UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

August 30, 2002

Mr. Don Thompson
WESCORP
3035 Island Crest Way
Suite 200
Mercer Island, Washington 98040

RE: Connell Lake Hydroelectric Project, FERC No. 11854
July, 2002 Technical Report on Fish Passage by WESCORP, and Preliminary Estimates of Anadromous Salmonid Production above Connell Dam by R2 Consultants

Dear Mr. Thompson:

Thank you for the opportunity to review the referenced documents. The National Marine Fisheries Service (NMFS) offers the following comments.

TECHNICAL REPORT ON FISH PASSAGE:

Goals:

The species identified for upstream and downstream fish passage through Connell Dam are coho salmon and steelhead trout. Selection of these species is based on assumptions of their historical occurrence and ability to navigate natural barriers. Sockeye salmon are excluded from consideration for upstream passage. This is based on recent studies (Lundberg, 2001) and anecdotal observations (1998) that did not observe them above mid-sections of Ward Creek, between Connell Dam and Ward Lake.

NMFS disagrees that the aforementioned studies justify the exclusion of sockeye salmon from the goal of upstream fish passage through Connell Dam. Historical information of the occurrence of sockeye salmon above Connell Dam is found in an Alaska Game Commission (1952) quarterly report. The report notes the occurrence of sockeye salmon in Perseverance Creek and two tributaries to Connell Lake, suggesting historical spawning in these drainages, with rearing in Connell Lake. The lack of sockeye salmon seen in recent studies may be due to the overall decline of sockeye salmon in the Connell

Lake/Ward Lake system. Records of total maximum escapement for sockeye salmon in 1906 are 1,950 fish (Zadina et al., 1995), compared to recent estimates of only two to three hundred fish (Glenn Freeman, ADF&G, pers.comm.) Sockeye salmon should be considered in addition to coho salmon and steelhead in all analyses for fish passage and production potential above Connell Lake. Seeding of Connell Lake with sockeye fry could re-introduce sockeye to the system and allow an above-lake population to re-establish itself. This alternative should be included in the analyses of species to be provided for by upstream and downstream fish passage.

Tailrace Design and Location:

To avoid false attraction flows from the tailrace to fish migrating up Ward Creek, the average velocity of flow across the tailrace barrier screen should not exceed 1 foot per second (ft/s). To avoid small fish from passing through or being caught in the barrier, the bars should not be spaced greater than 1 inch apart.

Upstream Passage:

A pool of 4 feet deep or greater should be designed to allow fish to stage in slack water before entering the fish ladder. An exit pool is also needed to account for water fluctuations in the forebay. NMFS prefers the use of a fish ladder to trap and haul methods, because it would require the least operational and maintenance costs for the long term of the project, and would not require handling and associated risk of death or injury to the fish. The statement on page 15, that "the costs of the passage facilities vary between about 40 and 90 percent of the cost of the proposed hydroelectric project" is not surprising, given that fish passage represents most of the construction needed to bring this outdated hydroelectric facility to modern standards.

Downstream Passage:

Additional studies need to be conducted to determine the species of fish currently in Connell Lake, and ensure that no juvenile fish will be entrained or diverted through downstream structures. The Alaska Department of Fish and Game (ADF&G) provided a study plan to this effect, in their November 26, 1999 comments on the Ketchikan Public Utilities November 2,

1999 study plan and they should be consulted to accomplish such a study. NMFS is opposed to the use of a Denil style fish ladder because both upstream and downstream passage may become lethal to fish if debris is lodged in the slots and blocks passage. In addition, steelhead adults will return to marine waters after spawning, so the fish ladder needs to accommodate their downstream passage. Downstream energy in a Denil style fish ladder creates vertical turbulence cells behind baffles, that may injure or kill downstream migrants.

Intake Screening:

The intake screening and bypass through the dam require additional design to ensure proper operation. NMFS juvenile fish screen criteria call for a 1.75mm opening in slotted screen material, not 3mm. Additional information is needed to demonstrate how the approach velocity of 0.4 ft/s required to protect salmonid fry of will be achieved. A ramp or other device is needed to accelerate flow gradually at the junction of the 5-foot wide channel upstream of the dam to the 16-inch pipe.

More information is needed to evaluate the potential of the Eicher type screen and address potential problems including possible entrainment of fish during a cleaning cycle, placement of the Eicher screen in relation to the existing and enlarged penstock (it should not be too close), and applicability of the Eicher screen test results, which may be for smolt, and not fry sized fish.

Instream Flow Releases:

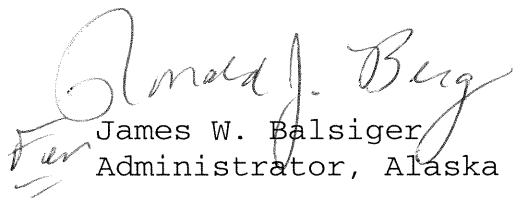
Page 2 of the document states that "It appears that the existing intake facilities allow water to be withdrawn from different levels in the reservoir to meet desired temperature levels in the stream. This will be evaluated along with the need to release additional water to meet instream flow requirements." However, the document contains no follow-up section that addresses this topic.

PRELIMINARY ESTIMATES OF ANADROMOUS SALMONID PRODUCTION ABOVE CONNELL DAM:

The smolt density estimates used in the report are mostly from outside Alaska, used various methods and were conducted in both inland and coastal regions. They may be underestimates for Alaska because salmon and steelhead were in decline throughout most of the northwestern states at the time these studies were done. ADF&G is suggesting in their comments that pre-project escapement data may be a better source of potential production estimates for this system. Those estimates should be included in a range of possible production scenarios, with the smolt density estimates developed by R2 representing the lower end of that range.

Ms. Linda Shaw (907)586-7510 is the NMFS contact for this project.

Sincerely,



James W. Balsiger
Administrator, Alaska Region

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LITERATURE CITED

Alaska Game Commission. 1952. U.S. Department of Interior, Fish and Wildlife Federal Aid In Fish Restoration, September 30,1952 Quarterly Report; Project F-1-R-2.

Lundberg, J. 2001. Ward Creek Salmon Escapement Surveys. August-October, 2001. Ketchikan, Alaska. Prepared for R2 Resource Consultants, Inc.

Zadina, T.P., M.H. Haddix, and M.A. Cartwright. 1995. Regional Information Report No. 5J95-03. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.