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To Clear or Not To Clear

By Lee Pilgrim, Editor, Texas Water Resources

There are almost 150 major reservoirs in Texas, and no two look alike. Furthermore, no single reservoir evokes the same reaction from those who view it.

"Why didn't they clear all those ugly old tree trunks?" asks the scenery buff; whereas a fisherman looking at the "ugly old tree trunks" sighs, "Ah good fishing."

It's all in the point of view.

Whether the trees are cleared before inundation or are left in the reservoir to become "ugly old tree trunks" also reflects point of view. When a federal reservoir is being planned, representatives from local, state, and federal agencies participating in the development get together to determine *what, how much,* and *where* vegetation will be removed.

Each agency, having its own special concern for the future use of the reservoir, presents clearing specifications that will fit the agency's purposes. Desires of agency spokesmen range from essentially *no clearing* to *complete clearing*. Safe drinking water, protected property, and beneficial recreational uses are among the goals being sought by these inter-agency representatives.

In addition to the local sponsor (usually municipal and industrial interests) there are representatives from Fish and Wildlife Service, Texas Parks and Wildlife, Bureau of Outdoor Recreation, a river authority, Soil Conservation Service, International Boundary and Water Commission, and either the Bureau of Reclamation or the U.S. Army Corps of Engineers.

In the case of non-federal reservoirs (i.e. those built by Texas Water Development Board, cities, river authorities, private utility companies, etc.) the delegation would not include all the above-mentioned federal agencies.

Because these representative serve several publics, counter purposes prevail. Some would have all vegetation removed. Others hold out for keeping grass and brush, but removing all trees. An area which one group deems necessary to be cleared is the very spot that another spokesman wants left untouched. Since each has a valid reason for his demands, they all get together to work out a compromise plan. In the deliberations, the people paying for the project often feel that they should have a little louder voice.

Hugo A. Schweers, assistant planning officer for the Bureau of Reclamation, Austin Development Office, cited as an example the Choke Canyon Reservoir, where Corpus Christi and neighboring towns will pay 85 percent of the reimbursable costs. Since drinking water is the primary purpose of Choke Canyon, water quality is the paramount concern of the "people paying." Water quality spokesmen usually advocate clearing the bulk of the timber.

Recreation Input

Extensive clearing would be opposed by representatives of recreational agencies. It is a hasty generalization, however, to say that for recreation purposes the lake must remain virtually covered with trees, for even within the recreation category there are competing interests. Fishermen want trees. Skiers, boating and sailing enthusiasts--and even fishermen in certain specialized types of fishing--want a good share of the lake to be clean, top and bottom.

Standing timber--that desolate aquatic landscape of hundreds of dark spikes sticking out of the water--is a beautiful sight to most fishermen. Trees left in the water improve the fish habitat. Because vegetation is a substrate for small organisms, fish concentrate here. Food chains develop on this substrate, from phytoplankton to sports fish. It is in the standing timber area that fish feed, rest, and nest.

James C. Stribling, assistant professor of recreation and parks department at Texas A&M University, said that where there is a stand of timber, the water is often less turbid than in other areas of the lake. "This," he added, "is a benefit to all purposes of the reservoir."

Stribling also pointed out the "more and more the idea that standing timber must be removed to maintain water quality is being questioned."

"When one compares the relative significance of biological oxygen demand created by vegetation within the reservoir proper, as opposed to that created by natural flow from the watershed above, standing timber is insignificant," he insisted.

"For example," he added, "in a reservoir with 10,000 acres of trees that can only die once, the organic material they contribute is insignificant in comparison to that produced and flowing into the lake on an annual basis from a 200,000 acre watershed above."

Lonnie Peters, chief of inland fisheries, Texas Parks and Wildlife, wants "to preserve as much standing timber, or brush, as possible as long as it doesn't interfere with access."

"Too much brush would interfere with all recreational uses of the lake," he admitted.

Recreational specifications, according to Peters, would call for timber in shallow water for fishing (coves and bays), blocks and bands of timber on shore (strips of cover about 15-20 feet deep along the shoreline), and access lanes.

Peters said the access lanes are needed in some cases to enable crew to get to hyacinths and other problem plants which can be a source of contamination for the entire lake.

"Lake Livingston has five to six thousand acres of water hyacinths which can't be reached because no access lanes were cleared when the reservoir was built," Peters said. The project was built several years before the hyacinth problem developed.

Input from recreation people is compulsory if the reservoir project uses federal funds. Yet the recreation voice was not heard until 30 years ago.

"In fact, it was illegal to assess economic benefits of recreation in a reservoir project 30 years ago," according to Stribling. "Advancing technology like fiberglass boats, more leisure time, and more discretionary income have resulted in significant increases in the recreational use of reservoirs; consequently, the economic benefits of recreation use increase."

Now we ,must consider benefit versus cost--the highest return per dollar invested," Stribling remarked. "Recreation is a principal benefit--maybe 30 to 40 percent of the overall project benefit."

Flood Control

Spokesmen for flood control planning at the clearing plan session would be from the Corps of Engineers or the Bureau of Reclamation. Passage of flood water would be their primary concern. They would stand firm for deep channels plus ample cleared space around the control structure area. Timber and brush left standing could be obstructions to water movement, and trash left in the lake could foul up the flood gates.

The river authority usually stands between the local sponsor and the federal agency--except when the river authority is the local sponsor. In a decision on vegetation removal, the river authorities would consider each program in the light of the primary purpose for which the reservoir is being constructed (i.e. water supply, flood control, etc.). Their approach would be pragmatic and realistic since each river authority project must be based on a self-supporting situation.

Clearing Plan

After all wishes and needs are made known, a clearing plan with map is drawn up. The scope and depth of a clearing plan an be observed from the paragraph below excerpted

from the Environmental Impact Statement for Palmetto Bend Project, a Bureau of Reclamation development:

> The adopted plan is balanced between maximum clearing and minimum clearing in an attempt to provide for the safety of the dam structure, quality of water for municipal purposes, flood protection from backwater, operation and maintenance, and elimination of nuisance to the public. In addition to the above, this plan will provide sufficient open water surface areas for boating, water skiing, fishing by trolling, and any other recreational activities requiring open water surfaces. In uncleared areas there will be sufficient timber and brush extending above the water surface to provide protection for hunters and fishermen during windy weather and protection from waterskiers and speedboaters. Areas of standing timber and brush will be excellent for fish concentration and protection fro waterfowl, thereby improving the fishing and hunting qualities of the reservoir. Flood lanes cleared along the river and creek channels and in the reservoir fingers will prevent flooding from backwater and allow unobstructed boat passages into the area. Boat lanes in the locations recommended will be cleared to provide access into the coves. The clearing contract will permit salvage of any merchantable timber. Specifications will provide for the disposal of vegetative material by burning in accordance with State and local regulations.

Perhaps an analogy to a reservoir clearing session would be the average family dinner table when the fried chicken is passed. Dad, the one who pays the bills, would like to have his choice--the tender white meat, of course. But, for the sake of family harmony, the white meat, along with the drumsticks, thighs, and wings, is subjected to trade-offs and turn-taking so that all concerned are ultimately agreed, if not entirely satisfied.

Dr. John Ball, engineering professor at Texas A&M University, is investigating the effects of terrestrial vegetation on water quality in reservoirs. His intent, in a Texas Water Resources Institute project, is to perform a base line study at the Palmetto Bend Reservoir site of vegetation before the reservoir is filled in order to determine density of types of trees and grass. As a follow-up, he would observe the nutrient concentration after the reservoir is filled and relate the two sets of data.

A second part of the present study is to determine the quantities of nutrients that can be expected to be released from common Texas vegetation.

Algal growth results when plants decay and release nutrients. This condition may cause a bad taste and odor in drinking water, but Ball said there has been no quantitative cause-and-effect relationship established between vegetation remaining and its effect on water quality.

The date of TWRI's next **Water for Texas Conference** will be March 25-26, 1976, one of the centennial year events at Texas A&M University. The theme of the conference will be "Water and Food and Fiber Production."