

Major Issue Relating to EWA

ISSUES RELATING TO THE GAMING PROCESS

1. Level of deliveries and exports assumed -
 - They may be different from recent historical levels.
 - Important in determining yield to projects.
 - Important in determining potential environmental benefits and impacts of actions.
 - Important in determining EWA water allocations and account balance.
 - Affects project operations - storage and releases - project exports, river flows, and Delta inflow.
2. Are there better ways to use the EWA water than we have tried so far?
3. What are the rules and effects of EWA borrowing?
4. Have we adequately focused on the potential synergistic benefits to WS, WO, and Env? Are there more out there that we have failed to ID?
5. Have we had the right people available to conduct the gaming at all times?
6. Have we adequately evaluated the results of each of the games?
7. Have we identified the benefits and impacts of actions taken during each of the games?
8. Does the gaming process itself limit what we can learn from the game?
 - Does the 91-95 gaming year sequence limit what we learn from the gaming?
 - Do the assets or starting points limit learning?

ISSUES RELATING TO FISH SCIENCE AND RISK OF FISH TO EXPORTS

9. Assumed distribution and abundance of fish, and vulnerability to exports - Salvage data were used as surrogate for real time fish monitoring. Was our salvage model adequate for the purposes employed?
 - Low densities and numbers salvaged sometimes were used to trigger export reductions or extra Delta inflow/outflow.
 - Years simulated (1991-1995) did not have real-time monitoring data to guide EWA allocations.
 - Different ways of interpreting what salvage data represented.
 - Was there a serious problem that really warranted export reductions?
 - Were there times when salvage data indicated no risk to fish when there really was? Did we ignore risks to larval fish?
 - If exports and inflows change would fish distribution changes and risk to exports change? On many occasions we assumed that because densities were low historically we could increase exports to much higher than historic levels without additional impact -
 - Many gamers felt this was OK because they assumed that real time monitoring would show the correct distribution and provide protection.
 - Were we really kidding ourselves to think we could get away with high export rates in winter, spring, and summer?
 - Is the gaming realistic enough to be representative of what could real in the future?
10. Did we accurately assess the indirect effects of exports on fish and fish habitat?
 - Some felt that indirect effects of changing project operations were not being considered and thus the game was not realistic and not indicative of what may occur in the future (under real ESA restrictions).
 - Does pumping create greater impacts to habitats and species by changing hydraulics and source water composition in the Bay and Delta?
 - Are other factors relating to project operations (hydrology, habitat, etc.) more important the entrainment at the south Delta pumping plants?
 - Do the reductions in outflow we have allowed, particularly the ones in drier years or in summer, have any indirect effects on the environment of the Bay and Delta?
11. Were we over protective of fish such as salmon, steelhead, striped bass, and splittail when new screen facilities would be highly protective?
12. Were striped bass inadequately protected?
 - Did we go out of our way to massacre them? Should they be protected from exports impacts?
 - What about effects on eggs and larvae?
 - What about high salvage of juveniles and yearlings in winter - is it a concern or not?

- Are abundant striped bass yearlings in winter and young in summer indicators of other important organism such as neomysis shrimp?
13. Is the number of fish killed at the south Delta pumps significant - Will populations be impacted significantly by loss of fish at the pumps?
 14. Have we ignored the potential benefits of ERP on the fish populations?
 - Have we put too much of a burden on the EWA to protect and restore listed species? Can we assume fish will need less protection?
 - Or should we assume fish will need more protection to protect the investment of the ERP?
 15. Would the EWA money be more wisely used to improve fish habitat rather than to buy water?
 - Do we get more bang for the money with habitat or water?

OTHER ISSUES

16. Should we include reservoir, reservoir releases, and river flows in the gaming? Both direct and indirect effects? Would this provide more full treatment of problems relating to salmon and steelhead?
17. Should we include ERP flow recommendations as targets for EWA or assume they will be accomplished with other water? Same goes for AFRP, at least In-Delta AFRP.
18. Are we all kidding ourselves to think we can adequately protect and restore listed species with a few hundred thousand acre-feet of EWA water with a through-Delta alternative while providing greater than existing water deliveries from the Delta? Is the Peripheral Canal the alternative that can satisfy the needs of our prime objectives - WS, WO, and ENV?
19. Are we somehow ignoring other factors (i.e. habitat and water quality) that are really the problem? What about harvest, hatcheries, non-native species, dams, and other diversions?
20. Do we need new NOD and SOD storage to increase our drought year water supply adequately to protect all uses? Would such resources make EWA effective?
 - Is the only surplus available in wet years during high outflow events? Is this really a surplus? How much of the flow pulses can be safely siphoned off for WS and EWA storage in wet years?
 - Have our groundwater resources been adequate and correctly used?
 - Would EWA be more effective if given part of Shasta, Oroville, Folsom, San Luis, and New Melones project storage?
21. Can the combination of In-Delta storage, expanded Banks, groundwater resources, and an annual multimillion dollar stipend be enough to meet Env objectives?
22. To what degree can we relax standards to generate enough water to effectively use these tools?
23. To what degree can we rely more on existing storage without severely jeopardizing drought water supplies for Env and WS?
24. What are our EWA specific objectives? Targets?
25. Is the potential benefit of an EWA along with Stage 1 ERP actions sufficient to allow slow develop the EWA during Stage 1 under Adaptive Management such that we would have some degree of assurance that listed species are adequately protected during the process?
26. What is the potential and ramifications of the EWA participating in the water market?
 - Will the EWA have to pay too much for water?
 - Will the EWA destabilize the water market?
 - Is there potential in the water market for what EWA would need?

WATER QUALITY ISSUES

27. Can we really protect water quality if we close the DCC?
28. Do we really need carriage water?
29. Will use of In-Delta island storage be a WO problem? Can we get around any problems?
30. Can we limit TOC's on a real time basis in exports without affecting WS and Env?