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NSN 7540-01-917-7369

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January 30, 1996

F/SW022:CTM

Steve Yaeger
CalFed Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, California 95814

Dear Steve:

This is my review of the January 1996 Draft Alternatives document. I hope that you receive it in time to assist the review team.

Unfortunately, I got the document via express mail about two days before you wanted comments back. Therefore, my review was rather cursory.

The array of alternatives is quite broad, which is commendable. This is useful to get people thinking about the universe of possibilities. However, as we have been discussing in the CalFed workshops, there is also a need to narrow down the universe of possibilities to the universe of feasibilities. As the alternatives are developed further, there will be a need to make some cost/benefit estimates to allow us to assess the merits of the various alternatives more quantitatively.

It may be useful to develop some simple ecosystem and water supply concepts that will aid alternative comparison. For example, in general, water supply quality is better the further upstream it is taken from. However, water supply quantity available from a given diversion is reduced as you move upstream since there is less contribution from tributaries. From a habitat perspective, instream flows and (therefore) population carrying capacity are generally reduced as the diversion point is moved further upstream. Another simple concept is the fact that a water conveyance facility gets more expensive as you add miles of canal, so shortening the distance from the diversion point to the delivery point can save substantial construction costs.

By balancing these simple concepts, it becomes obvious that if



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any new isolated transfer facilities are to be constructed, it probably makes the most sense to site the diversion point as far down in the system as possible to maintain instream flows, maximize diversion supply, and reduce construction costs, but high enough in the system to avoid salinity and other water quality problems. (Pollution sources from upstream of the diversion point should always be addressed, since this affects the water quality of both instream and diverted flows.)

A number of actions were repeated throughout the document, even though their merits and/or scope are very questionable at this point:

Many of the alternatives include an action to screen diversions over 250 cfs. I believe that smaller diversions also cause significant entrainment of fish and should also be screened. 250 cfs is not a good cut-off point.

Many of the alternatives include installation of an acoustic barrier at Georgiana Slough. While it may make sense to do something to reduce diversion of fish at this point in the system, I think the jury is out on whether an acoustic barrier is the most cost-effective way to go. Perhaps louvers or even an electrical barrier would protect a lot more fish per dollar spent at this site.

Many of the alternatives include expansion of hatchery programs on the San Joaquin River system to increase the production of fall-run salmon or "re-establish the fall run salmon population". This is counter to the mission of the CVPIA doubling plan, which is to enhance natural production of salmon. In fact, increasing hatchery production may cause negative impacts to the wild San Joaquin stock due to competition, genetic dilution, disease transfer, and the myriad problems of mixed-stock fishery management. The description of the hatchery management "core action" on page 14 of the Core Actions section describes many of the problems caused by hatcheries. The hatchery production approach also runs counter to the general idea of managing the ecosystem rather than managing species. We should be

focusing on actions that will allow populations to naturally increase due to improvements in habitat quality and reductions in entrainment from the system.

The idea of using 100,000 acre-feet on the San Joaquin to "flush fish" at critical times is also of questionable value. I think the jury is still out on this one. Natural flushing events are generally huge, and therefore I don't know if 100,000 acre-feet is enough water to create a lot of effective artificial flushing events. I'd like to hear what the San Joaquin anadromous doubling team for the San Joaquin River thinks of this action. We need to take a critical look at the real needs of the San Joaquin River, and decide whether or not it is possible to restore it, rather than pulling a compromise quantity of water out of a hat. (If the 100,000 acre-feet is based on some kind of fishery needs analysis, then you have my most humble apologies!)

Real-time monitoring is mentioned in many of the alternatives. This is another program that needs to be implemented on a pilot basis until it can be shown to be effective. It is very costly to get good information on the movements of fish through the system in real-time, and it is unclear whether there is enough flexibility in the export/storage system to allow management changes of sufficient magnitude to actually have a significant biological benefit. A great deal of experimentation, modelling, and analysis will be needed in the near future to determine the merits of this approach.

Mine drainage remediation is mentioned in some of the alternatives, but I don't think it was mentioned in all of the alternatives. This action is so fundamental to water quality concerns that I think it should be considered a "core action" that belongs in every alternative. It is required by the Clean Water Act and CERCLA, anyway, I think.

Alternative 8's "chain-of-lakes" concept is interesting, but I wonder to what extent this would increase the possibility of invasion of exotic fish and wildlife species into the Central

Valley and delta. It also could have tremendous water quality impacts, as you pointed out in the constraints and concerns section for the alternative.

Alternative 9's central premise that shifting pumping to the November-February period would reduce entrainment problems for fish needs to be refined. In general, I would agree that given much higher outflows, a given diversion rate at the delta pumps should reduce the proportionate rate of fish entrainment. However, the November to February period is still a period of concern for certain populations, especially spring-run and winter-run chinook salmon. Perhaps you meant to capture this idea when you stated that "export supplies can still be highly constrained and remain vulnerable to interruption" in the constraints and concerns section of this alternative.

Under Alternative 14, you should make it clear that this would require construction of a new pumping plant at the head of the Tehama Colusa Canal. It would be a great step backwards to increase the utilization of the Red Bluff Diversion dam.

I liked the section on Core Actions. If everyone can agree on a set of actions that are given no matter what alternative is selected, then we can begin focusing on the real nitty-gritty--those actions that are unique to the different alternatives. I suggest that you leave the core actions out of the individual alternative description, or else highlight them with a different color or something. That way the reader can avoid reading the same actions over and over again within the different alternatives.

If you have any questions, please call me at (707) 575-6056.

Sincerely,



Chris Mobley
Fishery Biologist
Northern Area