Outlook For Weed Control Activities

HAROLD L. BLAKEY

U. S. Army Corps of Engineers, Washington, D. C.

In reflecting upon what I might say of interest to you today, I am reminded of the classic guidelines for any speaker: be bold—be brief—and be seated.

The willingness of the Corps of Engineers to accept primary responsibility for Federal efforts to solve widespread and difficult problems stemming from major weed infestations throughout the country is indeed "being bold" enough to startle the well informed who understand what is involved.

I shall be brief in outlining the concepts of that program—and—I will be seated—when I have given you the best available answers to your questions about the outlook ahead for weed control activities of the Army Engineers—if I can do so in less than my alloted time on your program.

To understand what lies ahead in this joint program with the States, it may be useful to take a brief look at where it has been and what it has accomplished. Since you are undoubtedly familiar with much of this history, I shall recount only the major points of interest to our look at the future.

The Army Engineers have been engaged in a war with certain weeds, beginning with water hyacinths, for the past 65 years. Within 15 years after the introduction of this plant from the tropics in Louisiana in 1884, it had infested practically all, and blocked many, of the coastal streams and bayous of Louisiana. In Florida it had taken over much of the St. Johns River obstructing use of navigation channels at bridges and docks, and subsequently spread throughout the pennisula and the coastal waters of the states in between.

The initial efforts in control of water hyacinths were begun in 1900 to maintain navigable waterways in Florida and Louisiana, starting with the use of various mechanical means including log booms, harvesters, crushers, saw-boats — and evolving in the past 20 years to the use of herbicilal chemicals as the most efficient and economical method of control.

This program was successful in clearing primary navigation channels but not in maintaining them against reinfestation from continually expanding sources in the myriad of interconnecting inland waters. This soon became a losing battle economically with no end in sight for spiralling waterway maintenance costs. It gave rise to recognition of the need for a program of progressive control and eradication of water hyacinth, alligator weed—a companion pioneer species flourishing in areas freed of water hyacinth—and other economically destructive aquatic plants, throughout coastal and allied waters. Such a program was essential to the interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health, and other purposes.

But information was not then available on the requirements for such a program. We didn't know what it would ultimately cost, how much time would be needed, how the objectives might be achieved, or even its economic feasibility. So the Corps of Engineers with the assistance of the other Federal agencies and the States concerned set about making a survey of the extent of the infestations. In 1958 the Congress authorized a pilot project for a period of 5 years to find the answer to these questions with the view that a more precise determination could then be made of the required scope, cost, and nature of the final program.

This was a cooperative undertaking. It embraced the states and other Federal agencies concerned—namely the Public Health Service, Agricultural Research Service, and the Fish and Wildlife Service—including research to develop efficient and economic control methods. It was carried out in the eight southeastern coastal states from North Carolina to Texas, and the States were required to assume 30 per cent of the total costs in the beginning. Since it became necessary to develop the research features of the program on an over-all basis rather than State by State—and research in methods of weed control constituted the primary interest of the cooperating federal agencies other than the Corps of Engineers —Congress modified the authorizatio nof the pilot project to exempt all research and planning, in advance of control operations, from cost-sharing requirement.

The program was authorized in 1958 for a period of 5 years at a Federal cost of $1,350,000 annually. However, due to the time required to get work started in the States desiring to participate and other problems arising in making State funds available, it has taken 9 years to reach the authorized limit of Federal appropriations for the pilot project, which will terminate on 30 June next year (1967).

This program has been remarkably successful. This is no longer a single purpose navigation activity. With the burgeoning of interests in flood control, agriculture, fish and wildlife, recreation and public health measures, the benefits have been widespread and manifold. Treatment of nearly 200,000 acres of water hyacinth and alligator weed by 1965 at a cost of approximately $4 million will yield an estimated return of at least $14 million annually for as long as reinfestation does not occur. The future outlook for this and other similar weed control operations indicates an over-all return of somewhere between $5 and $10 for each dollar invested. I ask you: Where else are there comparably favorable returns in excess of benefits over costs in the investment of public funds?

Prior to granting approval for submission of a final report on the pilot project to the Congress, the Chief of Engineers requested an understandably brief evaluation of what progress we have made toward our ultimate objectives. In addition to the foregoing facts I was able to point out to him in Louisiana, all of the major navigable waterways are clear and in a controlled condition. The maximum range of water hyacinth over the years has been pushed back from a total of about one-half million acres to considerably less than 250,000. It would seem that area-wise we may have accomplished at least half of the job.

Equally good progress has been made in Florida where major waterways have been opened and extended. The latest surveys show remaining infestation of less than 100,000 acres of hyacinths and about half that amount of submersed aquatics. However, the percentage of the over-all range in controlled condition is probably on a lesser order than in Louisiana due to the nature and extent of interior weed infestations in remote areas.

It should be kept in mind that the pilot project now approaching its end has been limited in scope to the southeastern states and to control of a very few water weeds. These are primarily water hyacinth, for which an economic and acceptable herbicide is available, and alligator weed for which an effective herbicide has been provided but its practicability and acceptability have not yet been established for operational use.

In the meantime serious problems have arisen as a result of the growth of other types of aquatic plants in other regions. Eurasian water milfoil, recognized some years ago in the lower Potomac River, has spread throughout Chesapeake Bay with serious damage to waterfronts, harbors, beaches, fishery resources, public health and other values. The plant has appeared extensively in headwater reservoirs of the Tennessee Valley and it is feared may spread throughout the system. Marine algae and other saltwater plants have created serious economic problems on the waterfronts and estuaries of the middle-Atlantic States. The usefulness and value of inland waters throughout the nation are rapidly reduced in many areas by response of submersed aquatics to the input of nutrients associated with increased population and increased occupation and use of such waters and the adjoining lands by man.

At the same time all agencies of government and the public are becoming increasingly aware of the impact and very real dangers inherent in the tremendous quantities of lethal and damaging herbicidal chemicals finding their way into waters of the nation and the urgency of exercising control over indiscriminate use of such chemicals. We must find less hazardous and less damaging means of exercising weed control, such as the ideal biological controls that may ultimately prove to be the most effective as well as the most economic. We hope that yet undevised means of inhibiting or preventing the growth of undesirable aquatic plants by removal of some part of the causes of that growth will give us other means of control.

Thus, the sum total of problems facing us today are of such a nature that a project approach is no longer desirable. A real need exists for a program that will permit early action to bring under control serious infestations of economically detrimental aquatic plants of any type, whenever and wherever they may occur. That is essentially what the Chief of Engineers recommended in his final report on the pilot project which was published as House Document No. 251, 89th Congress, July 1965, and what the Congress authorized in Section 302 of the River and Harbor Act of 1965.

The Congress authorized a continuing program in the same language as the prior authority for the preceding pilot project except that geographic and time limitations were removed, and the ceiling on authorized annual appropriations was raised to $5 million.

While the language of the legislation authorizing both the prior pilot project and the continuing program is broad and general and in no way limits the problems or aquatic weeds that may be included in the program, it is apparent in the scope of the authorized program that future work will be subject to the same criteria as the pilot project.

A nationwide survey is not contemplated at this time. Consideration will be given to problems of national, regional, and local economic importance. First consideration will be given to continuation of water hyacinth control throughout its range in the South Atlantic and Gulf Coastal States, and to new work on new problems involving Eurasian Water Milfoil and marine algae and other estuarine infestations in the Middle-Atlantic States.

We must religously refrain from duplication of activities constituting authorized programs of other agencies. Furthermore, we shall not assume primary responsibility for weed control under this program in problems that are essentially a matter of pollution control within the province of the Public Health Service and the Federal Water Pollution Control Administration, where weed control alone would constitute an uneconomic and temporary measure.

It should be apparent from the fact that this program to date has been operative for only one aquatic plant—water hyacinth—and with only one herbicidal chemical—2,4-D—that we are not prepared to move into any large scale operation for control of new plants or use of new herbicides in the absence of adequate knowledge of proven methods and established toxicological acceptability of such methods. The absence of basic knowledge in these fields as they relate to specific plants and specific herbicides is appalling to the administrator who must be assured of the soundness of his program. However, this gives rise to the need for emphasis of the research feature of the program which is objectively intended to provide for and keep pace with the operational needs insofar as possible.

My professional collaborators—the experts—continually chide me about the language of the law which authorizes a comprehensive program for progressive eradication and control of water hyacinths and alligator weed and other obnoxious aquatic plants. Nature abhors a vacuum and the word eradication as applied to weed control is itself obnoxious to the purists. But I am not ready yet to admit that water hyacinth cannot be economically eradicated as a species in the United States or reduced to a point so near extermination that it is inconsequential and unrecognizable. By the same token, eradication of the ubiquitous alligator weed is both unrealistic and undesirable. All of which merely illustrates that each weed in each of its variable situations constitutes special problems requiring specific treatment. Hence, the flexibility of the authorized program is designed to meet these needs as they arise.

In summary may I state briefly where we stand today on the new program and what is required. No funds have been appropriated and no funds are in the budget for Fiscal Year 1967 starting next month for initiation of new work under the new authority. Funds are in the budget for Fiscal Year 1967 for completion of the pilot project as of 30 June calendar year 1967 and we trust that the work will continue in Florida permitting us to maintain continuity with the progress made to date and to examine any new problems that arise.

listed on the label include chara, pondweeds, naiads, coontail, elodea and northern watermilfoil.

In addition, CASORON has also been found to be effective against several additional weed species not currently listed on the label. These weed species are nymphaea, vallisneria, nuphar, parrot feather, star grass (*Heteranthera*),