

2. It will be the policy of the United States Fish and Wildlife Service to constantly promote the conservation partnership approach.  
Now, let's get going!

## OBSERVATIONS ON THE NEED FOR AND THE IMPORTANCE OF ARTIFICIAL IMPOUNDMENTS IN THE SOUTHEASTERN STATES

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I propose to talk about artificial impoundments. I trust that my experience is sufficient to warrant this action and yet not so complete as to make me an expert on the subject and, hence, doctrinaire in my viewpoint regardless of what facts I may or may not have in my possession.

For a long time those impoundments built for the usual statutory purposes (navigation, flood control, power, and/or national defense) were suspect insofar as fish and wildlife were concerned. This attitude resulted from (1) inadequate land acquisition for public access and feeding areas for ducks and geese; (2) reservoirs were usually single developments and, hence, fluctuations in water level were frequently severe and rarely followed a schedule; (3) the fish populations were not adequately investigated to determine their true status—why study something that does not exist; and (4) the closed season during the period of the year when fishing is at its best prevented the accidental discovery that artificial impoundments did support fish life.

Permit me to state here and now that reservoirs built for navigation, flood control, power, and national defense can, under certain circumstances, make a major contribution toward satisfying the demands of the anglers and the gunners as well as the need for general recreation, although these matters were not given too much attention in the design and work plan of the project. A hydro-electric or flood control, etc., project need not necessarily be incompatible with the wildlife interests—and this may be true even in a region where the breeding of the malaria mosquito must be controlled. In fact, if I were inclined to do so, and I am, I could state categorically that in the Tennessee Valley a series of some 26 dams built for navigation, flood control, power, and/or national defense has provided as many acres of superior fishing water and waterfowl habitat—feeding areas as well as swimming pools—as have been provided by the agencies whose specialty it is to accommodate the needs of the fishing and hunting public.

The important point to consider is that people on both sides of the fence must act rationally, give and take, for it cannot be the whole hog in either direction. The engineer and the wildlifer must understand one another, they must cooperate *sincerely*; they must within reason render mutual assistance one to the other.

It has been my good fortune during some of the controversies over dams and reservoirs on the one hand and fish and wildlife on the other to have a seat on the 50-yard line, or perhaps I should say the goal line—or even worse, there have been times (at least it seemed that way) that both elevens were charging at me. I must confess that I have not always felt proud of the attitude of the engineer (used here to cover all people directly associated with the building and operation of reservoirs) but to be quite honest there have been times when I felt discouraged because of the intolerant attitude of certain so-called conservationists.

The region in which most of us live is not blessed with an abundance of natural lakes. You, of course, understand the principles of geology that account for this fact. I have at times—when the argument of wildlife vs. mosquito control seemed to get out of hand—felt that the absence of lakes in the southeastern states came about because geology anticipated the malaria problem, and was not due to the absence of certain natural depressions, or erosion, volcanic and tectonic forces.

In the absence of natural lakes the fishing and the hunting of waterfowl is of necessity restricted to the rivers. This affords very limited opportunity under the most favorable circumstances because the total surface area of our rivers is not too impressive. Moreover, our rivers have deteriorated as civilization advanced—agriculture has contributed silt; the development of large industries and large cities has contributed pollutants that have in many instances made the stream unfit for man or beast. Add to this the rapid increase in the human population, more money, and more leisure and it soon becomes apparent to the average citizen that our rivers are totally inadequate to take care of the number of anglers and hunters who are looking for a place to pursue their sport.

To many of us the answer is artificial impoundments of one sort or another, of all sizes and shapes and of multiple sponsorship. Fortunately, this is not the answer of only those who dream dreams or of hydro-power enthusiasts but of practical men—and women perhaps—as well. To wit, the large number of farm fish ponds, club lakes, and state fishing lakes that have been built in this region. These impoundments, although individually of small size because of their number, have multiplied the opportunities for fishing especially but also for waterfowling.

Let me now make mention of another category of artificial impoundments; namely, the larger reservoirs built by TVA in the Tennessee Valley and by the U. S. Corps of Engineers in other river valleys of the southeast. On the basis of my layman's experience I venture the opinion that these impoundments constitute a major contribution to the development of fishing and waterfowl shooting in this region. These impoundments, although they were not built specifically for the preservation of our aquatic resources or to further recreational development, have served these purposes fairly well. As a result of the reservoir building mentioned in this and the preceding paragraph the Southeast now has more high quality fishable water than it had before siltation and pollution became a serious threat to our rivers.

At this point I wish to discuss very briefly several topics related to reservoir operation, investigations, the value of reservoirs and the matter of financial responsibility with a final word on a new approach to reservoir planning.

#### *Conservation or Recreation Pool*

This is one phase of reservoir operation that has been discussed extensively but mostly by people not engaged in reservoir operations. In TVA we have talked about this matter but have properly refrained from making a decision because we have not been given any specific definition of a conservation and/or recreation pool, in terms of either the requirements of fish or fishermen. Another reason for not arbitrarily setting a minimum pool level is because with us the need to meet an ever-increasing power demand is a stark reality. Therefore, TVA, instead of establishing minimum pool levels, sets levels below which reservoirs will not be drawn for power production unless it is absolutely necessary. Experience has shown that when reservoirs were drawn below these provisional minimum levels the fishing the following summer was not affected adversely (Norris and Cherokee Reservoirs, 1955-56). Because we have to maintain a navigable channel from Kentucky Dam to Knoxville, we have automatically more than the equivalent of a conservation pool in all mainstream reservoirs, roughly 74 percent of the entire system.

#### *Fisheries and Wildlife Investigations*

Reservoirs are in need of intensive study to determine (1) real productivity; (2) the effect of reservoir operations, especially water-level fluctuation on fish and fishing; (3) effect of thermal and O<sub>2</sub> stratification in storage reservoirs, etc.; (4) to keep current a body of information on the status of the fishery for the guidance of the regulatory authorities of the Valley states and to advise the fishing public; and (5) how to best exploit the possibilities for migratory waterfowl. The TVA in the past has made many worthwhile studies but they were limited in scope. They were executed with one major objective in mind because we had to prove in a hurry that artificial impoundments did produce fish and this did not leave much time for many other studies that should have been made.

I want to state modestly yet candidly and emphatically that the Valley States should devote more effort toward the study of the fishery in our impoundments.

They reap a rich harvest in terms of revenue from these impoundments. They would derive benefits from this additional effort in terms of revenue, good will of the angler, and the satisfaction they might receive from having helped the TVA, the creator of these opportunities, to ward off charges that these lakes do not produce fish—and certain people again demand a return to useless artificial stocking or the restoration of restrictive fishing regulations.

#### *Routine Reservoir Operations*

On the basis of my experience I am inclined to say that the best way to operate a series of multiple-use dams is to operate on a schedule that gives consideration to as many interests as is possible and to the extent that is compatible with the legal and financial status of the project. The TVA annually holds a staff conference for this purpose. To try to accommodate special requests for modification of operating schedules soon leads to confusion and may not accomplish much good in the long run. Requests for changes in schedule are sometimes unrealistic and unreasonable. At times they demand the impossible, as for instance the suggestions that we refill the reservoirs late in the fall for the benefit of waterfowl. There are two reasons why this particular request cannot be granted: (1) we do not have the water and (2) a reservoir that is already full does not afford protection against a flood. One request in recent years would have obligated TVA to promise to sacrifice 158,000,000 kw. of energy with a wholesale value of \$632,000.00 in order to save a cooperating agency an expenditure of \$5,000.00. Another person writes that he and several other persons will stop fishing a certain reservoir unless we quit draining it every week end. This is an unreasonable attitude because the actual lowering of the level is about one foot for the stranding of malaria mosquitoes. Moreover, the reservoirs immediately above and below are rising on weekends so these people could fish in either of them if they felt rising waters were necessary for a successful fishing trip. Many people complain about the low reservoir levels during the winter and the adverse effects of these low levels upon the fish, while all the time they are concerned only with the effort required to get to and from the water. Because requests for special operations are not only unreasonable and unrealistic but frequently contradictory, it is best to have a schedule and stick to it to the extent that runoff and other unpredictable events permit.

#### *Value of Major Multiple-Use—Navigation, Flood Control, Power, and National Defense—Dams for Recreation in the Tennessee Valley*

As mentioned earlier in this paper, projects of this type were not held in high esteem by the specialists interested in the conservation and further development of our natural aquatic resources. Some reasons for this negative attitude were cited. Fortunately, this attitude has or is changing and I feel that I may say with confidence and without appearing to be naive or overly egotistical that the experience in the Tennessee Valley, and more specifically TVA's contributions in terms of studies and the contribution of physical assets, has contributed much toward bringing this change about. TVA's emergent and evolving philosophy of multiple use and of cooperation at all levels of organized society has been an important means toward the establishment of peace on a battlefield that was definitely hostile and most active during the late 1930's and 40's.

What are some of the facts that warrant the statement that experience in the Tennessee Valley has changed the attitude of certain very important people toward larger bodies of impounded waters. We may mention here the existence of some 600,000 acres of superior fishing waters—improved fishing in both quantity and quality—where we formerly had some 100,000 acres of river subject to greater and/or more abrupt changes in water level or total water surface as is presently the case in the impoundments. Sixty-eight thousand acres of upland (including 26,000 acres in a deer management area that provided a harvest of 1,200 deer in 1956, or one deer per 20 acres) and 126,000 acres of land (below maximum shoreline) and water for waterfowl have been made available by TVA.

When the 1957 waterfowl migration reaches the Tennessee Valley, in excess of an estimated 150,000 bushels of grain and seeds plus some goose pasture, all produced by cooperating state and Federal agencies, on TVA lands will greet this migrating horde. I am not sufficiently expert to estimate the acreage

of natural aquatic vegetation required to equal the food value of this amount of grain and seeds, but I am bold enough to say that 150,000 bushels of grain have a much greater food value than all the natural food all the TVA lakes could produce if these were operated along the lines laid down by certain specialists—in fact, most of the shallow areas on the mainstream reservoirs would no longer exist had we operated on the basis of the recipe provided by certain experts. (Even without water-level fluctuations the production of useful aquatics would be very limited because of (1) turbidity and (2) favorable conditions for the growth of useless emergents—lotus, lizard's tail, etc.; and woody species—willows, etc).

Well in excess of 100,000 acres of land have been made available for national forests and parks and state and local parks.

These contributions are important but the final test is what use is made of these facilities, land and water. The ducks have freely accepted these benevolences. Around "Thanksgiving Day" 1956 an estimated ½ million ducks were on the Tennessee and Wheeler National Refuges. Let me cite a few more figures. Reports covering recent hunting seasons in Alabama and Tennessee indicate that TVA impoundments have contributed something for the gunner's benefit. The kill figures for ducks and geese combined for the 1954-55, 1955-56, and 1956-57 seasons are 21, 164, 42,124, and 43,536, respectively. The sale of duck stamps in Tennessee rose from 5,366 in 1937-38 to 41,406 in 1956-57. In the 1934-35 season Tennessee sold 57,387 resident hunting and fishing licenses; during the 1955-56 season this number had increased to 562,062 (879 percent). During this same period the revenue from the sale of nonresident fishing licenses increased from \$1,600.00 to \$275,468 (you figure the percentage). For several years recently the State of Tennessee has ranked fourth for the nation in the number of nonresident fishing licenses sold. (No, it's not all due to TVA, but . . . )

Just a few more figures to illustrate public acceptance and/or use: Last year more than 30 million visits were made to the lakes for recreation, in contrast to only 7 1/3 million ten years ago. Present use is the equivalent of nearly 3,000 visits to each mile of shoreline, or more than 50 for each acre of water surface. By 1956 the people, businesses, and public agencies of the region had put more than \$60,000,000.00 into recreation facilities and equipment on TVA lakes and their shorelines. The term "recreation facilities and equipment" includes some 38,500 boats, with the necessary boathouses and floating docks; 12 state parks and some 50 county and municipal parks; 261 *public access areas*; overnight and vacation facilities to accommodate 8,700 visitors; and some 4,200 private summer cottages.

You are probably inclined to agree with me that the foregoing facts indicate that TVA has made a major contribution to recreational development in the Tennessee Valley. Even the experts have admitted that much, but they have been quick to add that these things were not planned, that they just happened, or were thrust upon us. I am not quite willing to admit that everything just happened. But suppose I do grant that such was the case, then may I ask this question? If all this could happen in a blind alley, what may we expect from a situation where conservation planning—wisdom and foresight—have been included in the original design of a major river development project? Please give me a "for instance."

### *Financial Responsibility*

I am again, as a matter of course, speaking of my experience in the TVA. The entire cost of land acquisition and dam construction has been allocated against the statutory program. Not one penny of these costs has been charged against recreation or fish and wildlife. All the lands that have been made available to various public agencies for public use programs have been made to these agencies *without cost to them*. Only recently have we initiated the practice of charging for part of the costs of surveying and mapping in connection with land transfer. Under these conditions it is important to consider (1) the responsibility of the project sponsor and (2) the rights, if any, of the recreation interest to require physical assets at no cost. This is true especially in the TVA where the U. S. Treasury has to be reimbursed for all funds appropriated for power facilities—this means that revenues have to be earned in order to make these repayments. This is in addition to the legal responsibilities of the TVA under the Act and other contractual commitments. This

places a large measure of responsibility upon both the TVA and state and Federal conservation agencies that make major requests for land use or modifications of reservoir operations. But even aside from these considerations if one agency undertakes to carry on a major program in the backyard of another agency, this interloper agency should be aware of what it is doing and govern its conduct accordingly. Such an agency or agencies should certainly exercise careful and sound judgment in the matter of special requests for land or consideration in the matter of modified reservoir operation.

In my opinion, the conservation interests have been too complacent in this matter. They have been content—not a peaceful content by any means—to rely on handouts from the project sponsor rather than make efforts to obtain their own appropriations necessary to realize the actual and/or potential value to fish and wildlife of a river development project. This is, as the late Ken Reid pointed out many years ago, a matter that at the policy level should be resolved by Congress rather than by bickering or dickering between such agencies as the TVA and the U. S. Fish and Wildlife Service. The various editions of the Coordination Act of 1934 have failed to do this. Why, I don't know but I suspect that a reluctance—on the part of certain people—to admit that large artificial impoundments are not necessarily inimical to existing aquatic resources but may actually greatly expand them has been a factor. (It would require the enthusiastic and energetic support of major conservationists to obtain the necessary additional appropriation from the Congress.)

Several years ago legislation was introduced in the national Congress that would hold the sponsor of a river development project liable for the impairment of existing wildlife and fisheries resources but charge the appropriate state or Federal agency with the responsibility to finance the realization of the additional developments for wildlife that were made potentially possible as an incident to the main project. This legislation failed of passage. (To me it seemed sound, but then I might be on the wrong side of the fence—or trough.)

In the last session of Congress legislation was considered to give Federal sponsors of river developments credit on the basis of recreational use of the facility up to 15 percent of the cost of a project. This proposal possesses some real merit; it is realistic and would or certainly should encourage the sponsor of major river projects to give more consideration to recreation development and use. If TVA, for instance, could obtain a credit up to 15 percent of its capital expenditures, it might well be expected to be more liberal when it comes to the disposal of surplus land—transfer to other public agencies rather than sale to private groups or individuals—or the modification of reservoir operation schedules.

A proposed amendment to the Coordination Act of 1934 provides still another approach. And regardless of its intrinsic merits; namely, the provision to make all costs of fisheries and wildlife development on or adjacent to Federally sponsored river development—of Federally aided—projects an integral part of the cost of the projects without distinction as to the reparation for damages or the development of newly created possibilities, the proposed amendment shows that sponsors of the Coordination Act—presumably in and out of Congress—have, during the interval from 1934-1957 come to realize that not all the effects of impoundments are negative but that there are, in fact, some very important positive implications for fish and wildlife.

It will be interesting to see what becomes of this proposal and if enacted into law how it will be implemented. It is undoubtedly just a matter of a few years until we will have some form of Federal legislation that will give the so-called conservation interest a greater voice in the building and operation of so-called multiple-use reservoirs but—I hope—on an equitable basis of financial and ethical responsibility. Legislation of this type will, of course, solve some problems, but it will create new ones. How much recreational use is equal to 5 to 10 or 15 percent of project cost? Will the sponsors try to take more credit than they are properly entitled to? Will the sportsmen and conservationists invariably be reasonable?

#### *A New Approach to Reservoir Planning*

To solve the problem stated in the preceding section, a new concept of reservoir planning will have to be developed and adopted. The authorization of major river developments should not be limited to the now usually considered statutory objectives. The plan and the authorization should contemplate the

total realization of all types of development inherent in the project. And perhaps the usual order of enumerating statutory objectives should read: the general public welfare—including flood control, recreation and forestry, navigation, power, and national defense. If wildlife enthusiasts endorse this order of listing they will undoubtedly insist on assuming the major share of the financing. Actually, the listing of objectives proposed here may not be as inconsistent with realism as one may think. In fact, it might be entirely logical. Certainly our aquatic resources should receive a high priority because (1) they are absolutely dependent on an aquatic habitat; (2) they were present in advance of dams, etc.; and (3) the large number of people who have a vital and legitimate interest in the conservation of our aquatic resources for either sport or profit. After the aquatic resources have been taken care of other uses should be accommodated on a natural priority basis. And when we proceed on this basis those human needs—real or assumed that cannot be satisfied except through the use of water would receive a higher priority than those needs that can be met by alternative means. (Examples are readily at hand.) This illustrates the manner in which society would act were it constituted of logical being. However, we are not logical. *And to date our greatest recreational values that have resulted from river developments have been derived as a secondary product from projects authorized for nonrecreational purposes.*

## POLITICS IN STATE GAME AND FISH AGENCIES

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The organized sportsmen of this country have long worked to get their game and fish departments out of politics. It is one of our time-honored goals. Once having achieved a measure of freedom from politics, then our work becomes defensive as we try to keep that freedom. Or both defensive and offensive, as we try to hold the ground already won and make other advances toward the ideal of "nonpartisan scientific management of natural resources."

All of us have encountered the scoffers, who say we are pursuing an idle dream, a will-o-the-wisp, an illusion. "Politics," they say with reason, "is the very essence of government. You can't take anything in government out of politics."

In a way, of course, the scoffers are right. In a way we wouldn't want to take any part of government out of politics. It depends on how you define politics.

In its broad and classical sense, the word *politics* means the art and science of popular government. It comes from the Greek word, "politikos," meaning "of the citizen." In an old-fashioned kingdom or in a modern dictatorship, this would mean, I suppose, the ruling or the manipulation "of the citizen." The control of the masses.

But in a democracy like the United States it means government "of the people, by the people, for the people." In this country the people are sovereign. They exercise their sovereignty at the polling places. And no game and fish department, or conservation commission, no matter how insulated from partisan and legislative pressures, no matter how buttressed with constitutional authority and civil service laws, can escape or ignore its ultimate ruler—namely, the people.

Take the Missouri Conservation Commission, for example. The Missouri system is generally considered to be about the ultimate in freedom from partisan politics. But who established the present form of wildlife and forestry administration in the Show-me State? Nobody but the people. The voters. They did it by passing a constitutional amendment that created a four-member, bipartisan commission (and for practical purposes, a nonpartisan commission) as their agent for managing fish and game and forestry resources. They took all powers to make wildlife regulation, including the setting of license fees, out of the hands of the legislature and gave those powers to the new commission. They took all personnel matters out of the reach of the political patronage handlers and gave them to the commission. They gave the commission *almost* complete