WATERFOWL RESOURCES AND MANAGEMENT ON THE KENTUCKY SECTION OF KENTUCKY RESERVOIR

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Effective management for waterfowl in any localized area requires a general understanding of the over-all management problem. Obviously, the localized problem should be coordinated with the over-all waterfowl program. Dr. C. Cottam (1947) has called attention to the fact that a

> Major requirement for the correction of the present waterfowl situation is the development of more widely distributed wintering grounds. In numbers, total acerage, and distribution, our present system of wintering refuges and shooting areas is inadequate. Shortage of wintering habitat, like the decrease in favorable breeding grounds, has a limiting effect upon waterfowl distribution and will just as surely limit the bird populations. Perhaps the majority of the new areas should be state-managed. I believe the states could administer a system of small areas as well or better than the Federal Service. An effort should be made to re-establish waterfowl use of newly developed areas on which they are absent.

This need for expansion of wintering habitat for waterfowl also has been emphasized by other authorities, such as Dr. L. Griscom, and Mr. F. Lincoln.

The lower secion of the Tennessee River, which flows north to join the Ohio, is close to and parallels the Mississippi. It is in this locality that the Mississippi waterfowl flyway is confined within the limits of the Mississippi Valley. Under these circumstances a congested zone of waterfowl use exists where the expansion of suitable habitat for ducks and geese is of primary importance. The impoundments of TVA furnish an opportunity to develop suitable areas for waterfowl. State and Federal agencies have recognized the need for this work. National wildlife refuges have been established, and state efforts have been made to conduct development projects. Successful waterfowl management is being carried out in Tennessee, but elsewhere improvement for waterfowl has been curtailed because procedures for a co-operative development with TVA remain in a confused state.

Investigations concerning the waterfowl resources and their management on the State of Kentucky section of the Kentucky Reservoir have been carried on for several years by the Kentucky Division of Game and Fish. Since September 16, 1946, this work has been done under Federal Aid Project 11-R.

Waterfowl Status on the Kentucky Section of the Reservoir

The Kentucky Reservoir commonly known as Kentucky Lake, is the newest and largest of the TVA reservoirs. The impoundment of water in the reservoir was started on August 15, 1944 and was completed by June 1945. The State of Kentucky section of the reservoir extends forty miles up the Tennessee River from

the dam at Gilbertsville, Kentucky. In this area the reservoir averages nearly two miles in width, with many embayments giving a considerable mileage of irregular shoreline. The entire valley floor is inundated when the lake is at normal pool level. During the summer and fall drawdown, however, extensive areas of mud flats are exposed. These mud flats occur at the heads of embayments and as low emergent islands along the former banks of the river and its major tributaries.

The history of the waterfowl use of the area indicates that this section of the reservoir received moderate use under natural conditions prior to impoundment, very heavy use during impoundment, and very light use since impoundment. Twenty-four species of waterfowl have been noted using this portion of the reservoir. The maximum number of water fowl are found during the fall and spring migrations, with lesser numbers wintering, and very few being present during the summer. The birds that stop in this section of the reservoir are only a small fraction of those that pass through without alighting. The areas most frequently used by waterfowl are a series of moderate-size embayments and emergent islands. Wood ducks are the only species known to have bred, although there are reports that mallards and hooded mergansers occasionaly nest in this locality.

Hunting success was very poor during the last two seasons. The success ratio for 1946-47 season was 0.14 ducks per hunter day and 0.17 ducks per hunter day for the 1947-48 season. The low success ratios can be basically attributed to the lack of waterfowl. Other contributing factors were the wide expanses of water and mud flats with little cover, and local hunting practices.

TVA's management of water for their objectives of flood control, hydroelectric power, and malaria control call for a draw down of the water level during the summer, fall, and winter. This drawdown strands marginal marsh vegetation and prevents the establishment of aquatic plants. This condition results in a scarcity of available duck plant foods since these birds are loath to cross bare mud flats. In view of these circumstances, it is necessary to superimpose or coordinate waterfowl development with TVA's valley management. Investigations conducted during the past nine years have indicated how this might be done. To date our field studies on the State of Kentucky section of the reservoir show that waterfowl development should be confined to (1) upland agricultural areas, (2) seasonal subimpoundments, and (3) emergent islands and mud flats. It must be emphasized that, due to the limited reservoir, all three of the above methods will have to be undertaken in order to have a balanced and successful program.

Initial efforts have been made to establish upland agricultural areas. In 1946 forty acres were sown to balbo rye for attracting geese and seventeen acres were share-cropped to corn. Next season (1947) a favorable condition for renewal of the lease for this agricultural land was not made possible and it was leased to private individuals.

The development of subimpoundments, which would flood desired waterfowl vegetation during the late fall and winter, has been under consideration. TVA officials have indicated that such seasonal subimpoundment development will not conflict with their program. Although they have agreed in principle to this type of development, to date, eight months of negotiations have failed to secure a single site for a subimpoundment.

This leaves islands and mud flats as the only means for improving the situation for waterfowl at the present time. Island development may include (1) disking of the highest zone followed by seeding of some quick-maturing crop, such as

buckwheat; (2) control of trumpet vine and other weeds by 2,4-D so as to stimulate chufa growth; (3) planting chufa in suitable locations where that species is not yet established; and (4) sowing of Italian rye grass on bare mud flats. This island and mud flat development will be of significant importance to geese, particularly the rye grass planting, but is of more limited value to ducks. For example, ducks will utilize chufa tubers only when ground is wet enough to be workable.

CONCLUSION

TVA, acting as a regional agency has contributed a great deal to the development of the resources of the Tennessee Valley. In the field of wildlife conservation they have done outstanding work on fisheries management. Their active cooperation also is need for waterfowl on their reservoirs, especially during this critical waterfowl period. The management of waterfowl is an international problem that has necessitated treaties and cooperation with Canada and Mexico. We also need active cooperation with such regional organizations as TVA.

With reference to the Kentucky Reservoir, Dr. A. H. Weibe, Chief of the Fish and Game Division of TVA, (1948) has stated,

> Let's recognize the facts as they are and take advantage of the opportunities that do exist. There are some and they should be developed fully. TVA will help all it can but it cannot elevate waterfowl development to a higher priority than flood control, navigation, and power production in any of its reservoir operations.

We readily agree with Dr. Weibe's statements and suggest cooperative action on those phases of waterfowl development for agricultural areas, seasonal subimpoundments and islands and mud flats that do not conflict with TVA's priority objectives of flood control, navigation, and power production.

LITERATURE CITED

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