

State Water Resources Control Board - Revised February 23, 2010

Informational Proceeding to Develop Flow Criteria for the Delta Ecosystem - Questions

Party submitting questions: Sacramento Regional County Sanitation District

Priority ¹	Question	Witness
1	Which of the following would not be relevant in the path analysis proposed by Figure 6 in the State and Federal Water Contractors (SFWC) testimony: effects of exports on residence time; effect of exports on X2 as it related to distribution of <i>Corbula amurensis</i> ; direct loss of phytoplankton and zooplankton in exported water; effect of Clifton Court Forebay on predation rates; effect of other project infrastructure on predation rates?	State and Federal Water Contractors*
2	In the SFWC Exhibit 2, Part E., page 36, there is a quotation with a citation to “Lehman (2010)” but there is no “Lehman 2010” (SRCSD Exhibit 1M) in the references at the end of section E. of the testimony. Lehman et al. (2008, 2010) reports that while flow and water temperature influence <i>Microcystis</i> distribution in the Delta, there is no relationship between ammonia levels (or N/P ratios) and the abundance or toxicity of <i>Microcystis</i> . Similar results are being prepared for publication based on Cecile Mioni's (CALFED postdoc) field work in 2008/2009. Did the SFWCs intentionally omit from their testimony peer reviewed research from the Delta that contradicts their hypothesis that ammonia favors harmful algae species?	State and Federal Water Contractors
3	Did the preparer of Figure 3 on page 5 of the SFWC testimony (“Hood ammonia concentrations (Stations C3 and C3A) and Sacramento River flows”), when creating the line labeled “4umol/l inhibition threshold”, have in their possession the materials identified as “Transport and Fate of Ammonium Supply from a Major Urban Wastewater Treatment Facility in the Sacramento River, CA.”, Parker A.E., R.C. Dugdale, et al, 2009b, 9th Biennial State of the San Francisco Estuary Conference, Oakland, CA, September 29-October 1, 2009? (Note: these materials are identified as SRCSD exhibit 1Q) These materials show that ammonia does not decrease phytoplankton biomass or in-situ growth rates, and does not alter the quality of phytoplankton in the Sacramento River or confluence zone.	State and Federal Water Contractors

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4	When will the SFWC correlation analyses regarding the impacts of ammonia (which were first presented at the 2008 CalFED Science Conference) be submitted for publication in peer review journals or otherwise be peer reviewed? What is the nature of peer review, if any, that has been obtained of the conceptual model (exemplified by the hierarchy in Figure 6 of the Testimony) proposed as a foundation for "path analysis"?	State and Federal Water Contractors*
5	<p>The SFWC's position on ammonia's role in the Pelagic Organism Decline (POD) diverges markedly from the positions taken by several authoritative bodies charged with evaluating the current state of knowledge regarding ammonia, all of which are well-acquainted with the SFWC correlation-based arguments.</p> <p>-At the time of preparing the testimony, did the SFWCs have in their possession the September 24, 2009 Central Valley Regional Board memorandum by Chris Foe to Jerry Bruns, regarding "August 2009 Ammonia Summit Summary", where staff concluded that no evidence had yet been collected that demonstrated beneficial use impairments from ammonia in the Sacramento River or Delta? (Note the referenced document is SRCSD Exhibit 1F.)</p> <p>-At the time of preparing the testimony, why did the SFWC not consider the conceptual model that the CALFED independent review panel recommended in their final document "A Framework for Research Addressing the Role of Ammonia/Ammonium in the Sacramento-San Joaquin Delta and the San Francisco Bay Estuary Ecosystem", April 13, 2009? (Note the document is referenced in the SFWC Exhibit 2, Part E.)</p>	State and Federal Water Contractors
6	It appears that the SFWC rely on a positive association between flow and <i>Eurytemora</i> (p.62) during a subset of post- <i>Corbula</i> years to propose that ammonia must be limiting the abundance of <i>Eurytemora affinis</i> in the western Delta. Did the SFWCs intentionally omit peer-reviewed research which indicates that the persistent decline in <i>Eurytemora affinis</i> in the low salinity zone (and two other copepod species), which started abruptly in 1987, was caused by the arrival and establishment of the invasive clam <i>Corbula amurensis</i> (Kimmerer, et al. 1994, Marine Ecol. Prog. Ser. 113:81-92)?	State and Federal Water Contractors

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7	There are inconsistencies and contradictions in the SFWC's testimony that would likely have been addressed had the subject of ammonia as the underlying explanation for flow-smelt relationships, as presented in the testimony, and other venues, been peer reviewed. An example can be found on page 4 of the exhibit where the SFWC contend that the location of spring X2 in Suisun Bay is not relevant due to the effect of invasive clam <i>Corbula</i> grazing on pelagic food resources. If, as SFWC separately contend, X2 serves as a proxy for ammonia concentrations, then SFWC should conclude that ammonia concentrations are also irrelevant to pelagic food supplies in Suisun Bay because of the effect of grazing by <i>Corbula</i> . Did the same person who wrote the text on page 4 of the SFWC's testimony, which states that "in Suisun Bay, the location of X2 is essentially irrelevant because of the Amur River clam's impact on food resources" also write the text on page 30 of Exhibit 2 suggesting X2 is a surrogate for ammonia concentrations?	State and Federal Water Contractors
8	The SFWC's conceptual model emphasizes contaminant mass loadings. To assess effects, aren't the in river concentrations that result from mass loading more environmentally relevant?	State and Federal Water Contractors
9	Explain why entrainment-related mortality (which is not hypothesized, but directly observed) is not a legitimate basis for regulation of water exports unless it can be proved that the proportion lost is large relative to population size while ammonia discharges should be regulated when there is no conclusive evidence to date of fish mortality in the Delta or Sacramento River linked to ammonia?	State and Federal Water Contractors
10	In the assessment of the effects of entrainment, why are estimates of the numbers of fish lost not included? In relation to the numbers of fish salvaged at the State and federal pumps, what are the proper multipliers to be used to estimate the direct entrainment losses that occur upstream from the fish facilities?	State and Federal Water Contractors
	Given our knowledge of the significant losses that continue to occur due to South Delta entrainment, at what level do the SWP and CVP operations cause or contribute to the POD?	State and Federal Water Contractors
	Given the body of knowledge of direct loss of fish due to entrainment, shouldn't we take short term action to reduce this impact, in advance of understanding all other factors that may or may not be contributing to fish population declines?	State and Federal Water Contractors

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	How do the SFWC explain the conflict between their position that exports or flow are not appropriate parameters in multivariate statistical analysis and the approach taken by several groups of recognized Delta experts in peer-reviewed, publications (Grimaldo et al. 2009, Thompson et al. 2010, Mac Nally et al. 2010; see SFWC documents for citations), which does consider flow and exports appropriate parameters for analysis.	State and Federal Water Contractors
1	In the State and Federal Water Contractors testimony on assessment of the effects of entrainment, estimates of the numbers of fish lost are not included. In relation to the numbers of fish salvaged at the State and Federal pumps, what are the proper multipliers to be used to estimate the direct entrainment losses that occur upstream from the fish facilities?	Randall Baxter Peter Moyle
2	Given our knowledge of the significant losses that continue to occur due to South Delta entrainment, at what level do the SWP and CVP operations cause or contribute to the Pelagic Organism Decline?	Randall Baxter Peter Moyle
3	Given the body of knowledge of direct loss of fish due to entrainment, shouldn't we take a short term action to reduce this impact, in advance of understanding all other factors that may or may not be contributing to fish population declines?	Randall Baxter Peter Moyle

¹Please identify the top 10 priority questions concerning each participant's testimony or exhibits, with 1 being the highest and 10 being the lowest

*The State and Federal Water Contractor's Testimony does not specify the witness.