EFFECTS OF PULSE FLOWS ON JUVENILE CHINOOK

MIGRATION IN THE STANISLAUS RIVER

FINAL REPORT

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Prepared for

Tri-Dam

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Trap Efficiency

The screw trap captured an average 23% of two marked groups (22% and 31%) of chinook released upstream on June 13 (Table 1). The trap was monitored hourly beginning one hour after the fish were released, from 9 p.m. to midnight. The trap was again monitored hourly from 5 a.m. to 8 a.m. on June 14. River flow and water velocity at the trap entrance remained relatively constant over the release period (Figure 10). The capture of marked fish peaked within two hours of the time released, and no marked fish were captured later than four hours after release (Figure 11). Catch of naturally migrating fish continued through the night.

Outmigration Index

Our trapping efficiency varied as flow varied, so we converted our raw trap catches to an index of total outmigrants by dividing the catch by the proportion of flow entering the trap. The volume of flow entering the screw trap during the release period varied from 31 to 39% of the total river volume, and averaged 35%. Thus, we captured fish almost in proportion to the volume of flow sampled. Therefore, we assumed, that our trapping efficiency for capturing juvenile chinook was approximated by the proportion of river flow that entered our trap. When river flow decreases, our trap samples a larger proportion of the river, and as a result catches a larger percentage of the fish that migrate past it. The outmigrant index we calculated should not be used as an accurate estimate of chinook abundance, but rather as an index for comparing the relative abundance of outmigrants between days.