Florida's abundant water resources of aquatic weeds. Various civic and conservation clubs have taken the problem of aquatic weeds as their conservation project for 1968. Several of these projects will be discussed at this meeting. Florida has recognized its problem and is trying to accept the challenge. For our programs to be a success, other states must cooperate and organize their own programs along similar lines.

This Society actively supported the introduction of U.S. Senate Bill 580 which would restrict the importation of aquatic weeds into the United States. Hearings were held on this bill but no further action was taken. Most of our problem aquatic species in the United States were native to other areas of the world. There are about 150 different aquatic weeds in one or more of our water resources. At the present time I do not know of any methods that would prevent the introduction of additional problem species into the U.S. This Society is on record as requesting legislation on this subject in both the Congress of the U.S. and the State of Florida Legislature.

I have seen a number of recent articles suggesting that weed control in Florida is upsetting the ecological balance of our lakes and streams. I cannot agree with these articles. The four most troublesome aquatic plants in this State are water hyacinth, hydrilla, egeria, and eurasian watermilfoil. These plants were never part of our ecological balance until man introduced them into Florida waters.

Ecologists tell us that every lake is in the process of dying. Man can only slow this process down, not stop it. Early reports on Lake Apopka in Florida gave aquatic weed control as the cause of the death of the lake. The submersed aquatic weeds in that lake were never controlled by man. Nature controlled the weeds indirectly as the result of farming and industrial practices in the area. I emphasize this today because it is time we who are in aquatic weed control started educating the public on our progress.

The problem of aquatic weeds in many of our lakes and streams has progressed to the point that we cannot discuss control, but rather must discuss aquatic vegetation management. Control of all the weeds in many of our waters would not be desirable, or economically feasible, even if we had the method of control. Also, we must be concerned with the tremendous amount of nutrients that would be released when all of these plants decomposed in the water. To remove the plants from the water is even more expensive. Thus, we have no choice but to manage the vegetation as best we can with our available resources.

The public is very concerned with the question, "Are herbicides a water pollution problem?" The answer to the question would be "yes and no, with many ifs." They are a potential water pollution problem. Aquatic plants are a pollution problem in many cases before the herbicide is added to the water. Certain kinds of algae produce objectionable taste and odor in water while others are toxic to fish, and may cause swimmer's itch. Submersed weeds such as elodea, milfoil and southern naiad certainly would be considered pollutants in many waters.

We can say that aquatic herbicides are a potential pollution problem in much the same way that the chemicals aspirin, gasoline, and table salt are potential problems when used improperly. When any of these are misused the consequences can be fatal to the individual. Yet the public feels it cannot get along without these chemicals. We must have aquatic herbicides if we expect to prevent serious water pollution and obstructions in our water resources.

Proper usage of aquatic herbicides will assure us that they will not pollute our water resources.

I have used the word herbicide throughout my talk. I believe that all of us should use this word instead of pesticide or chemical. The public associates these two words with materials that are extremely toxic. The toxicity of most of our herbicides is low as compared to insecticides. Many of you here today have referred to aquatic herbicides as poisons. This is poor public relations for the field of aquatic weed control. We should initiate a program of educating the public on the terms "aquatic herbicides."

This morning I have tried to indicate our "sins of omission" as compared to our "sins of commission" in our public education programs. For our aquatic weed programs to be a success in the eyes of the public, we must give understandable answers to the many questions on aquatic weed control. To accomplish this we need additional research on aquatic vegetation. As our water supplies become limited, our aquatic weed problems become acute. Control of aquatic weeds is already a critical problem. However, with the present limited manpower, facilities, and other resources for research on aquatic weeds, only relatively slow progress can be made toward solving the numerous and complex problems.

Nonchemical methods of control have received wide publicity in recent years. The use of insects, snails, fish, manatees and other biocontrol agents should be thoroughly

investigated. Plant competition should be considered as a method of control. Mechanical methods of destruction and herbicide applications must be improved. Possible use of aquatic plants for human or animal food supplements, mulch, fertilizers, and other economical uses should be thoroughly investigated.

We have to learn more of the physiology, life cycle, anatomy, and morphology of aquatic weeds in relation to their control. Environmental factors that restrict the distribution of certain aquatic plants should be investigated. The influence of pollution on aquatic growths and means of removing the essential nutrients necessary for plant growth from the environment should be thoroughly researched.

I hope this morning that I have given you some indication of the scope, problems, and trends of aquatic weed control. We are at a milestone in 1968. Even this short examination of the subject shows that this field is immensely important to man's welfare. The struggle between man and aquatic weeds has been going on for many years. Aquatic weeds have gradually gained the upper hand in Florida, the United States and many other parts of the world. Man's influence on the aquatic environment has been to introduce new species and make the environment more luxurious for these species. Man's war on aquatic weeds will continue, but whether he wins the battle depends largely on the decisions he makes in 1968.