

from non-cyprinids surrogate species, such as white sturgeon, bluegill, inland silverside, mosquito fish, and lake trout, as they would certainly be both physiologically and behaviorally distinct from splittail and therefore useless in determining thresholds for the splittail. We therefore have determined that the above mentioned thresholds for other fish species are not indicative of the thresholds of the splittail. For all fish species, the potential for at least periodic adverse impacts from exposure to metals and pesticides is of potentially substantive concern, but poorly understood and poorly documented. Thus we have no real basis for concluding that these substances represent a particular threat to the splittail.

Finally, Moyle *et al.* (2001) hypothesize that success of juvenile downstream migration is strongly linked to the size that juvenile splittail achieve prior to exiting the spawning areas. It was suggested that a minimum size of 25 mm (1 in) greatly enhances success of downstream migration. Moyle *et al.* (2001) have already presented data demonstrating statistically-significant declining growth rates in Suisun Marsh splittail between 1980 and 1995. The apparent declines in growth rate appear to correlate to the invasion of the estuary by the Asiatic clam, and the subsequent shift of splittail to an Asiatic clam-dominated diet. Moyle *et al.* (2001) suggested that this trend might reflect poorer energetics of a non-mysid shrimp-dominated diet, but it can just as plausibly be suggested that it reflects the cachexia (contaminant-induced weight loss despite calorically sufficient dietary intake) that is a classic symptom of non-lethal selenium poisoning. However we have no particular basis for finding the growth rates are the result of any contaminant induced mechanism.

CALFED's Water Quality Program, which was not analyzed in the January 12, 2001, notice (66 FR 2828), will have a net benefit for the splittail when implemented (*see* Factor A for a discussion of CALFED). The Water Quality Program includes the following actions: (1) Reduce the impacts of pesticides through development and implementation of Best Management Practices (BMPs) for both urban and agricultural uses, through support of pesticide studies for regulatory agencies, and through providing education and assistance in implementation of control strategies for the regulated pesticide users; (2) reduce the load of organochlorine pesticides in the system by reducing runoff and erosion from agricultural lands through BMPs; (3) reduce the impacts of trace metals, such

as copper, cadmium, and zinc, through source control at inactive and abandoned mine sites, urban storm water programs and agricultural BMPs; (4) reduce mercury levels in rivers and the estuary by source control at inactive and abandoned mine sites; (5) reduce selenium impacts through reduction of loads at their sources and through appropriate land fallowing and land retirement programs; (6) reduce salt sources in urban and industrial wastewater and facilitate development of successful water recycling, source water blending, and groundwater storage programs; (7) manage Delta salinity by limiting salt loadings from its tributaries and through managing seawater intrusion by such means as using storage capacity to maintain Delta outflow and adjust timing of outflow, and by export management; (8) reduce turbidity and sedimentation; (9) reduce the impairment of rivers and the estuary from substances that exert excessive demand on dissolved oxygen; and, (10) through research and monitoring, to identify parameters of concern in the water and sediment and impairment actions, to reduce their impacts to aquatic resources.

Conclusion: Splittail are no longer threatened by interference in CVP and SWP salvage operations by the introduced Chinese mitten crab and unscreened diversions. The Yolo and Sutter Bypasses are a net benefit to the splittail. CALFED's Ecosystem Restoration Program (discussed in Factor A above) will conduct instream flow studies to determine the flows necessary to support all life stages of anadromous and estuarine fish species, including splittail, which will offset the threat of drought and flow regime changes resulting from water project operations. The threats of poor water quality from contaminants including mercury, selenium and pesticides, and bioaccumulation of selenium in the introduced Asiatic clam, appear to be reduced by CALFED's Water Quality Program (discussed in Factor E above). At present, although environmental contaminants are pervasive throughout the range of the splittail, and many contaminants have the potential to pose a significant threat to splittail, there is insufficient scientific evidence at this time to indicate that environmental contaminants impair splittail growth and reproduction at all; much less to a magnitude that would warrant listing splittail due to that threat alone or in combination with others.

Finding

We have carefully assessed the best scientific and commercial information

available regarding the abundance and distribution of; and the past, present, and future threats faced by the splittail in this listing determination. The following narrative will summarize the pertinent data regarding abundance and threats.

Based upon our statistical analysis using a relaxed standard for significance, we conclude that splittail populations may have declined over the period of analysis. We recognize that other agencies, including USBR and CDFG, believe that the available data do not indicate a population decline. However, the magnitude, certainty, and ecological significance of the apparent population decline remain unclear.

We believe that above all else, the primary threat to splittail is the loss of spawning and rearing habitat. Past habitat losses are offset by the implementation programs of CALFED and the CVPIA which are restoring significant amounts of habitat previously lost. In addition, those programs ensure that future water operations and development will protect and improve existing habitats. The many additional ongoing and future habitat restoration projects throughout the range of the splittail include, either as direct or indirect effects, spawning and rearing habitat for the splittail, or enhancement of such habitat. The restoration of splittail habitat enables greater spawning and rearing opportunities and thus increases the population size, ameliorating all of the remaining threats to a level below the point at which the splittail would meet the definition of a threatened species.

We therefore have determined that the splittail is not in danger of extinction through all or a significant portion of its range either now or in the foreseeable future. It therefore does not meet the definition of an endangered or threatened species. As a result, we have determined that listing the splittail as endangered or threatened under the Act is not warranted.

In making this finding, we recognize that the Sacramento splittail may be experiencing a decline in population size based upon our conservative statistical analysis, and that the species continues to face potential threats from habitat loss. We also recognize that the full implementation of CALFED and the CVPIA restoration programs are not 100 percent certain. Finally, we recognize other threats to the species, its habitat, and its prey exist, including effects of drought and climate change on habitat; non-native competitors and predators; and possible threats of disease and environmental contaminants. We will continue to monitor the status and