

Gaming Issues

- Realism.

Transfers.
 Demand shifting.
 Groundwater access.
 Variences.
 Delta storage -- WQ

- Collateral Unreliability in EWA tools forces increased collateral
- Instability Caused by Project Control over All Increased Export Capacity
- EWA Use of Assets in Wet and Dry Years EWA tended to accumulate assets in dry years and spend them in wet years. Does this maximize overall benefits?
- Transfer Market EWA operations consume export flexibility.
- Regulation of EWA Facilities Is there a need to constrain EWA facilities with regulations?
- EWA/ Project Synergies In Game 2, EWA appeared to increase Project exports through impact on X2 and by loaning storage in San Luis.
- Crediting of Efficiency If CALFED funds \$1-2 billion worth of efficiency in Stage 1, can that water be credited toward goals of project exporters?

Operational Insights

April 2, 1999

- o **Shasta Storage.** Major benefits.

Generated EWA water in wet winters.

EWA backed water into Shasta.

Water used for instream flows, EWA exports, and/or Delta outflow.

- o **Delta Island Storage.** Major benefits.

Direct connection to Clifton Court increased flexibility.

Used as alternate intake point.

Used for new water supply (using Delta Wetlands rights).

Used as EWA storage facility.

Allowed pumping above 13 kcfs .

- o **E/I Relaxations.** Major benefits

Very important source of EWA water during dry years.

Benefits appear higher than projected with monthly models.

- o **San Luis Reservoir Low Priority Storage.** Major benefits

Space available most of the time for EWA water.

High input/output capacity.

o **Groundwater Storage.** Benefits

Clear benefits in dry years.

However, output capacity continues to constrain value.

o **Efficiency.** Benefits

Generated about 150 kaf of usable EWA water over 5 years.

Useful baseline supply, but need more to have major impact.

o **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 sum of parts. Ability to shift water, focus timing of exports using differentials in environmental sensitivity by time and place very valuable.

o **Adequacy of Account.** Requires more analysis

Account appeared to meet biological requirements most easily in 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.