

DRAFT
AN APPROACH TO FLEXIBLE OPERATIONS AND WATER SHARING
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INTRODUCTION

The DEFT-NNG Coordination Team is considering new approaches to water project operational requirements. Specifically, the Team has agreed to attempt development of Stage 1 operational rules that both increase environmental protection and produce more ag/urban water supply. Presumably, the team could expand its scope beyond operational requirements if that were necessary.

The purpose of this memo is to describe how such requirements could be developed.

The Team has agreed that for any set of water facilities, including the current set without any additions, additional environmental protection, relative to water supply operations in the Delta, can be provided by three means:

1. By imposing additional, "traditional" environmental requirements, for example, more days of X2, a lower export/inflow ratio, etc.
2. By flexible operations, for example, by real time increases and decreases in export pumping rates based on the density or presence of fish at each export pumping plant ("fish triggers" for short).
3. By sharing water, that is, by putting some water under control of environmental interests and by providing for the storage and use of that water to achieve environmental benefits.

These three means could, and, probably, will, all be used at once.

Adding water supply facilities, such as the Interim South Delta Program or storage, would provide additional water. This water could be used to offset additional traditional requirements, and it could be shared.

In this paper, we describe how requirements might be developed that would work (that is, produce environmental improvement and water supply) with or without new facilities, with the understanding that such requirements would work better with new facilities. We also try to show how the benefits would increase with new water supply facilities.

The steps described below would be applied in an iterative fashion, starting with a trial set of rules and requirements and then, testing and making adjustments to this trial set as necessary.

STEPS IN DEVELOPING REQUIREMENTS

1. Developing Flexible Export Rules

Develop a set of rules governing increases and decreases in export rates. These rules would be keyed to the density (or presence) of fish at the export pumps. The rules would apply to five species, salmon, steelhead, delta smelt, splittail, and striped bass. The rules would consider the fact that, for any given species, larger fish are more valuable (more likely to become adults) than smaller fish. The rules would also incorporate some means of discriminating among the species so that species most in need of protection in any particular year would be assured of getting it.

2. Estimating Water Supply Effects and Mortality Reductions

Estimate the mortality reductions that would have occurred had the new rules been applied in the recent past for each species.

Apply this set of rules to data from past years and estimate water supply effects. Assume the Accord is in effect, with the understanding that additional environmental protections, including those equal to or greater than AFRP requirements (see below), could be a goal of this effort. Consider all relevant operational issues, including upstream operations, downstream storage availability, demands, hydrology, and power costs.

Based on this analysis, determine how much water could have been delivered to ag/urban users. That is, determine whether the new rules would increase or decrease water supply relative to the Accord.

Determine how these new rules increased the stringency of any Accord requirements. (For example, when did they effectively decrease the E/I ratio or increase the number of X2 days?)

Also identify the specific constraining requirements that limited water supply at various times. (For example, it may be that in certain months of certain year types, the E/I ratio limits water deliveries.)

Also determine the water supply and mortality reduction effects that would have been obtained by applying the fish triggers to in-Delta AFRP requirements.

3. Adjustments to Produce Water Supply Benefits

Based on the analyses in Step 2, develop adjustments to Accord requirements to produce more water. Re-analyze water supply effects (that is, repeat step 2).

Also, develop adjustments to AFRP requirements to produce more water, and re-analyze water supply effects.

4. Developing Water Sharing Alternatives

For each combination of fish triggers and requirement adjustments, water could be shared with the environment. Therefore, for each combination, develop water sharing possibilities, including specification of how the water would be obtained, where it would be stored, the rules governing storage (e.g., when would it spill), and how the water might be used for environmental benefit.

5. Applying Flexible Operations and Water Sharing to New Facilities

This step consists of repeating steps 1-4 for various new facilities, beginning with those analyzed by the No Name Group, namely, ISDP, JPOD, the Intertie, Delta storage, and small Shasta enlargement. The fish triggers and requirement adjustments would be applied to new facilities as well as existing ones.

This would produce new sets of mortality reductions, water supply benefits, and water sharing possibilities.

These steps, or any subset of them, could be repeated until one or more acceptable set of “traditional” requirements, flexible operation rules, and water sharing approaches are developed.