Delta "Fishmaster" Concept

Gregory A. Thomas
President
Natural Heritage Institute

September 13, 2009

The Bay Delta Conservation Plan (BDCP) is pursuing a dual strategy to lower the high level of historic conflict over the dual use of the Delta as both a water supply system and critical ecosystem for a suite of endangered species: restore tidal habitat to produce more fish, and improve the delta export facilities to kill less of them.

The dual conveyance facility is the central physical improvement in delta infrastructure. It will create the capacity to divert larger amounts of water from the system, which could result in either the intended consequence of more flexibility in the rate, timing and point of diversions to reduce stresses and conflicts, or the unintended consequence of greater stresses and more conflict. The outcome will depend on how, and how well, it and the other delta water facilities are operated in real time. In sum, it will depend on the governance mechanism.

The BDCP will be implemented through permits issued under the state and federal endangered species acts and the Natural Community Conservation Planning Act (NCCPA), and an implementing agreement. Together, these will impose both habitat restoration obligations and operational constraints on delta water facilities. These constraints will include authorizations to "take" listed endangered species and operating criteria for all of the delta facilities, including the isolated conveyance facility, south delta pumps, cross-delta gates, Old and Middle River facilities, etc. These constraints may be expressed in terms of flow standards such as by-pass flows, delta inflows, location of salinity gradients, etc. However, these instruments will not be able to anticipate the real time physical or biological conditions that determine the optimal operations to minimize or avoid impacts on the ecosystem. Moreover, the permit terms and conditions will be calibrated to prevent jeopardy to the listed endangered species, whereas the aiming point for BDCP, under the NCCPA, will be recovery of these species, a substantially more demanding standard.

Therefore, the operational criteria in the permits and implementing agreement will necessarily be expressed as a range of permissible values, depending on real time conditions, with considerable discretion left to the facility operator within that range. The permissible range will shift as the adaptive management program illuminates the efficacy of these measures in achieving the conservation goals and objectives.

Under these circumstances, the governance mechanism should operate within the allowable range in a manner that produces optimal results for both ecosystem restoration and water supply reliability, without violating the take and other prescriptions in the permits and implementing agreement. This mechanism can provide a crucial margin of safety that can move the system toward recovery, in addition to, not in abrogation of, the permit requirements. Yet it must also provide a greater assurance that water supply goals will be met, compared to the status quo.

Here is how that could be accomplished: Within the allowable range of operations for the delta facilities, as provided in the permits and implementing agreement, it is possible to calculate the water supply allowance that would result from operations at the mid point in the range. For a given accounting period, that calculation can be taken as the water supply target. Of course, this mid-point and the resulting water supply allowance will vary as the adaptive management program periodically redefines the permissible range of operating criteria.

We propose that BDCP establish a "fishmaster", comprised of the three permitting agencies: the Department of Fish and Game, the Fish and Wildlife Serve and the National Marine Fisheries Service. Its mission would be to maximize protection for the covered species, but to do so judiciously, without unnecessary sacrifice of water export opportunities. Thus, the fishmaster will operate the delta facilities in its sole discretion, but with the requirement that it do so in a manner that meets the water supply target by the end of the accounting period. A prudent fishmaster will have the incentive to operate parsimoniously, with the knowledge that decisions to allow greater than average level exports during times when the ecosystem is not at risk, will increase flexibility to curtail exports at times when it judges that the biological resources are at risk. This arrangement should foster conflict minimization.

How long should the accounting period be? It would work best if it is long enough to include the range of variability in water availability that occurs in the system. Thus, a period of at least one year would be the minimum. But this mechanism is likely to work best if the accounting period is long enough to cover the inter-annual variability in water availability. This suggests a three or even five year running period. The mechanism might also work best with adequate south of delta storage to allow water to be extracted during both seasons and years of greatest inflow into the delta, and curtailed during the low flow seasons and years. The accounting rules would also need to allow for the possibility—remote in the case of a prudent fishmaster—of a circumstance arising where the fishmaster cannot allow sufficient exports at the end of the accounting period to meet the water supply targets without violating the take allowances. Since the fishmaster's operations must always be at least as protective as the permits and implementing agreement, take violations would never be allowed. Therefore, the rules would have to allow for the possibility of a carryover of water supply targets into the next

accounting period, with the concession that then the targets must be made up as the overriding priority (subject, still, to avoidance of take violations).

This mechanism is superior in several respects to the current mechanism for making operational decisions under the biological opinions and "reasonable and prudent alternatives". The current Water Operations Management Team (WOMT) essentially seeks to achieve a balance between meeting water supply contractual obligations and avoidance of take limitations in each operational decision. In effect, a compromise is struck between the fishery protection agencies and the water project operators. It is apparent that these compromises have not prevented either water supply shortfalls or declines in covered species. Moreover, a continuation of the failed delta governance mechanisms of the past cannot be expected to inspire confidence that the larger diversion capacity of the isolated delta facility will be operated to reduce rather than increase stress on the ecosystem.

By contrast, the fishmaster approach seeks to achieve a balance not at every operational decision point, but over an accounting period that allows compromises to be avoided at times when the ecosystem is vulnerable. Operational decisions are not a compromise between competing goals, but an optimization of reconcilable goals.

Of course, the fishmaster will make its decision in light of the physical and biological circumstances as they present themselves in real time. The key physical conditions will be the delta hydrodynamics, which are determined in part by the decisions of the water project operators on the release of water from the upstream reservoirs. All reservoir operators affect these decisions, but they are primarily determined by the Central Valley Project and State Water Project operators. Thus, the fishmaster will essentially respond to decisions by these operators. To anticipate these conditions in advance, the fishmaster will need to routinely consult with these operators. And, to be able to release water to meet export objectives, the project operators will need to routinely consult with the fishmaster. These consultations may look a lot like the process that is currently conducted by the WOMT, but with the crucial difference that the decision as to how to operate the system at any given time to maximize protection of the fish is made exclusively by the best professional judgment of the agencies that have that unalloyed mission.