

in bias. The unknown statistical effects of non-normality in half the model runs constitutes just the sort of uncertainty that leads us to be cautious about giving undue weight to any conclusions regarding the abundance index data for splittail.

Peer Reviewer Comment 9: A peer reviewer believes that the extended drought of 1984 to 1992 created only a perception of decline and that it was the “* * * accidental juxtaposition of a series of wet, strong splittail years with a series of dry, weak years that prompted [our] interest in the first place.”

Our Response: We disagree with the peer reviewer's claims that the period of extended drought has been ignored, as well as with the contention that the splittail's drought-driven declines are the sole factor under consideration in our determination. We first note that the period of continuous drought is considered by most authoritative sources to have begun in 1987 (Moyle *et al.* 2001; Baxter 1999a; Sommer *et al.* 1997), not 1984 as reported by the respondent. We note, however, that 1985 and 1986 were dry years (Cannon 2001 in prep.).

The declines noted during the 1987 to 1992 drought were the likely result of a paucity of spawning habitat being available. The drought decreased the amount of floodplain (*i.e.* Yolo Bypass and mainstem river margins) available for spawning and thus, spawning output was lower. Low splittail population densities were aggravated by the CVP and SWP's diversion of a greater proportion of water from the Delta than in prior years; fish were entrained at the facilities and the entrapment zone (location where fish become vulnerable to the export facilities' effect on currents in the Delta), was located well upstream of Suisun Marsh in increasingly suboptimal habitat. These events are described in detail in our February 8, 1999, final listing rule (64 FR 5963).

The basis for the peer reviewer's claim that we are disproportionately concerned with splittail declines noted during the 1984 (or 1987) to 1992 drought is unclear. True, the “accidental juxtaposition” of wet and dry years resulted in abundance data that appeared to illustrate a precipitous drop in the splittail population. There are, however, up to 10 years of pre-drought as well as up to 8 to 10 years of post-drought data. The data collected during six years of continuous drought are but a subset of the nearly 20 years of extant splittail data. The splittail's relatively long life span and resilience following unfavorable conditions renders the declines exhibited during a discrete

drought unlikely to influence the analytical findings from an ever-lengthening period of record. Most importantly, we now employ the CDFG/USBR MLR Model, which explicitly controls for potential confounding effects of hydrological year type. The respondent's concern would be more applicable to abandoned analytical techniques. The arbitrary pre- and post-drought cut point approach of Meng and Moyle (1985) was driven by trends noticed during the 1987 to 1992 drought, as was a formerly touted alternative analysis that involved the use of 1987 (the beginning of the drought) as a cut point (Sommer *et al.* 1997) for determining percent declines.

We also disagree with the contention that the 1987 to 1992 drought serves as the only factor which triggered our investigations of the splittail's status. Our interest in the splittail was prompted initially by the statement in Daniels and Moyle (1983) that the splittail's and delta smelt's “* * * abundance could decline rapidly if environmental conditions become unfavorable for them, possibly making them candidates for listing as threatened species.” We subsequently included the Sacramento splittail as a category 2 candidate species for possible future listing as endangered or threatened in the January 6, 1989, Animal Notice of Review (54 FR 554). The candidate category system was abandoned on February 28, 1996 (61 FR 7457), and species meeting the definition of the former category 2 (such as splittail) were no longer considered candidates. Our administrative proceedings on splittail resumed on November 5, 1992, when we received a petition from the Natural Heritage Institute to add the Sacramento splittail to the List of Endangered and Threatened Wildlife and to designate critical habitat for this species in the Sacramento and San Joaquin Rivers and associated estuary.

Peer Reviewer Comment 10: A peer reviewer, in response to our March 21, 2002 (67 FR 13095) notice, believed that we should not have adopted the CDFG/USBR MLR Model which was jointly submitted in CDFG's and USBR's respective peer review and comment letters. The CDFG/USBR MLR Model was advocated by its submitting agencies as an approach superior to our Meng and Moyle (1985) method utilized in our 1994 proposed listing (59 FR 862) and 1999 final listing (64 FR 5963) rules, the polynomial regression technique discussed in our August 17, 2001 (66 FR 43145) notice, or the Sommer *et al.* (1997) technique formerly forwarded by CDFG and CDWR.

Our Response: We agree that USBR's submission was labeled *A Sample Alternative Model of Sacramento Splittail Abundance*. However, USBR (2001) included no language in their agency comment letter and peer review submission to suggest their intent was to have us retain the polynomial regression analysis (66 FR 43145), revert to the Meng and Moyle (1985) analysis, adopt the Sommer *et al.* (1997) analysis, or employ any other analytical technique until the CDFG/USBR MLR Model and results reached a greater state of refinement.

To the contrary, USBR's peer review and comment letter states, “Results presented in Table 1, include actual p-values for the Service's inspection.” (USBR 2001). To advocate we abandon the model is to advocate we abandon analysis of p-values. Furthermore, USBR scientifically derived and submitted multiple conclusions in their peer review and comment letter, such as, “In summary, the results [of the CDFG/USBR MLR Model] presented here clearly indicate that hydrologic variability strongly affects YOY splittail indices, and also affects some adult indices in succeeding years as cohorts propagate through the population.” (USBR 2001). These conclusions were not accompanied by any disclaimers that the conclusions should be disregarded because the model was not yet sufficiently developed or that the conclusions should not be applied to the review of the splittail's population trends.

The CDFG/USBR MLR Model was also submitted to us by CDFG. Consistent with the USBR peer review and comment letter, CDFG also derived and submitted multiple conclusions based on the specific runs of the CDFG/USBR MLR Model that the USBR is now criticizing us for accepting. CDFG advocated the use of the CDFG/USBR MLR Model (as submitted) in their peer review and comment letter (CDFG 2001) with the statement, “Our response is composed of two parts: a discussion of individual analyses presented in our August 17, 2001, notice (66 FR 43145), and a summary of the results of a multiple regression analysis [the CDFG/USBR MLR Model] that we believe is more useful in evaluating trends in survey indices.” Again, consistent with the USBR's peer review and comment letter, CDFG's peer review and comment letter did not qualify any of the conclusions they derived from the CDFG/USBR MLR Model with disclaimers about the inappropriateness of employing the model.

We independently evaluated the structure and findings of the CDFG/