MEMORANDUM

From : Data Assessment Team, CALFED Ops

To : CALFED Operations Group

Date: February 29, 2000

Subject : DAT Biological Justification For Export Reduction at the SWP 2/24/00

On 2/23/00 DAT recommended an export reduction at the SWP for the protection of winter-run Chinook, as well as other listed species (steelhead, spring-run Chinook, delta smelt) and candidate species (fall-run Chinook) within the Delta.

WINTER RUN

Winter run losses at the export facilities began increasing on 1/18/00 when Sacramento flows increased with this season's rains. Losses increased at an even greater rate beginning 2/14/00 when flows increased significantly again, and combined exports increased to greater than 12,000 cfs. The density of loss (fish per acre foot) increased with increased exports as well. Over 90% of the winter-run Chinook losses have occurred at the State's Delta export facility. The "yellow light" level of concern for winter run, a loss of 2,897, was exceeded 2/20/00. Loss continued to increase to 3,700 through 2/23/00. At the current loss rate, the "red light" level of concern could be exceeded by the first week in March.

Based on salvage data and genetic characterization, winter run losses are highest between the months of February and April. The length frequency distribution of larger Chinook at the export facilities changed from 130 mm to 200 mm in January to 110 mm to 170 mm in February. Based on life history information, this latter range seen in February 2000 is the length frequency distribution that contains a higher proportion of winter run. The winter run emigration this year is relatively early.

So far this year, a limited number of salvage samples were analyzed for genetic characterization. Most of the samples were from larger Chinook salvaged during August and September, and from fry in January. About half of the larger Chinook salvaged during November and December were analyzed. Although these were larger than the winter run length range, about 20% were genetic winter run. About a third of the larger Chinook salvaged during January were analyzed. Most of these were in the winter run length range, and about 10% were genetic winter run. A very crude estimate based on genetic characterization is a loss of 64 winter run in November and December, and 85 winter run in January.

Unfortunately, none of the larger Chinook salvaged in February have been analyzed yet. Chinook salvaged in February are more likely to be "genetic winter run" than the previous samples; based on life history information and genetic characterization of salvage over the past three years, we expect most winter run to emigrate between February and April. Again, a very crude loss estimate based in genetic characterization information is 60% of the winter-run loss that is based on length criteria. At the current rate of loss, we could exceed the 2% take level of concern based on genetic characterization by the end of the season.

The DAT considered the following information (1) high loss rate of Chinook in the winter-run length range, (2) the timing of this high loss rate during a period when most winter run emigrate through the Delta, (3) the trend for winter run to have an outmigration of about a month, (4) and the hydrologic forecast for the upcoming week, and determined that most benefits for winter run Chinook would be achieved by a reduction in exports now rather than after exceeding the "red light" level of concern. By waiting for the "red light", we could miss the majority of the winter run emigration.

SPRING RUN AND FALL RUN FRY

Other runs of Chinook will benefit from an export reduction now. The larger Chinook salvaged this time of year are winter, yearling-spring and late-fall runs. Salvage of fall run fry increased dramatically beginning 2/16/00.

STEELHEAD

Steelhead salvage has increased significantly since 1/19/00. The cumulative salvage since 12/1/99 through 2/21/00 is 2,000. The proposed "yellow light" level of concern for steelhead is 400, and the "red light" level is 750. We exceeded the proposed "red light" level 2/8/00, and the salvage increased at an even greater rate beginning 2/17/00 when flows increased significantly again and combined exports increased to over 12,000 cfs. Both salvage and salvage per acre foot increased with increased exports.

DELTA SMELT

Delta Smelt take increased significantly throughout the month of February. The 14-day running average through 2/22/00 was 300/day. The "yellow light" level of concern for the month of February is a 14-day running average of 400/day. The "red light" level of concern is a total of 10,910 Delta Smelt salvaged. At the current rate of take, the "yellow light" will likely be exceeded in the next week and the "red light" may be exceeded.