



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105**

June 18, 2007

State Water Resources Control Board
Attention: Ms. Gita Kapahi, Chief
Bay Delta/Special Projects Unit
P.O. Box 2000
Sacramento, CA 95812-2000

Dear Ms. Kapahi:

We are responding to the State Water Resources Control Board's (Board's) June 5, 2007 Notice of Public Workshop to receive recommendations about actions the Board might take to address the pelagic fishery decline in the Bay Delta estuary. This letter supplements and updates our comments on these issues submitted to the Board on March 2, 2007.

As the Board explains in its Notice, significant challenges face resource managers and regulatory agencies in managing Delta aquatic resources. Long-term pelagic organism declines have become more pronounced in the past few years, and recent trawl data suggest that the listed threatened delta smelt population is the lowest on record. In addition to the immediate problem of stopping and reversing the decline of the pelagic fishery, the Delta also faces long-term threats due to climate change and levee instability.

EPA strongly supports the Board's leadership in addressing these issues. We also support the other major California initiatives to develop responses to the problems in the Delta: the Bay Delta Conservation Program (BDCP) and the Delta Vision process. Although we support these other initiatives, we note that there are limitations associated with each of them. The BDCP is being prepared as a Habitat Conservation Plan/Natural Communities Conservation Plan under the federal and state endangered species acts. As such, the scope of the final BDCP program will necessarily be limited to those parties (primarily exporters) voluntarily adopting the program and to those species (primarily threatened and endangered species) explicitly covered by the program. The Board's authorities under state water quality and water rights provisions enables it to conduct a more comprehensive evaluation and protect the entire range of instream and consumptive beneficial uses of Delta waters.

Similarly, the Delta Vision process is a long range planning effort which will ultimately require significant Board action. Any recommendations Delta Vision generates regarding changes in water conveyance or Delta configurations will require the Board's involvement to sort out the complicated water rights implications of Delta water management changes. In

addition, Board actions will be necessary to protect water quality during any Delta Vision construction phase and thereafter to respond to any new future Delta configuration.

For these reasons, we believe that Board action on Delta issues should be viewed as complementary to the BDCP and Delta Vision processes, not as an alternative. The obvious challenge is to assure that these activities are coordinated so that all regulatory and planning efforts are moving in the same direction.

With that as background, EPA has two broad recommendations on the Board's workshop topics.

Near-Term Measures to Protect Pelagic Fishes

EPA believes that the Pelagic Fish Action Plan (POD Action Plan)(March 2007) submitted to the California legislature by the Resources Agency should serve as the basis for any near-term actions mandated by the Board under any of its authorities. Although the POD Action Plan was technically issued by the Resources Agency only, it reflects a substantial effort amongst both federal and state agencies and has a significant level of agency agreement on the range of potential actions to address pelagic fish.

In developing our recommendations, we have also relied on the life cycle conceptual models (attached as Exhibit I) developed by the POD Science Team. These models have been presented by the POD Science Team in public forums several times in recent months, including at the Interagency Ecological Program (IEP) Conference in Asilomar in February and at the Board's March 22 POD Workshop. The models emphasize that there may be different threats to pelagic species at different times of the year. This suggests that there should be correspondingly different strategies throughout the year for actions intended to address these threats.

The life cycle models emphasize linkages and processes and explicitly acknowledge that effects on one life stage will have impacts on later life stages. This implies that beneficial actions taken at one time may yield additional benefits by reducing the impacts of subsequent stressors. For example, encouraging spawning by fish earlier in the year will likely produce larger and healthier offspring which, in the summer, are better able to feed and are less subject to predation. On the other hand, awareness of the life cycle processes suggests that actions will not yield ultimate benefits if other stressors intervene. Thus, encouraging early spawns must be accompanied by some level of protection for the larvae to allow them to get to their nursery areas, or the beneficial effect of the early spawn is lost.

EPA is fully aware that the scientific evaluation of the pelagic fishery is continuing, and that many findings at this time are preliminary. At the same time, we believe that recent trawl data indicating a significant and unexpected drop in young delta smelt numbers, when combined with the long-term historical fishery trends in the Delta, raise immediate and serious concerns about the viability of this indicator species under current resource management approaches. EPA believes that there is sufficient science-based knowledge available to develop and implement some of the POD Action Plan proposals as short-term formal experiments beginning

in the coming water year. In particular, we believe that the POD Action Plan actions discussed below can be refined and implemented in the near term under one or more of the Board's authorities.

EPA is recommending these three particular actions because they most directly address the two major observed operational changes that corresponded with the pelagic fishery decline since 2000. Those two system changes are (1) the significant increase in salvage at the export facilities in the late December to early March period, and (2) the significant reduction in the spatial distribution of desirable habitat (as measured by X2) in the fall.

(1) Limit early adult entrainment

Most biologists believe that the first major rainfall of the season triggers spawning migration by the larger, more fecund females. The purpose of this action is to minimize the chance that smelt spawning in response to the first major rainfall are immediately diverted towards the export facilities.

EPA is recommending two independent actions to address early delta smelt entrainment in the late winter and early spring:

- (i) Maintain Old and Middle River flows at 0 cfs for 10 days following the first occasion when Sacramento River flow at Freeport exceeds 25,000 cfs for at least three consecutive days after December 25. This measure is based on the "first flush" concept described in the POD Action Plan at pp. 42-43.¹ The purpose of this measure is to reduce peak salvage of the early spawners.
- (ii) Maintain Old and Middle River 5-day average flows at no less than -3000 until March 1 at the conclusion of action (i) (if triggered) or beginning on January 15 if no inflow event has yet occurred. The purpose of this action would be to reduce the duration of the high entrainment period for adult smelt.

These two actions could be used separately or sequentially in various combinations to reduce take of adult delta smelt during the anticipated early spawning season. The experimental design would test which approach works best to protect the smelt.

(2) Maintain Old and Middle River 5-day average flows at no less than -3000 cfs from March 1 to April 15 under certain specified conditions

¹There has been substantial productive discussion recently in the various agency and stakeholder workgroups associated with IEP about how best to state the trigger for a first flush protective action. EPA believes that the Board could use the 25,000 cfs trigger described above unless the IEP concludes before the coming water year that a better trigger is appropriate.

The purpose of this action is to reduce entrainment of newly spawned delta smelt during the early spring. Larval smelt are generally too small to be detected in salvage operations, so this action would protect those youngest fish when certain conditions exist. The protective action would be triggered under any of the following conditions:

- (i) Years when the preceeding fall midwater trawl shows exceptionally low abundance (in the lowest 10%) of the historical record.
- (ii) Years when most of the delta smelt population is thought to be spawning in the central or south delta.
- (iii) Years in which Sacramento River inflows are less than 15,000 cfs in March (roughly 10% of the historical record.).

This proposed action is similar to that proposed in the POD Action Plan at pp. 43-44. The main difference is the specificity of the defined trigger for the protective action.

(3) Increase extent and quality of estuarine habitat (as measured by X2) in fall period (September to December)

The purpose of this action is to restore a fall salinity gradient in the estuary that is closer to that existing before 2000. This serves a number of interrelated goals. First, it increases the amount of low salinity habitat (as measured by X2) for the delta smelt. Second, it will increase the probability that the smelt will be able to physically move from their preferred summer habitat (which is defined primarily by turbidity) to their preferred fall habitat (which is defined primarily by X2). Finally, moving the preferred habitat further downstream during this period reduces smelt exposure to the detrimental effects of project operations further upstream in the Delta.

This action, as discussed in the POD Action Plan (p. 47)², has the potential for significant water supply impacts in below normal and dry years. For that reason, both the POD Action Plan and EPA suggest that the action be triggered only in above normal and wetter hydrologies.³ EPA believes that this trade-off between the action and the water supply impacts lends itself to a multi-year experiment designed to develop information in different hydrologies. For example, a multi-year experiment could establish three target data points,⁴ and the particular target in a

²See also the discussion in the Delta Smelt Working Group notes of July 10 and August 21, 2006. These are available at <http://www.fws.gov/sacramento/es/delta.smelt.htm>.

³During drier years when this experiment is not triggered, the Board may have to evaluate whether some other action may be appropriate to protect the estuarine habitat during the fall period.

⁴For example, the three target data points could be (1) outflows of 9,000 cfs in September and October; (2) outflows of 9,000 cfs in November and December; and (3) outflows of 9,000

given year would be determined on a real-time basis by the Board, with advice from the Water Operations Management Team (or other process) based on current year conditions. This experimental approach is similar to the Vernalis Adaptive Management Program that was ultimately incorporated into the Board's mandates on the San Joaquin River.

Each of these proposed actions will need significantly more detail to serve as a short-term experiment. In particular, a hypothesis should be clearly articulated, and a monitoring protocol to measure results should be established. In addition, we believe it would be imperative to request timely independent scientific review of these proposals. The Independent Science Board seems uniquely qualified for this conducting this review. EPA is willing to work with the Board's technical staff to develop these proposals further.

Monitoring Program to Identify Impacts of Pollutants

EPA's second broad recommendation is that the Board join with the Central Valley Regional Water Quality Control Board (Regional Board) to support the development and implementation of a regional water quality monitoring program, including contaminants monitoring in the Delta.

The POD Science Team identified contaminants as one of three likely factors (along with water operations and invasive species) in the recent pelagic organism decline.⁵ The POD Action Plan (at pp. 63-65) also identifies contaminants as a major concern.

As the Board is fully aware, both regulatory and voluntary efforts at addressing contaminants in the Delta are hampered by the absence of a comprehensive monitoring program. Current monitoring efforts are fragmented, and there is not timely access to the data that are collected, nor is there a consistent analytical framework for evaluating and synthesizing the data to make the analysis useful for management decisionmaking. Assessing the source and type of contaminants is especially challenging in the dynamic hydrologic system of the Delta, where tidal dispersion and fluctuating flows complicate analysis. Nevertheless, there can be no significant progress on contaminants in the Delta unless and until we develop accurate data on the extent of the problem.

During the past few years, EPA has been collaborating with the Regional Board, the CALFED Bay Delta Program, and the Sacramento River Watershed Program to determine how a regional water quality monitoring and assessment program for the Central Valley could be developed and implemented. This program is most fully developed for the mainstem Sacramento River upstream of Freeport. However, that program has been grant-funded only and is now seeking other sources of support. To be fully successful, a regional water quality

for the entire period of September through December.

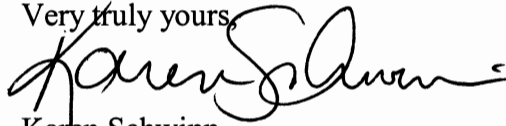
⁵Interagency Ecological Program 2006-2007 Work Plan to Evaluate the Decline of Pelagic Species in the Upper San Francisco Estuary, January 12, 2007.

regional water quality monitoring and assessment program for the Central Valley could be developed and implemented. This program is most fully developed for the mainstem Sacramento River upstream of Freeport. However, that program has been grant-funded only and is now seeking other sources of support. To be fully successful, a regional water quality program for the Central Valley must include the Delta and its tributaries, and should be closely coordinated with the Interagency Ecological Program

Conclusion

We look forward to working with the Board as it continues evaluating responses to the pelagic fishery decline. As noted above, we are willing to make our technical staff available to the Board as much as necessary to address your technical questions. If you have any immediate questions about our comments, please call me at (415)972-3472.

Very truly yours,



Karen Schwinn

Associate Director, Water Division

United States Environmental Protection Agency

Enclosure: Exhibit 1

DELTA
SMELT

Summer - upstream of LSZ

Clams and
Limnoithona

Reduced Food in LSZ
Increased Predation Loss (?)

Fall - upstream of LSZ

Reduced
Outflow

Reduced Habitat Area
Reduced Size & Egg Supply

Improved Survival
Late Growth Start

VAMP

Spring - Delta

High Entrainment of
Adults and Early Larvae
Decreased Number
Survive to 2 Years Old

Jan-Mar Exports

Winter - Delta



STRIPED
BASIS

Summer - LSZ

Clams and Limnoithona
Maternal Contaminants

Reduced Food in LSZ
Increased Intra-Specific
Competition/Predation
Impaired Offspring

Fall - LSZ

Reduced
Outflow

Reduced Habitat Area
Disease/ Intersex/
Lesions

High Variability in Annual
Survival

Ocean
Conditions
Disease

Only Largest And
Healthiest Survive First
Winter

Increased Entrainment

Seasonal Food
Winter Exports

Adults - widespread

Winter - LSZ



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Summer - Bay and Ocean

Water Quantity
Food Supply
Salvage

Reduced Survival From
Larvae To Young-Of-Year

Fall - Bay and Ocean

Food Supply?
Water Quality?

Survival of Young-Of-
Year to Age-2+

Reduced Larval Abundance

Water Quantity
Salvage
Predator Abundance?

High Entrainment Loss of
Adults and Larvae

Dec-Mar Exports

Stock-recruit ?

Spring - Bay

Winter - Delta



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Summer

Food Supply?
Water Quality?
Salvage?

Reduced Survival From
Larvae To Young-Of-Year

Fall

Food Supply?
Water Quality?
Salvage?

Poor Survival of Young-
Of-Year to Age-0

Reduced Larval Abundance

Adult Mortality

Stock-recruit ?

Food Supply
Predator Abundance
Salvage?

Spring

Winter

