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Sent: Friday, June 15, 2012 12:23 PM  
To: Grindstaff, Joe@DeltaCouncil; Messer, Cindy@DeltaCouncil; Goodwin, Peter@DeltaCouncil  
Cc: Isenberg, Phil@DeltaCouncil; Jon Rosenfield Ph.D.; Wilcox, Carl@DFG  
Subject: follow up re performance targets

all,

based on yesterday's discussion at the Council meeting, I am attaching the following:

- a revised version of the proposed additional performance metrics for Chapter 4;
- a table defining the desired population viability targets, that is referenced in the list of metrics; and,
- a very brief outline of an approach to the process for developing a comprehensive suite of performance targets, as the basis for a more detailed description to be included in the final Plan.

I believe this revised list of performance metrics is consistent with the Department of Fish and Game's aspirations for improvement of population viability in the Delta (based as it is in part on the Department's own work).

I will be out of state for a week starting today. Please work with Dr. Jon Rosenfield of my staff ([rosenfield@bay.org](mailto:rosenfield@bay.org); 510-6844757) regarding any questions about or refinements of our recommendations.

cheers,

Gary

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## ADDRESSING PERFORMANCE METRICS IN THE 2012 DELTA PLAN

The 2012 Delta Plan should include both:

- a small subset of overarching, “umbrella” performance metrics selected for policy importance and as guidance templates for the development of a more complete set of metrics.
- a detailed description of the process for developing a full set of performance metrics for incorporation into the Plan in the near future.

### 1. New, “umbrella” performance metrics (to supplement the current draft performance metrics in Chapter 4):

- In the long term (> 10-20 years), maintain the population viability (abundance, distribution, productivity, and diversity) of a characteristic suite of native, estuary-dependent aquatic species of the Delta (Chinook salmon, steelhead, delta smelt, splittail, longfin, starry flounder) at levels equal to or greater than those of the 1967 – 1984 period, as defined in Table X.
- In the short term (< 10-20 years) and until desired abundance targets are achieved, achieve adequate progress towards the long-term targets. “Adequate progress” is defined as: positive population growth and/or cohort replacement for these species in two-thirds of all years/generations when abundance is less than the target and in three-quarters of all years/generations when abundance is less than 50% of the target.
- Reduce annual mortality of these species from all sources controllable by covered actions to < 5%.

### 2. Developing a full set of performance metrics

- Commit in the 2012 Plan to complete the development of the full set by a date certain (approx. 18 months).
- Assign lead responsibility for developing metrics to the Delta Science Program, with periodic review by the Independent Science Board.
- Describe in detail (e.g., 2-5 pages) the process and criteria for developing metrics.
- Criteria for development of metrics should focus on:
  - ability to identify *specific values or ranges of values* of desired performance (relative to baseline/reference conditions)
  - feasibility and ease of *measurement*

- ability to evaluate the *achievability* of desired performance (e.g. through modeling or expert opinion)
- *relevance* to plan goals and objectives
- *timeframe* for reaching desired outcome
- information richness/potential contribution to *reduction of key uncertainties*
- sufficient information available to identify desired *magnitude* of improvement over baseline/reference conditions
- inclusion of a *diversity* of metric types (ecosystem, water supply, delta as place, etc)

Salmonid Objectives

Species	Attribute	Interim Objective (< 10-20 years)	Interim Objective	Total Objective (> 10-20 years)
Chinook salmon (winter run)	Median abundance			108,000/yr <sup>1a</sup>
	spatially distinct populations			Three (3)
	resilience	When abundance<50% of relevant interim objective, CRR>1 in at least 75% of years Until Total Objective attained, CRR>1 in at least 67% of years After Total Objective attained, CRR>1 in at least 50% of years		
	diversity			Distribute operational impacts equally across life-stage historical duration (i.e. limit differential impact to early or late spawners/smolt)
Chinook salmon (spring run)	Median abundance			98,000/yr <sup>1b</sup>
	spatially distinct populations			6 (two in each of three regions) + spawning in NW Sacramento drainage.
	resilience	When abundance<50% of relevant interim objective, CRR>1 in at least 75% of years Until Total Objective attained, CRR>1 in at least 67% of years After Total Objective attained, CRR>1 in at least 50% of years		
	diversity			Distribute operational impacts equally across life-stage historical duration (i.e. limit differential impact to early or late spawners/smolt)
Chinook salmon (fall run)	Median abundance			770,000/yr <sup>1b</sup>
	spatially distinct populations		maintain status quo	
	resilience	When abundance<50% of relevant interim objective, CRR>1 in at least 75% of years Until Total Objective attained, CRR>1 in at least 67% of years After Total Objective attained, CRR>1 in at least 50% of years		
	diversity			Distribute operational impacts equally across life-stage historical duration (i.e. limit differential impact to early or late spawners/smolt)
Chinook salmon (late-fall run)	Median abundance			68,000/yr <sup>1a</sup>
	spatially distinct populations		maintain status quo	
	resilience	When abundance<50% of relevant interim objective, CRR>1 in at least 75% of years Until Total Objective attained, CRR>1 in at least 67% of years After Total Objective attained, CRR>1 in at least 50% of years		
	diversity			Distribute operational impacts equally across life-stage historical duration (i.e. limit differential impact to early or late spawners/smolt)
steelhead	Median abundance			40,000/yr
	spatially distinct populations			8 (two in each of four regions)
	resilience	When abundance<50% of relevant interim objective, CRR>1 in at least 75% of years Until Total Objective attained, CRR>1 in at least 67% of years After Total Objective attained, CRR>1 in at least 50% of years		
	diversity			Distribute operational impacts equally across life-stage historical duration (i.e. limit differential impact to early or late spawners/smolt)

<sup>1a</sup> Target based on AFRP targets, refers to production (this includes fish lost to the commercial and sport fishery), median over a 7 year period.

<sup>1b</sup> Target incorporates both AFRP and San Joaquin Settlement targets; refers to production (this includes fish lost to the commercial and sport fishery), median over a 7 year period.

Pelagic Species Objectives

Species	Attribute	Interim Objective (< 10-20 years)	Interim Objective	Total Objective (> 10-20 years)
longfin smelt	Median abundance <sup>2</sup>			FMWT Index = 6338 <b>or</b> Bay Study Otter Trawl <sup>6</sup> CPUE = 21.1
	spatial extent			Detection of sexually mature or post-spawning adults every year at a minimum of two sampling stations in both the lower Sacramento and SJ Rivers <b>and</b> As a three year running average, detection of sexually mature or post-spawning adults at a minimum of one (i.e. >1/yr) sampling station in both the eastern Delta and Suisun Marsh
	resilience	When abundance <50% of relevant interim objective, population growth in at least 75% of generations Until Total Objective attained, population growth in at least 67% of generations After Total Objective attained, population growth in at least 50% of generations		
	diversity			Distribute operational impacts equally across life-stage historical duration (i.e. limit differential impact to early or late spawners/larvae)
Delta smelt	Median abundance <sup>3</sup>			FMWT Index = 444 Detection of larvae at __ sites of the 20mm survey <b>and</b> Detection of mature or post-spawning adults at __ sites of the Kodiak trawl survey including __ sites in the southern Delta
	spatial extent			
	resilience	When abundance <50% of relevant interim objective, population growth in at least 75% of generations Until Total Objective attained, population growth in at least 67% of generations After Total Objective attained, population growth in at least 50% of generations		
	diversity			Distribute operational impacts equally across life-stage historical duration (e.g., eliminate disproportionate take of large, early spawning females)
Sacramento splittail	Median abundance <sup>4</sup>			FMWT Index = 36 <b>and</b> Suisun Marsh YOY CPUE = 1.92
	spatial extent			Over the course of three years, evidence of spawning (post-spawning adults or rearing juvenile fish) in at least two separate spawning areas in the Sacramento River drainage <b>and</b> spawning in at least two of the following three regions: San Joaquin basin, East side rivers, Suisun Marsh
	resilience	When abundance <50% of relevant interim objective, population growth in at least 75% of generations Until Total Objective attained, population growth in at least 67% of generations After Total Objective attained, population growth in at least 50% of generations		
	diversity			Distribute operational impacts equally across life-stage historical duration
starry flounder	Median abundance <sup>5</sup>			Bay Study Index = 583
	spatial extent			
	resilience	When abundance <50% of relevant interim objective, year-to-year population increases occur in 75% of years Until Total Objective attained, year-to-year population increases occur in 67% of years After Total Objective attained, year-to-year population increases occur in 50% of years		
	diversity			

<sup>2</sup>Median over a 5 year period; <sup>3</sup>Median over a 3 year period; <sup>4</sup>Median over a 7 year period; <sup>5</sup>Median over a 5 year period; <sup>6</sup>original 35 sampling stations