

*In Brief:*

*Inland water management today demands the services of the professional aquatic biologist. Among the few in the business is Francis H. Bezdek, Lisbon, Ohio. In a WTT interview, he cautions the beginner about some problems of going into the business and indicates a need for a closer working relationship between government and private aquatic endeavors. Bezdek lists a number of areas where research is needed to help the field biologist solve problems encountered daily. Among these are: prevention of handling losses with live fish; determining why fish often die from sudden water temperature changes and prevention of such; how to economically and quickly add oxygen to water during a heavy weed kill; developing an economical means of removing and marketing organic wastes accumulating in the bottoms of lake and ponds; and development of less costly aquatic weed control methods.*

## Inland Water Management Creates Demand For **Aquatic Consultants**

*WTT interviews Francis H. Bezdek, Consulting Biologist, Lisbon, Ohio, and one of the few specialists available in the nation in this discipline*

**Question:** We've been aware for some time of the need for aquatic weed control in the more tropical areas and in some of the heavily populated seaboard states. But management of inland waters appears to be a new problem for the non-crop vegetation control industry. Is it national in scope?

**Bezdek:** Yes, but especially across the eastern half of the U.S. You'll find the landscape honeycombed with ponds and lakes of all sizes. These are continually increasing in number. More and more city residents are seeking building sites near water for summer and permanent residence. Commercial use of inland water is also increasing.

Net result is more pollution of both new and established bodies of inland water. Lakeside living

and use of water causes a build-up of pollution. This, in effect, fertilizes the water to the point that aquatic weeds thrive. Fish and wildlife are restricted and the water becomes practically worthless for recreation or other use. As this comes about, property values drop and owners become concerned. They seek help, and more often than not, find that qualified help is not available in their area. Thus, there has become a great need for the consulting biologist who understands aquatic problems and inland water management.

**Question:** Why the apparent shortage of consultants in this area?

**Bezdek:** Probably because the problem is relatively new. Some 25 years ago, when I was a

young, government biologist, except for industrial and domestic needs, water was treated as a surplus and recreational resource. This included the fish. The question even arose in print as to whether wildlife management was a piddling profession for grown men. There were fewer people living near inland water, and less ground contamination from their byproducts. Thus there was less of a weed problem in waters.

Young men in the field of biology and related areas were then being prepared for careers in state and federal agencies, or in the teaching field. This was logical. But accelerated aging of water impoundments has suddenly created the massive aquatic weed problem of today. More men are needed in private industry for inland water management. Yet the training available for the young biologist still favors government agency work. This will change because of the demand for the qualified aquatic consultant.

**Question:** You speak of the qualified aquatic consultant and the fact that few are available. What qualifies a man in this area?

**Bezdek:** To work in this area, a man needs to be trained and equipped to provide management and recommendations to lake owners. In travelling the eastern half of the U.S., I find no freelance aquatic biologists. When I speak of management, I have in mind techniques which are within the financial limitations of private enterprise and individuals, and practices which have proved effective.

I think many biologists and aquatic research people will agree with me that field biology is often far removed from that in the classroom. Some so-called classroom biology just is not practical for the inland lake owner who is having problems.

Further, private fish culture has changed little during the

past few decades. This is probably because of "give-away" fish programs to private lakes by government agencies. Trout, minnows, and southern catfish hatcheries are limited in number and scattered over the nation. The common warm-water species are provided in large enough quantities by government that it is unprofitable for private industry to compete. Many of the so-called "private hatcheries" today simply broker or haul fish, many of which are wild-caught, as their principal source of income. In my own case, I operate a private walleye, northern pike, and hybrid fish hatchery. Few operators do this on a commercial scale today.

We have attempted to encourage such organizations as the American Fisheries Society to set up standards and requirements for separating government and field biologists as distinct professions. This could encourage more biologists to enter the field as professionals. Also, we believe the Federal government needs to define what constitutes public and private waters. There has been some progress in this field, but generally, it is discouraging.

**Question:** What training is available today for the student interested in a career as a private consultant in aquatic biology?

**Bezdek:** Most courses in aquatic biology today, as I indicated earlier, are still slanted toward teaching and government agency careers. This must change and will as recognition of the needs become more common. Some corporations are now hiring full-time aquatic biologists, particularly those producing, testing, and applying chemicals for aquatic weed control.

**Question:** Much about water pollution is in the news. To what degree do you feel government regulation is effective?

**Bezdek:** The problem is great. It cannot be solved overnight. Effective regulation must also involve a practical approach. Federal agencies and state health departments are assigned the responsibility for regulating discharge of industrial by-products and chemicals into waters and the atmosphere. Pesticides come under this category. Though some regulation of pesticide use is needed, too stringent attitudes and methods may impede progress in the field. But to answer the question, effective regulation, especially for the larger bodies of water, is still in the future.

**Question:** Do you do your own testing before treatment or before recommending treatment of private waters?

**Bezdek:** Yes, but there are problems. Because the profession of the self-employed aquatic biologist is new, prospective clients often question the ability of the consultant. Also, state health departments and state fish and game departments at best are uncooperative in dealing with the private aquatic professional. The State Health Department of Ohio usually refuses to recognize our private water pollution tests as accurate in cases where we are called to testify or to represent a client. We find this even though we use standard Public Health guidance procedures. This I think points up the gap between public and private endeavors in the field of aquatic management. Time and the demands of the job will solve many of these differences.

**Question:** You have pointed up the need for professional aquatic consultants. Would you recommend this for the young biologist just out of school or with limited experience?

**Bezdek:** The future is unlimited for the courageous few. Armed with training in wildlife and

aquatic biology, the field of private consulting work is limited only by the ability to develop workable techniques. Aquatic weed control alone is an unlimited field. Lake owners and managers welcome the chance to subcontract water problems to a knowledgeable professional, but only after they become confident of his ability.

My recommendations for the beginning consultant would be to start on a part-time basis. The reason for this is that field know-how must be developed. The new private operator will find many present methods either too expensive or impractical.

Further, problems are great. A typical lake today has had catch-size fish dumped into it every year or two and little or no management, except possibly some spot removal of weeds. Test-netting, partial fish removal, corrective stocking, altering water levels and proper weed control have likely never been heard of by the management, much less used on the lake.

The beginner must also understand that sound management of inland water is not as simple a process as the application of an herbicide to ground crops. A professional in the field must be more than an applicator of aquatic weed poisons to know what and when to apply to such a delicately balanced group of variables as found in water impoundments.

The private operator has to allow for time in the laboratory to iron out field problems with water, especially with the profit motive in mind. Some methods and tools are too expensive for some jobs. A chemical cost of \$50 or more per surface acre plus application costs may be prohibitive. I frankly feel that more basic research must be slanted toward useable field biology. The industry today could stand less professional competition and a closer working relationship.

**Question:** You mention the need for more basic research aimed at the field level. What do you specifically have in mind?

**Bezdek:** There are a number of urgent problems. A few are: how to prevent handling losses with live fish; why do fish often die from sudden water temperature changes and how can this be prevented; how to economically and quickly add oxygen to water during a heavy weed kill; control of reproduction in fish such as sex-linked sterility, or sterility produced by certain feeds or radiation; an economical means of removing and marketing organic wastes accumulating in the bottoms of lakes and ponds; and how to produce warm-water fish to catch-size economically as has been done with trout.

**Question:** Can you elaborate on the problem of organic wastes which fill lakes and ponds? This seems to be a problem area which is largely untouched.

**Bezdek:** There is an unlimited market for the rich, organic detritus accumulating in the various lake and pond bottoms, if an economical or profitable means of removal can be developed.

For example, I recently visited a 1000-acre lake in Michigan. Engineers had found the clear-water depth to be only 10 feet. But below the clear water was a layer of soft organic muck 25 feet in depth. It would seem that a portable, barge-mounted, slurry pump, coupled with an attached baling device could be developed for removing this product. There would be no problem in marketing this material since it is excellent humus for building topsoil, if in a salable condition such as in 50-pound cakes.

Removal of this material would be the equivalent of returning the lake to its primeval condition, reduce the weed problem, and open an avenue to better gamefish populations.

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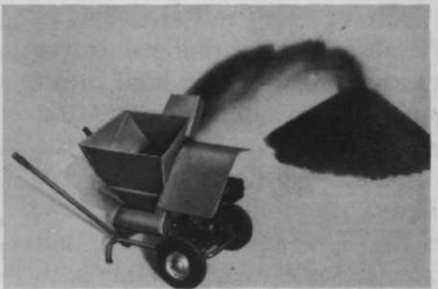
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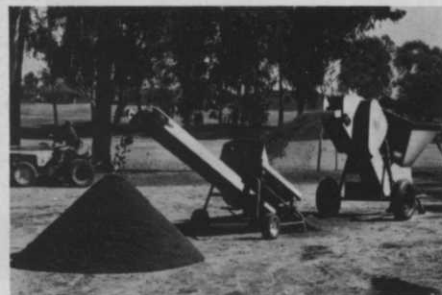
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