

Bay-Delta Division Comments regarding the CALFED Draft Fisheries Assessment Strategy Package.

General Comments:

- 1) Your presentation of this material at the Assessment Process Workshop, in our opinion, should not be separated into two different "breakout sessions". Individuals interested in attending both groups will be unable to do so and it may result in the loss of productive information for either session. In addition, the interaction among individuals could trigger additional thoughts and ideas.
- 2) We would like to take on a larger and more productive role in this process, rather than just reviewing documents with a short turnaround time. You solicit further input after the July 10, 1996 deadline and we believe that this input should come in the form of face to face contact with agency biologist. This interaction would 1) involve agency biologist in the development of fishery assessment tools and 2) allow for proper review and consideration of assessment tools.
- 3) Please number all pages in the document so that easy reference can be made to correction or comment areas.

Specific Comments:

Overview of Fisheries Assessment Strategy; 2nd paragraph:

The passage states that models do not exist that meet your qualifications, however the Department of Fish and Game has developed a striped bass model that, in our opinion, meets these qualifications.

Also in this paragraph a fishery assessment strategy is described that will use a balanced array of simple variables and relationships without attempting to link these relationships together and predict absolute population mortality and survival rates and, ultimately, adult fish populations. This strategy for fishery or any assessment is unacceptable. These assessments should, to the extent possible, link relationships and equate impacts and actions to effects on adult populations.

Overview of Fisheries Assessment Strategy; that begins "Implement a balanced...":

balanced array of simple variables and relationships" will be used, while this paragraph states that qualitative, simple semi-quantitative, and complex quantitative (models) tools" will be employed. In addition, we do not believe that scientifically-based narrative descriptions should be compared to quantitative analyses, but narrative can be compared to other narratives and should be used in combination to demonstrate a point.

Overview of Fisheries Assessment Strategy; paragraph that begins "Rely extensively on...":

The CALFED process is working to develop long-term solutions for the Sacramento-San Joaquin Estuary and with that in mind, we should not rush forward or shy away from developing effective and appropriate analytical tools to determine potential impacts of CALFED alternatives.

Overview of Fisheries Assessment Strategy; paragraph that begins "the proposed analytical..":

Striped bass should be removed from the list of other species to be evaluated.

Black bass should not be dismissed so quickly and should be considered as an evaluation species for the Delta for potential impacts associated with CALFED alternatives. DFG collects information regarding black bass populations and densities throughout the Delta; over 40 fishing tournaments are held in the Delta yearly.

Overview of Fisheries Assessment Strategy; bullet list; second to last bullet:

The fishery agencies should be involved in defining what is a significance threshold and how these thresholds will be established.

Overview of Fisheries Assessment Strategy; bullet list; last bullet:

This bullet should be reworded to read:
analyze impacts using the assessment tools and present results

Table 1. Summary of Analytical Tools for Fish Species Assessment Variables: Fall-run Chinook Salmon:

In the spawning, incubation, and emergence section a tool name should be added that examines the Spawning Dispersal of salmon in spawning areas. The reason for this is that salmon have a tendency to clump together when spawning, which would negate any positive benefit of increasing numbers of fish and increasing spawning habitat. In addition, in the Fry and Juvenile in-

river rearing and migration section a tool name should be added which examines the Riverine and Aquatic Habitat in the lower rivers for shallow water habitats.

Under tool types it would be necessary to include tools that examine hydrodynamic information in the key channels, rivers, and facilities of the Sacramento-San Joaquin Delta, such as: entrainment indices at state and federal facilities, and for other selected locations in the Delta minimum, maximum, and average channel velocities, QWEST, DWR's smolt loss model, and USFWS smolt loss model as well as others.

In the juvenile and adult ocean survival section inputs required from other tools should be ocean temperature and an up-welling component. Both of these factors will affect the survival of ocean salmon although excellent conditions exist in and on the spawning grounds.

Figure and write up that links growth and temperature:

The indicator as described in this write up is a "Temperature survival index" however, this graph looks at the association between growth and temperature. We do not understand how survival can be equated from this association.

Figure and write up that links flow at Vernalis and smolt survival:

Document source and graph source should be the same, not from different documents. The word "San Joaquin" should be added.

This association would no longer be valid with some of the CALFED alternatives if water is removed from an alternative location in the Sacramento River instead of in the south Delta. We advocate that appropriate modifications be made to this tool to allow it to be used for any of the alternatives.

Narrative Describing Fry and Juvenile In-River Rearing and Migration:

The paragraph describes the benefits of riparian vegetation but does not take into account the fact that predators are associated with riparian habitats.

Narrative Describing Fry and Juvenile In-River Rearing and Migration
Indicator - Habitat Connectivity Description

What defines a "Long distance of poor quality edge habitat"? Is there any support for the statement that "Linear-connected riverine and riparian (edge) habitats through space and time are highly desirable ecological features for

increasing fisheries production"? If this can not be supported, then it is a weak hypothesis and should be rethought.

Narrative Describing Fry and Juvenile In-River Rearing and Migration

Indicator - Levee Development and Revetment Description

Last sentence in second paragraph:

Conveyance facilities will not improve fish habitat. What may improve fish habitat are the habitat development measures associated with these conveyance facilities. In addition, the write up should recognize that some non-native fish species do very well along developed and rip-rapped levees in the Delta.

Narrative Describing Fry and Juvenile In-River Rearing and Migration

Indicator - Shaded Riverine Aquatic (SRA) Habitat Description

First sentence in second paragraph:

SRA habitat in the Delta may moderate the temperature of water in the immediate vicinity but would be of little benefit to the bigger Delta-wide picture.

Narrative Describing Fry and Juvenile In-River Rearing and Migration

Indicator - Flow/Transport Description

This narrative should be combined with the U.S. Fish and Wildlife Smolt Survival Model to analyze the CALPED alternatives.

Table 1. Summary of Analytical Tools for Fish Species Assessment Variables: Striped Bass

Under tool types it would be necessary to include tools that examine hydrodynamic information in the key channels, rivers, and facilities of the Sacramento-San Joaquin Delta, such as: entrainment indices at state and federal facilities, and for other selected locations in the Delta minimum, maximum, and average channel velocities, QWEST, DWR's smolt loss model, and USFWS smolt loss model as well as others.

Narrative Describing Adult Migration: wording changes

The word "thought" should be replaced with "known" so that it reads "...temperature is known to be an important..."

The sentence that begins with "Short term..." should read as follows: "Short term decreases in water temperature associated with cooler weather could

increase mortality of newly spawned striped bass eggs or already hatched larval striped bass”.

The amount of flow is likely to be more important than the stability of flows over the spawning period.

Figure and write up that describes the Cross Delta Flow Parameter:

This write-up and figure would need to be clarified, and the time period in which it describes defined. It might be more appropriate to look at the cross Delta flow parameter during key time periods. It might also be helpful to examine other components of the Cross Delta Flow Parameter tool (e.g. lower San Joaquin).

Figure and write up that describes the X2 location and survival index: wording addition:

Add the words “of reasons” after the word “variety” so that it reads “...higher flows for a variety of reasons including better...”

Figure and write up that discusses loss rate of juvenile striped bass at export pumps:

Add the word “index” so that it reads: “Estimated losses of 21-150 mm juveniles are divided by the abundance index for juveniles as determined from survey data to determine a loss rate index”.

Figure and write up that describes the association between young of the year index and egg production:

The word “adjusted” should be replaced with the word “reduced” and would read as follows “...estuary should be reduced if the number of ...”.

There is not enough information presented to decide whether this is a non-linear or linear relationship. However, a linear representation is probably most appropriate based on the range of egg production presented in this figure.

Narrative Describing Larval and Early Juvenile Rearing Transport
Indicator - Shallow Water Habitat
First paragraph, last sentence: wording change

The word “seasonally” should be replaced with the word “historically” and would read as follows “...flooded terrestrial habitat that historically provided...”.

**Narrative Describing Larval and Early Juvenile Rearing Transport
Indicator - Food production and availability**

Data on survival rates have suggested that these changes in the distribution and composition of striped bass food items is not important.

**Narrative Describing Fry and Juvenile Delta Migration Survival
Indicator - Juvenile Abundance**

This figure looks at the association between survival and temperature and does not give any indication as to the abundance of juvenile salmon as a result of temperature.

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