Environmental Water Account (EWA)

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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 provide flexibility to achieve environmental benefits and to provide certainty (ESA and other regulatory assurances) to water users and continuous improvement to water supply reliability and water quality benefits.

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The Environmental Water Account (EWA)

- Combine the certainty of prescriptive standards with flexibility of active and adaptive management.
- Flexible management of water operations could achieve fishery and ecosystem benefits more efficiently than the completely prescriptive regulatory approach.

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Essential EWA Assets

- A monetary account for water purchases
  - $40M to $60M at start of Stage 1- $20M to $30M at end of Stage 1
- Ability to purchase and transfer water at a reasonable cost and at needed times
  - Up to 100 TAF Sacramento River System
  - Up to 150 TAF San Joaquin River System
  - Up to 250 TAF in Export Areas
- Ability to Vary Standards
- Adequately screened project water diversion intakes in south Delta
- JPOD with no State and federal sublimits

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Essential EWA Assets (con't)

- Access to storage upstream and south of Delta and Delta Islands
  - Utilize available storage in existing reservoirs; **San Luis is key** with other SWP and CVP storage.
  - Late in Stage 1 need storage closer to export pumps for flexibility. Wedd Tract and Bacon/others Islands with a direct connection to bacon and CCF
- Increased permitted export capacity
  - Increased Banks 8,500 cfs pumping window In early Stage 1.
  - Expand Banks permitted capacity to 10,300 cfs by end of Stage 1
- Access groundwater
  - At least 600 TAF in SOD area.
  - Facilities to increase recharge and extraction rates

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EWA assets to grow over time

- Refillable, high priority storage
- Water options and purchases
- Access to facilities for diversion and transport
- Water conservation/reclamation
- Ability to grant variances to export standards
- Contingency fund

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Water User assets to grow over time

- Expand access to diversion facilities
- Increase storage
- Water transfers
- Water in exchange for mortality reductions

Gaming Process

1. Historical October Hydrology is described
2. Historical November Salvage and data are described
3. Modify Biology/Salvage data to reflect changes in historical hydrology
4. Biology team identifies problems in adjusted modeled salvage data
5. Modeled hydrology is modified to fill EWA
6. Differences from historical hydrology to DWRSIM are described.

Gaming Process (con't)

7. Water is used to meet whichever tool is closest to target condition for target species
8. Assess water quality impacts of changes in hydrology.
9. Productivity changes are assessed for salmon, striped bass, delta smelt and splittail.
10. Entrainment effects on species are described.
11. Account for changes in assets of EWA

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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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Games Completed

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Early Stage 1 Assets
Games 4 & 5

- South Delta Program - 8,500 cfs, Temporary barriers in.
- JPOD
- E/I, In-Delta AFRP Variances
- Ground Water (400 TAF; 40 TAF/Mo. in-out)
- Shasta Enlargement (50 TAF)
- Water Purchase (NOD, SOD, spot market) -- $40m/yr.
- San Luis Storage Borrowing
- Unused System Capacities
- Demand Shifting (100 TAF/yr)

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Late Stage 1 Assets
Game 2

- Expanded Banks - 10,300 cfs
- JPOD
- E/I, In-Delta AFRP Variances
- Ground Water (600 TAF; 60 TAF/Mo. in-out)
- Shasta Enlargement (50 TAF)
- Webb Tract Storage (120 TAF, 2,000 cfs. in-out)
- Bacon+ Storage/Connected (200 TAF, 4,000 cfs in; 2,000 cfs. out)
- ET Reductions on Delta Islands (60TAF / year)
- Water Purchase (NOD, SOD, spot market) -- $30m/yr.
- San Luis Storage Borrowing
- Unused System Capacities
- Demand Shifting (100 TAF/yr)

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Water Quality Conclusions

- Parameters: Bromide, Chloride, TDS, Organic Carbon
- Objectives/indices:
  - Measured as progress towards WQ goals
  - Stage 1 WQ targets are already met in some periods
- Salinity assessment
  - Initial use of asset in game ($10M/YR), Increased outflow in fall
  - Tradeoff: reduce worst salinity spikes by about 50mg/l (Cl), 100mg/l (TDS) for 2-3 months
  - **Issues:** Efficient? Quality-supply tradeoff in repeating critical years, competition for transfers?

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Water Quality Conclusions (Con't)

- Organic carbon at South Delta intakes:
  - Avoid seasonal peak: time drainage and/or adjust export operations
  - Export shift (in time) related to EWA operation: reduce DOC (about -5%)
  - Increase due to in-Delta storage: estimates depend on assumptions (about +5%)
  - Current analysis crude: CALFED could link with more thorough CUWA/DW/ USBR study

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Water Quality Conclusions (Con't)

- Tradeoffs:
  - Shifting pumping from Feb-Mar to summer and fall will improve DOC of exports
  - In drier years this operation could increase export salinity.
  - In wetter years this operation may actually improve salinity

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Operation/Modeling Issues

- Access to and sharing of new and existing facilities for EWA water
- Secured debt/delayed payback of EWA water
- Actual amount of environmental protection possible, given EWA assets

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Policy Issues

- Who pays for assets
- Who pays for measures
- Fungibility of assets

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What Decisions are Needed?

A partial list:

1. Default operational rules
2. Sharing future export/storage capacity increases
3. Sharing of pumping above default rules
4. Environmental priorities for existing facilities
5. Decision making authority
6. Regulatory certainty
7. Who pays
8. Carryover of ecosystem credits from year to year
9. Other uses of ecosystem credits
10. Initial funding and type of ecosystem credits

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