Results of Initial EWA Gaming Scenario

Presented at the Quinn/Spear meeting

April 2, 1999

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Recommendation from DNCT/EWA gaming team

- As a result of the gaming exercise, all members agreed that an Environmental Water Account has definite potential to provide long term benefits to fishery resources and recommended that EWA gaming and evaluation should continue to refine the size and mix of assets, rules of operation and evaluation and accounting procedure.

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Last Q/S Meeting

- **By mid April, recommendations on the following:**
  - Whether to continue to work on a EWA
  - Definites
  - Possibilities
  - Primary rules for managing the EWA and accounting for its water
  - A general approach for biological rules
  - Preliminary evaluation of biological, water, and water quality impacts
  - Preliminary recommendations and request for CMARP
  - A plan for how to proceed

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Scenario 1A Assumptions

- All EWA storage is 50% full at the beginning of the game.
- EWA is funded at the initial level only (e.g.,$30 million)

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Scenario 1A Modeling Basis

- 1995 Level of Development
- Accord + VAMP
- All AFRP
- Trinity
- Interim South Delta Improvements (8.5 kcfs)
- Unlimited JPOD
- New in-Delta Storage (120 kaf)
- Gravelly Ford storage (100 kaf)
- Enlarged Shasta (145 kaf)

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Operational Insights

- Shasta Storage Major benefits
  - Generated EWA water in wet years
  - EWA backed water into Shasta
  - Water used for instream flows, EWA exports, and/or Delta outflow.

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Operational Insights (con't)

- Delta Island Storage Major Benefits
  - Direct connection to Clifton Court increasing flexibility
  - Used as alternative intake point
  - Used for new water supply (using Delta Wetlands rights)
  - Used as EWA storage facility
  - Allowed pumping above 13 kcfs

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Operational Insights (con't)

- E/I Relaxations Major Benefits
  - Very important source of EWA water during dry years
  - Benefits appear higher than projected with monthly models

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Operational Insights (con't)

- San Luis Reservoir Low Priority Storage Major Benefits
  - Space available most of the time for EWA water
  - High input/output capacity

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Operational Insights (con't)

- Purchase of Water Very beneficial
  - The ability to purchase water, whether or not water was actually purchased, allowed the EWA to modify export operations with confidence of payback.
  - In drier years, access to markets provided significant amounts of water for EWA.
  - Additional work is needed to make water purchase assumptions more realistic

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Operational Insights (con't)

- Groundwater Storage Benefits
  - Clear benefits in dry years
  - However, output capacity continues to constrain value
- Efficiency Benefits
  - Generated about 150 kaf of usable EWA water over 5 years
  - Useful baseline study, but need more to have major input

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Operational Insights (con't)

- Synergies Very high
  - EWA had network of infrastructure/rights: Shasta. Delta Island, E/I variances, increased Banks pumping, San Luis storage, groundwater storage
  - Value of network greater than the sum of its parts. Ability to shift water, focus timing of exports using differentials in environmental sensitivity by time and place very valuable

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Operational Insights (con't)

- Adequacy of Account Requires more analysis
  - Account appeared to meet biological requirements most easily in the wettest and driest years. In wet years, export manipulations have no net cost because of high water availability. In dry years, the cost of export manipulations is low because baseline pumping is low.
  - Middle sized years require high cost interventions by EWA, but lack the assurance of makeup water.

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Ecosystem Benefits of EWA (Non-entrainment)

- Improved X2
- Improved San Joaquin Flows at Vernalis
- Improved Temperature pool in Shasta
- Improved September flows out of Keswick
- Close DCC
- Purchases improved tributary flows
- Improve survival of salmon emigrating through Delta

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Recommendations

- Future gaming should integrate and track: biological, water supply and water quality. With active management of the game by all three resource managers (3D). Each assuming the others problems.
- Agency biologists must be satisfied with the structure of the game
- Water Supply/Water Quality Users must be satisfied the with structure of the game

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Recommendations (con't)

- Team should consider the following before reporting back to the Q/S group:
  - Use infrastructure that would be developed by the end of Stage 1
  - Run Game with and without ERP flows
  - Run option where EWA gets its assets from contract
  - Run option where EWA is in the form of a "credit" approach

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Schedule

- Gaming.....April 20,22,27,29 May 4,6
- Report results to Q/S..... May 11
- Report results to Policy/BDAC..... May 12
- Draft Report.....May 30

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Environmental Water Account (EWA)

- Concept
  - Flexible management of water operations could achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach.
- Intent
  - To use EWA operations to achieve substantial fish recovery while providing for continuous improvement in water supply reliability and water quality benefits.

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How to use EWA water

- Evaluate the overall level of fishery protection which would likely be achieved from a range of prescriptive standards/EWA combinations.
- Describe the range of scientific supporting hypotheses for the EWA and other CALFED fishery actions.

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Protection Actions

- What problem is action trying to solve?
- How efficient is the action in solving the problem?
- Are there other ways to solve the problem and what are the relationships to this action?
- How important is the action to the total population?

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Basic Problems

- Entrainment
- Ecosystem Protection
- Guidance for migratory fish

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Entrainment

- When is there a problem?
- When is the species vulnerable?
- How does the tool relate to entrainment?
- Does entrainment affect population size?

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