

The Bay Institute of San Francisco

***** MEMORANDUM *****

September 15, 1995

TO: CALFED Bay-Delta Program staff

FR: Gary Bobker, The Bay Institute
David Yargas, EDF
Ronnie Weiner, NRDC

RE: September 1, 1995 draft ecosystem quality problem and objective statements

Some brief suggestions and clarifications, expanding on comments made at the CALFED workshop yesterday.

The introductory narratives, summary statements and structure of the ecosystem quality problem and objective statements need further work to fully incorporate and make more explicit the "ecological health" mission.

The mission is to restore ecological health, which might be characterized as consisting of ecological integrity and biodiversity. Ecological integrity refers to the healthy functioning of the system, i.e., the natural processes that support an ecosystem that is diverse, productive, self-sustaining (to the extent possible in a highly-manipulated system), resilient to disturbance (but not static) and contains a natural balance of habitat types. Biodiversity refers to the genetic diversity characteristic of the system (in the context of a post-disturbance environment).

The ecosystem quality problem is then defined as the loss of ecological health, or more specifically, that the alteration of the natural balance and quality of habitat types and the alteration of community structure has resulted in the loss of ecological integrity (function) and the loss of biodiversity. Habitat destruction/alteration includes the destruction or alteration of physical habitats, flow conditions, energy transfer/productivity, biotic interactions, etc., and is manifested in the decline of population levels and the disruption of community structure.

The ecosystem quality objective then is to restore ecological health, or more specifically, to restore and improve habitat to promote ecological integrity (function) and biodiversity. A habitat-based approach entails restoring a natural balance of key physical habitat types, flow conditions, energy transfer/productivity, biotic interactions, etc., and is intended to support viable population levels and healthy communities.

Page 2

Making changes along these lines is crucial because they clarify why a habitat-based approach to protecting the ecosystem is important, and because they allow CALFED to more easily 1) incorporate new scientific data or recommendations as they come available and 2) prioritize among different habitat protection scenarios. The ultimate test is what promotes integrity/function and biodiversity in the estuary. These driving values are implied in the draft, but need to be placed in a more coherent and defensible framework, which then leads to and justifies the habitat-based approach.

Ecosystem quality – problems

summary: change to "Habitat alteration in the Bay-Delta ecosystem has resulted in the impairment of ecological functions that support self-sustaining populations and communities of native and other desirable plants and animals. The destruction and alteration of aquatic and terrestrial habitat areas has disrupted community structure and foodweb dynamics, and caused populations of many species to decline, some to the point of extinction."

A3c should be deleted. It is subsumed under A7c.

A5: change "young fish" to "aquatic organisms."

A7: change "Reduced food chain productivity" to "Altered trophic dynamics and patterns of primary production."

A7a: change "entrainment of food chain productivity" to "Destruction of aquatic organisms at all trophic levels by diversions and exports disrupts foodweb dynamics and limits habitat suitability..."

Our reading of A7g is that this statement would cover reductions or alterations in spring pulse flows that affect stratification and productivity in the South Bay or herring reproduction in the Central Bay. If these would not be included under CALFED's interpretation of A7g, then specific downstream issues need to be explicitly addressed elsewhere in the text, or the geographic scope of the problem area needs to be revisited.

B6: this seems inconsistent with the general approach of recommending broad-based habitat measures which support ecological functions and protect Bay-Delta communities. The other problem statements are not broken down into habitat requirements for individual species. Why not change B5 from "reduction in wintering waterfowl habitats" to "reduction in wintering waterbird habitats" in order to include cranes? Otherwise, "Balkanization" of problems and objectives is encouraged to accommodate interest in particular species.

Ecosystem quality – objectives

Page 3

summary: change to "Improve habitat quality and increase extent of key habitat types to restore the ecological functions that support self-sustaining populations and communities of native and other desirable plants and animals and that reduce the risk of species extinction."

By "Increase amount of quality (x) habitat," does CALFED mean both "increase the amount of quality (x) habitat over the amount of existing (x) habitat" and "improve the quality of existing (x) habitat"? Perhaps this should be more explicitly stated.

A: change to "Restore a natural balance of key habitat types that support..."

A6: change "re-establish appropriate upstream/downstream movement" to "re-establish adequate opportunities for and remove impediments to upstream/downstream"

See comments on Problems A3c, A5, A7 and B6 which also apply here.

A final comment on the introductory narrative for the water supply problem statement: The last paragraph makes a distinction between the need of offstream water users for consistency and the need of instream resources for variability. First, offstream water user needs are not static, in that demands on sources of water vary with the hydrological conditions of a particular water year. Second, the environment is adapted to variations in flows, but it is too simplistic to say that too many low or high flow years are undesirable. The varying flow conditions of individual years produce greater or lesser benefits, but given natural habitat conditions (unimpaired flow, widely distributed refugia, etc), most Bay-Delta species are probably well adapted to drought or flood cycles. It is the human-induced condition of too many low flow years in combination with other habitat alterations that has created ongoing adverse impacts to the Bay-Delta ecosystem.