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May 19, 1965

Colonel William J. Talbott
District Engineer, Portland District
U. S. Army Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

Dear Colonel Talbott:

Rogue River project fish propagational facility requirements

The Oregon State Game Commission and Fish Commission of Oregon, in collaboration with the U. S. Fish and Wildlife Service, have made a detailed review of the needs for damage mitigation and artificial propagation of fish in connection with your Rogue River project. These matters have been the subject of a series of meetings and related correspondence among our agencies and with your staff.

It is our joint judgment that anadromous fish populations which currently will be displaced from their historic spawning and production areas and for which mitigation will be required are as presented in the following table:

Numbers of Adult Salmon and Steelhead Requiring Mitigation at the Rogue River Project

Stream	Spring Chinook	Coho	Steelhead	
			Summer	Winter
Rogue River (Lost Cr. B-1 site)	8,300		500	
Elk Creek		1,300		450
Applegate River		500		1,150
TOTALS	8,300	1,800	500	1,600

Two of the figures in this table are different from those appearing in the U. S. Fish and Wildlife Service's "Detailed Report on Fish and Wildlife

Resources, Rogue River Basin" dated December 1961. That report states that 1,500 spring chinook pass above what is currently designated as your A-3 Lost Creek damsite. The figure was developed from spawning ground data gathered in the early 1950's from surveys making restricted use of boats and fixed-wing aircraft. In those years the average population of spring chinook salmon in the Rogue River was considerably less than occurs at this time.

Subsequently, your staff considered alternate downstream locations for the Lost Creek dam, first at the A-4 and later at the B-1 sites. This shifting was contrary to our agreement with the project as expressed in our joint statement given at your public hearing in Grants Pass on September 25, 1961. When advised of the possible relocation in mid-1964, we expressed concern because of the greater number of fish affected, although we did not know the specific numbers. We did agree to consider the move subject to a current reassessment of project damage on especially the natural spring chinook salmon production, and to your assurance that the project would fully mitigate all fishery damages.

With financial assistance from your office we made a spring chinook salmon spawning ground survey with the Bureau of Sport Fisheries and Wildlife in the fall of 1964. This effort included repeated use of a helicopter as well as boats and other surface examination. It was much more intensive than is normally considered adequate to gather usable data. We found that 31 percent of the spring chinook salmon which passed Gold Ray Dam and spawned in the main stem of the Rogue River used areas above your B-1 damsite. This new proportion, when applied to the larger numbers of fish present over the past several seasons, showed that nearly 9,900 salmon would have been blocked and displaced by the project in 1964. Since the Gold Ray counts show that 16 percent of that run was composed of precocious males commonly called jacks, we have reduced the figure proportionally showing that 8,300 adults spawned above the B-1 powerhouse location.

The second change involves Elk Creek coho salmon. The 1961 Fish and Wildlife Service report stated the population which would be displaced from its natural spawning area by the Elk Creek reservoir was 3,000 fish. This was based on spawning ground data gathered in 1949 when 9,440 cohos were counted at Gold Ray. The run has been considerably smaller in the past several years; consequently, we have reduced the figure from 3,000 to 1,300 fish on the basis of 3,830 counted in 1963 coupled with our best knowledge of coho spawning distribution in this sector of the Rogue Basin. Since this species has demonstrated very erratic population levels, the project should be prepared to accommodate the fish that can be expected in any year.

In addition to these changes, the 1961 report does not differentiate between winter steelhead spawning in the Applegate reservoir area and those which spawn above it. It states that about 2,000 fish pass the damsite. Information developed in 1961 from previous surveys showed that 1,150 steelhead would spawn in the inundated section and 850 would migrate above the pool area. It is therefore necessary to provide mitigation for the 1,150 fish.

We do not believe it will be necessary to artificially propagate all of the salmon and steelhead which will be displaced from their natural spawning areas to maintain populations at these levels. Hatchery technicians of the three agencies have reviewed available knowledge on fish culture and, where applicable, existing Rogue River hatchery production experience. It is their best judgment that under normal conditions returning runs can be maintained at the levels shown in the previous table if 3,000 spring chinook, 200 coho, 260 summer steelhead and 340 winter steelhead brood fish of good quality are selected for propagational purposes.

These numbers assume an equal proportion of male and female fish. They further assume that in the case of coho and winter steelhead the numbers should be in the same proportion from Applegate and Elk Creek as the total adult runs to be accommodated. In other words, of the 200 coho salmon to be held, 60 fish should be from Applegate River stock and 140 from Elk Creek stock. Likewise, of the 340 winter steelhead, 240 of them should come from the Applegate River and 100 from Elk Creek. Also, all resulting progeny must be returned to the stream of parent origin.

It is not possible at this time to predict with reasonable confidence the level of artificial propagation necessary to mitigate for project-related damage. All agencies involved, including the Corps, have the responsibility of insuring that the eventual facilities will produce adequate returns and that the facilities are not significantly more extensive than needed or can be justified. Based on actual experience with the various species at coastal, Rogue, Umpqua, Columbia and Willamette River hatcheries, the level of return which can reasonably be expected for smolts of appropriate size, age and condition at release is about 0.3 percent for spring chinook, 0.5 percent for summer steelhead and 1.0 percent for coho and winter steelhead.

These estimates, although the best available, must be considered only as guides. In developing them a concerted effort has been made to plan the most reasonable facilities compatible with handling the smallest number of fish necessary to continue a biologically sound management program. If it is later demonstrated that these levels of artificial propagation are not maintaining the stocks, the project must have continuing responsibility for the appropriate additional effort to accomplish reasonable mitigation. Needs may arise for increased incubation and rearing space or a larger water supply if current estimates prove too conservative. It cannot be emphasized too strongly that the figures offered here apply only to this specific project. Plans for other projects and in different areas must be considered separately after careful analysis of specific biological and environmental factors for the particular stream involved. The fishery agencies can and will make such determination when necessary.

Since the plan is to artificially propagate only a fraction of the runs returning to the hatchery, the fishery management agencies are left with a perplexing problem of having a surplus of fish to handle. For example, in the case of spring chinook salmon at Lost Creek there would be an additional

5,300 adult salmon and several hundred jacks not accommodated. This problem will develop as a direct result of your project. Final determination for the best means to handle these fish has not been made. This will have to be a judgment of the management agencies but should not involve propagational facilities provided by the project.

Our representatives have pointed out on various occasions that spring chinook salmon in the Rogue River have been demonstrating a significant and marked population increase since 1959. There is good reason to believe this increasing trend will continue. As this may be proven between now and the time your project closes the river to further upstream movement, we must recognize the greater numbers and require that mitigation of project damages be provided.

The Corps of Engineers has assumed benefits totaling $361,000 for improvement of the trout fisheries in the three impoundments. The fishery agencies advised, and the Corps concurred, that these "...are dependent upon the provision of sufficient numbers of resident trout to maintain the anticipated fishing pressure. Therefore, the project should provide funds for fish production facilities to support the necessary stocking program." The District and Division Engineers recognized this need in their Conclusions and Recommendations (pages 71 through 75, Rogue River Basin, Water Resource Development, Vol. 1, Dec. 1961). These needs were further recognized and, by reference to the project report, included in the congressional authorization.

Details of the resident trout management program cannot be finalized until after the reservoirs are established. At this time we assume that an adequate stocking program may be carried out through the annual production and release of about 50,000 pounds of fish. The same facilities would be required to provide production at this level whether or not these fish are stocked as fingerlings or legal-sized individuals; consequently, design and construction of the production facilities can proceed prior to final determination of the resident fishery management program.

To provide for the production of anadromous and resident fish, we suggest a typical fish hatchery be provided. Informally we have discussed with your staff the possibility of locating such a station on a bench on the left bank of Rogue River immediately downstream from your B-1 site. Not only would this location provide benefits from the standpoint of being very near the point of capture of most of the fish involved, but it would also permit selection of water supplies from the Rogue River below the Lost Creek powerhouse as well as from the reservoir itself. A station at this point would greatly reduce the need for transporting large numbers of adult and immature fish.

Using the best available knowledge on current fish cultural techniques, hatchery technicians of the three fishery agencies have determined the various unit and pond volume requirements which are itemized in the following table:

Rogue River Hatchery Pond and Incubator Requirements

Use	Unit or Pond Volume Requirements Anadromous Fish	Resident Fish	Total
Brood fish holding	88,200 cu. ft.	16,000 cu. ft.	104,200 cu. ft.
Incubators	30 units	no additional	30 units
Starting tanks	15,000 cu. ft.	no additional	15,000 cu. ft.
Rearing ponds	267,500 cu. ft.	62,500 cu. ft.	330,000 cu. ft.

At such time as it is necessary to specifically design hatchery layout, pond size and other appurtenant features, we believe your engineers should confer with the hatchery technicians. Pond sizes, water introduction systems and other such details are somewhat variable in making the best use of areas and terrain available. We do not anticipate any significant change to the pond volume or unit requirements regardless of design variations which may result. We shall meet with you at any reasonably convenient time in pursuit of these details.

Water volume requirements for the different purposes and types of fish to adequately provide for production levels previously discussed are as follows:

Rogue River Hatchery Water Requirements

Use	Volume Requirement Anadromous Fish	Resident Fish	Total
Brood fish holding	49 cfs	9 cfs	58 cfs
Incubation	1 cfs	no additional	1 cfs
Starting tanks	7 cfs	no additional	7 cfs
Rearing ponds	74 cfs	18 cfs	92 cfs
Totals	131 cfs	27 cfs	158 cfs

Water supply for the operation of the hatchery is an extremely critical factor. Under its existing natural conditions the water quality of the Rogue River is very good for fish production at most seasons of the year. Unfortunately, quality manipulations, especially temperatures, to provide downstream environmental improvements will detract from the natural quality for fish cultural purposes at the proposed hatchery site. Actually fish cultural needs

vary depending upon the use and season. For example, through the warmer parts of the year it may be desirable to hold spring chinook salmon adults in somewhat cooler water than required to rear juveniles under optimum conditions. For these reasons it appears essential that at least in part the hatchery water supply system be designed to draw both from the river below the powerhouse and from the reservoir. Only through this means will it be possible to provide reasonably optimum water qualities for the various uses in the fish cultural operation.

We understand that your hydrologists have made temperature prediction analyses for Lost Creek reservoir. It will be necessary for our hatchery technicians to work with your staff in the specific design of the water supply system so that the best possible river and reservoir water qualities can be made available. We believe this can and should be accomplished at the same time other aspects of hatchery design are being considered by our combined technical staffs.

Facilities to propagate these fish will be needed at such time as your construction will prevent adults from reaching and using the spawning areas involved or the resulting progeny from returning safely downstream. We do not know your construction schedule, consequently, do not know when this will be. Quality of the hatchery water supply will be vital. Assuming it will come from the Rogue River, it must be taken from above any area which could be silted by the construction activities if interim production is to be successful.

There are many factors involved in the extremely complex matters of anadromous and resident fish management. It is not possible to predetermine the full impact of such massive environmental modifications as will result from the construction of your project. As public agencies charged with the responsibility for administration and management of the various natural resources, our departments, the Fish and Wildlife Service and the Corps of Engineers have continuing obligations to provide reasonable safeguards for the resources involved.

It must be understood the foregoing represents our best judgment of what will be needed for fish life on a prediction basis. After-the-fact evidence may demonstrate variation in these requirements; consequently, we have no alternative but to emphasize the project responsibility to provide the essentials which may be determined necessary at some future date. This position was clearly defined in our joint statement of September 25, 1961. Our concluding paragraph in that statement summarized this point by saying, "With the assurance of the Corps of Engineers and all other agencies and persons concerned that the desirable quantities and qualities of water can and will be provided; that the necessary state and federal guarantees for perpetual use of these waters will be obtained as an integral element of the project; that the required passage, production and protective facilities and other safeguards stated herein will be included; the Fish Commission of Oregon and the Oregon State Game Commission will support the three projects proposed to accomplish the outlined Rogue River Basin development." Your

staff and those of your higher echelons concurred with our comments at that time and gave us these assurances. Since project authorization was granted with these assurances, we cannot deviate from that position at this time or at any time in the future.

The matter of which agency will operate the Rogue River hatchery is still in the process of determination. This information will be supplied to you as soon as a decision has been reached.

We sincerely appreciate the considerable effort, cooperation and cordial atmosphere you have extended to us in the combined efforts to develop the most reasonable planning of the Rogue River project.

Sincerely yours,

P. W. Schneider, Director
Oregon State Game Commission

COPY ORIGINAL SIGNED BY
ROBERT W. SCHONING

Robert W. Schoning, Director
Fish Commission of Oregon

cc:
North Pacific Division, Corps of Engineers
Regional Office, Bureau of Sport Fisheries & Wildlife
Portland Area Office, River Basin Studies
Columbia Fisheries Program Office
Oregon Game Commissioners
Oregon Fish Commissioners