

Attachment 2: Proposed Refinements and Additional Performance Measures to be Considered

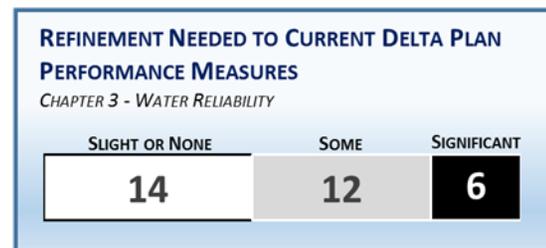
During the project to assess Delta Plan performance measures, staff also identified opportunities for refining existing measures or potentially adding new measures. A framework for possible refinement/additions is described in this attachment for each Delta Plan chapter. This provides a foundation for future Delta Plan updates. More specific refinement recommendations for individual Delta Plan performance measures are included in Attachment 3 – Delta Plan Performance Measures Catalog.

Chapter 3 – A More Reliable Water Supply for California

Achieving the coequal goal of providing a more reliable water supply for California means better matching the state’s demands for reasonable and beneficial uses of water to the available water supply. According to the Delta Plan:

“This will be done by promoting, improving, investing in, and implementing projects and programs that improve the resiliency of the state’s water systems, increase water efficiency and conservation, increase water recycling and use of advanced water technologies, improve groundwater management, expand storage, and improve Delta conveyance and operations. The evaluation of progress toward improving reliability will take into account the inherent variability in water demands and supplies across California.”

With this in mind, and also considering the significant developments and lessons learned since the Delta Plan was adopted in 2013, staff have identified opportunities for refining (or adding to) Chapter 3 performance measures. The degree of refinement varies as shown in the inset (further details for each performance measure are included in Attachment 1). The recommendations for refinement/additions generally concern the following three interrelated themes:



- ✓ **Supply-side Management Actions:** A broader suite of supply-related measures should be considered to monitor the progress and effectiveness of the latest developments in water supply management policies, programs, and projects, as well as real-time and long-term trends in hydrologic variations. For example,
 - Measures to track the implementation of the Sustainable Groundwater Management Act, by reporting on parameters such as: groundwater elevations, extractions, storage estimates, wells drilled, basin recharge and recovery.
 - Measures to track the development of local and regional supplies to reduce reliance on the Delta, such as:
 - Recycled water including non-potable, indirect potable, potable, capacity vs. as part of supply
 - Desalination capacity as part of supply
 - Net imports/exports by hydrologic region
 - Water transfers such as number proposed vs. completed, acre feet of transfer, time of year, long-term vs. short-term

- Measures to track real-time and long-term trends in hydrologic variations, such as: Monthly surface storage levels, snowpack, and precipitation similar to monthly “By the numbers” report to Council.
- ✓ ***Demand:*** A broader suite of demand-side measures should also be considered to monitor the progress and effectiveness of demand management policies and programs. As one example, current Chapter 3 water conservation measures focus on urban use; tracking of agricultural demand would provide a fuller picture.
 - Agricultural demand and use such as: estimates based on crop type, monthly SWP & CVP delivery reports, groundwater extraction based on metered readings or based on energy used for groundwater pumping.
 - Urban municipal and industrial use reported monthly. For example, metered residential deliveries, industrial, institutional, and commercial use.
- ✓ ***Reliability:*** The aspect of “reliability” is important to the goal statement, although the term can be subject to interpretation. Refined performance measures can help more clearly define and track reliability. One approach may be to refine measures to delineate supply versus infrastructure-related reliability:
 - Supply reliability measures may include, (a) completion of surface storage studies (WR R13) and implementation/construction; and (b) supply projections for all year types in Urban Water Management Plans (e.g., increased local supply reliability should lead to decreased dry year supply shortages).
 - Infrastructure reliability measures may include, (a) dollars spent on maintenance, replacement of pipelines and facilities, (b) American Society of Civil Engineers infrastructure report card.

Chapter 4 – Protect, Restore, and Enhance the Delta Ecosystem

As stated in the Delta Plan, the coequal goal of ecosystem protection, restoration, and enhancement means:

“...successfully establishing a resilient, functioning estuary and surrounding terrestrial landscape capable of supporting viable populations of native resident and migratory species with diverse and biologically appropriate habitats, functional corridors, and ecosystem processes.” (Key terms are fully defined in the Water Code).

Staff kept this statement in mind during their assessment of current Delta Plan performance measures and review of inter-agency efforts and changes. Much has changed since the Plan was implemented. For example, the recent changes to the Bay Delta Conservation Plan (BDCP) leaves a notable gap in the types of measures that were anticipated to occur through that program and which would have been complementary to the Delta Plan’s goals. Future measures may need to address this gap and extend metrics to reflect evolving ecological restoration knowledge and best available science.

Considering these and other factors, staff have identified opportunities for refining Chapter 4 performance measures. Summarized around the following broad themes:

- ✓ Real-time water management for better tracking towards ‘more natural functional flows’.
- ✓ Habitat needs of migratory birds, including water supply, to better understand whether or not habitat needs are being met and actions to better meet those needs.
- ✓ Focus on ecological function and overall health, leveraging on the work of the California Estuary Monitoring Workgroup and others for the State of the Estuary Report. Examples include fish diversity and abundance, population trends for selected bird species, and zooplankton that provide food for fish. Potential focus points would be:
 - Apply a landscape vision approach to identifying ecological objectives and metrics where the goal is to assess the overall function and health of restored ecosystems or sub-systems, not simply volume (e.g., acreage) of habitat.
 - Explore metrics and targets being identified through other major habitat restoration programs as potential sources of appropriate goals (e.g., SFEI’s Delta Landscapes project, CDFW’s Draft State Wildlife Action Plan, DWR’s Draft Central Valley Flood System Conservation Strategy, CNRA’s EcoRestore, etc.), and collaborate in

REFINEMENT NEEDED TO CURRENT DELTA PLAN PERFORMANCE MEASURES CHAPTER 4 - ECOSYSTEM RESTORATION		
SLIGHT OR NONE	SOME	SIGNIFICANT
17	10	8

developing future measures so that metrics, targets, and monitoring protocols are aligned as fully as possible to leverage collaborative strengths.

- Carefully ensure that the selected measures are realistic and feasible to implement (reliable data is available).
- ✓ Expand habitat types, to allow tracking of habitat restoration beyond the BiOps' targets (e.g. fish, tidal marsh and floodplain) that currently shape many restoration program goals. For example,
 - Apply landscape scale conceptual models to identify more robust metrics, indicators, and targets, such as:
 - Connectivity among communities and ecosystems
 - Native versus non-native diversity
 - Habitat area by patch size
 - Marsh to open water ratio
 - Draw on additional landscape scale programs for ideas in developing metrics and targets, such as:
 - The Delta Restoration Network's Hub and habitat targets being developed for sub-area's regional plans
 - California's EcoRestore metrics and monitoring requirements
- ✓ Seek linkage of measures spanning the categories (administrative, output, outcome), to allow an expanded understanding of the relationships between management actions and outcomes. A sample of linkage spanning all three categories is as follows:

ADMINISTRATIVE	OUTPUT	OUTCOME
Dollars spent on habitat restoration projects	Acres restored by habitat type	Trends in native species using restored habitat

Chapter 5 – Protect and Enhance the Unique Cultural, Recreational, Natural Resource, and Agricultural Values of the California Delta as an Evolving Place

Staff have evaluated the suite of performance measures supporting this chapter and the linkages with other current efforts underway in other partner agencies. Through this analysis staff have formulated ideas where future refinements may be considered. Summarized as follows around three broad themes:

- ✓ **Invasive aquatic plants**: Measures are needed to minimize the impact to Delta communities of invasive aquatic plants. These new measures can help to answer key questions, such as:
 - Are monitoring efforts adequate in tracking the issue?
 - What are the current community impacts (economic, public health, recreational/boating, water delivery/pumping) from invasive aquatic plants?
 - What are the trends of these impacts? Any measurable improvements or degradation?
 - What programs exist to address the community impacts of non-native plants in the Delta?
- ✓ **Delta-wide agriculture**: Measures are needed to more fully track broader trends in agriculture throughout the Delta, such as:
 - Promote value-added crop processing.
 - Encourage agritourism.
 - Encourage wildlife friendly farming.
 - Emphasize Delta branding and marketing.
- ✓ **Delta-wide economic vitality**: Measures are needed to better track broader trends in economic vitality.



Chapter 6 – Improve Water Quality to Protect Human Health and the Environment

Staff have evaluated the suite of performance measures supporting this chapter and the linkages with other current efforts underway in other partner agencies. Through this analysis staff have formulated ideas where future refinements may be considered. Summarized as follows around the following themes:

- ✓ **Specificity**: Generalized and “all-encompassing” performance measures need to be broken down into more basic elements, specifically unit of measure, target value, baseline value, and the strategic decision the measure is intended to support/inform. For example:
 - “Meet Control Plan Objectives” can be further specified to focus on 303(d) lists in the Delta, and associated pollutants. Tracking may include assessing number of constituents, constituent delisting rates, and indications of the Regional Water Quality Control Boards in meeting their delisting schedules.
 - “Reduce Measurable Toxicity” can be further specified by constituent type and aligned to established testing methods and results. Controlling toxicity in the Delta overall is an infeasible goal, due the complexity of factors influencing toxicity levels, as well as the uncertainty in identifying clear cause-and-effect of pollutants. New measures should focus on more realistic monitoring goals, as well as identifying testing methods that are most effective in highlighting toxicity trends of specific pollutants.
- ✓ **Testing Methodologies**: For many toxicity measurements/assessments testing methods and choices drive the validity of the results so evaluation of the methodologies should be part of the measure itself.
- ✓ **Adapt to changing constituents**: Many of the constituents being assessed in the Delta are changing far more rapidly than regulatory cycles do. Measures need to take this aggressive pace into account and provide ways to accommodate changes. (e.g., updating pesticides lists, tracking “Contaminants of Emerging Concern,” etc.). Core constituent groups may remain fairly constant to provide indicators of the “state of the system” and “how we’re doing.” However, such lists will not be adequate to encompass the broader spectrum of constituents currently being introduced into Delta waterways.
- ✓ **Expanded water quality categories**: For example, water quality measures related to groundwater management, such as contamination levels, overall monitoring programs and protocols, rate of withdrawals, etc.

REFINEMENT NEEDED TO CURRENT DELTA PLAN PERFORMANCE MEASURES CHAPTER 6 - WATER QUALITY		
SLIGHT OR NONE	SOME	SIGNIFICANT
16	5	6

Chapter 7 – Reduce Risk to People, Property, and State Interests in the Delta

Staff research in this area including collaborative discussions with other agencies have helped in identifying new opportunities to track risk reduction efforts in the future. Opportunities for refinement, and potentially additional performance measures, generally concern the following themes:

- ✓ **Multi-Benefit Risk Reduction Efforts**: Risk reduction involves coordinating among implementing agencies to promote projects that provide multiple benefits. For example,
 - Are new projects assessing multiple benefits?
 - Is DWR promoting multi-benefit projects through the Special Projects Program?
 - Are Delta setback levees also increasing flood protection?
 - Have past levee ecosystem projects been successful?
 - Incorporate recommendations from the revised Central Valley Flood Protection Plan that would provide findings on three levels: system-wide, regional, and project levels.
- ✓ **Delta Levee Investment Strategy (DLIS)**: Completion of the DLIS project will provide guidance to future development of policies, recommendations, and performance measures. For example:
 - Percentage of levees participating in PL84-99 program.
 - Percentage of urban levees providing levels of protection consistent with Central Valley Flood Protection Plan.
 - Miles of levees improved to further state interests prioritized in DLIS.
- ✓ **Climate Change**: Broaden the performance measure from “plan for sea level rise” to “encompass impacts of climate change”. For example:
 - Consider broadening performance measures to take into account all mitigation and adaptation activities to address climate change impacts.
 - Encourage sea level rise planning for all new development not only rural residential subdivisions.
 - Encourage DWR to work with NOAA, USGS, and others to downscale climate models for Delta use.
- ✓ **Federal Participation**: Need to encourage continued federal interests in the Delta. For example:



- Encourage USACE to consider benefits for other federal agencies/purposes in their cost-benefit analyses such as water quality and water supply benefits to USBR.
- Broaden "FEMA reimbursement" to "federal reimbursement"