

JAN 22 2004



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

January 21, 2004

In Reply Refer to:
SWR-03-SA-135:BFO

Mr. Chester Bowling
Chief, Central Valley Operations
Bureau of Reclamation
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

✓ Mr. Carl Torgersen
Chief, Operations Control Office
Department of Water Resources
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

Dear Messrs. Bowling and Torgersen:

The purpose of this letter is to provide the Bureau of Reclamation (Bureau) and the California Department of Water Resources (DWR) with the estimated number of Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*) juveniles that will enter the Sacramento-San Joaquin Delta (Delta) during the 2003-2004 season. Pursuant to Item #9 in the incidental take statement attached to the February 12, 1993 biological opinion as amended (August 2, 1993; October 6, 1993; December 30, 1994; May 17, 1995; and August 18, 1995) concerning the long-term operation of the Central Valley Project (CVP) and the State Water Project (SWP), the National Marine Fisheries Service (NOAA Fisheries) is responsible for the development of a juvenile production estimate (JPE). This estimate will then be used to determine the authorized level of Sacramento River winter-run Chinook salmon take incidental to the operation of the CVP and SWP Delta pumping facilities.

The adult escapement estimate for 2003-2004 has been derived from the upper Sacramento River carcass surveys conducted by the California Department of Fish and Game (CDFG). Only one change occurred this year in the methodology used to calculate the number of females. Details of the change made to this year's calculation are described in the enclosed spreadsheet (Enclosure 1) and copy of CDFG letter dated January 10, 2004 (Enclosure 2). NOAA Fisheries will provide the CALFED Science Program with all pertinent data used in the calculation of the 2003-2004



estimate upon request, for their review and comment. This year's Sacramento River winter-run Chinook salmon JPE was developed by NOAA Fisheries after discussions with the Interagency Ecological Program Winter-run Satellite Project Work Team (WRSPWT).

Based upon the best available information provided by CDFG (Enclosure 2), NOAA Fisheries estimates that 1,896,649 natural Sacramento River winter-run Chinook salmon juveniles will enter the Delta during the 2003-2004 season (Enclosure 1). An additional 220,000 juvenile Sacramento River winter-run Chinook salmon propagated at Livingston Stone National Fish Hatchery (LSNFH) are expected to be released into the upper Sacramento River at the end of January. All hatchery produced Sacramento River winter-run Chinook salmon are marked with an adipose fin clip and coded-wire-tag (CWT). Using the same in-river smolt survival to the Delta as is used for natural Sacramento River winter-run Chinook salmon juveniles, NOAA Fisheries estimates that 114,400 Sacramento River winter-run Chinook salmon propagated from LSNFH will also enter the Delta during the 2003-2004 season (Enclosure 1).

The authorized incidental take limit for the CVP and SWP pumping facilities includes natural and hatchery produced juvenile Sacramento River winter-run Chinook salmon, as both are considered necessary components for the recovery and survival of the species. The authorized incidental take for naturally produced Sacramento River winter-run Chinook salmon has been established at two percent (2%) of the JPE due to the uncertainty in the Delta size criteria and makeup of other races, however, a one percent (1%) take limit is used for hatchery produced Sacramento River winter-run Chinook salmon since they can be distinguished as marked fish. Therefore, the authorized level of incidental take for the CVP and SWP Delta pumping facilities for the period of October 1, 2003 through May 31, 2004 is **37,933** natural and **1,144** hatchery produced Sacramento River winter-run Chinook salmon (18,966 and 572 are the expected warning levels, respectively).

The initial identification of naturally produced (unmarked) juvenile Sacramento River winter-run Chinook salmon at the CVP and SWP Delta pumping facilities shall be based on the Delta size model developed by the U.S. Fish and Wildlife Service in cooperation with the WRSPWT. As additional information becomes available through genetic analysis of tissue samples and other fisheries monitoring programs in the Central Valley, estimates of incidental take at the Delta fish facilities may be adjusted if deemed scientifically sound by NOAA Fisheries.

NOAA Fisheries will continue to monitor losses of both hatchery and naturally produced winter-run Chinook salmon at the Delta fish salvage facilities through the CALFED Data Assessment Team (DAT) and the Water Operations Management Team (WOMT).

If you have any questions, please contact Bruce Oppenheim in our Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, CA 95814. Bruce may be reached by telephone at (916) 930-3603, or by FAX at (916) 930-3629.

Sincerely,



for Rodney R. McInnis
Acting Regional Administrator

Enclosures

cc: NMFS-PRD, Long Beach, CA
Wayne White, USFWS, 2800 Cottage Way, Suite W-2605, Sacramento, CA 95825
Diana Jacobs, DFG, 1416 Ninth Street, 12th Floor, Sacramento, CA 95814
Barbara McDonnell, DWR, 3251 S St, Sacramento, CA 95816

DATA ENTRY HERE	
Year Pair	2003/2004
CDFG Carcass Survey	8133 <u>1/</u>
Female Percent	0.6368 <u>2/</u>
LSNFH Hatchery Release	220000
Release Date	01/30/04

Draft 01/20/04

WINTER RUN CHINOOK SALMON Juvenile Production Estimate 2003/2004	Carcass Survey Factors	Carcass Survey Estimate
Total In-river Escapement - <u>1/</u>		8133
Adult Female Estimate - <u>2/</u>	0.6368	5179
Estimate of Female Spawners - <u>3/</u>	0.013	5112
Average Fecundity - <u>4/</u>	4854	24812513
Egg Loss Due To High Temperature - <u>5/</u>	0.0034	84363
Total Viable Eggs		24728150
Estimated Survival - Egg to Smolt - <u>6/</u>	0.1475	3647402
Estimated Smolt Survival to Delta - <u>7/</u>	0.52	1896649
Total Natural Production Entering Delta		1896649
Livingston Stone Release - <u>8/</u> 01/30/04		220000
Total Hatchery Production Entering Delta	0.52	114400
Yellow Light Level (1.0% Natural)		18966
Yellow Light Level (0.5% Hatchery)		572
Red Light Level (2% Natural)		37933
Red Light Level (1.0% Hatchery)		1144

FOOTNOTES -

- 1/ 2003 DFG Carcass Survey (Jolly-Seber) Estimate from DFG letter, 1/10/04, includes hatchery returns and grilse.
- 2/ Changed methodology: females estimated from carcass survey, males from Keswick trapping
- 3/ 2003 CDFG Carcass Survey estimated spawning success from fresh carcass observations (0.987).
- 4/ Number of eggs per adult female at Livingston Stone National Fish Hatchery, broodyear 2003 records (n=46).
- 5/ Determined from aerial redd surveys, three redds below Jelly's Ferry(3 of 878), assumed 100% mortality.
- 6/ Based on USFWS Tehama-Colusa spawning channel studies, 1975-1980.
- 7/ Average ocean recoveries of paired Late-Fall releases from CNFH at Battle Creek and Delta, 1994-99 (USFWS 2003, unpub.)
- 8/ Estimated hatchery release marked with an adipose fin clip and a CWT.



ENCLOSURE 2

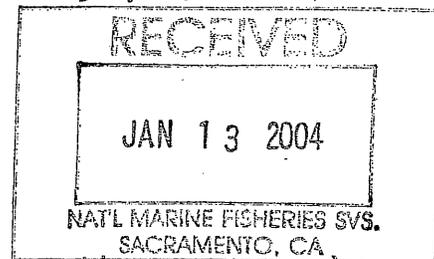


(916) 327-8840

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January 10, 2004

SWR OISA 777



Mail# 60918

Rodney R. McInnis
Acting Regional Administrator, Southwest Region
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

Dear Mr. McInnis:

Subject: Winter-run Chinook Salmon Escapement Estimates for 2003

The California Department of Fish and Game (Department) has developed Sacramento River winter-run Chinook salmon escapement estimates for 2003. These estimates have been developed using data collected in the Upper Sacramento River Winter-run Chinook Salmon Escapement Survey (carcass survey) and at the Red Bluff Diversion Dam (RBDD) by Department and U.S. Fish and Wildlife Service (USFWS) personnel.

We recommend the use of escapement estimates based on the application of the Jolly-Seber mark-recapture population model to the upper Sacramento River winter-run carcass survey data for 2003 (shown below):

Estimated Total In-river Escapement	8,133
Estimated Number of Adult Females	5,179

These estimates include naturally spawning winter-run Chinook in the upper Sacramento River, of both wild and hatchery origin. In addition, eighty five (85) adult winter-run Chinook were collected at the Keswick trap site upstream from RBDD for spawning at Livingston Stone National Fish Hatchery (LSNFH). These fish are not included in the above estimate of naturally spawning winter-run Chinook.

This year, calculation of the escapement estimate from carcass survey data followed a different methodology than in prior years. The number of adult females was estimated using only the adult female data from the carcass survey and applying the Jolly-Seber model. The number of adult males was then derived from the adult female estimate, using the male-to-female sex ratio for the winter-run population observed by the USFWS at the Keswick Dam trapping station. The number of grilse was estimated based on the ratio of adults to grilse found in fresh fish sampled in the carcass survey. In prior years, the carcass survey estimated adults without separating the sexes.

Prior to 2001, the Department's winter-run escapement estimate was based on data collected through counts at the RBDD. Estimates of winter-run escapement in 2003, calculated based on counts at the RBDD, are as follows:



Rodney R. McInnis

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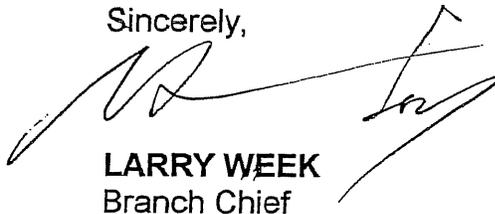
January 10, 2003

Estimated Total Escapement (Natural and hatchery origin)	9,757
Adipose-clipped fish (hatchery origin)	1,460
Estimated Number of Adult Females	3,174

These estimates include the 85 adult winter-run Chinook collected at the Keswick Trap and removed from the population spawning in the river.

We look forward to further discussion and collaboration with NOAA Fisheries staff regarding the application of this information. Inquiries regarding the methodology and development of the estimates in this letter should be directed to Ms. Alice Low, Senior Fishery Biologist, at (916) 323-9583.

Sincerely,



LARRY WEEK
Branch Chief

Rodney R. McInnis

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January 10, 2003

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