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Justification and Evaluation of Upper Truckee Erosion
Control Project

It appears to me that there is no serious question about whether or not we are going to protect the Upper Truckee River as an important trout spawning area. The problem is now so widely known, and our proposals have obtained so much support that we can fail only if we are very negligent in not meeting our own obligations. We have pushed and guided this project to this point on the basis of our belief that: (1) Conditions for trout production and survival in the river are poor and are getting worse. (2) The erosion control project will improve these conditions by the elimination of serious bank erosion. (3) As a result of this, more trout will be produced, and they will naturally improve the trout population and the fishery of Lake Tahoe.

These beliefs are based upon imperfect evidence, but it is the best we have been able to gather without spending much time on the project. Briefly, here is what we have:

(1) Conditions For Trout Spawning And Survival Are Poor Now And Are Getting Worse

- a. There is a great deal of sand and silt in the bottom of the Upper Truckee River and the amount increases each year. I have no quantitative measurements of this, only observations since 1953. It is, however, very obvious.
- b. Research has pretty well demonstrated fine material such as sand and silt reduces the areas where trout will spawn, the success of egg development, and the survival of fingerlings.
- c. The kokanee run has disappeared, and the rainbow trout and brown trout runs appear to have declined. Again, we have no quantitative information.
- d. In the summer, there are numerous fingerlings in that part of the stream with cleanest bottom materials and best spawning conditions. But few fingerlings in the lower part of the stream where the bottom is very sandy and spawning conditions appear poor.

2. The Project Will Improve Conditions By Eliminating Serious Bank Erosion

- a. The Pilot Project, finished in 1958, has controlled serious bank erosion.
- b. I believe it is almost a certainty that the sand on the bottom of the stream will move out or at least down to the lower end of the stream. My belief is based upon observation of sediment moving in the stream and upon the fact that there is a large delta surrounding the mouth of the stream now.
- c. So far as I can tell, there is good spawning gravel under even the deepest sand deposits on the stream bottom. This gravel has been exposed from time to time by construction work. Much of the gravel on the bottom is visible but clogged with sand.
- d. I believe it is logical to assume that the removal of sand will improve conditions for spawning, for food production, and for shelter. This belief is based upon our knowledge of the conditions needed by fish.

3. More Trout Will Be Produced In The Upper Truckee River and Will Contribute To The Lake Tahoe Population and Fishery

- a. I expect the removal of sand to increase both the amount of suitable spawning area and the percentage of eggs that survive to the fry stage.
- b. The fingerlings now produced in the river disappear by winter. They must either die or enter Lake Tahoe. The stream does not have large numbers of predators, and aside from the recent rotenone kill, I know of no serious mortalities.
- c. Will the additional trout produced add a significant amount to the Lake Tahoe population and fishery? The largest question lies in this area. We know that the rainbow fishery is important and feel that it could be more so if there were more rainbow. I doubt if they spawn anywhere in the lake itself, and the Upper Truckee River is a great deal larger and longer than all of the other spawning streams added together. It must be supplying a large percentage of rainbow for the lake even under the existing poor conditions.

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These are the important things that we know or believe. Ideally, we should have completed a research project to verify our beliefs before we started the ball rolling on an erosion control project. Instead, we have gone along this far using our bad judgment, our general knowledge of the stream, and the experience and research of others. I want to start a program pinning down some of the important points or questions asked above and to gather information that we will need to justify an expenditure of approximately \$60,000.00 and to evaluate the results. There are many unanswered questions and very little time and personnel. I would like your assistance and the assistance of other biologists and fisheries managers in planning a sound program for doing this.

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