

WILDLIFE MANAGEMENT OPPORTUNITIES IN WATER DEVELOPMENT PROJECTS

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Throughout the country, government agencies are constructing and planning the greatest water development program in the history of the nation. Every major river basin in the eleven Southeastern states is being considered for some type of development. Many of the proposed improvements have already been authorized and construction is moving ahead rapidly. Others still in the planning stage probably will be authorized during the next several years resulting in an integrated program designed to harness our rivers for flood control, hydroelectric power production, and to provide navigation facilities on an unprecedented scale. In addition to the river development programs, consideration is also being given to the expansion of intracoastal waterways and similar work involving long reaches of coastal marshes.

The effect on fish and wildlife habitat of this vast development program will be profound. Many new water areas will be created through reservoir construction which will provide opportunities for fish and wildlife management. On the other hand, much valuable wildlife habitat will be lost forever through impoundment and by clearing lands protected from overflow for agricultural uses. The most disappointing aspect of this is that much of the habitat that will be destroyed consists of irreplaceable bottomland types, and the trend during our time is toward a steady reduction of these types. This, coupled with more intensive agricultural land use in the uplands, is playing an important role in reducing opportunities for production of wildlife, especially those species that must have substantial amounts of this critical habitat in order to survive. Saving critical habitat types for wildlife is one problem, but the one I wish to emphasize concerns the utilization of habitat created or made available by the water development programs to the fullest practicable degree.

Reservoir construction in conjunction with flood control, navigation, and hydroelectric power production will necessitate the acquiring by the United States of large tracts of land necessary for the primary purposes of these projects. Under the multiple-use policy of public land management, however, fish and wildlife resources have a place in the land management phase of reservoir operations. The same is true in other than reservoir projects whenever substantial land areas must be purchased for rights-of-way and other purposes. These lands can be made available to the states for wildlife management purposes when the need therefor can be demonstrated. In every case, however, use of these lands for wildlife management would be subject to conditions imposed by the primary purposes of the projects.

An important consideration in this connection is that an increasing number of opportunities is being found to correlate water control and land management with fish and wildlife management programs. Waterfowl management is especially favored by such correlation. Examples of developments that have been undertaken

illustrate the many opportunities that have as yet not been exploited and opportunities yet to come. Each reservoir presents an individual problem, but for the sake of convenience, we may break this discussion down into the consideration of hydroelectric power and flood control reservoirs separately.

The Tennessee Valley Authority reservoirs, operated primarily for hydroelectric power production, serve as excellent examples of the former type. Regulation of water to produce power with secondary considerations for flood control and malaria control leave few spectacular opportunities for wildlife management. The reservoirs, due to the kind of water level control essential to power production, offer little in the way of food production for waterfowl. Nevertheless, it has been shown by Parker Smith in Tennessee, by Dr. A. H. Wiebe, Chief, Fish and Game Division of the Tennessee Valley Authority, and by the Refuge Branch of the Fish and Wildlife Services that lateral developments for waterfowl management on reservoir projects are entirely feasible. In the case of Wheeler and Kentucky Reservoirs, advantage has been taken of de-watering areas primarily established for mosquito control. Reflooding these areas following the mosquito breeding season has made foods produced on them available during the fall and winter, attracting and holding a large number of ducks. Intentional and specific developments of this type primarily for wildlife management are worthy of consideration, and without them such reservoirs usually would be sadly lacking in waterfowl utilization.

Similar results may be obtained by creating subimpoundments or lateral pools with stable water levels maintained in the interest of producing aquatic and marsh food plants. Such developments usually would entail greater costs, and care must be taken to locate them in drainage basins large enough to maintain levels by runoff. Pools of this type may be created economically by combining water control structures with road fills and bridges. Wherever new reservoirs are being planned, it would be well to examine closely the plans for road relocations so that arrangements may be made during the early planning stages. Dikes across lateral valleys in the Santee Reservoir refuge have successfully created small stable water areas (about 100 acres) which have the advantage of remaining clear while the main reservoir is very turbid. A larger water area of about 2,000 acres was created by diking out a shallow portion of the main reservoir, and a stoplog structure permits occasional reflooding from the reservoir proper.

Power reservoirs with fall drawdowns also offer opportunities for planting exposed islands and other areas with rye grass to provide goose pasture. This practice has been successful in attracting geese to Tennessee reservoirs and would be applicable in many similar situations, such as at Clark Hill Reservoir on the Savannah River, now under construction. Planting of some grains on lands exposed in early August would appreciably enhance the attractiveness of these areas to waterfowl.

In flood control reservoirs lacking hydroelectric power installations, latitude for wildlife management is substantially increased. In such reservoirs, a conservation pool is usually provided which may serve as a nucleus for a management plan. The substantial areas of land above the conservation pool set aside for flood water storage offer opportunities for wildlife management that have hardly been touched. Reservoirs with broad, shallow water areas are particularly suitable for waterfowl management. Some of the states and the Refuge Branch of this Service are undertaking to develop a few of these areas with promise of excellent results.

There is no scatter-gum recommendation that will apply to all reservoirs of this type, but in general, the key to their adaptability is in the timing of the flood water storage and discharge and in the latitude for water-level manipulation left by flood control storage demands. In the planning stage of such reservoirs, such latitude may be provided intentionally. On reservoirs definitely planned or already constructed, some opportunity can usually be found to take advantage of natural water level fluctuations, or special provisions may be created. Mississippi, for example, is undertaking to construct low dikes in the flood control pool of Sardis Reservoir to insure shallow water areas of a type attractive to waterfowl during years when water levels in the main reservoir fail to rise high enough to inundate matured waterfowl foods produced on exposed land. Whether or not special water areas can be created, management of lands adjacent to the conservation pools to provide duck foods is entirely feasible. The Service is contemplating this type of development on Enid Reservoir, Mississippi.

The important thing is that we recognize these opportunities and take advantage of them to the full extent of our resources. Taking advantage of the opportunity to use publicly-owned reservoir lands for wildlife management purposes under license or permit from the operating agency helps substantially in reducing the cost of such management. Low lands surrounding the conservation pool often are too wet or too frequently flooded to justify agricultural use in the ordinary sense and may be available for wildlife management. Control of vegetation on these marginal areas to influence succession in favor of waterfowl foods will often require only a modicum of effort. On the other hand, large reservoirs present such a vast problem in this connection that perhaps only portions of the reservoir areas can be intensively treated. Coppice control can be accomplished by cultural methods, and the planting, if necessary, of pioneer species, such as smartweeds, chufa, and wild millet requires a minimum of soil preparation. Where latitude for water level control is available, such control can be the primary tool for preventing undesirable coppice growth and encouraging the types of plant growth attractive to waterfowl in the zone adjacent to the conservation pool.

On the higher areas in the flood control pools or in the surcharge areas above power pools, land uses usually considered by the operating agency include agriculture, grazing, forestry, and recreation. These lands may also be considered as potential wildlife management areas. Usually left uncleared of existing trees, they are subject to management for a variety of species, depending upon the amount of land and previous land uses involved. The occasional flooding of the higher areas need not preclude their usefulness in upland game or big game production. In fact, the land management picture may well change in favor of wildlife through regulated soil conservation and farming practices. Increased attention is being given to sound land use practices by the operating agencies, and in Corps of Engineer projects, at least, leases for farming purposes may stipulate that wildlife management considerations are a part of the lessee's responsibility. Cooperative arrangements with the operating agency and the farms may pave the way for extensive wildlife benefits with little cost to the States. In reservoir projects resulting in net losses to wildlife resources, the operating agency has a responsibility for restoration that may well be translated into planting food and cover under plans provided by the State.

Refuge and public shooting area developments in and adjacent to reservoir areas are, of course, obvious opportunities that should be considered wherever a

new reservoir is being planned. Big game restoration is occasionally feasible in the larger reservoir projects, providing adjacent lands of the proper habitat type are available for escape of animals during periods of maximum water storage. Since most flood control reservoirs are designed to accommodate the maximum flood of record, periods of complete inundation are not likely to occur often. If State acquisition of adjacent lands is necessary to provide an adequate area for management purposes, the necessary purchases should be planned and accomplished if possible before the reservoir is created, since experience has shown that land values may increase substantially once the reservoir is established.

Water control or development projects other than reservoirs offer a variety of local problems and opportunities. Sump areas created by accumulated interior drainage behind levees occasionally become features of flood control projects. Such areas can be converted into valuable management opportunities, depending upon local conditions. Levees, spoil banks, and rights-of-way are also deserving of attention in that respect. Occasionally a waterway project in a coastal area may provide spoil banks that can serve as water retention dikes to freshen salt marshes and create brackish or fresh marsh conditions more valuable to waterfowl and other wildlife. Such a project is under consideration in Florida, where an extension of the intracoastal waterway from St. Marks to Anclote Rivers is being contemplated. Another navigation project of great interest involves the coastal marshes of Louisiana where consideration is being given to the inclusion of salt water restriction works for the collateral purpose of controlling favorable salinities in muskrat marshes. Considerations of this kind open up many avenues of exploration by wildlife biologists.

In conclusion, this discussion is primarily an attempt to call attention to the many and varied opportunities for wildlife management afforded by the water development programs in this region. Local conditions and needs will dictate the specific approach to management problems encountered on individual projects, drawing on the ingenuity of administrators and biologists alike. The Office of River Basin Studies of the Service is vitally interested in these opportunities and the problems they raise, and we, as well as the Service as a whole, are eager to cooperate with the States in their solution.