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To : Richard D. Beland

Date: July 16, 1984

From : Department of Fish and Game - Glenn/Colusa Fish Screen

Subject: Evaluation of Trapping Efficiency in Glenn/Colusa Fish Screen Bay

Changing flow conditions at the Glenn/Colusa Fish Screen have necessitated exploring alternative courses of action. One of the suggested alternatives was the placement of a fyke trap in one of the screen bays to collect outmigrant salmon drawn into the Glenn/Colusa Irrigation District intake channel. Fish thus collected, could then be trucked to a location suitable for their enhanced survival.

The fish screen in Bay # 21 was removed and replaced with a fyke net with a 3 ft. x 5 ft. mouth, 3/16 in. mesh and a 20 ft. bag. The net was hung on a frame covered with steel perforated plate with 1/8 in. diameter holes on 7/32 in. centers. No accurate flow measurements were taken although the average screen bay flows were approximately 50 c.f.s. Flows through the fyke net were somewhat less because of debris accumulation.

Two thousand seventeen spring run king salmon (*Oncorhynchus tshawytscha*) from the Feather River Hatchery were adipose fin clipped and released upstream from the fyke net. The fish averaged 25 per lb. and were released from the barge gate opening at 1800 on June 26, 1984. No observable mortality was recorded. Total channel flows were approximately 2000 c.f.s. with no bypass flows. Water temperature at the time of release was 63 degrees. The net was checked and emptied every two hours for the first twenty four hour period and then approximately every six hours thereafter. The net was removed on June 29, 1984 at 0600. Nine marked k.s. (.4%) and seven unmarked k.s. were captured during the entire trapping period. Several hundred small fish were observed near the mouth of the net on the second day of trapping but apparently did not enter or stay in the trap.

Beach seine samples were taken in the bay behind the net both on the evening of release and the following evening. Numerous small fish were observed jumping in the waters both in front of and behind the net. One unmarked k.s. was recovered from the bay behind the net on the first evening of June 26, 1984. Fourteen unmarked k.s. were recovered at the same site on the following evening on June 27, 1984. It is likely that these fish entered the bay behind the screens when the fish screen was pulled and replaced with the net. Additionally, 3 seine hauls were made within the river below the mouth of the intake channel at 1330 on June 27, 1984. A total of 8 unmarked k.s. were captured in those hauls.

Several problems were encountered which might have altered the results:

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1. Algae and sand tended to clog the fyke net causing it to sink to the bottom near the middle of the bag.
2. Fish swam out of the trap box and back into the net as the lid was opened.
3. Several fish were lost over the side of the trap box as it was being emptied.

Sample results indicate the following:

1. Trapping, at least from a single bay, is not a feasible alternative.
2. Fish, once entering the intake channel, do not return up-channel to the river.
3. Few fish of the size released are able to go through the fish screen.

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