

## **KEY MESSAGES FROM SUBGROUPS**

### **Water Supply Reliability Performance Measures**

Historically, the CALFED Program has defined its highest-level goal for water supply reliability to be to “reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system.” While this is an apt description of the intent of the CALFED Program, there are many challenges in defining performance measures that can be used to adequately describe progress towards achieving this broad goal.

One primary challenge is to define the current and projected beneficial uses dependent on the Bay-Delta system. At this time, we cannot measure current beneficial uses precisely, and due to their dynamic nature, predicting beneficial uses in the future is even more difficult. Many laypeople interested in the CALFED Program may believe that the term “beneficial use” refers to more direct application of water to satisfy human wants in categories such as municipal and domestic, industrial, and agricultural uses of water. Of course, “beneficial use” also refers to the broader uses of water that provide public benefit, such as providing good conditions for fish and wildlife, maintaining freshwater in water bodies, recreation, and hydropower. (The State Water Resources Control Board has identified 24 categories of beneficial uses of water.)

While it is challenging to precisely quantify the current and projected beneficial uses of water in the classical categories of municipal and industrial and agricultural uses, we have much more experience approximating future use for these categories than quantifying the projected beneficial uses of water for other categories of use, such as maintaining fish and wildlife and preserving water quality. Recent experience with the Pelagic Organism Decline clearly shows the need for better scientific understanding about the relationship between the availability and movement of water and a healthy ecosystem. Moreover, considering ongoing changes in the Bay-Delta system due to exotic species, climate change and the growing number of water quality constituents of concern, any quantifiable projection of beneficial uses dependent on the Bay Delta System will continue to evolve for the foreseeable future.

Given these challenges, any comprehensive performance measures for the water supply reliability goal of the CALFED Program must be tied to performance measures for both the ecosystem restoration goals and the water quality improvement goals of the Program. While it is possible to measure deliveries of Bay-Delta water supplies for municipal and industrial and agricultural uses, this measure provides an indirect and limited indication of how successful the CALFED Program is in producing the intended benefits. If this delivery indicator is not used in conjunction with a much broader range of information, little can be learned about the success of the program with regard to “current and beneficial uses dependent on the Bay-Delta system.” Examples of other information that must be considered to evaluate success include application of other sources of water supplies, changes in water use infrastructure or water use practices

that improves water use efficiency, water quality at various locations and for different uses, and some meaningful indication of the long-term health of the affected ecosystem.

Unless advances in scientific understanding prove otherwise, the best indicators of any mismatch between Bay-Delta supplies and beneficial uses related to ecosystem restoration and maintaining water quality will be the overall success of those programs as measured by the performance measures developed for those programs.

To develop indicators of water supply reliability for the subset of municipal, industrial and agricultural uses, two primary recommendations are offered, as follows:

1. To date, CALFED has attempted to evaluate the total portfolio of available water supplies and demands for all Delta Water Users with the goal being to produce an acceptable balance between the two. Upon consideration of the CALFED ROD and supporting documents, it appears that this approach may over reach the CALFED mission and authority, would be unmanageable within the context of the CALFED Program, and would divert the focus of CALFED agencies from addressing specific Bay-Delta beneficial use needs.

Part of the outcome of the review and refocusing effort of CALFED in 2005 was recognition that CALFED's mission was too large and that the Program should be re-scoped to provide more direct attention to Delta issues. To that end, CALFED should focus on the Delta aspects of improving Statewide Water Management Systems to make Delta water conveyance more sustainable and reliable. As part of their broader missions beyond the CALFED Program, State and federal agencies should continue to address the other aspects of water management, such as alternative water supply sources and demand management that directly affect local, regional, and statewide water supply reliability. The California Water Plan update process should serve as a forum for agencies to continue coordination, seek public input, and provide transparency in policy development and implementation.

Through the California Water Plan update process, DWR and other agencies will compile and integrate regional goals set through emerging Integrated Regional Water Management planning processes. Based on this work, DWR and other agencies will evaluate progress in improving statewide water resources management and develop and articulate State water policy. CALFED water management goals and performance measures should be informed by these broader goals set by the California Water Plan, and vice versa. The Delta Vision and Delta Risk Management Strategy development processes will also inform the California Water Plan update process.

2. As part of the core mission of the CALFED Program, implementing agencies should focus on water deliveries from the Bay-Delta system for municipal and industrial and agricultural purposes as one important input to statewide water supply reliability. Consider changes in those deliveries and predictability of

deliveries as indicators (using probabilistic measures of deliveries over time that can accommodate the inherent variability of conditions in California and the dynamic nature of demand to produce meaningful comparisons), and evaluate these indicators together with performance measures for ecosystem restoration and water quality, as an overall performance measure for the CALFED water supply reliability goal.

### **Recommended Approach: Refine and more clearly articulate the CALFED Program goal for Water Supply Reliability**

The underlying commitment of CALFED is that sustainable progress will be made on all of the Program objectives through a balanced set of actions. The goal for the CALFED Water Supply Reliability program objective should be refined in such a way that accomplishments can be measured and that expectations are reasonable given the refocused CALFED strategy.

Below are two proposed strategic objectives that describe how WSR accomplishments should be measured as they relate to a healthy, reliable and sustainable Delta ecological system that can also convey stable water deliveries.

#### **Strategic Objective 1. Enhance Long-Term Stability of Delta Water Supplies**

The stability of water supplies for uses both within and exported from the Bay-Delta system is linked to the sustainability of the Delta ecosystem and Delta water quality for both aquatic species and municipal, industrial and agricultural uses.

Performance Objective 1a: Provide water supply in sufficient quantity and timing to improve Delta Water quality and contribute to fish restoration efforts. Water supplies for these purposes will be provided subject to the terms included in the Bay-Delta Water Quality Control Plan, ESA Biological Opinions, HCP and NCCP agreements, OCAP, EWA, and any other relevant regulations or agreements among CALFED implementing agencies. These regulations and agreements should evolve based upon best available scientific understanding of the water supply needs to provide for water quality improvement and ecosystem restoration in the Bay-Delta system.

- Indicator: Acre-feet of water made available and dedicated for Bay-Delta system water quality and fish restoration improvements
- Indicator: Progress in meeting ERP and WQ program goals as measured by established performance measures for those programs.
- Targets: To be coordinated with the ERP and WQ programs.

Performance Objective 1b: Maximize Sustainable Delta Deliveries. As part of a balanced CALFED Program, CALFED agencies should seek to maximize long-term, sustainable water deliveries from the Bay-Delta system, while providing

for all other beneficial uses, including restoring ecosystem health and improving water quality.

- Indicator: Ten year moving average of annual water delivered from the Bay-Delta system in Acre-feet. (Or some other instructive measure of actual water deliveries that accounts for the variation of annual deliveries from year to year based on hydrologic conditions and changing patterns of demand.)
- Targets: Targets should reflect the benefits that could be provided through the implementation of activities in the CALFED ROD to enhance delivery capability and must be evaluated and updated regularly and reflect currently institutionalized constraints to deliveries, including updates to the Bay-Delta Water Quality Control Plan, ESA Biological Opinions, HCP and NCCP agreements, OCAP, and others. These constraints should evolve based upon best available scientific understanding and established needs for other beneficial uses of the Bay-Delta system including ecosystem health and water quality. .

Performance Objective 1c: Minimize unanticipated and uncompensated reductions in scheduled Delta water deliveries. One important component of water supply reliability is the degree of confidence that a scheduled quantity of water will be delivered during the time planned (referred to here as delivery stability). Delivery stability can be diminished by conditions that arise in the Delta that reduce or prevent delivery of scheduled water. The delivery stability will be measured as the amount of unanticipated and uncompensated reductions in scheduled deliveries via the SWP and CVP pumps caused by conditions within the Delta that prevent those deliveries.

- Indicator: TAF/year of unanticipated and uncompensated reductions in scheduled deliveries.
- Performance target: No unanticipated and uncompensated reductions in scheduled deliveries.

**Strategic Objective 2. End User Supply Reliability (To be administered by DWR and other agencies through the California Water Plan update process and reported to the CALFED Program)**

Long-term, sustainable, water supply reliability is best measured at the end user, capturing the balance of supply and demand considering all sources of supply, demand management, and other water management strategies. As discussed above, DWR and other State agencies are encouraging the development of Integrated Regional Water Management Plans throughout California, as described in the 2005 California Water Plan Update. The water management goals and actions resulting from IRWM planning will be assessed on a statewide basis by DWR and other agencies through future California Water Plan Update processes. Specific indicators and targets will be

developed in cooperation with local and regional agencies, in consideration of statewide and regional water management objectives.

### **Recommended Next Steps**

- Coordinate with Ecosystem Restoration and Water Quality Program agencies to ensure that initial targets are established for water supply volume, flows and timing to support CALFED ecosystem and water quality goals. It should be made clear that these targets may change in the future as on-going and planned research activities are completed.
- Coordinate with the California Water Plan update, Delta Vision, and DRMS processes to include Delta Risk management and Delta sustainability information.
- Bring the performance measures proposal to the BDPAC Water Supply Subcommittee to allow it to provide recommendations to the BDPAC on how to proceed.

### **Resources Needed**

The efforts related to the further development of water supply reliability performance goals and indicators must be integrated with other efforts including the California Water Plan update process.

Specific effort to develop indicators and targets for Strategic Objective 1, Enhance Long-Term Stability of Delta Water Supplies, will be met using existing staff within DWR and Reclamation. However, this overall effort could exceed \$400,000 per year—approximately one FTE from DWR and one from Reclamation and support from Program staff from the following program areas: Conveyance, Surface Storage, Transfers, and the Environmental Water Account.

Further engagement and cooperation with local and regional agencies will be needed to develop indicators, targets, and the data needed for accurate analysis under Strategic Objective 2: End User Supply Reliability. Resource needs are under development but unknown at this time.

For the Water Supply Reliability program to complete this effort, resources may need to be dedicated within the Ecosystem Restoration and Water Quality subgroups to develop science based environmental water demand targets for tributaries to the Delta, in Delta, and Delta out flow. It is likely that a significant amount of the environmental water demand targets will be developed in ongoing efforts, (e.g. Bay-Delta Conservation Plan); however, this information may not be available in the near future and interim targets for environmental demands may need to be developed. Ultimately, resource

allocation decisions for these purposes would be made by ERP and WQ program agencies.

### ~~Water Quality Performance Measures~~

~~Core outcome indicators and performance measures should be developed for a range of beneficial uses, focusing on water quality issues which have particular relevance to Program objectives in the Delta. The topics selected for this first phase of work on indicators, are drinking water quality, toxicity, and mercury. Because of the importance of these topics across CALFED Program activities—for instance, habitat restoration, POD investigations, and quality of Delta drinking water supply—further work on these indicators and performance measures will require enhanced collaboration of a number of agencies.~~

#### ~~Drinking Water:~~

- ~~• Along with the Central Valley Water Board and CDHS, the CALFED Water Quality Program has been working on conceptual models and comprehensive data assessments for key constituents affecting drinking water which will support CALFED evaluation of Delta conveyance alternatives, and will contribute to a Central Valley drinking water policy.~~
- ~~• The conceptual model and assessment work provide a substantial foundation for performance measures of water quality at the Delta intakes and “at the tap.”~~
- ~~• This work takes into account environmental justice issues regarding drinking water quality, cost of adequate drinking water treatment, and potential limitations in affordable treatment processes.~~
- ~~• To complete the data assessment, prioritize additional data needs, and develop performance measures using existing information, additional staff (SWRCB and CDHS) are required.~~

#### ~~Toxicity:~~

- ~~• Toxicity, an indicator of ecosystem water quality, is being examined as a factor in the “Pelagic Organism Decline” (POD) within the Delta.~~
- ~~• Data for individual toxicity drivers, such as certain pesticides, exist, but in many cases the specific causes of toxicity have not been identified. Work for the POD will investigate toxicity through water quality testing and biomarker analysis to improve assessment of impacts on aquatic ecosystem populations.~~
- ~~• Additional staff (at the Central Valley Water Board and California Department of Fish and Game) will be needed for next steps in developing toxicity indicators: identifying data gaps, expanding monitoring, and conducting data retrieval and evaluation.~~

#### ~~Mercury:~~

- ~~• Mercury contamination occurs throughout the Bay-Delta system and is an important issue for health of aquatic species and wildlife, and a potential human health concern. Environmental justice considerations relate to the possibility that~~