

# Summary of Key Points from the CALFED Bay-Delta Program Analytical Tools Work Sessions

## Water Management (June 18)

### *General Comments*

- Address how the monthly analysis using available tools and data could mislead or misrepresent conclusions; this may take the form of risk analysis or certainty analysis.
- Conduct detailed modeling to look at source and transport of water and the source contributions.
- Try to integrate social and economic considerations into the allocation rules.
- Use 2 types of tools: a traditional detailed water management tool and a tool to look at opportunities to shift allocations.
- Use sensitivity analysis to verify the assumptions of the model(s). Look also at institutional risks and sensitivity. CALFED needs to get consensus from the experts on assumptions.
- Use “two tracks” for the model development: one for the short-term goal of having tool(s) in place to help refine the components, a second for model improvements to conduct meaningful detailed analysis.

### *Assessment Variables*

- QWEST is too specific. Look at “channel flows at key locations”
- Add export TDS and San Joaquin Flow at Vernalis

### *Modeling Tools*

- Adapt the existing modeling tools to address the potential changes in the configuration of the Delta system per proposed CALFED structures and the effects of those changes on relative source contributions.
- Connect the economic tradeoffs with the water modeling allocations.

- Be explicit in what regulations/institutions are assumed as baseline and baseline future conditions.
- Consider changes in upstream environments over time.

*Unresolved issues*

- SWRCB and DWR are working on integrating existing models. How will CALFED reflect the detailed work being conducted by SWRCB?
- How can we measure a market approach in a specific model?
- Can we revise demand-driven models to look at opportunities for all sectors by treating all uses (including environmental) as demand?

*Attendees*

Grace Chan - MWDSC  
 Ben Everett - CH2M HILL  
 Judith Garland - EBMUD  
 Tracy Clay - EBMUD  
 Dean Ruiz - Montgomery Watson  
 Kylea White - Montgomery Watson  
 Pete Rhoads - MWDSC  
 Ted Roefs - USBR  
 Ray Hoagland - DWR Planning  
 Lenore Thomas - USBR Planning  
 Naser Bateni - DWR Planning  
 Byron Buck - CUWA  
 Terri Anderson - SCVWD  
 Lester Snow - CALFED  
 Wendy Halverson Martin - CALFED  
 Aimee Dour - CALFED Consultant  
 Jordan Lang - CALFED Consultant

Sushil Arora - DWR Planning  
 Jim Spence - DWR, SWP  
 Terry Eriewine - State Water Contractors  
 Paul Wisheropp - CALFED Consultant  
 Erwin Van Niewenhuysen - CALFED Consultant  
 Cindy Darling - USBR  
 David Fullerton - CALFED Consultant  
 Richard Denton - CCWD  
 Francis Chung - DWR  
 Steve Yeager - CALFED  
 Rick Breitenbach - CALFED  
 Russ Brown - CALFED Consultant

## **Water Quality (June 18 and 19)**

### *General Comments*

- Avoid the use of simplistic models to represent complex hydrologic phenomena.
- Look at an appropriate time scale: water year and season greatly affect water quality conditions.
- Take the time to do a careful and detailed analysis of this complex system. CALFED will need to convince everyone that the work is sound and the results are useful.
- Incorporate south of delta changes (e.g., new storage) and look at how that would change the mix of water to other delivery areas (e.g., South bay aqueduct).

### *Assessment Variables*

- Address toxins; the current models and methods emphasize flows and Cl.
- Look at BDAC document for the important variables: Na/Br, SS, EC, TDS (EC and TDS should be called out individually), and DO (DO is primarily a concern for the lower Stanislaus and Stockton ship channel but may need more analysis under an isolated facility alternative).

### *Modeling Tools*

- To address water quality concerns, CALFED needs to use recognized and accepted models for alternatives analysis in order for the results to be credible.
- Specifically identify one action and evaluate that action over a range of hydrologic conditions to determine the effect of the action as a function of hydrology.
- Do a long-term probability assessment under a given action or alternative.
- Look at the daily distribution and changes in water quality as a result of an action or alternative. Show changes as a function of tidal stages and export operations, as appropriate.
- Use modeling to refine and select components and to evaluate the alternatives. The next step for CALFED is to put the existing models together to meet our needs for CALFED.

*Unresolved Issues*

- How can CALFED incorporate and evaluate toxins in the system?
- How will model results be verified where the alternatives being modeled would radically change Delta hydrology?
- What will CALFED use for the future baseline conditions?

*Attendees*

Grace Chan - MWDSC  
Alex Hildebrand - SDWA  
Rick Breitenbach - CALFED  
Rick Woodard - DWR  
Henry Wong - USBR  
Jack Rowell - USBR  
Paul Hutton - DWR  
Richard Denton - CCWD  
Francis Chung - DWR  
Ted Roefs - USBR  
Ben Everett - CH2M Hill  
John Gaston - CH2M Hill  
Erwin Van Niewenhuyse - CALFED  
Consultant

Bob Berger - EBMUD  
Judith Garland - EBMUD  
Jeff Lafer - CALFED Consultant  
Greg Gartrell - CCWD  
Elizabeth Howard - USBR  
Jim Arthur - USBR  
Amy Fowler - SCVWD  
Les Grober - CRWQCB  
Aimee Dour - CALFED Consultant  
Jordan Lang - CALFED Consultant  
Russ Brown - CALFED Consultant  
Peter Sandish-Lee - Woodward Clyde

## **Economics - Agricultural Economics (June 20)**

### *General Comments*

- Economic relationships will change based on other changes.
- Take into account short-term vs long-term profit maximization.
- Include uncertainty and risk in the models/analyses. Conduct a sensitivity analysis and use intervals, not point estimates, where appropriate.
- Develop and review case studies to support the modeling work, if feasible.
- Use the tools to refine components (i.e., feedback loop for the demand management/water use efficiency actions).
- Iterate the economics model with the groundwater and hydrologic models to look at the overall relationships and the effects of potential actions (consider groundwater externalities).
- Look outside the CVPIA area to address impacts on SWP delivery areas.
- Growth Inducement: need an assessment of demographics and regional economies.

### *Assessment Variables*

- Add a “social” impact assessment to address income and community concerns.
- Look at the effects of recovering CALFED infrastructure costs on regional economies.

### *Modeling Tools*

- Estimate reliability of water supply; not just the amount of water delivered. (Perhaps CALFED could develop monthly economic estimates, not just annual.)
- Assumptions and the potential drawbacks of the model need to be explicitly disclosed.
- Incorporate urban water management plans and IRP studies into the M&I analysis.

### *Unresolved Issues*

- What is the “No Action”?
- How can we take into account the changes in markets over time?

- Can we measure the ability of local economies to support themselves or their ability to adjust to change?

*Attendees*

Craig Stroh - Reclamation  
Aimee Dour - CALFED Consultant  
Russ Brown - CALFED Consultant  
Fred Farlong - Bay Area Economic Forum  
Rick Breitenbach - CALFED  
Adrian Griffin - SWRCB  
Roger Mann - CALFED Consultant  
Ray Hoagland - DWR Planning  
Wendy Illingworth - Foster Associates  
Richard Howitt - University of California,  
Davis

Zach McReynolds - CALFED  
Gregg Roy - CALFED Consultant  
Jordan Lang - CALFED Consultant  
Don Wagenet - CALFED Consultant  
Palma Risler - EPA  
David Fullerton - CALFED Consultant  
Wendy Halverson Martin - CALFED  
Steve Hatchett - CALFED Consultant

## **Fish Species: Delta Resident Fish - Chinook Salmon (June 21)**

### *General Comments*

- Use best available information/data/relationships/models.
- Use balanced approach using narrative, indices, and models.
- Use strong relationships that are well known.
- Do not link relationships to develop indices/models unless the links are well known.
- Goal is not number of fish. Ecosystem integrity is important. Goal of program is to improve natural ecosystem functions and integrity.
- Sensitivity analysis is desirable, and explain rationale for all analyses/assumptions.

### *Assessment Variables*

- Modular and flexible approach is needed. May need daily analyses for flow fluctuations on a particular river. Average monthly flows may be appropriate for other affects. Need to assess specific CALFED components.
- Focus on broad ecological functions.

### *Modeling Tools*

- Do not rely heavily on indices or population models. Do not combine/lump, or multiply indices.
- Need to establish more tools to evaluate habitat restoration actions, design restoration component, and differentiate between alternatives.

### *Unresolved Issues*

- How will modeling outputs be characterized? There is great difficulty in comparing and understanding different types of output.

*Attendees*

Wendy Halverson Martin - CALFED  
Alice Low - CH2M Hill  
Tom Taylor - Trihey & Associates  
Jim Buell - MWD Consultant  
Rick Breitenbach - CALFED  
Bruce Herbold - EPA  
Phil Dunn - CALFED Consultant  
Russ Brown - CALFED Consultant  
Jordan Lang - CALFED Consultant  
Tom Cannon - CALFED Consultant  
Warren Shaul - CALFED Consultant  
Frank Wernette - DFG  
Pete Chadwick - DFG  
Ken Lentz - USBR  
Randy Bailey - MWD Consultant  
Leo Winternitz - DWR

Liz Howard - USBR  
Dick Daniel - CALFED  
Phil Unger - Entrix  
Steve Ford - DWR  
Terry Mills - DFG  
Jim White - DFG  
Jordan Lang - CALFED Consultant  
Rick Soehren - CALFED

## **Fish Species: Riverine Fish - Striped Bass (June 21)**

### *General Comments*

- Look at changing relationships based on science and sound judgment, but do not throw out historic data.
- Federal/state agencies should be involved in helping CALFED team in developing tools/methods/relationships. A few selected individuals will provide input and keep group small so it can still work effectively.
- See “Summary of Key Points” for chinook salmon. All of these issues that were generic to the general CALFED approach were agreed to by the striped bass group, in general. There were no contradictions between the two groups in terms of approach.

### *Unresolved Issues*

- How will the new facilities be modeled? Many of these facilities may fundamentally change the existing system so that historic relationships may not be valid.

### *Attendees*

Wendy Halverson Martin - CALFED  
Alice Low - CH2M Hill  
Tom Taylor - Trihey & Associates  
Jim Buell - MWD Consultant  
Rick Breitenbach - CALFED  
Phil Dunn - CALFED Consultant  
Russ Brown - CALFED Consultant  
Jordan Lang - CALFED Consultant  
Tom Cannon - CALFED Consultant  
Warren Shaul - CALFED Consultant

Frank Wernette - DFG  
Dick Daniel - CALFED  
Peter Baker - EA Engineering  
Jack Rowell - USBR  
Ted Sommer - DWR  
Chris Mobley - NMFS  
Jim White - DFG  
Larry Puckett - DFG, USFWS  
Bill Snyder - DFG