

Ecologic Relations of Vegetation in Impounded Waters

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The recreational value of a lake is greatly influenced by the relative abundance of fish and other forms of wildlife which inhabit the area. The potentialities of any lake with respect to wildlife production in turn depends largely upon the quantity and quality of the vegetation which it supports.

A major problem in the hydrobiologic development of lakes used for irrigation is presented by the great annual fluctuation in the water level due to the periodic withdrawal of water. This character of impounded waters imposes severe limitations upon those plants which grow attached to the bottom, and they are the types which are of most importance for waterfowl and muskrats. Game fish are less directly dependent upon vascular plants as sources of food, at least in this part

of North America, so that the maintenance of a high level of fish production in the lake behind Grand Coulee Dam should not present as difficult a problem as with waterfowl and mammals.

The importance of the larger water plants in providing food for birds and mammals, and in retarding erosion of the periodically exposed aprons, warrants the expenditure of funds on research aimed at getting an abundance of the most desirable species established in the lake. As one phase of the hydrobiologic development of the Grand Coulee area it is recommended that each species known to have high wildlife value be tried in experimental plots to find which are best adapted to the environmental conditions offered by this particular lake.

The Influence of the Grand Coulee Development on Birds and Mammals

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This paper will be limited to a discussion of bird and mammal wildlife. It is obvious that the Grand Coulee impoundment itself will affect fish most of all forms of wildlife. The influence of the land development which will follow the availability of water, however, will be most apparent on birds and mammals.

For the sake of brevity and organization, this discussion will be divided into three main parts; with emphasis upon the third part. This division is: (a) the probable land changes and their influences, (b) administrative problems and (c) procedures which we can undertake in order to be ready when the changes are effected.

Let us now turn to the probable changes and see if we can work out some of their influences on the future of wildlife in the developmental area. At the present time the area is marked

by a scarcity of cover for farm game. The bringing of water to large areas of dryland, it is obvious, will automatically provide conditions suitable for more cover. But what kind of cover will we get? A look at the cover possibilities from the standpoint of wildlife management brings three possibilities to light. Will the cover be desirable, will it be merely passable, or will it be definitely objectionable? This is a point of considerable importance and I will touch upon it again.

It is obvious that the vegetation changes are bound to be felt by wildlife; it is also obvious that the effects of human presence are going to be felt as well. Pheasants, hungarian partridges, and valley quail, for example, will undoubtedly be benefitted at the expense of sage grouse. (Inasmuch as there are few sage grouse now existing in this region, I might better say, at the expense of potential sage grouse.)