

splittail, as we did in the January 12, 2001, reopening of comment period (66 FR 2828), based primarily upon the data found in Sommer *et al.* (1997) and Sommer (2001a). The bypasses have demonstrated the capability of producing large numbers of splittail when inundated.

Our Response: We have determined, based on consideration of scientific data and information provided by respondents, that the Yolo and Sutter bypasses are not, in and of themselves, a threat to the splittail. Our reevaluation of this issue is discussed in Factor E of the section entitled Summary of Factors Affecting the Species.

State Agency Comment 6: CDWR felt that our determination that the Sutter and Yolo bypasses would require inundation for at least 30 continuous days between March and April in order for them to be considered a beneficial splittail spawning habitat was inaccurate and could affect water supply and flood management.

Our Response: We have not proposed inundation of the bypasses for any specific interval, duration, or frequency. Rather, we have speculated that the bypasses would have their greatest benefits to splittail if they became inundated at a frequency and duration that as closely as possible mimics the natural, precipitation-driven hydrograph. The reference to 30 days is a statement regarding how the inundation patterns of the bypasses at times do not meet the life history requirements of the splittail. Inundation of bypasses in dry years would reduce the effects of drought on the splittail. We also speculate that if the bypasses were inundated at a frequency and duration that as closely as possible mimics the natural, precipitation-driven hydrograph, then the numbers of non-native fish would be reduced, as non-native fishes favor ponded and continuously inundated habitats.

State Agency Comment 7: CDWR commented that our classification of the Yolo Bypass as a threat in the January 12, 2001, notice (66 FR 2828) would undermine potential ecosystem restoration actions that would benefit the splittail.

Our Response: In this notice, we determine that the Sutter and Yolo bypasses are not in and of themselves threats.

State Agency Comment 8: CDWR objected to our statements regarding the entrainment risks present in the bypasses based upon Sommer *et al.*'s (1997) findings that entrainment is not a significant threat within the bypasses. It is thought that the splittail's evolutionarily-derived ability to

emigrate prior to stranding reduces the risk of stranding. CDWR also felt that the magnitude of the entrainment threats presented by the bypasses was overestimated when we cited in the January 12, 2001, notice (66 FR 2828), the death of a number of juvenile splittail in an approximately 0.8 hectare (ha) (2 acre (ac)) borrow pit as statistically-significant and that the classification of "natural sinks" as a threat was in error.

Our Response: We have considered these data and now agree that entrainment in the Yolo Bypass is less than was originally thought. Information presented at the January 29, 2001, CALFED Splittail Science Conference indicates that a modest degree of topographic variability within an inundated area may be beneficial, as it may create a diversity of flow patterns and velocities which in turn may allow juvenile splittail to evade predation and forage more effectively during egress.

State Agency Comment 9: CDWR believed that full implementation of the CALFED Program would preclude the need to list the splittail and indicated that over \$10 million had been spent on actions that could improve conditions for splittail.

Our Response: We refer CDWR to the section entitled Summary of Factors Affecting the Species.

Other Public Comments and Responses

We address other substantive comments and accompanying information in the following summary. Relatively minor editing changes and reference updates suggested by commenters have been incorporated into this document, as appropriate.

Comment 1: The court directed that we provide a more thorough response to the California Resources Agency comments, specifically comments submitted by CDFG and CDWR in July 1998. The court also directed that we address the perceived biases from the Meng and Moyle (1995) method. We also received specific comments on issues related to prior statistical analyses of abundance.

Our Response: We have adopted a multiple linear regression approach proposed by CDFG and U.S. Bureau of Reclamation (USBR). CDFG, in comments submitted in association with the August 17, 2001, comment period, stated: "Although CDFG reported Mann-Whitney U test results in previous comments (February 8, 2001), we now suggest greater reliance on a multiple regression approach to trend analysis, described in a following section of our comments. We no longer support use of the Mann-Whitney U procedure of time

trend analysis." CDWR, in comments also submitted under the August 17, 2001, comment period, stated: "A more defensible alternative would be to develop a multivariate model incorporating the effects of both flow and time." CDWR also made reference to the USBR application of regression techniques, which also were provided in USBR's comments. We have considered the CDFG, CDWR, and USBR recommendations to employ a multivariate, regression based model and have incorporated an analysis using the CDFG/USBR MLR Model data series as described in the section entitled Abundance. We will therefore forego providing responses to specific comments on the perceived bias of the Meng and Moyle (1995) and alternate methodologies previously employed because our analytical tools have been upgraded to utilize the modified methodology employed by CDFG and USBR.

The CDFG/USBR MLR Model provided in CDFG and USBR comments addresses the shortcomings of other methods, thus allowing our analysis using the CDFG/USBR MLR Model data series to supercede abundance analyses based upon methods appearing in prior rules. In combination with meta-analyses to analyze the distribution of MLR Model results across the 20 indices, statistical inferences based on the CDFG/USBR MLR data series are informative.

Our analysis using the CDFG/USBR MLR Model data series incorporates the results of seven surveys (Fall MWT, Bay Study OT, Bay Study MWT, Chipps Island, Suisun Marsh OT, CVP salvage, and SWP salvage), and includes separate indices of YOY, age 1 (juvenile) and age 2+ (adult) age class abundance. The independent examination of abundance of all age classes throughout these surveys helps mediate discrepancies among survey results, discrepancies that are a likely indication that splittail populations are not very evenly distributed over space and time and/or that different sampling methodologies are not very comparable. The model also does not require uninterrupted data; all available data from each survey's period of record is included. Further, our analysis controls for the confounding effects of hydrology, and involves no inherent or intentional bias towards either wet or dry water year types. Strict adherence to uniformity among all data series is also inconsistent with the precautionary nature of section 4 of the Act.

We recognize a distinct danger in controlling for hydrological effects in our analyses, because systematic