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Public Hearing (3/20/13)
Bay-Delta Plan SED
Deadline: 3/29/13 by 12 noon

**ENVIRONMENTAL WATER CAUCUS RESPONSE
TO THE SAN JOAQUIN RIVER FLOW AND SOUTHERN DELTA
SALINITY REQUIREMENTS DRAFT SED
MARCH 26, 2013**





CA Save Our Streams Council



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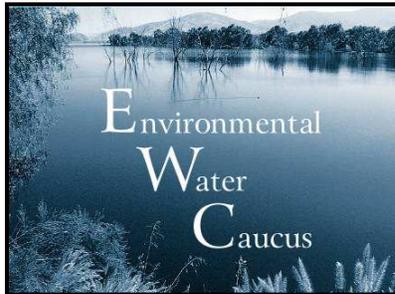
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SIERRA NEVADA ALLIANCE



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March 26, 2013

Subject: Comments on San Joaquin River Flows and Southern Delta Water Quality SED

Dear Ms. Townsend and Members of the Board:

The Environmental Water Caucus is pleased to comment on the above document. The State Water Board has failed to carry out its Public Trust responsibilities to the people of California. There is a lack of actions that achieves the goal of restoration of fisheries and protection of the Delta ecosystem, inadequate attention to remedying years of water quality violations both in the San Joaquin River and the South Delta and a failure to ensure sufficient flows to restore salmon and steelhead populations in the San Joaquin River. Here are the observed deficiencies:

Failure to Apply the State Water Board's Public Trust Responsibilities:

Under the public trust doctrine, the State Water Board must take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible. (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 446.) In determining whether it is "feasible" to protect public trust values like fish and wildlife in a particular instance, the [State Water] Board must determine whether protection of those values, or what level of protection, is "consistent with the public interest." (*State Water Resources Control Bd. Cases* (2006) 136 Cal.App.4th 674, 778.) In the development of the State Water Board's 2010 Delta Flow Criteria Report the inadequacy of the current San Joaquin River flows was established and recognized: "*In order to preserve the attributes of a natural variable system to which native fish species are adapted, many of the criteria developed by the State Water Board are crafted as percentages of natural or unimpaired flows. These criteria include(d)..... 60% of*

unimpaired San Joaquin River inflow from February through June.” While it may have been appropriate in this previous report (2010) not to make any determination regarding the feasibility of Public Trust recommendations, it is wholly inappropriate to now recommend in the SED a specific flow criteria for the Lower San Joaquin River (LSJR) without evidence that public trust values have balanced the export water with fishery and habitat benefits from improved flows. Furthermore, the SED selection of only 35% of unimpaired flows during February through June for the three main tributaries to the LSJR is not based on data, scientific analysis, or biological analysis of the flow needed to preserve and protect public trust values including but not limited beneficial uses such as fish, wildlife, recreation, and navigation. . the selection of a 35% flow criteria will do little to reverse the decline of the fisheries and fails to protect other public trust values and beneficial uses. This selection fails to “balance” the flow needs of these beneficial public trust uses and those who would argue they should receive all the flow in the river because their uses are somehow superior to these public trust values. The courts and the law require adequate flow in the river to ensure the safe spawning, migration and riverine habitat, including temperatures and water quality that will ensure these public trust resources are preserved and protected. The 60% figure flow requirement established by State Water Board scientific review and adopted by this Board, is much closer to what is necessary to recover fish species.

Since the landmark application of the Public Trust Doctrine by the State Water Board in the Mono Lake case the principle of how extractive water demands can be alternatively met while ensuring public trust values are protected is well established. In fact the Los Angeles Department of Water and Power, who vociferously objected to relinquishing export flows, now extols the virtue of their water efficiency program that has resulted in meeting public trust values that require sufficient water remain in the river to protect these values. This established principle of ensuring adequate flows, habitat, temperature and water quality to meet public trust responsibilities while seeking other alternatives such as water use efficiency to meet extractive demands is not only cost effective it is the law. We urge the Board to apply similar Public Trust balancing in order to arrive at a more equitable and effective flow for the San Joaquin River and the Sacramento San Joaquin Delta and San Francisco Bay. Adequate flows for the San Joaquin River serve not only to ensure the public trust values of this watershed and its tributaries, they are essential to a healthy estuary and bay. Failure to provide these fresh water flows ensures almost a permanent regulatory drought for the estuary and bay and the economies that depend on this healthy ecosystem for their livelihoods, jobs, and economy. The proposed flow of just 35% is inadequate to protect these values.

Segmenting of the San Joaquin River.

The SED arbitrarily limits the plan area of the San Joaquin River to the confluence between the Merced and the Stanislaus Rivers. Left out of the flow consideration is the river’s unimpaired flow above the confluence with the Merced up to the Friant Dam. This main stem San Joaquin River portion can generate 28% of the unimpaired inflows to the river, yet is not considered a part of the river for the purposes of this river restoration SED. There is no data or scientific justification for this arbitrary limit to restoration flows needed for the river habitat, estuary, and bay. The ongoing San Joaquin River

Restoration Program on this stretch of river does not preclude the State Water Board from including such an important amount of flow for the health and protection of these public trust values. It seems only logical that the exporters who receive the bulk of the San Joaquin River water out of the operation of the Central Valley Project Friant Dam diversion participate in mitigating the impacts of their diversion and ensure adequate flows to achieve this recovery program as well. Since the objective of the plan amendment is to increase river flows on the San Joaquin, it is arbitrary to exclude the impacts of such a large diversion of river flow and fail to require these diverters participation in ensuring sufficient flows in the San Joaquin River, Delta Estuary and Bay for not only recovery of species, but the other beneficial uses of flows needed to maintain the health of this watershed ecosystem.

In the South Delta part of the plan area, the flows must be able to reach the confluence with the Sacramento River and flow to the Suisun Bay for both water quality and flow improvements. That's fundamental to the health of the river and bay. The flows in this plan amendment will only be able to reach the export pumps, nullifying those benefits to the South Delta and Suisun Bay.

No Net Loss to Exports.

The Board has formulated a plan that puts maintenance of yield for the federal Central Valley Project and the State Water Project over all other beneficial uses and over the more senior rights of diverters on the three tributary rivers – the Merced, Tuolumne, and Stanislaus. In essence, the Board constructed its flow criteria and water quality control planning for the implicit outcome of “no net loss to exports,” per the failed CALFED mantra, and has ignored its responsibilities to evaluate the competing needs of all beneficial uses in the process of developing flow and water quality objectives. This arbitrary selection to value one user group over other public trust values also violates the Delta Reform Act requirements to reduce reliance on the Delta in meeting California's future water supply needs. Failure to adequately consider these public trust beneficial uses and continuing this de facto policy of benefiting one user group thru a “no net loss to Delta exports” fails to compel and implement state requirements that those who export water from the Delta estuary and bay must adhere and demonstrate increased regional self-sufficiency.

Weakened Salinity Standards in the South Delta.

The Clean Water Act and the Porter-Cologne Act clearly intend that water quality control plans are intended to improve water quality, not merely to maintain it. They are intended to make change in the direction of making water quality better. The proposed plan by relaxing salinity standards in the Delta estuary and bay will harm beneficial uses and does not meet statutory requirements to ensure water quality objectives and standards are met. The proposed plan attempts to meet standards by sanctioning the present violations of safe water quality objectives. Without data or scientific justification this plan appears to be based on the hope that continued violations of these standards will be sanctioned and the US Environmental Protection Agency will somehow agree that this plan complies with federal water quality law. The proposed SED hopes that by relaxing water quality standards and sanctioning violations of the Clean Water Act that this will meet the law and the Board's

responsibility to materially improve water quality in the South Delta and the lower San Joaquin River.

Federal Clean Water Act regulations require that water quality objectives be set so as to protect the most sensitive beneficial uses in the water body. The proposed SED will not meet these federal obligations. Instead, the Board actions propose to sanction existing water quality violations that have and continue to impact beneficial uses both in the river and downstream. Scientific evidence, biological opinions and data show that the proposed flows will merely continue the decline and sanction existing conditions that fail to protect the pelagic and migratory beneficial uses of fish and wildlife, rather than improve or increase the protection for these beneficial uses.

Both state and federal antidegradation policies demand more. National water quality policy since 1987 requires satisfaction of antidegradation requirements that EPA established in Clean Water Act regulations. Under the federal Clean Water Act antidegradation policy, the State Water Board is abusing its discretion by undertaking a planning process to relax salinity water quality protection standards and objectives in the South Delta. Federal and state law require that prior to any such change in water protective standards adequate data, scientific analysis and public review be conducted to document that such standards will protect the beneficial uses of the river and downstream users along with the protection of public trust values..

More detailed information to support these above conclusions is shown in the following Attachment to this SED Comment Letter.



Co-Facilitator



Co-Facilitator

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Attachment to San Joaquin River SED Comment Letter, dated March 26, 2013

Specific Comments of the Environmental Water Caucus on the Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento/San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality

The Environmental and Regulatory Settings Omit Important Context, Obscuring the Deteriorated State of Delta Ecosystems and Saline Water Quality, and Obscuring the Necessary Public Trust Protection Tasks the Board Should Perform in Water Quality Control Planning.

The following narrative discussing “Setting” omissions from the Draft SED are based on review of the following sections of the Draft Substitute Environmental Document:

- I. Executive Summary, Section 3: Sections ES3.1 and ES3.2
- II. Chapter 1: Section 1.4, “State Water Board Actions”
- III. Environmental and Regulatory Setting sections of Chapters 5, 7, 9, 11, and 13.

Environmental Setting Omissions – San Joaquin River Flows

Failure to evaluate and disclose results of the Vernalis Adaptive Management Program experiments between 2000 and 2011.

A key environmental setting omission concerning San Joaquin River flow is the failure of the State Water Resources Control Board to fully evaluate and disclose the lessons of the failed Vernalis Adaptive Management Plan (VAMP) experiment that originated with implementation of Water Rights Decision 1641 (D-1641) in 2000. This section recounts and evaluates the Board’s record regulating inflows to the Delta from the San Joaquin River Basin. The Board acknowledges in the Draft SED’s executive summary that San Joaquin River flows were identified as an emerging issue requiring additional review and water quality control planning to address ongoing population declines of salmonids “despite implementation of VAMP, which have been largely attributed to inadequate flow conditions.” Salmon population declines and expiration of the San Joaquin River Agreement “and with it the VAMP experiment,” contributed to the Board revisiting San Joaquin River flow objectives.¹

It fell to the Bureau of Reclamation to provide most of the flows to Vernalis from the Basin to meet the Board’s objectives there. The bulk of the flows the Bureau has available for this purpose come from its New Melones Dam and Reservoir facility on the Stanislaus River. This strategy has been largely unsuccessful for the Bureau, the Department and the Board. Migratory fish populations and open water fish populations endemic to the Delta have crashed over the last decade since D-1641 was implemented. An experiment to provide

¹ Draft SED, p. ES-6.

helpful spring flows for migratory salmon, called the Vernalis Adaptive Management Plan (VAMP), has achieved only limited results.²

Table 1 State Water Resources Control Board D-1641 Flow Regulations at Vernalis			
Compliance Location	Water Year Type	Time Period	Minimum Monthly Average Flow Rate (cfs)
Sacramento River at Rio Vista	All	September	3,000
	W, AN, BN, D	October	4,000
	Critically Dry	October	3,000
	W, AN, BN, D	Nov-Dec	4,500
	Critically Dry	Nov-Dec	3,500
San Joaquin River at Airport Way Bridge, Vernalis	W, AN	Feb-Apr 14 and May 16-Jun	2,130 or 3,420
	BN, D		1,420 or 2,280
	C		710 or 1,140
	W		7,330 or 8,620
	AN		5,730 or 7,020
	BN	Apr 15 to May 15	4,620 or 5,480
	D		4,020 or 4,880
	C		3,110 or 3,540
All	October	1,000	

Source: State Water Resources Control Board, 2000.
Key to Water Year Types: W = Wet; AN = Above Normal; BN = Below Normal; D = Dry; C = Critically Dry.

Table 1 summarizes the State Water Resources Control Board’s present river flow objectives set for compliance at Vernalis and Rio Vista. These flow criteria were adopted as part of its Water Right Decision 1641 (D-1641) in 2000 and remain the same in the existing 2006 Bay-Delta Plan. Under D-1641, the Board currently regulates flows on the San Joaquin River at Vernalis during two main periods of the year: February 1 through June 30, and throughout the month of October. Within the February to June period, there are two regimes as well. One flow regime is in place from February 1 through April 14 and then again from May 16 through the end of June. The second flow regime occurs generally from April 15 to May 15, a 31-day period in which spring pulse flows are required to increase over the early and late spring periods. The spring pulse flow is intended to aid young salmon smolts migrating to the ocean by improving their chances of survival as they pass through the Delta. Minimum flow criteria in this spring regime vary depending on the water year type, and the water year type is generally finally forecasted by May 1. Note that these flow rates are a monthly average, which allows for great variability as long as the average is maintained throughout the 30-day running average during these flow regimes.

² Review Panel, *The Vernalis Adaptive Management Program (VAMP)*, prepared for the Delta Science Program, May 11, 2010, 45 pages. Accessible online at http://www.sjrg.org/peerreview/review_vamp_panel_report_final_051110.pdf.

October minimum flows must be 1,000 cubic feet per second or greater using a 30-day running average. This is a period of time when adult fall-run Chinook salmon return from the ocean to migrate upstream and spawn in their natal streams. Again, as with the February through June regime, the use of a 30-day running average allows upstream water right holders wide latitude in providing flows that meet the Vernalis flow standard for October as long as the 30 day running average during October is not less than 1,000 cubic feet per second of flow.

Instead of implementing D-1641 San Joaquin River flow objectives to benefit fish and wildlife, the State Water Resources Control Board approved the San Joaquin River Agreement under which the major water right holders of the San Joaquin River Basin agreed to provide spring pulse flows intended to benefit outmigrating salmon smolts.³ The Board agreed to its provisions as a voluntary approach to achieve the objectives. In exchange for providing these spring pulse flows totaling up to 110,000 acre-feet, the Agreement called upon the state and federal pumps in the south Delta to limit their export rates to certain specified levels. The Agreement further called upon the state, federal and San Joaquin River Group Authority member agencies to participate in an annual experimental study of the effects of these pulse flows on salmon smolt survival and other ecological indicators in the San Joaquin River in the Vernalis area. That study was called the Vernalis Adaptive Management Plan (VAMP).

The State Water Resources Control Board hoped that by using VAMP to implement its D-1641 flow criteria for the San Joaquin River at Vernalis, the scientific study would find salmon smolt survival is closely related to the humanly manageable actions of river flow, export limits at the pumps, and maintaining a barrier at the head of Old River to direct smolts toward Suisun Bay and the Pacific Ocean via the most direct and safest route. The Board also hoped that increased smolt survival would contribute to increased salmon escapement (that is, fish leaving the ocean in late summer and early fall to spawn in the fall).

The VAMP seeks to test the hypothesis that increasing San Joaquin River flows, sharply limiting Delta export pumping during the spring pulse flow period, and blocking fish access to Old River (which leads to the state and federal export pumps) will increase survival rates of young salmon juveniles and smolts migrating through the Delta to the Pacific Ocean.⁴

The 110,000 acre-feet of water from these agencies was intended for use in reaching “target flows” under VAMP at Vernalis that increased flow in the San Joaquin at Vernalis over defined “existing flows” that would occur in the River in the absence of the VAMP flows. The

³ The parties to the agreement included California Departments of Water Resources and Fish and Game; United States Department of the Interior agencies Reclamation and Fish and Wildlife; and member agencies of the San Joaquin River Group Authority: South San Joaquin and Oakdale irrigation districts on the Stanislaus River; Modesto and Turlock irrigation districts on the Tuolumne; Merced Irrigation District on the Merced River; and Central California Irrigation District, Firebaugh Canal Water District, Columbia Canal Company, and San Luis Canal Company on the upper San Joaquin River. Other parties included state and federal water contractors south of the Delta export pumps, and two environmental community parties: the Natural Heritage Institute and the Bay Institute of San Francisco.

⁴ San Joaquin River Group Authority, *San Joaquin River Agreement*, 2000, Section 2.5. Includes links to original documents on the Vernalis Adaptive Management Plan, as well as annual technical reports on VAMP results. Accessible online at <http://www.sjrg.org/agreement.htm>.

VAMP flows were intended to be released during the spring pulse flow period coinciding with the State Water Resources Control Board’s flow criteria period of April 15 through May 15 (or a reasonable 31-day period thereabouts based on the presence or absence of migrating salmon). The Agreement employs the State Board’s water year classification scheme as an indicator for determining target flows. Wet years would have an indicator of 5, decreasing by one to Critical years having an indicator of 1. Double step target flows could be invoked under VAMP in situations where the sum of present plus current water year indicators added to 7 or greater. When that occurred, a “double step” target flow, showed in Table 2, would become the new target flow.

Table 2 Vernalis Adaptive Management Plan Target Flows

<i>Existing Flow (cfs)</i>	<i>Single Step Target Flow (cfs)</i>	<i>Double-Step Target Flow (cfs)</i>
0 to 1,999	2,000	3,200
2,000 to 3,199	3,200	4,450
3,200 to 4,449	4,450	5,700
4,450 to 5,699	5,700	7,000
5,700 to 6,999	7,000	Existing Flow
7,000 or greater	Existing flow	Existing flow

Source: San Joaquin River Agreement, 2000, Articles 5.5 and 5.6.

The Agreement also limits Central Valley Project and State Water Project export pumping during this same mid-April to mid-May period. Combined export rates for the pumps would be limited to no more than 1,500 cubic feet per second when Vernalis target flows are between 2,000 and 4,450 cubic feet per second. When the target flows reach 5,700 cubic feet per second, combined export rates are limited to no more than 2,250 cubic feet per second. And when target flows reach 7,000 cubic feet per second, the pumping plants are limited either to 1,500 or 3,000 cubic feet per second.⁵ The rationale for this “either/or” export rate at the high VAMP target flow is explained in Appendix A of the Agreement as a matter of safety and operational capacity of installing the barrier at the head of Old River and minimum pumping capacity of the export pumps, as well as the intent of the US Fish and Wildlife biological opinion that export rates in this period be less than 50 percent of the required Vernalis standard. Hence, the export pumping rate at a target flow of 7,000 cubic feet per second would be able to go as high as 3,000 cubic feet per second (cfs).⁶

⁵ *Ibid.*, Article 6.4.

⁶ *Ibid.*, Appendix A, p. 3.

At present, VAMP is a 12-year study. Through 2010, double step target flows have been invoked once.⁷ Table 3 summarizes VAMP flow activity from 2000 to 2010.⁸ This table shows that over the course of the VAMP experiments through 2010, average supplemental VAMP flow contributions have averaged just 40,543 acre-feet per year, about 37 percent of the maximum annual commitment by SJRGA agencies of 110,000 acre-feet for VAMP. Previous studies have shown that salmon smolt survival could be enhanced if increased flows were directed primarily down the main stem of the San Joaquin River below Vernalis

Year	VAMP Target Flow Period	Target flow Condition	VAMP Target Flow	Actual Mean Flow	Existing Flow	VAMP Supplementing Flows (AF)	Delta Export Target	Actual Delta Exports
2000	4/15-5/15	Double-step	5,700	5,869	4,800	77,680	2,250	2,155
2001	4/20-5/20	Single-step	4,450	4,224	2,909	78,650	1,500	1,420
2002	4/15-5/15	Single-step	3,200	3,301	2,757	33,430	1,500	1,430
2003	4/15-5/15	Single-step	3,200	3,235	2,290	58,065	1,500	1,446
2004	4/15-5/15	Single-step	3,200	3,155	2,088	65,591	1,500	1,331
2005	5/1-5/31	na[a]	>7,000	10,390	10,390	0	2,250	2,986[b]
2006	5/1-5/31	na[a]	>7,000	26,220 to 24,262[c]	26,020	0	1,500 to 6,000	1,599 to 5,748[c]
2007	4/22-5/22	Single-step	3,200	3,263	2,721	33,330	1,500	1,486
2008	4/22-5/22	Single-step	3,200	3,163	1,939	75,250	1,500	1,520
2009	4/19-5/19	Off-ramp	na	2,260	2,260	0	na	1,990
2010	4/25-5/25	Single-step	4,450	5,140	4,830	23,980	1,500	1,515
Average VAMP Supplementing Flows						40,543	Acre-feet	

Source: San Joaquin River Group Authority 2011: Table 2-8; California Water Impact Network. Notes: [a] Existing flow greater than maximum VAMP Target Flow of 7,000 cfs; [b] May 1 through 25 average was 2,260 cfs; exports were increased starting May 26 in conjunction with increasing existing flow; May 26 through 31 average was 6,012 cfs; [c] "First fish release-recapture period"/"Second fish release-recapture period"; "na" means not available or not applicable.

⁷ San Joaquin River Group Authority. 2011. *2010 Annual Technical Report on Implementation and Monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan (VAMP)*. Prepared for the California Water Resources Control Board in compliance with D-1641. September. 167 pages, Table 2-8. Accessible online at http://www.sjrg.org/technicalreport/2010/2010_SJRG_Annual_Technical_Report.pdf.

⁸ *Ibid.*

past Stockton.⁹ To facilitate fish using that route, the San Joaquin River Agreement called upon the Department of Water Resources to install a fish barrier at the head of Old River (which is a direct route for San Joaquin River water to the state and federal export pumps near Old River at the export pumps where fish can be all too easily entrained and killed).

In the event that more water than the 110,000 acre-feet was needed to meet target flows, the US Bureau of Reclamation and the California Department of Water Resources could approach the agencies making up the San Joaquin River Group Authority as willing sellers of additional water. As Table 3 reveals, neither the Bureau nor the Department needed to purchase additional water for VAMP flows, since no VAMP flows exceeded 110,000 acre-feet.

VAMP results have largely been inconclusive because there have been only a narrow range of flows subject to VAMP researchers. The State Water Resources Control Board permitted the VAMP experiment to proceed in D-1641 for over a decade. Table 4 compares spring pulse flow range criteria set by the State Board in D-1641 with mean (average) VAMP flows. For years with VAMP results (of which there were only 8 of 11 total), only four years

Table 4
Comparison of D-1641 Spring Pulse Flow Criteria and Mean Actual VAMP Flows, 2000-2010 (Years with VAMP Results Only)

<i>Year</i>	<i>San Joaquin River Basin Water Year Type</i>	<i>Spring Pulse Flow Range Criteria, D-1641 (cubic feet per second)</i>	<i>Mean Actual VAMP Flows (cubic feet per second)</i>
2000	Above Normal	5,730 or 7,020	5,869
2001	Dry	4,020 or 4,880	4,224
2002	Dry	4,020 or 4,880	3,301
2003	Below Normal	4,620 or 5,480	3,235
2004	Dry	4,020 or 4,880	3,155
2007	Critically Dry	3,110 or 3,540	3,263
2008	Critically Dry	3,110 or 3,540	3,163
2010	Above Normal	5,730 or 7,020	5,140

Source: SJRGA, 2011; State Water Resources Control Board, 2000; California Water Impact Network. **Years in bold did not comply with minimum D-1641 flow criteria.**

yielded VAMP results that actually complied with D-1641 flow criteria at Vernalis (2000, 2001, 2007, and 2008). Four other VAMP flow years were *beneath* the D-1641 flow criteria, and did not comply with the Board’s adopted objective. It appears that VAMP as a regulatory experiment performs adequately only half the time when it can be invoked. Of the three years with no VAMP flow results, two were wet years (2005 and 2006) where high flows on the San Joaquin overwhelmed the need to regulate or experiment. The remaining

⁹ Review Panel, *op. cit.*

year (2009) was considered an “off-ramp” year (that is, a dry year following two critically dry years). VAMP and Agreement requirements were in part short-circuited by prolonged dry weather in order to protect upstream water supply reliability. It appears from these results that VAMP and the San Joaquin River Agreement have failed to “provide the environmental benefits in the lower San Joaquin River and Delta at a level of protection equivalent to the San Joaquin River portion of the 1995 WQCP for the duration of this Agreement.”¹⁰ In effect, protective flows for Delta public trust resources such as Chinook salmon populations have been delayed for the sake of seeking greater scientific certainty.

Failure to disclose how rarely the San Joaquin River reaches Delta outflow and is routinely exported through state and federal pumps near Tracy.

Omitted from the environmental setting sections is any account of the known hydrodynamic fate of San Joaquin River flows in the presence of Delta export pumping by the federal Central Valley Project and the State Water Project. The fate issue affects the Board’s understanding of the San Joaquin River’s actual hydraulic connection or connectivity to the rest of Delta inflows and Delta outflow. These hydraulic relationships in turn affect the dynamic size of the low salinity zone on which many estuarine species in the Bay-Delta depend. They also affect the volume of Delta outflow, rates of fish entrainment and death at the export pumps, survival of migrating salmon smolts and the survival of sensitive open water (pelagic) fish like longfin smelt, Delta smelt, and threadfin shad.

Two different modeling studies show that the fate of San Joaquin River flows during late winter into spring months is in the hands of the Delta export pumps. Both studies show that less than 1 percent of San Joaquin River water passing Vernalis ever reaches Chipps Island as part of Delta outflow. Well over 80 to 90 percent of San Joaquin River flows are instead exported at the state and federal pumps near Tracy.¹¹

Omission of information about the fate of existing San Joaquin River flows means the public cannot discern from the Draft Substitute Environmental Document (Draft SED) whether the San Joaquin River is hydraulically connected to the rest of the Bay-Delta Estuary and eventually whether the Board’s proposed flow objectives for the River’s tributaries will actually protect fish beneficial uses once they pass Vernalis.

Failure to disclose the likely fate of fish beneficial uses in the San Joaquin River tributaries once they pass Vernalis and reach the southern Delta.

Given the fate of water in San Joaquin River flows, what is the likely fate of small fish residing in that water, which are vulnerable to strongly variable, and sometimes reversed, flow dynamics in the south Delta? Particle tracking model studies done for the South Delta Improvement Program by the Bureau of Reclamation and the Department of Water

¹⁰ *San Joaquin River Agreement, op. cit.*, Section 2.5.3.

¹¹ Flow Science Incorporated, *Evaluation of the fate of San Joaquin River Flow, Water Years 1964 and 1988*, prepared for the San Joaquin River Group Authority, June 2, 2005, Table 2 and Figures 1 through 4; and Jim Wilde, Michael Mierzwa, and Bob Suits, *Using Particle Tracking to Indicate Delta Residence Time*, poster presentation for the CalFED Science Conference, October 23-25, 2006, Step 2 data for June 15, 2003 through July 23, 2003. Accessible online at http://baydeltaoffice.water.ca.gov/modeling/deltamodeling/presentations/DeltaResidenceTimeMethodology_wildej.pdf.

Resources found very high rates of fish entrainment due to the large percentage of San Joaquin River flows that get exported by the state and federal pumps near Tracy.

During the springtime VAMP conditions (April 15-May 15), higher SWP diversions, even with commensurate San Joaquin River inflow, resulted in higher entrainment. Without the head of Old River barrier, entrainment of passive particles increased from 65% at 2,000 cfs San Joaquin inflow and SWP and CVP pumping to about 80% at 7,000 cfs inflow and pumping. With the head of Old River barrier, entrainment of passive particles was nearly the same as without the barrier. Particles were transported into Old River without the barrier and were transported through Turner Cut [downstream on the San Joaquin River opposite Stockton] and Middle River with the barrier in place.

...The indications from these particle-tracking simulations are that pumping has the strongest effect on entrainment of passive particles injected at Mossdale.

Under VAMP conditions, a San Joaquin River inflow of 7,000 cfs and CVP and SWP pumping at 7,000 cfs resulted in entrainment of about 70% of the particles injected at Turner Cut (citation). Closing the head of Old River barrier increased the simulated entrainment of particles injected at Turner Cut by 10% to 20%. Increased CVP and SWP pumping draws more net flow down Turner Cut, Middle River, and Old River.

During VAMP conditions, with a Delta outflow of more than 15,000 cfs, much less entrainment was simulated for particles injected at Prisoners Point (citation). About 50% of the passive particles were entrained at a San Joaquin River inflow of 7,000 cfs and SWP and CVP pumping at 7,000 cfs with the head of Old River fish control barrier installed. Entrainment was reduced to 15% when SWP and CVP pumping were reduced to 3,000 cfs with the head of Old River barrier installed. Entrainment was less than 2 percent when the barrier was open.¹²

The take-away points from these findings are:

- A. Export pumping has the strongest effect on fish entrainment given channel configurations, flow characteristics, and hydrodynamics in the South Delta.
- B. At lower export rates, the risk of entrainment decelerates faster relative to lowering of San Joaquin River flow.
- C. At higher export rates, the risk of entrainment accelerates dramatically relative to San Joaquin River flow.
- D. Installation of the head of Old River barrier can actually increase entrainment at higher export rates because of the strong reverse flows they generate in Turner Cut, Middle River, and Old River.

It must be borne in mind that the average observed flow rate for the San Joaquin River is well below 7,000 cfs, and that the particle tracking modeling assumptions were examining something approximating best case scenarios. As Table 3 above illustrates, the VAMP experiment itself saw no years where actual flows during the VAMP 31-day period averaged 7,000 cfs. This period, it should also be noted overlaps closely with the periods observed in both the Flow Science and DWR poster studies of San Joaquin River fates, resulting in excess of 90 percent of the river's flow being exported. The particle tracking study for the South Delta Improvement Program further confirms the dominating power the state and federal

¹² U.S. Department of the Interior, Bureau of Reclamation and California Department of Water Resources, "Methods for Assessment of Fish Entrainment in State Water Project and Central Valley Project Exports," *Draft Environmental Impact Statement/Environmental Impact Report, Appendix J*, prepared by Jones & Stokes, October 2005, pp. J-25 to J-26.

export pumps exert on the hydrodynamics of San Joaquin flow distribution in the South Delta.

Failure to disclose the relationship of post-VAMP and non-plan amendment water quality objectives that bear on the performance of the proposed San Joaquin River flow objective in the Draft SED, Appendix K.

The Draft SED fails to specify that the expiration of VAMP brings with it the return of non-plan amendment D-1641 and 2006 Bay Delta Plan water quality objectives that had been suspended while VAMP was operating, the Export Limits between April 15 to May 15 (variable). These limits range from the greater of either 1,500 cfs or 100 percent of the 3-day running average of San Joaquin River flow at Vernalis. Presumably, the maximum pumping that would occur would be the export pumps' water rights permit conditions (as distinct from their engineered design capacity) of no more than 4600 cfs at the federal Jones Pumping Plant and 6680 cfs at the state's Banks Pumping Plant, for a total allowable combined pumping rate of 11,280 cfs. This greatly exceeds average observed flows of the San Joaquin River at Vernalis, which only in extremely wet years reach this high a flow rate. Footnote 19 of D-1641, Table 3, also conditions the maximum combined pumping rate on approval by a committee of representatives from the US Fish and Wildlife Service, NOAA Fisheries and the California Department of Fish and Wildlife. The objective of this footnote is to establish "no net loss to exports" while somehow accommodating the needs of fish:

This flexibility [of the Export Limit during the April 15 to May 15 period] is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of this plan. Variations may result from recommendations of agencies for protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Act. Any variations will be effective immediately upon notice to the Executive Director of the State Water Board. If the Executive Director does not object to the variations within 10 days, the variations will remain in effect. The Executive Director of the State Water Board is also authorized to grant short-term exemptions to export limits for the purpose of facilitating a study of the feasibility of recirculating export water into the San Joaquin River to meet flow objectives.¹³

The relationship between the fates of San Joaquin flows relative to the export pumps spotlights a fundamental flaw with the Board's segmenting of San Joaquin flows from the rest of its reconsideration of the Bay-Delta Plan. This is a violation of the California Environmental Quality Act for failing to consider the "whole of an action" in defining the project subject to environmental review under the act. The Board fails to disclose in the Draft SED whether it intends to retain this seemingly protective water quality element and the Export Limit water quality objective along with it, but this is defined separately from the plan amendment set forth in Appendix K of the Draft SED; it is defined as part of the "comprehensive review" of the Bay-Delta Plan in Phase II.

Environmental Setting Omission—South Delta Salinity

Omissions compromise the reasonableness of the Plan Areas that the State Water Board has chosen for designing these plan amendments. In justifying omitting the upper San Joaquin River above the Merced River confluence, the Board cites the lack of fish beneficial uses in the upper San Joaquin River at this time, though it acknowledges that the San Joaquin River Restoration Program "will be" introducing Chinook salmon back into this reach of the river

¹³ 2006 Bay-Delta Plan, p. 17, footnote 19.

in hopes of restoring salmon populations there by December 31, 2012. Has this been accomplished, and does it change the Board's determination of its plan area?

This Draft SED is about proposed amendments affecting both flow and salinity in both the South Delta and the San Joaquin River. Omitted from the setting is any analysis of how much water from the upper San Joaquin River is diverted out of the Delta's watershed, lowering flows and concentrating salts that are drained into the San Joaquin River above the Merced confluence from salty lands irrigated with imported water from the tidally influenced Delta. On average, Friant-Kern Canal deliveries are about 1 million acre-feet per year between 1986 and 2010, according to delivery data from the Central Valley Project Operations Office. The Draft SED confirms this amount in Chapter 2.¹⁴

Also omitted from the Setting discussion of Chapter 2 on the upper San Joaquin River is the flow rates, dams, reservoirs, and water diversions and water quality of western San Joaquin Valley creeks and sloughs (e.g., Salt Slough, Mud Slough, and several creeks) that carry irrigation drainage to the River above the Merced River confluence. This omission reveals the depth of unwillingness by the Board to address the salty irrigation drainage that pollutes the lower San Joaquin River and makes it so difficult for the Bureau and the Department to comply with existing South Delta salinity objectives. Why has the Board omitted this area from its planning?

In the San Joaquin River Basin, the salinity (the salt concentration in water) of its water bodies was historically very low, and in some of its water bodies continues to be of high quality. This is because the Basin's river flows were dominated by higher quality runoff from the snowpack of the Sierra Nevada, while natural flows on the west side were low as a result of the Coast Range rain shadow. Prior to 1951, according to the California Department of Water Resources, salt concentrations in the upper San Joaquin River near Mendota were typically less than 50 parts per million (sea water salt concentrations are generally about 3.5 percent salt or about 35,000 parts per million).¹⁵ On the Stanislaus River, a 1953 pollution study found chloride concentrations ranging between 1 to 10 parts per million of chloride in that river.¹⁶ However, additional salts are imported to the San Joaquin River Basin as a result of mixing with salty tidal flows with water in the western Delta before being exported by large pumps located near Tracy. These saltier supplies arrive in the western San Joaquin Valley via the Delta Mendota Canal.

The conveyance of water through the Delta Mendota Canal is made possible legally by State Water Board-issued water rights permits to the US Bureau of Reclamation to operate the Central Valley Project and by the Exchange Contract by which senior San Joaquin River water rights holders "exchange" their upper San Joaquin River water rights for imported Sacramento River water delivered to them via the Delta Mendota Canal. The "Exchange Contract" for this imported water recognized from the outset that salinity in the imported water would be greater than salts naturally occurring in San Joaquin River water. The original Exchange Contract stated that it should not exceed a five-year mean salt concentration of 400 parts per million. Thus, planned importation of water into the San

¹⁴ Draft SED, p. 2-6, Section 2.3.2.

¹⁵ California Department of Water Resources, *Bulletin No. 127: San Joaquin Valley Drainage Investigation: San Joaquin Master Drain*, Preliminary Edition, January 1965, p. 8.

¹⁶ Central Valley Regional Water Pollution Control Board, *Pollution Study, Stanislaus River, San Joaquin River Watershed*, Sacramento, CA, 1953, Table ST-1.

Joaquin River Basin would allow as much as a *nine-fold increase in salt concentration* in water applied to western San Joaquin Valley lands. This is the direct water quality impact of the exchange arrangement at the heart of the creation of the Central Valley Project’s Friant Division, the Delta Mendota Canal, and the Jones Pumping Plant. Large amounts of imported water brought large loads of salt to the Basin as well.

Table A-1 San Joaquin River Exchange Contract Water Quality Provisions

<i>Contract Version</i>	<i>Total Dissolved Solids (parts per million)</i>	<i>Season/ Time Step</i>
1939 Exchange Contract	200	Fall, winter, spring
	300	Summer
1956 Amendatory Exchange Contract	800	Daily maximum
	600	Monthly maximum
	450	Annual maximum
	400	5-year maximum
1968 Second Amendatory Exchange Contract	800	Daily maximum
	600	Monthly maximum
	450	Annual maximum
	400	5-year maximum

Sources: Central California Irrigation District 2011; US Bureau of Reclamation 2011; California Water Impact Network

Beyond the 1950s, there emerged serious drainage problems in the western San Joaquin Valley, as well as support for a regional or valley-wide salt disposal solution.

As additional political and economic pressure grew to expand irrigated agriculture further south along the Valley’s west side toward the Tulare Lake Basin, a new set of water facilities called the San Luis Unit was planned. Its projects would consist of San Luis Reservoir, and San Luis Canal/California Aqueduct, and associated pumping plants which would be jointly owned by the state and federal governments. South of Mendota, however, there is no consistent or direct path for drainage water to reach the ocean by gravity; these lands drain mainly to Tulare Lake. Only when Fresno Slough drains the Lake and the Kings River in high runoff years does excess surface flows reach the Pacific Ocean.

In the 1950s, growers and government officials recognized that a drainage canal would be needed to rid the western and southern San Joaquin Valley of its salt-laden drainage return flows. State planning was undertaken for a San Joaquin Master Drain as an “integral part of

the State Water Project draining lands as far south as near Bakersfield, and which was authorized by California voters in 1960s through Proposition 1. A federally-owned drain, the San Luis Drain, would serve the lands of the San Luis Unit in western Fresno County and link with the state's master drain to convey salty and polluted drain water all the way to the western Delta where it would be discharged into either the Carquinez Strait or San Pablo Bay. Beginning in the late 1940s, farmers installed on-farm tile drains to relieve drainage from the root zones of their fields, and by the mid-1970s, the Bureau had installed about 120 miles of collector drains that connected to the San Luis Drain.

However, in 1965 strong concerns from the San Francisco Bay Area and Delta regions about the quality and potential environmental effects of conveying agricultural drain water to the Delta and the Bay led Congress to make it national policy that "...the final point of discharge for the interceptor drain for the San Luis Unit shall not be determined until development by the Secretary of the Interior and the State of California of a plan which shall conform to the water quality standards of the State of California" and is approved by the Administrator of the US Environmental Protection Agency.¹⁷ Such joint approval has yet to occur.

The State of California withdrew from development of the San Joaquin Master Drain when the State failed to receive assurances in 1967 from irrigators in the State Water Project service area that they would repay the State's expenses for drainage service. Since 1968, the US Bureau of Reclamation, as required by the San Luis Unit authorization act in 1960, proceeded alone with construction of the San Luis Drain. Originally, this drain would have been 188 miles long from Kettleman City to the Delta, but only 85 miles were completed between Five Points and Gustine.¹⁸ In the mid-1970s, the Drain was connected to Kesterson Reservoir. This reservoir was a series of shallow ponds that was to store and evaporate drainage water until the rest of the Drain could be built to the Delta where drainage flows would be disposed of. During the 1981 to 1985 period that Westlands Water District discharged agricultural drain water to the San Luis Drain and Kesterson Reservoir, about 42,000 acres of Westlands service area were served by the Drain. After the contamination of wildlife was discovered in 1983, however, the State Water Resources Control Board issued a clean-up and abatement order for Kesterson reservoir against the Bureau of Reclamation and the Department of the Interior closed Kesterson Reservoir in 1986.¹⁹ Upon closure, Westlands Water District lands that had received service from the Drain began storing irrigation drainage underground. Between 1986 and 1996, the San Luis Drain went unused until the growers in the Grassland area between Firebaugh and Gustine (in what is the northern portion of the San Luis Unit service area) contracted with the Bureau to use the San Luis Drain as part of a system through which their drainage would be routed around the wildlife refuges and wetlands of the Grassland region, a project called the Grassland Bypass Project (discussed in the chapter on Government Actions). For now, this section of the San Luis Drain empties effluent from the Grassland Bypass Project into Mud Slough (North) which drains into the San Joaquin River.

¹⁷ United States Bureau of Reclamation, *San Luis Unit Drainage Program, Central Valley Project, Draft Environmental Impact Statement*, Filed December 20, 1991, p. 6.

¹⁸ *Ibid.*, p. 5.

¹⁹ State Water Resources Control Board. 1985. *In the Matter of the Petition of Robert James Claus for Review of Inaction of California Regional Water Quality Control Board, Central Valley Region, Order No. WQ 85-1*, February 5, 65 pages. Accessible online at http://www.swrcb.ca.gov/board_decisions/adopted_orders/water_quality/1985/wq1985_01.pdf.

The cost of providing drainage facilities from these lands is high and the difficulty of finding funding contributes to delays in providing some kind of drainage service there. A 2008 feasibility study of San Luis Drainage alternatives found that neither of the “in-valley” alternatives were economically justified nor financially feasible within existing authorizations by Congress. The cost of these alternatives was \$2.24 to \$2.69 billion at the time. The feasibility study had to rely on large contingency allowances to account for the cost of unproven reverse osmosis treatment plants for removing salts and selenium from drainage water. The lower cost alternative involves retiring more land (a total of about 200,000 acres) and more imported water from the San Luis Unit, while the higher cost alternative calls for greater use of reverse osmosis treatment of drainage water, as well as other treatment methods (but also including about 100,000 acres of land retired from applying imported water to crops).

Moreover, the feasibility study found that the three northern water districts can afford to pay neither the capital nor annual operating, maintenance, research, and engineering costs of both drainage service alternatives. Westlands Water District was found to be unable to pay a portion of the capital repayment obligation if either alternative is implemented.²⁰ The Bureau’s preferred alternative is also the more expensive one that relies on greater use of reverse osmosis treatment and less land retirement. This means greater taxpayer subsidies would be needed to sustain San Luis Unit lands in privately controlled production. To address the contractors’ inability to pay the Bureau’s feasibility report recommends expansion by Congress of subsidies to the San Luis Unit through:

1. Authorizing federal appropriations to pay the operating and maintenance charges needed to implement the preferred alternative *for which the northern water districts (Panoche, Pacheco, and San Luis Water Districts) are unable to pay.*
2. Authorizing the Interior Secretary to *defer without interest each San Luis Unit contractor’s obligation to repay all capital and operating and maintenance costs for the preferred alternative* “until the Secretary determines that such contractor has the independent ability to repay its share of such costs without unduly burdening its water users, provided such determinations are made at not more than 5-year intervals.”²¹

The Bureau and Westlands Water District (the largest water district in need of drainage service in this region) have long had difficulty coming to terms on the District’s long-term water service contract due in part to the cost of repaying the federal government for all federally-constructed drainage facilities.²² According to Westlands, the District pays about \$7.50 per acre-foot of water it receives for irrigation service and another \$0.50 per acre-foot for drainage service.²³

²⁰ United States Bureau of Reclamation, *San Luis Drainage Feature Re-evaluation Feasibility Report*, March 2008, pp. 95-96. Accessible online at http://www.usbr.gov/mp/sccao/sld/docs/sldfr_report/index.html.

²¹ *Ibid.*, p. 99.

²² Kelley, R.L., and R.L. Nye, *Historical perspective on salinity and drainage problems in California*, in *California Agriculture* October 1984, p. 6. Accessible online at <http://ucanr.org/repository/CAO/fileaccess.cfm?article=72377&p=ROVQYW&filetip=pdf>.

²³ United States Court of Federal Claims, *Complaint of Westlands Water District in Westlands Water District v. The United States*. Case 1:12-cv-00012-ECH (2012), Document 1, pages 12, 14.

Neither the Bureau nor Westlands Water District have adequately taken responsibility for the lack of drainage service to date for the San Luis Unit service area. Matters seem to be at a standstill on both sides. It has been five years since the Bureau adopted an alternative from its San Luis Drainage Feature Re-Evaluation process of the decade of the 2000s. The drainage problems of the Valley continue to mount.

State Board Inaction

The State Water Resources Control Board is also involved in this drainage fiasco for its inaction. While the Bureau of Reclamation's Central Valley Project operations are the primary cause of the salinity problems, the State Water Resources Control Board has so far been timid about trying to design and enforce regulatory solutions for this portion of the San Joaquin River Basin.

Historians Jackson and Paterson reported in 1977 that the California Department of Water Resources initiated the San Joaquin Valley Drainage Investigation in 1957 after legislative hearings on drainage and water quality issues associated with the 1957 California Water Plan.²⁴ The Burns Porter Act, authorized by the California voters in November 1960, contained language calling for the California Department of Water Resources to build "facilities for removal of drainage water from the San Joaquin Valley."²⁵

C-WIN offers a chronology of the State Water Resources Control Board's treatment (and those of its predecessor agencies) of southern Delta salinity standards in Appendix C of this report. The Board's own 2006 Cease and Desist Order states regarding this period of State Water Rights Board regulation:

During a twelve-year period the State Water Board adopted six difference decisions (Decisions 893, 990, 1020, 1250, 1308, and 1356) approving permits for various components of the federal CVP operated by USBR. The permits issued as a result of the decisions included a term by which the Water Board reserved jurisdiction to revisit salinity control requirements. (Decision 893, p. 71, Condition 12; Decision 990, p. 86, Condition 25; Decision 1020, p. 21, Condition 9; Order Extending Time in Which to Formulate Terms and Conditions Relative to Salinity Control Pursuant to Decision 990 and Decision 1020, p. 2; Decision 1250, p. 5, Condition 9; Decision 1308, p. 11-12, Condition 8; Decision 1356, p. 17, Condition 21.)²⁶

Beginning with its Decision 893 in 1958, and extending through its Decision 1379 in 1971, the State Water Resources Control Board (and its predecessor the State Water Rights Board) declined to establish southern Delta salinity standards even though salinity data available to the 1980 South Delta Water Agency study of the San Joaquin River existed at that time. The State Water Boards of the past, however, preferred instead to reserve jurisdiction in the matter of salinity control (and fish protection in several decisions) to some unspecified future date.

²⁴ Jackson, W.T. and A.M. Paterson, *The Sacramento-San Joaquin Delta: The Evolution and Implementation of Water Policy: An Historical Perspective*, University of California, Davis, California Water Resources Center Contribution No. 163, June 1977, pp. 136-139.

²⁵ California Department of Water Resources, *Bulletin 200: California State Water Project: Volume I: History, Planning, and Early Progress*, November 1974, Appendix B, p. 123.

²⁶ These water rights decisions are all accessible online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/ where they may be searched by order or decision number.

In Water Rights Decision 1020 (which addressed water rights on Old River in the South Delta; State Water Rights Board 1961), adopted by the State Water Rights Board in 1961, the Board acknowledges a warning from the Delta Water Users' Association and the San Joaquin County Flood Control and Water Conservation District that water quality in the San Joaquin River was deteriorating, and had since 1950 (and presaging the water quality results identified in the joint SDWA/USWPRS 1980 study). These parties pointed out in 1961 that (in the words of D-1020):

...the development of the San Luis Unit will further degrade water quality in the San Joaquin River and in the Delta. It is contended that return flow from the San Luis service area will contain high concentrations of salts and if added to those already found in the San Joaquin River northward from Mendota Pool, will adversely affect the water quality for diverters along the stream and in the Delta. At the same time, the parties [the Delta Water Users Association and the flood control district] point out that the construction of a master drainage system envisioned as one possible solution to the problem...will intercept all return flows for conveyance northward to San Francisco Bay, thereby reducing the flow of water in the lower San Joaquin River.²⁷

The Board took note in D-1020 of the 1960 Burns-Porter Act's proposed San Joaquin Valley drainage water facilities and dismissed the Delta and San Joaquin County water users' concerns by observing that reduced San Joaquin River flows from drainage return water being diverted to the "drainage facilities":

will result in the interception of drainage water north of Mendota Pool rather than the interception of the drainage water from the San Luis Unit [north of the expected route of the San Luis Drain]. [citation] Therefore the contention that the construction of a master drainage system will reduce the quantity of water available in the lower San Joaquin River is clearly outside of the issues under consideration in connection with [D-1020].²⁸

Six years later, California withdrew from the San Joaquin Valley master drain. The State Water Rights Board did reserve its continuing jurisdiction concerning salinity control in Term 9 of D-1020, but it would be another 17 years before south Delta salinity concerns would be addressed in the water quality objectives of the 1978 Water Quality Control Plan. The Board continued to reserve its jurisdiction on salinity control matters in water right decisions through 1970.²⁹ It would be another 27 years before the State Water Board attempted to enforce them in D-1641.

This record of delay in establishing salinity control policy is compounded by a lack of accountability of regional boards to the State Water Board, again in the area of salinity

²⁷ State Water Rights Board, *Water Rights Decision 1020: In the Matter of Application 15764, United States of America, Bureau of Reclamation, Applicant; and Union Properties, Inc., et al, Protestants*, June 30, 1961, p. 15. Accessible online at http://www.swrcb.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1000_d1049/wrd1020.pdf.

²⁸ *Ibid.*, pp. 15-16.

²⁹ State Water Resources Control Board. 2006a. *Order WR 2006-0006: In the Matter of Draft Cease and Desist Order Nos. 262.31-16 and 262.31-17 Against the Department of Water Resources and the United States Bureau of Reclamation Under their Water Right Permits and License*, adopted February 15, Figure 2, pp. 8-9. Accessible online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2006/wro2_006_0006.pdf.

control. The State Water Resources Control Board in WQ 85-1 (relating to selenium pollution of Kesterson National Wildlife Refuge in the early 1980s) directed the Central Valley Regional Water Quality Control Board to “initiate a process to develop specific water quality objectives for the San Joaquin River basin that will result in the adoption of appropriate basin plan amendments by the Regional Board and the development of a program to regulate agricultural drainage discharges.”³⁰ The Board’s order characterizes the drain water that accumulated at Kesterson Reservoir as meeting the definition of “hazardous waste” and that the Bureau had created a “public nuisance” there.³¹ (State Water Resources Control Board 1985: Conclusion 1, 61)

Unfortunately, in 1985 the State Board allowed the Central Valley Regional Board to consider using not just waste discharge requirements to regulate drainage discharges from irrigated lands, but also “waivers of discharge requirements in appropriate circumstances” which C-WIN and others believe has been used by the Central Valley Regional Board to excess in allowing heavily saline (and other problem constituents like selenium, discussed below) drainage discharges in the San Joaquin River basin to continue. The State Board in 1985 required no preparation of a plan for ending the degradation of San Joaquin River and west side tributaries’ water quality by agricultural drainage flows, only monthly “progress reports.”

In D-1641, adopted by the State Water Board in 2000, the Board recalled that it had directed the Central Valley Regional Board to “initiate a process to develop specific water quality objectives for the San Joaquin River basin that will result in the adoption of appropriate basin plan amendments by the Regional Board and the development of a program to regulate agricultural drainage.” The Board also acknowledges in D-1641 that a long-term solution for drainage management in the San Joaquin River Basin remains to be developed.

Also in D-1641, the Board described salinity problems of the San Joaquin River system as having two principal causes: lack of sufficient diluting flows, and drainage discharges largely from western San Joaquin Valley agricultural irrigators. The Board continued:

Although releases of dilution water could help meet the southern Delta objectives, regional management of drainage water is the preferred method of meeting the objectives. The Central Valley RWQCB is currently in the process of setting salinity objectives for the San Joaquin River. [cite] The Central Valley RWQCB is hereby directed promptly to develop and adopt salinity objectives and a program of implementation for the main stem of the San Joaquin River upstream of Vernalis.³²

³⁰ State Water Resources Control Board. 2000. *Revised Water Right Decision 1641: In the Matter of Implementation of Water Quality Objectives for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; A Petition to Change Points of Diversion of the Central Valley Project and the State Water Project in the Southern Delta; and A Petition to Change Places of Use and Purposes of Use of the Central Valley Project*, December 29, 1999, revised in accordance with Order WR 2000-02, March 15, p. 85. Accessible online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641_1999dec29.pdf; State Water Resources Control Board, *Order No. WQ 85-1, op. cit.*, Conclusion 11, p. 63.

³¹ *Order No. WQ 85-1, ibid.*, Conclusion 1, p. 61.

³² State Water Resources Control Board, *Revised Water Right Decision 1641, op. cit.*, p. 84.

The Board offers no explanation as to what “regional management of drainage water” means exactly, or why it is the preferred method. *Twenty-seven years after WQ 85-1, California still awaits this important basin plan amendment.* It is over twelve years since the State Water Board issued its directive in D-1641 to the Central Valley Regional Water Quality Control Board. The Central Valley Regional Board appears still to hold committee meetings to gather stakeholder input for the basin plan amendment. Meanwhile, the San Joaquin River continues delivering an average of 922,000 tons of salt to the southern Delta each year.³³ There are additional instances of inaction by the State Water Resources Control Board and its Central Valley Regional Water Quality Control Board on selenium issues detailed in the next section, and in Appendix C. We could find no schedule or work plan on the Regional Board’s CV-SALTS website indicating when an effective basin plan amendment is to be accomplished by the Central Valley Regional Board and delivered to the State Water Resources Control Board for imminent consideration.

Rather, the State Water Resources Control Board in D-1641 gives support for a San Luis Drain without endorsing it overtly as its preferred method of regional drainage management. D-1641 reports that Central Valley Regional Board staff testified in support of extending the San Luis Drain to the Delta, and that Board’s water quality control plan for the Central Valley Region “states that a valley-wide drain will be the only feasible long-term solution to drainage problem [*sic*],” concluding that “the drain has numerous benefits including the maintenance of productivity and the export of salts.”³⁴ The Board expressed dismay towards the Bureau that Public Law 86-488 “required assurance that the San Luis Drain would be constructed. In 1963 and 1967, the SJREC [the Exchange Contractors] filed suit against the US Bureau of Reclamation. The Bureau assured the judge that a drain would be constructed. Nevertheless, the USBR continues to delay making progress on an out-of-valley plan.” However, a Bureau witness in the D-1641 evidentiary hearings testified that the Bureau has no specific plans to “improve quality of the river upstream of Vernalis.” The Board in D-1641 then prods the Bureau:

The USBR has been directed by the court to initiate activities to resolve the drainage problems in the San Joaquin Valley. It should proceed promptly to initiate such activities and file any necessary applications.³⁵

In its 2006 Water Quality Control Plan, the State Water Resources Control Board reported that among the “emerging issues” of the Bay-Delta Estuary was “Delta and Central Valley Salinity.” The Board announced there was “broad stakeholder support” for a new Salinity Management Plan for the Central Valley and Delta to protect beneficial uses of both surface and ground waters. How this process is supposed to relate to the Department of Water Resources ongoing San Joaquin Valley Drainage Monitoring Program was not stated. The process, the Board reported:

is expected to take 40 to 50 years and to reduce economic hardship related to managing salinity. The Board will develop regulations and provide regulatory encouragement to ensure that infrastructure is developed that improves and maintains Central Valley and Delta salinity

³³ California Regional Water Quality Control Board, Central Valley Region, *Salinity in the Central Valley: An Overview*, May 2006, p. 30. Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/centralvalley_salinity_alternatives_archives/initial_development/swrcb_02may06_ovrvw_rpt.pdf.

³⁴ State Water Resources Control Board, *Revised Water Right Decision 1641*, *op. cit.*, p. 85.

³⁵ *Ibid.*, p. 86.

while providing certainty to local and regional planners, municipalities, agriculture, water suppliers, food processors and others.”³⁶

The 2006 Water Quality Control Plan makes clear that elevated salinity in the South Delta has many large and small sources, including low flows, salts imported to the San Joaquin River Basin in irrigation water, municipal discharges, subsurface accretions from groundwater, tidal action; local, state, and federal water diversions, channel capacity, and “discharges from land-derived salts, primarily from agricultural drainage.” The Plan makes no attempt to assign portions to these various sources, but the shares associated with these sources were analyzed by the Department of Water Resources in 2006 and reported here in Tables 2 and 3 in the body of our testimony above. The vast majority of salt sources in the San Joaquin River originate from agricultural irrigation practices that flush salts from the soils, increase surface and subsurface return flow to the River, and raise the elevation and hydraulic head of groundwater tainted with salts. The Plan itemizes a number of methods for addressing salinity problems of the River and the South Delta, but enforcement actions are not contemplated. Its recommended projects, studies and actions omit enforcement, but include a committee to “address salinity issues” through a committee-designated “task force” that will “conduct meetings” to “gather public input” and produce an economic study that will “highlight the major salinity-related issues and their statewide impacts.”³⁷ (State Water Resources Control Board 2006: 32; Howitt et al 2009)

To implement South Delta salinity objectives, the Board’s actions focus on

the need for an updated independent scientific investigation of irrigation salinity needs in the southern Delta....The scientific investigation should address whether the agricultural beneficial uses in the southern Delta would be reasonably protected at different salinity levels, whether management practices are available that would allow for protection of the beneficial uses at a higher salinity level in the channels of the southern Delta, and whether such management practices are technically and financial feasible. The investigation could address the feasibility of providing an alternative method of delivering fresh water to agricultural water users in the southern Delta. The scientific investigation must be specific to the southern Delta.³⁸

In the same plan, the Board continues its implicit support for completing the San Luis Drain, stating almost in passing that “The salinity objectives at Vernalis can be attained by releasing dilution water from New Melones [Reservoir on the Stanislaus River] and other sources, *completing a drain to remove the salts generated by agricultural drainage and municipal discharges from the San Joaquin Valley*, and conducting measures in the San Joaquin Valley such as...state regulatory actions, state funding of projects and studies, regulation of water diversions, pollutant discharge controls, improvements in water

³⁶ State Water Resources Control Board, *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, December 13, 2006, p. 6. Emphasis added. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/index.shtml.

³⁷ *Ibid.*, p. 32; Howitt, R.E., J. Kaplan, D. Larson, D. MacEwan, J. Medellin-Azuara, G. Horner, and N.S. Lee, *The Economic Impacts of Central Valley Salinity*. University of California, Davis, Final Report to the State Water Resources Control Board Contract 05-417-150-0, March 20, 2009, approx. 200 pages. Accessible online at http://swap.ucdavis.edu/SWAPfiles/ReportsPapers/MainDocument_031909.pdf.

³⁸ State Water Resources Control Board, *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, 2006, *op. cit.*, p. 32.

circulation, and long-term implementation of best management practices to control saline discharges.”³⁹

Planning for More Delay

The State Water Resources Control Board wrote a Strategic Work Plan for the Delta Estuary in 2008 that laid out five year work plans Delta and San Joaquin Valley related programs, “characterizing discharges from Delta islands,” and south Delta salinity. These Work Plan elements are a road map for further delay addressing salinity issues that entwine the fates of the San Joaquin River Basin and the Bay-Delta Estuary.⁴⁰

The Irrigated Lands Regulatory Program is perhaps the single most graphic example of the failure of the State and Central Valley Boards to protect water quality in the San Joaquin River and Delta. Monitoring data collected by the Central Valley Regional Water Quality Control Board, UC Davis and agricultural coalitions, among others, established that discharges from irrigated lands represent the largest source of toxic and other pollutants to Central Valley waters. In 2006, the Central Valley Board released a landmark draft report presenting the first region-wide assessment of data collected pursuant to the Irrigated Lands Program since its inception in 2003. Data collected from some 313 sites throughout the Central Valley reveals that: 1) toxicity to aquatic life was present at 63 percent of the monitored sites (50 percent were toxic to more than one species); 2) pesticide water quality standards were exceeded at 54 percent of sites (many for multiple pesticides); 3) one or more metals violated criteria at 66 percent of the sites; 4) human health standards for bacteria were violated at 87 percent of monitored sites and 5) more than 80 percent of the locations reported exceedances for general parameters (dissolved oxygen, pH, salt and TSS). While the adequacy of monitoring varied dramatically from site to site, the report presents a dramatic panorama of the epidemic of pollution caused by the uncontrolled discharge of agricultural wastes.

Since conditional waivers were originally adopted in 1982, and subsequently in 2003 and 2006, the Central Valley Regional Board has been unable to identify a single improvement in water quality or, indeed, a single pound reduction in the mass loading of agricultural pollutants that has been achieved by the Program (other than a reduction in application of organophosphate pesticides as farmers switched to more potent and less expensive pyrethroids). Under the agricultural waivers, the Central Valley Board does not know who the major polluters in the Central Valley are because it has required no farm-level water quality management plans, preferring instead to organize and rely on a regional monitoring approach. The Board has misinterpreted the state’s “Statement of Policy with Respect to Maintaining High Waters in California” which provides that:

³⁹ *Ibid.*, p. 28.

⁴⁰ California Water Impact Network, *Comments on the Draft Strategic Workplan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*. Joint letter to the State Water Resources Control Board with California Sportfishing Protection Alliance, July 8, 2008, 25 pages; California Sportfishing Protection Alliance, *Comments on Draft Irrigated Lands Regulatory Program - Program Environmental Impact Report*. Joint letter To Pamela Creedon and Adam Laputz, California Regional Water Quality Control Board, Central Valley Region, with the California Water Impact Network, September 27, 2010, 63 pages.

any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in *the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.*⁴¹

To comply with this policy, the Central Valley Regional Board must require the discharger to demonstrate that their manner of compliance is the best practicable treatment and control for the discharge. Not one irrigated lands discharger has complied with the State Board's resolution. Because it requires no farm water quality management plans, the Regional Board is entirely in the dark regarding what, if any, measures have been implemented let alone whether they amount to the best practicable treatment and control methods.⁴²

The same problem with the Board's Irrigated Lands Regulatory Program clouds the prospects for its planned effort to "characterize discharges from Delta islands" called for in the Strategic Work Plan. The discharge of some 430,000 acre-feet of return flow from approximately 680,000 acres of Delta farmland clearly presents a serious problem. "Characterization" of the pollutants in these discharges is fundamental to any serious effort to protect Delta water quality. However, the State Board's proposal is a searing indictment of both the Central Valley Regional Board and the Irrigated Lands Regulatory Program. *Had requirements to submit Reports of Waste Discharge not been waived for agricultural dischargers, outflow from Delta islands would have been "characterized" years ago.* Similarly, had the State Board insisted that agricultural dischargers, coalitions, and water districts comply with the same monitoring requirements it routinely demands from virtually every other segment of society (that is, cities, industries, and businesses), then discharges would have already been "characterized" by now. Indeed, had the Board complied with its regulatory responsibility to protect the water quality of Delta and San Joaquin River water ways, the receiving waters would have also been fully "characterized" by now. While the State Board seems focused on agricultural discharges in the Delta, it inexplicably ignores the agricultural discharges from millions of acres of farmland along water ways upstream of the Delta. Targeting Delta farmers while ignoring those who discharge upstream is simply hypocritical. The State Board should direct the Central Valley Board to immediately issue California Water Code Section 13267 letters requiring all agricultural dischargers to "characterize" their discharges. The time is long past due.

This critique of the State and Central Valley Regional Boards records a consistent pattern of delay and inaction that favors process and voluntary compliance over results. Both methods have been ineffective if not actively harmful to the San Joaquin River Basin and the Bay-Delta Estuary. As the State Water Resources Control Board is well aware, the Bureau and the Department have great difficulty achieving compliance with salinity standards at interior South Delta compliance stations. We see in the State Board's proposal to relax interior South Delta salinity objectives an implicit admission that all other State and Regional Board activity to control and reduce salinity has been an abject failure and that the only option left is for the State Board to "move the goalposts" or "lower the bar" in order to

⁴¹ State Water Resources Control Board. 1968b. Resolution No. 68-16 (Oct. 28,). Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/laws_regs_policies/rs68-016.pdf. Emphasis added.

⁴² California Sportfishing Protection Alliance, *Comments on Draft Irrigated Lands Regulatory Program - Program Environmental Impact Report*, *op. cit.*

help the Bureau and the Department to get over a lower regulatory hurdle. Before adopting this change, however, the Board must justify this proposed relaxation in light of the Board's longstanding antidegradation policy. This policy is required under the federal Clean Water Act. Our organizations do not believe that the proposed relaxation of South Delta salinity objectives is consistent with Board antidegradation policy and with the requirements of the federal Clean Water Act.

These proposed revisions to South Delta salinity objectives will not solve South Delta water quality problems. Null zones (areas where net stream flow in channels stagnates and residence times are lengthy) occur near each of the interior compliance points. Positive (net downstream) flows over time and during key seasonal periods are needed to improve water quality conditions in these zones. Temporary barriers (and proposed permanent operable gates) impede such flows, as do exports from the Banks and Jones pumping plants. In the absence of sufficient net downstream flows, reverse flows occur and interior South Delta water levels fall to where Delta irrigators cannot divert their flows.

A key mitigation for the Board to consider in the Bay-Delta Water Quality Control Plan is reduction or cessation of Delta pumped exports to allow instream flows to facilitate fish migration and turbid open water conditions needed by Delta smelt. The State Water Resources Control Board must determine through the Plan whether and how operational and flow options would create internal Delta hydrodynamics that more closely mimic natural flow conditions that benefit fish and reduce residence times, exposure to toxic stressors, and predation while in transit.

The Bureau's chronic salinity objective violations result from its continued adherence to the terms of the Exchange Contract and its failure to use any method of source control in order to comply with the D-1641 condition to reduce salinity discharges at Vernalis and in the South Delta. In 2006, the Board imposed a cease and desist order, but the Board then relaxed the order in 2010. It now offers in the April 2011 Notice of Preparation proposed language that would permanently relax the interior South Delta salinity objectives themselves. The proposed new, relaxed interior South Delta objectives are a sorry perpetuation of the Board's backpedaling and delay.

Central Valley water regulators acknowledge that "salinity impairments" of the state's water bodies "are occurring with greater frequency and magnitude. Such impairments in the past have led to the fall of civilizations."⁴³ The Central Valley Regional Water Quality Control Board estimates that the Delta Mendota Canal imports about 900,000 to 1 million tons of salt each year into the San Joaquin River Basin while the San Joaquin River returns about 922,000 tons of salt to the Delta annually.⁴⁴ The Central Valley Regional Board is clearly concerned about salts building up in western San Joaquin Valley soils, but it has estimated no timetable by which the productivity of these soils would be exhausted from salinization.

However, in 1981 the White House Council on Environmental Quality offered an estimate. The Council found at that time that some 400,000 acres of land in the San Joaquin Valley

⁴³ California Regional Water Quality Control Board, Central Valley Region, *Salinity in the Central Valley: An Overview*, May 2006, p. 5. Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/centralvalley_salinity_alternatives_archives/initial_development/swrcb_02may06_ovrvw_rpt.pdf.

⁴⁴ *Ibid.*, Tables 2 through 5.

were poorly drained, and that crop yields had declined 10 percent since 1970. The Council stated that with no action the amount of poorly drained land would increase to about 700,000 acres by 2000. The Council reported too that “over the next 100 years” (or by about 2080) “about 1 million acres of agricultural land in the San Joaquin will undergo desertification” if groundwater salinization is not addressed.⁴⁵

The salinization of the western San Joaquin Valley keeps pace with the Council on Environmental Quality’s projection: From sworn testimony it received in preparing its Water Rights Decision 1641 (D-1641) in 2000, the State Water Resources Control Board found that “the total acreage of lands impacted by rising water tables and increasing salinity is approximately 1 million acres.”⁴⁶ The San Joaquin Valley Drainage Monitoring Program reported to the Department of Water Resources for 2005 that there are about 1.324 million acres of land with present and potential drainage problems. About three-tenths (30.4 percent) of these lands (about 403,000 acres similar to findings of the Council on Environmental Quality in 1981) has very shallow groundwater levels of between 0 to 5 feet. These lands can be considered to have current drainage problems, while another 857,000 acres have water tables between 5 and 15 feet below the surface, or about 65 percent of lands. These lands can be considered to have present and potential drainage problems.⁴⁷

The Central Valley Project’s importation of Delta water establishes a vicious cycle of cropland salinization. The lands of the western San Joaquin Valley (on which Delta Mendota Canal water is applied largely for irrigation) seldom experience a net leaching of salts out to the ocean through the Delta because the imported water applied to it always has a relatively high salt content. And irrigating with that water serves to further concentrate salts in the soils and return flows. The Central Valley Regional Water Quality Control Board describes this as “recirculation”:

Such recirculation can have a large effect on salt fluxes [i.e., movement] because rather than completely leaving the system, such recirculated salts continued to contribute to any impairments and costs associated with elevated salinity in supply water.⁴⁸

Echoing the State Water Resources Control Board’s finding in 2000, salts in the Delta Mendota Canal are found by the Central Valley Regional Board to be the primary source of

⁴⁵ Sheridan, D., *Desertification of the United States*. Washington, DC: White House Council on Environmental Quality, 1981, 142 pages.

⁴⁶ State Water Resources Control Board, *Revised Water Right Decision 1641: In the Matter of Implementation of Water Quality Objectives for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; A Petition to Change Points of Diversion of the Central Valley Project and the State Water Project in the Southern Delta; and A Petition to Change Places of Use and Purposes of Use of the Central Valley Project*, December 29, 1999, revised in accordance with Order WR 2000-02, March 15, 2000, p. 82. Accessible online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641_1999dec29.pdf

⁴⁷ California Department of Water Resources, *San Joaquin Valley Drainage Monitoring Program, 2003-2005 District Report*, December 2010. 132 pages, Table 1, including appendices. Accessible online at http://www.water.ca.gov/pubs/drainage/2003-2005_drainage_monitoring_report_san_joaquin_valley/sjv_dmr_2003-2005_final.webfile.pdf.

⁴⁸ California Regional Water Quality Control Board, Central Valley Region, *Salinity in the Central Valley: An Overview*, May 2006, p. 36. Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/centralvalley_salinity_alternatives_archives/initial_development/swrcb_02may06_ovrvw_rpt.pdf.

salt circulating in the San Joaquin River Basin. While the Canal supplies most of the surface irrigation water to this part of the Basin, the Board states that “the quality of this supply may be impaired by the recirculation of salts from the San Joaquin River to the [Canal’s] Delta pumping plant.”⁴⁹ In addition to 1 million tons per year of salt recirculating through the San Joaquin River and the Delta Mendota Canal, the Board estimates that application of salts from soil amendments and groundwater pumping for irrigation in the River Basin adds an *additional 500,000 tons of salt per year* to the River.

Table 5 summarizes how the degree to which the San Joaquin River Basin’s hydrology has been dramatically altered by water development over the period 1984-2009. It does this in two key ways.

Table 5 Changes in Flows of San Joaquin River Basin Tributaries, Unimpaired and Observed Conditions, 1984 to 2009						
Statistics for 1984-2009	Stanislaus River	Tuolumne River	Merced River	San Joaquin River	Chowchilla, Fresno, Valley Floor, Tulare Combined	San Joaquin River at Vernalis (Sum of flows)
Median Unimpaired Flows	922	1,514	721	1,311	231	4,699
Percent of Flow at Vernalis	20%	32%	15%	28%	5%	
Median Observed flows	429	398	271	137	416	1,651
Percent of Flow at Vernalis	26%	24%	16%	8%	25%	
Percent Flow Change from Unimpaired Conditions	-53%	-74%	-62%	-90%	80%	-65%

Source: State Water Resources Control Board 2011: Tables 2.9 through 2.14); California Water Impact Network.

First, when comparing unimpaired with observed (that is, actually measured) flow conditions for the Basin’s rivers, it is apparent that the unimpaired flow conditions have been greatly reduced on the major tributaries by water project operations. For the Stanislaus, actual median flow has fallen relative to unimpaired flows by about 53 percent; on the Tuolumne, by 74 percent; on the Merced by 62 percent; and on the Upper San Joaquin River (above the Merced River confluence) by 90 percent. (Median flows are employed for this analysis to avoid the skewing effects of the statistical averages.)

For the Chowchilla, Fresno, Valley floor, and Tulare (e.g., Fresno Slough and Kings River) streams combined, observed flow conditions *dramatically increased* over their unimpaired conditions—*by 80 percent* during this 25-year period. Table 5 includes median unimpaired and observed flow conditions for an aggregation of the flows of the much smaller Chowchilla, Fresno, Valley floor, and Tulare (Fresno Slough) streams in the San Joaquin

⁴⁹ *Ibid.*, p. 41.

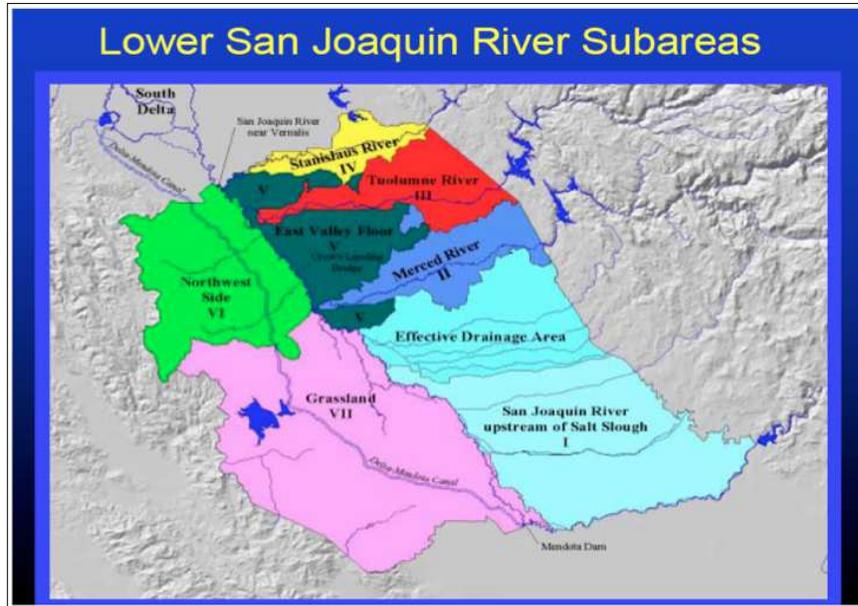
River Basin. According to US Geological Survey data available online, the largest Valley floor sources of median observed annual flows were from Salt Slough, Mud Slough, the Fresno River, and Chowchilla River, from largest to smallest. Median annual flows for other west side creeks (Pacheco, Orestimba, and Del Puerto) are only about about one-eighth of Mud and Salt Slough observed flows. Median observed flows along the James Bypass to Fresno Slough are likewise small.

The median observed annual flow of the San Joaquin River at Vernalis during 1984 to 2009 is just 1.65 million acre-feet, just 35 percent of median unimpaired annual flow of 4.7 million acre-feet at Vernalis. (Table 1 sums the flows from only the major tributaries in the table as an approximation of unimpaired and observed flow conditions at Vernalis.)

Second, Table 5 shows that the composition (or stream source) of flows reaching Vernalis, (unimpaired compared with actual observed flows) also changed dramatically. (Keep in mind that observed flows are actually *decreasing* from unimpaired conditions.) The Stanislaus River’s *share of flow* at Vernalis increases under water development from 20 percent of unimpaired flow to 26 percent of observed flow. The Tuolumne decreases from 32 percent of unimpaired flow to 24 percent of observed flow conditions under water development. The Merced River’s *share of flow* at Vernalis barely changes (15 percent of unimpaired; 16 percent of observed), while the Upper San Joaquin River’s share of Vernalis flow decreases dramatically from 28 percent under unimpaired conditions, to just 8 percent under developed flow conditions. The Valley floor sources, however, represent a sharply increased share of flow at Vernalis, rising from just five (5) percent of unimpaired flow conditions to 25 percent of actual observed flows under developed conditions.

Table 6 Sources of Salt in the San Joaquin River as Measured at Vernalis	
Approximate Sources of Salt	Share of Load
Sierra Nevada Tributaries	18%
Groundwater	28%
Agricultural Surface Return Flow	26%
Agricultural Subsurface Return Flow	17%
Managed Wetlands	9%
Municipal and Industrial Discharges	2%
Source: California Department of Water Resources, 2006: Table C-3; California Water Impact Network.	

This radically altered flow pattern from unimpaired to observed flow in the San Joaquin River Basin changes the Basin’s handling of salt circulation as well. According to the California Department of Water Resources, the sources of salt loads recirculating through the San Joaquin River measured at Vernalis as shown in Table 6. Agriculture’s use of both surface and groundwater sources is the largest source by which salt is mobilized. Adding together groundwater, and surface and subsurface return flows, these sources account for 71 percent of the salt load in the San Joaquin River as measured at Vernalis.



The geographic origins of the river basin’s salt loads are illustrated in Figure 1 and summarized in Table 7. This figure shows the “effective” drainage area of the San Joaquin River Basin and its sub basins while tacitly acknowledging the export of upper San Joaquin River flows from the Basin via the Friant-Kern Canal. For the “San Joaquin River upstream of Salt Slough” sub region in Table 7, Figure 1 indicates that the “effective drainage area” for this watershed is a handful of creeks together with the Chowchilla River area. Flows in this area amount to just 9 percent of all salt contributions to total flows at Vernalis. In dark blue-green are “East Valley Floor” creeks that drain the plains between the Merced, Tuolumne, and Stanislaus rivers, which in turn drain the Sierra Nevada. The East Valley Floor creeks contribute just 5 percent of the salt detected at Vernalis on an annual basis. The combined salt loads of the Merced, Tuolumne, and Stanislaus rivers are also just 19 percent of the total salt load measured at Vernalis. Combined, the streams that “effectively” drain the east side of the San Joaquin River Basin contribute just 33 percent of the total salt load at Vernalis.

Approximate Source of Salt	Share of Load by Contributing Area
I. San Joaquin River upstream of Salt Slough	9%
II. Merced River III. Tuolumne River IV. Stanislaus River	19%
V. East Valley Floor Streams	5%

Table 7 Sources of Salt in the San Joaquin River Basin as Measured at Vernalis by Contributing Geographic Area of the Basin	
Approximate Source of Salt	Share of Load by Contributing Area
VI. Northwest Side	30%
VII. Grasslands	37%

Source: California Department of Water Resources, 2006: Table C-4; California Water Impact Network.

Meanwhile, the two west side subareas (the Northwest Side and Grasslands) contribute 67 percent—*two-thirds*—of the salt load measured at Vernalis on an annual basis. Recall from Table 5 above that the Valley floor streams entering the San Joaquin River above the Merced River confluence contribute just 25 percent of observed flow at Vernalis (essentially accounting for much of “Grasslands” flows in Table 6, above). ***This means that just one-quarter of flows reaching Vernalis carries about two-thirds of the salt load of the San Joaquin River as measured at Vernalis.***

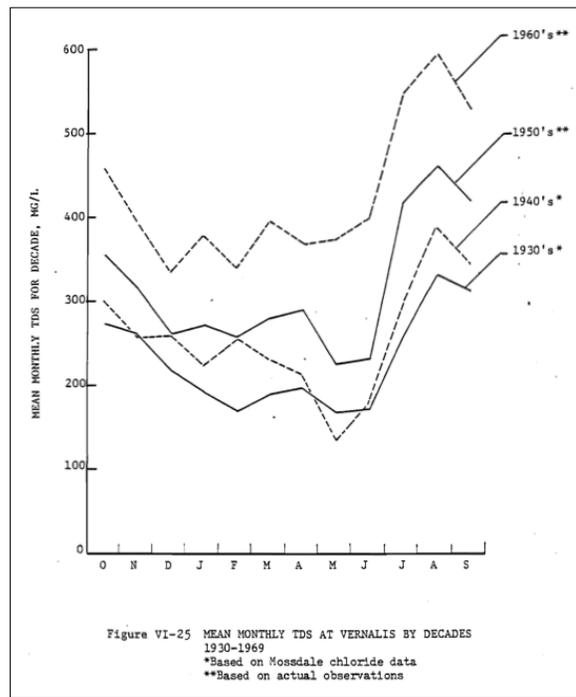


Figure 2: Decadal changes in salinity conditions for the San Joaquin River as measured at Vernalis, 1930s through 1960s. Source: US Water and Power Resources Service and South Delta Water Agency, 1980.

Historical data, illustrated in Figure 2 below, strongly suggest that higher proportions of unimpaired fresh water flows in the San Joaquin River earlier in the 20th century maintained lower salinity conditions before completion and operation of the Central Valley Project in the 1950s and 1960s. The 1930s and 1940s had lower average annual and monthly salinities than the 1950s and 1960s when the Central Valley Project facilities of the San Joaquin Valley were completed and began operating. Figure 2 shows that while total dissolved solids (or TDS, a measure of salinity in units of milligrams per liter [mg/L]) generally declined in high flow spring months when snowmelt runoff is peaking, there occurred across-the-board increases in average salinity conditions on the timescale of decades as Central Valley Project development reached full operation. The average salinity for the 1930s was 228 mg/L; for the 1940s it increased about 13 percent to 257 mg/L.

But with the advent of Friant Dam and Friant-Kern Canal exports of low salinity San Joaquin River water to Kern and Tulare counties, and the arrival of saltier Delta imported water to the west side of the San Joaquin Valley in the 1950s, average salinity of the River in the 1950s jumped 23 percent over the 1940s to 315 mg/L (38 percent higher than the 1930s salinity levels). By the end of the 1960s, the average salinity level for that decade was 427 mg/L, an 87 percent increase in salinity levels over the 1930s (and the 1930s had five drought years in it, 1930 to 1934).⁵⁰ ***In other words, salinity conditions in the San Joaquin River at Vernalis nearly doubled in 30 years, a period in which export of high quality and low salinity San Joaquin River water coincided with import of similar quantities of saltier Delta Mendota Canal imports from the Delta, which were, in turn, applied to lands heavily burdened with salts.***

The burdens of salt loads increased over time. Salinity is a function of both available salt load and the river flows available to carry it. The share of salinity effects attributable to reduced flows declined relative to the growth of salt loads in return flows in the San Joaquin River:

Comparing the average monthly TDS (over the entire year), load-flow regressions show a 1950-1969 increase of 43 percent—from 259 mg/L to 371 mg/L. For the 1950s alone the percentage increase is about 22 percent and for the 1960s, 65 percent....Thus, according to this analysis, in this first decade after the CVP went into operation, about 56 percent of the increase in average TDS was caused simply by a reduction in flow from upstream sources; the remaining 44 percent was a result of increased salt burden, perhaps associated with an expansion of irrigated lands in the basin. Similarly in the 1960s (compared to the 1930s and 1940s) about 27 percent of the average increase in TDS...can be accounted for by a reduction in flow and 73 percent attributed to increased salt burden. It is of interest to note here that the absolute change apparently caused by reduction in flow changed relatively little from the 1950s to the 1960s...while that charged to an increase in salt burden increased about four times [...]. This is consistent with other analyses that indicate a progressive buildup in salt load in the San Joaquin system.⁵¹

Salt concentrations in the San Joaquin River reaching the Delta are greatly increased by the loss of San Joaquin River Basin fresh water flows to exports. The major exports of water from the San Joaquin River basin are from the Upper San Joaquin River via the Friant-Kern Canal to Tulare and Kern counties, and via San Francisco's Hetch Hetchy Aqueduct to the San Francisco Bay Area. (By far, the larger of the two exports is that of the Friant-Kern

⁵⁰ United States Water and Power Resources Service and South Delta Water Agency, *Effects of the CVP [Central Valley Project] Upon the Southern Delta Water Supply, Sacramento-San Joaquin River Delta, California*, June 1980, Table VI-17, p. 107.

⁵¹ *Ibid.*, p. 126.

Canal.) Omission of this environmental setting information represents an abuse of discretion that extends to the Board's definition of the plan area, described in sections ES5.2 and 1.2 of the Draft SED, for the proposed plan amendment in Appendix K of the Draft SED.

Environmental Setting Omissions—Selenium Issues

Where there is salt in the San Joaquin Valley, there is typically also selenium. The State Water Resources Control Board has steadfastly dragged its feet when it comes to addressing selenium toxicity as part of salinity control in the San Joaquin Valley and the Delta. The Board's failure to include selenium issues in Chapter 5 and Chapter 9 of the Draft SED continue the Board's record of unfortunate consistency on this issue. We respectfully request that the Board include this information in Chapters 5 and 9 of the SED.

The problem of salt loading in flows returning to the Delta via the San Joaquin River is compounded by the presence of selenium. Selenium is typically found as a very small component of total dissolved solids (TDS), a commonly used measure of salinity and salts. But the larger the salt load the larger the selenium load.

Selenium occurs naturally in mineral deposits like coal and oil, as well as other marine-derived sediments.⁵² Wastes from agriculture, industry, mining, and gas and oil refineries can increase selenium contamination in estuaries and bays.

Selenium is necessary to the health of most vertebrate species and for human health when provided in small doses. Adequate amounts of selenium are found in a well-balanced human diet. But at just slightly elevated levels, selenium becomes actively poisonous. As concentrations rise further, selenium can cause embryonic defects, reproductive problems, and death in vertebrate animals.

As a chemical element, selenium is chemically similar to sulfur in how they both react with both mineral and organic compounds. Selenium can readily substitute for sulfur in salts (such as selenates for sulfates) as well as in certain amino acids (e.g., seleno-cysteine and seleno-methionine), the building blocks of proteins.⁵³ Selenium's ability to substitute chemically for sulfur in both salt chemistry and organic amino acids clears pathways to toxicity, increased gene mutation, and ecological damage.

At higher tissue concentrations, selenium can substitute for sulfur in amino acids, altering the structure of proteins in metabolic and reproductive systems of the body. When proteins in predator species mutate from excessive exposure to selenium, it can lead to sterility and suppression of the immune system "at critical development stages when rapid cell reproduction and morphogenic movement are occurring." Changes in the structure of many antibodies (such as from substitution of selenium atoms for sulfur atoms) can compromise the organism's immune defenses, making it more susceptible to disease.⁵⁴

⁵² Presser, T.S., "Selenium Pollution," in *Encyclopedia of Environmental Science*, ed. D.E. Alexander and R.W. Fairbridge, Kluwer Academic Publishers, 1999, pp. 554-556. Available online at http://wwwrcamnl.wr.usgs.gov/Selenium/Library_articles/TSPresserEncyclo.pdf.

⁵³ Presser, *ibid.*; and Presser, T.S. and S.N. Luoma. 2006. *Forecasting Selenium Discharges to the San Francisco Bay-Delta Estuary: Ecological Effects of a Proposed San Luis Drain Extension*, US Geological Survey Professional Paper 1646, p. 40. Accessible online at <http://pubs.usgs.gov/pp/p1646/>.

⁵⁴ Presser, "Selenium Pollution," 1999, p. 555.

In the spring of 1983, federal wildlife biologists found that a majority of birds nesting at Kesterson National Wildlife Refuge had deformed embryos and chicks. Nearly two-thirds of Refuge birds had missing eyes and feet, protruding brains, and twisted beaks, legs and wings. The number of breeding birds able to reproduce collapsed. These birds had been poisoned and the reservoir at Kesterson became synonymous with “toxic disaster,” a western Love Canal.

The direct culprit for these disfiguring effects on wildlife was [selenium](#).⁵⁵ (Ohlendorf 1985; Saiki 1985; Sylvester 1985; Barnes 1985; Kilness and Simmons 1985) This contaminant was brought to Kesterson by agricultural drain water from a wastewater canal called the San Luis Drain, which was constructed by the US Bureau of Reclamation.

⁵⁵ Ohlendorf, H.M., “Aquatic Birds and Selenium in the San Joaquin Valley,” pp. 14-23; Saiki, M.K. “Concentrations of Selenium in Aquatic Food-Chain Organisms and Fish Exposed to Agricultural Tile Drainage Water,” pp. 25-32; Sylvester, M.A., “Results of U.S. Geological Survey Studies Pertaining to the Agricultural Drainage Problem of the Western San Joaquin Valley,” pp. 34-40; Barnes, I., “Sources of Selenium,” pp. 41-47; and Kilness, A.W. and J.L. Simmons, “Toxic Effects of Selenium on Wildlife Species and Other Organisms,” pp. 52-59, all articles in *Selenium and Agricultural Drainage: Implications for San Francisco Bay and the California Environment*. Proceedings of the Second Selenium Symposium, March 23, 1985, Berkeley, California.

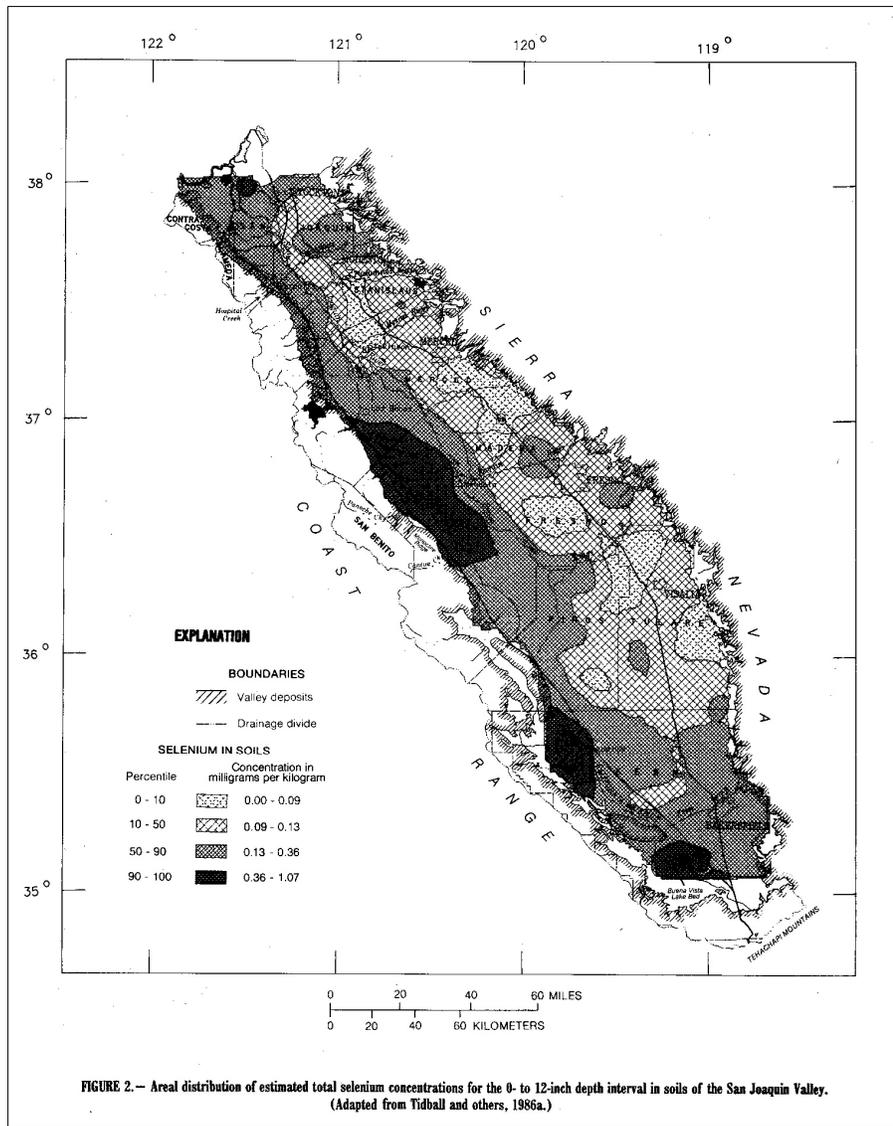


Figure 5: Selenium concentrations in San Joaquin Valley soils. The darkest areas contain the highest selenium concentration in soils. Source: Gilliom 1988.

The western San Joaquin Valley and its Coast Range foothills have naturally high levels of selenium in the rocks and soils.⁵⁶ Three areas of the western San Joaquin Valley have the highest soil selenium concentrations:

⁵⁶ Tidball, R.R., R.C. Severson, J.M. McNeal, and S.A. Wilson. 1986. "Distribution of Selenium, Mercury, and Other Elements in Soils of the San Joaquin Valley and Parts of the San Luis Drain Service Area, California," in A.Q. Howard, ed., *Selenium and Agricultural Drainage: Implications for San Francisco Bay and the California Environment*, Proceedings of the Third Selenium Symposium, March 15, 1986, Berkeley, California, pages 71-82; and Gilliom, R.J., "Geologic Source of Selenium and Its Distribution in Soil," in Gilliom, R.J., and others. 1989. *Preliminary Assessment of Sources, Distribution, and Mobility of Selenium in the San Joaquin Valley, California*, US Geological Survey Water-Resources Investigations Report 88-4186, Regional Aquifer System Analysis, prepared in cooperation with the San Joaquin Valley Drainage Program, pp. 7-11.

3. The alluvial fans near Panoche and Cantua creeks in the central western valley (near Gustine and Firebaugh; see Figure 5).
4. An area west of the town of Lost Hills.
5. The Buena Vista Lake Bed Area, west of Bakersfield.⁵⁷ (San Joaquin Valley Drainage Monitoring Program 2010)

The disaster at Kesterson National Wildlife Refuge was the earliest and most vivid example of the western San Joaquin Valley's toxic legacy due to selenium. It was caused by the west side growers' obtaining and applying a large supply of irrigation water from Delta imports to lands of the San Luis Unit. Presser and Luoma (2006) identify a unit of measure they refer to as the "kesterson." It is equivalent to 17,400 pounds of selenium, the load of selenium that is believed to have accumulated at Kesterson reservoir between 1981 and 1985, the period when the Westlands Water District's drain water was connected to the reservoir. This is the mass of selenium loading from agricultural drainage water to which scientists attribute the deformities and deaths affecting 64 percent of waterfowl there in 1983.

Other parts of the San Joaquin Valley are also naturally contaminated with salts, selenium, and high levels of other toxic elements like boron, arsenic, and molybdenum (Figure 5; San Joaquin Valley Drainage Program 1990: 58-63). Because of the extent of the geologic deposits and rocks containing selenium in the western San Joaquin Valley, it is important to recognize that at time scales relevant to society, "there are, for all practical purposes, unlimited reservoirs of selenium and salt stored within the aquifers and soils of the valley and upslope in the Coast Ranges." (Presser and Schwarzbach 2008: 2) The selenium reservoir will be with Californians for a very long time to come.⁵⁸

Presser and Luoma's projections of selenium discharges over time are shown in Table 5. Their scenarios are as follows:

6. Existing discharges from the Grassland subarea (the northern part) through extension of the San Luis Drain to the Delta.⁵⁹

⁵⁷ California Department of Water Resources. 2010. *San Joaquin Valley Drainage Monitoring Program, 2003-2005 District Report*, December. 132 pages, including appendices. Accessible online at http://www.water.ca.gov/pubs/drainage/2003-2005_drainage_monitoring_report_san_joaquin_valley/sjv_dmr_2003-2005_final.webfile.pdf.

⁵⁸ Presser and Luoma (2006) quantify this reservoir by conceiving the reservoir of selenium as a stream of yearly time-step flows that can be modeled using reasonable assumptions about drainage projections, selenium concentrations and loadings from recognized plans and studies. San Joaquin Valley Drainage Program. 1990. *A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley*. September, 183 pages. (Also known as the "Rainbow Report.") Accessible online at <http://esrp.csustan.edu/projects/lrdp/documents/rainbowreport.pdf>; United States Bureau of Reclamation. 2005a. Draft Environmental Impact Statement on the San Luis Drainage Feature Re-Evaluation, Mid-Pacific Region, Sacramento, California, May, 1,591 pages. Accessible online at <http://www.usbr.gov/mp/sccaosld/docs/index.html>; California Regional Water Quality Control Board, Central Valley Region. 2000. *Selenium TMDL for Grasslands Marshes*. Staff Report, April. 13 pages. Accessible online at http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/grasslands_se/grasslands_se_tmdl.pdf.

⁵⁹ "It seems unlikely that demand [for use of the San Luis Drain] would remain at this level once an out-of-valley conveyance was available. Increasing acreages of saline soils, rising ground water tables, and the availability of a conveyance facility are likely to generate strong pressures from other areas to use the facility." (Presser and Luoma, *Forecasting Selenium Discharges*, 2006, *op. cit.*, p. 31)

7. Westlands Water District subarea-only use of a San Luis Drain extension to the Delta or San Joaquin River.
8. Grassland subarea plus Westlands subarea, both carried to the Bay-Delta.⁶⁰
9. Drainage is collected valley-wide from all five subareas (Northern; Grassland, Westlands; Tulare, and Kern subareas).⁶¹
10. Two other scenarios that include all potential problem lands estimated for the year 2000. The first shows the range of selenium loads expected if drainage management follows the 1990 Rainbow Report of the San Joaquin Valley Drainage Program (1990).⁶² The second of the two forecasts lists load targets of the Total Mean Monthly (TMML) management plans for discharge to the San Joaquin River from the Grassland subarea, which ramp down over time.

Table 5 Projections of Selenium Loads from the Western San Joaquin Valley for Different Drainage Scenarios

[A kesteron (kst) is defined here as 17,400 lbs selenium, the cumulative load that caused ecological damage when released to Kesterson National Wildlife Refuge, California) (Presser and Piper, 1998)].

Scenario (subarea(s) discharging to a proposed San Luis Drain extension)	Selenium load (lbs/year)	Selenium load (kesterons/ year)	Cumulative 5-year selenium load (kesterons)
Grassland (based on current data)	6,960 – 15,500	0.4 – 0.89	2.0 – 4.45
Westlands (based on 50 – 150 µg sele- nium in drainage and 60,000 acre-feet)	8,000 – 24,500	0.46 – 1.41	2.3 – 7.05
Grassland and Westlands (from above)	14,960 – 40,000	0.86 – 2.30	4.3 – 11.5
Valleywide Drain (current conditions and Westlands from above)	16,490 – 42,785	0.95 – 2.46	4.75 – 12.3
Valleywide Drain (all potential problem lands with management of drainage quantity and quality)	19,584 – 42,704	1.12 – 2.45	5.6 – 12.2
Valleywide Drain (all potential problem lands with minimum management of quality and quantity)	42,704 – 128,112	2.45 – 7.36	12.2 – 36.8
Total Maximum Daily or Monthly Load Model management (load <i>targeted</i> for environment safeguards, Grassland subarea or drainage basin)	1,394 – 6,547	0.08 – 0.38	0.4 – 1.9

Source: Presser and Luoma 2006: Table 8, 33.

Using load targets (Table 5’s bottom scenario) as the basis for the future stream of selenium drainage results in the lowest loading (about 1,400 to 6,500 pounds per year, or 0.08 to .38 “kesterons” per year) selenium discharges could be heavily regulated. By comparison, encouraging drainage of selenium and salts to the Bay-Delta either via a San Luis Drain extension or use of the San Joaquin River would result in a far larger range of nearly 15,000 to 42,800 pounds per year (or about 0.86 to 7.36 “kesterons” per year).

Presser and Luoma also examine scenarios in which constant concentrations of selenium in drainage flows (either in the San Luis Drain or in the San Joaquin River) are maintained. In Table 6, these projections show that at high flows selenium loads may differ significantly depending on the concentration maintained either in the river or the drain. At the current

⁶⁰ “This seems a likely outcome if a conveyance is constructed.” *Ibid.*

⁶¹ “This would require extensions of the San Luis Drain into Kern and Tulare subareas, in addition to an extension to the Bay-Delta.” *Ibid.*, pp. 31-32.

⁶² The Rainbow Report, *op. cit.*

Total Mean Monthly Load (TMML) level for the lower San Joaquin River (California Regional Water Quality Control Board 2000) of 5 micrograms per liter ($\mu\text{g/L}$) can yield large loads in high flows (up to 40,800 pounds during a 3 million acre-feet wet year) or small loads in low flows (or nearly 3,000 pounds during low flow in the San Joaquin River or capacity flow of the San Luis Drain).⁶³

Table 6 Selenium Loads Conveyed to the Bay-Delta Under Different Flow Conditions by Maintaining Constant Concentration in Either San Joaquin River or San Luis Drain

[Flow conditions: high flow (3.0 million acre-feet/year); low flow (1.1 million acre-feet/year); and annual flow assumed for a proposed San Luis Drain extension at maximum capacity or a small San Joaquin River input in a dry year (approximately 220,000 acre-feet/year)].

Selenium concentration in river or drain extension ($\mu\text{g/L}$)	Selenium load (lbs/year)		
	3.0 million acre-feet/year	1.1 million acre-feet/year	216,810 acre-feet/year (300 ft ³ /s)
0.1	816	299	60
1.0	8,160	2,990	598
2.0	16,320	5,980	1,197
5.0	40,800	14,960	2,992
50	–	–	29,920
150	–	–	89,760
300	–	–	179,520

Source: Presser and Luoma 2006: Table 9, 33.

Table 6 also shows that relaxing selenium concentration assumptions in the drainage flows to the Bay-Delta for purposes of carrying larger loads in the San Luis Drain from 50 to 300 $\mu\text{g/L}$ can enable the Drain to carry much more selenium out of the San Joaquin Valley to the Delta (from nearly 30,000 pounds per year to nearly 180,000 pounds per year, thereby easing the buildup of stored selenium in western San Joaquin Valley soils and groundwater (the “reservoir” alluded to earlier). Yet these cumulating loads would likely be highly toxic, especially in dry and drought years, of which more are expected as California’s climate changes. Expressed in kestersons, these load projections by Presser and Luoma convert to 1.7 to 10.3 kestersons per year in the San Luis Drain under relaxed assumptions of selenium concentration.

⁶³ California Regional Water Quality Control Board, Central Valley Region. 2001a. *Total Maximum Daily Load for Selenium in the Lower San Joaquin River*, August, 32 pages. Accessible online at http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_se/se_tmdl_rpt.pdf.

Selenium Behavior Across Aquatic Environments

Selenium concentrates naturally in the depositional environments of estuaries and marshes. Hydrologic conditions provide important reasons for this. Selenium dissolved in water represents only a small proportion of exposures.⁶⁴ Selenium can undergo “partitioning” reactions in the water column that determine whether selenium remains dissolved or enters what chemists refer to as its “particulate phase.”⁶⁵

Selenium in the water column of a flowing river can become problematic when flows slow down due to changing geomorphology of the stream channel, or at conclusion of a runoff event.⁶⁶ Incorporated into detritus or suspended sediments, selenium may then get deposited to the bed of the quiet water body. Incorporated into bacteria or phytoplankton, selenium gains immediate entry into an aquatic food web when these organisms are consumed by their immediate predators (such as zooplankton and other open water or bottom-dwelling consumers).

Presser and Luoma catalog a range of hydrologic environments and selenium’s partitioning behavior, summarized in Table 7.⁶⁷ The relative calm of water in marshes, wetlands and estuaries facilitate this partitioning process by which selenium finds its way from the water column, aquatic organisms and animals connected by predation to aquatic food webs. Once consumed by prey organisms, predators can then bioaccumulate selenium at varying rates that depend on the assimilative efficiencies of prey in their diet choices.

⁶⁴ Presser and Luoma, *Forecasting Selenium Discharges*, *op. cit.*; Luoma, S.N. and T.S. Presser. 2009. Emerging Opportunities in Management of Selenium Contamination. *Environmental Science and Technology* 43(22): 8483-8487; Roditi, H.A., and N.S. Fisher. 1999. Rates and Routes of trace elements uptake in zebra mussels. *Limnology and Oceanography* 44(7): 1730-1749; and Alquezar, R., S.J. Markich; and J.R. Twining. 2008. Comparative accumulation of ¹⁰⁹Cd and ⁷⁵Se from water and food by an estuarine fish (*Tetractenos glaber*). *Journal of Environmental Radioactivity* 99(1): 167-180.

⁶⁵ Presser and Luoma, *Forecasting Selenium Discharges*, *op. cit.*, p. 41; Presser, T.S. and S.N. Luoma, 2010a. A Methodology for Ecosystem-Scale Modeling of Selenium, *Integrated Environmental Assessment and Management* 6(4): 685-710. Accessible online at http://www.epa.gov/region9/water/ctr/selenium-modeling_full.pdf; and Presser, T.S. and S.N. Luoma, 2010b. *Ecosystem-Scale Selenium Modeling in Support of Fish and Wildlife Criteria Development for the San Francisco Bay-Delta Estuary, California*, US Geological Survey Administrative Report, December, 46 pages. Accessible online, with attachments, charts and appendices, at <http://www.epa.gov/region9/water/ctr/>.

⁶⁶ Presser and Luoma, *Forecasting Selenium Discharges*, *op. cit.*, p. 6.

⁶⁷ Presser, T.S. and S.N. Luoma, 2010. *A Methodology for Ecosystem-Scale Modeling of Selenium*, *op. cit.*, p. 703.

Table 7 Examples of Ecosystem and Hydrologic Environment-Specific Selenium Criteria in Tissue and in Water Column

<i>Hydrologic Environment</i>	<i>Selenium Partitioning Factor (K_d)</i>	<i>Target Selenium Concentration in Tissue (µg/g, dry wt)</i>	<i>Hypothetical Selenium Concentration in Water Column (µg/L)</i>	<i>Protected Fish or Birds in Hydrologic Environment</i>
Mainstream River	150	5 (fish tissue)	10.8 to 34	Bluegill; Trout
Backwater	350	5 (fish tissue)	4.6 to 14.4	Bluegill; Trout; Bass
Reservoir	1,800	5 (fish tissue)	0.89 to 1.7	Blackfish; Redear
Estuary	3,000	5 (fish tissue)	0.24 to 1.2	Starry Flounder; White Sturgeon
Estuary	3,000	8 (bird tissue)	0.24	Scaup
Wetland	900	8 (bird tissue)	1.8	Grebe
Stream	350	8 (bird tissue)	4.5	Dipper
Saline Lake or Pond	1,500	8 (bird tissue)	0.70 to 1.8	Blacknecked Stilt

Source: Presser and Luoma (2010a: Figure 6, 703); California Water Impact Network.

Once consumed, selenium can quickly build up in the tissues of their predators, the fish, birds, and even humans higher up in aquatic food webs. Beckon and Maurer (2008) surveyed potential for selenium effects on a variety of fish and wildlife species in the San Joaquin River Basin and the San Joaquin Valley.⁶⁸ They found that:

11. The **San Joaquin Kit Fox** is “potentially at risk from dietary intake” of selenium by virtue of consuming small rodents (voles, mice, shrews) that may frequent evaporation ponds and selenium reuse areas (where selenium and salt-tolerant crops are grown to remove selenium from drain water).
12. **Kangaroo rats** in the San Joaquin Valley are potentially at risk from consuming seeds enriched with selenium in their diets. If so, Beckon finds kangaroo rats are “likely to exceed thresholds for adverse effects” from consuming such seeds.

⁶⁸ Beckon, W.N. and T.C. Maurer. 2008. *Potential Effects of Selenium Contamination on Federally-Listed Species Resulting from Delivery of Federal Water to the San Luis Unit*, prepared for U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Environmental Contaminants Division, for the US Bureau of Reclamation under Agreement #05AA210003, March, 46 pages. Accessible online at http://www.rcamnl.wr.usgs.gov/Selenium/Library_articles/Beckon_and_Maurer_Effects_of_Se_on_Listed_Species_SLD_2008.pdf.

13. **Giant Garter Snakes** are potentially at risk, though that risk is unknown because this snake is rare and endangered.
14. **Blunt-Nosed Lizards** are also considered by Beckon to be at risk from feeding on aquatic insects in the vicinity of agricultural drainage ditches, evaporation ponds, reuse areas, and retired seleniferous (selenium-contaminated) lands. Beckon states that reuse areas may pose the greatest selenium-related risks for this lizard.
15. **California Least Terns** have been seen at selenium-treating evaporation ponds in the San Joaquin Valley, but have as yet shown no toxic effects from exposure. However, Beckon observes that “if California least terns learn to eat brine shrimp and other invertebrates in evaporation ponds” then their exposure to selenium could dramatically increase.
16. **Chinook Salmon** are among the most sensitive fish and wildlife to selenium exposure. In particular, Beckon warns there is substantial ongoing risk to juvenile salmon. For fall-run juvenile Chinook salmon, their migration commences with late winter and spring snowmelt flows along the major tributaries of the San Joaquin River (Stanislaus, Tuolumne, and Merced rivers). In low flow years on the San Joaquin River, this can mean, however, that otherwise compliant selenium concentrations in the river may prove toxic to young salmon beginning their migration. Beckon and Maurer estimate that up to 20 percent of all juvenile salmon at a tissue concentration of 2.45 µg/g dry weight reaching the San Joaquin River from the Merced River die in low flow years. Becker warns that San Joaquin River Restoration Program efforts to reintroduce fall-run Chinook salmon must address the potential for selenium poisoning of reintroduced salmon between Sack Dam and reaches of the River downstream of Mud Slough (north, which releases Grassland Bypass Project drainage flows that have passed through the San Luis Drain).⁶⁹

⁶⁹ *Ibid.*, Figure 9.

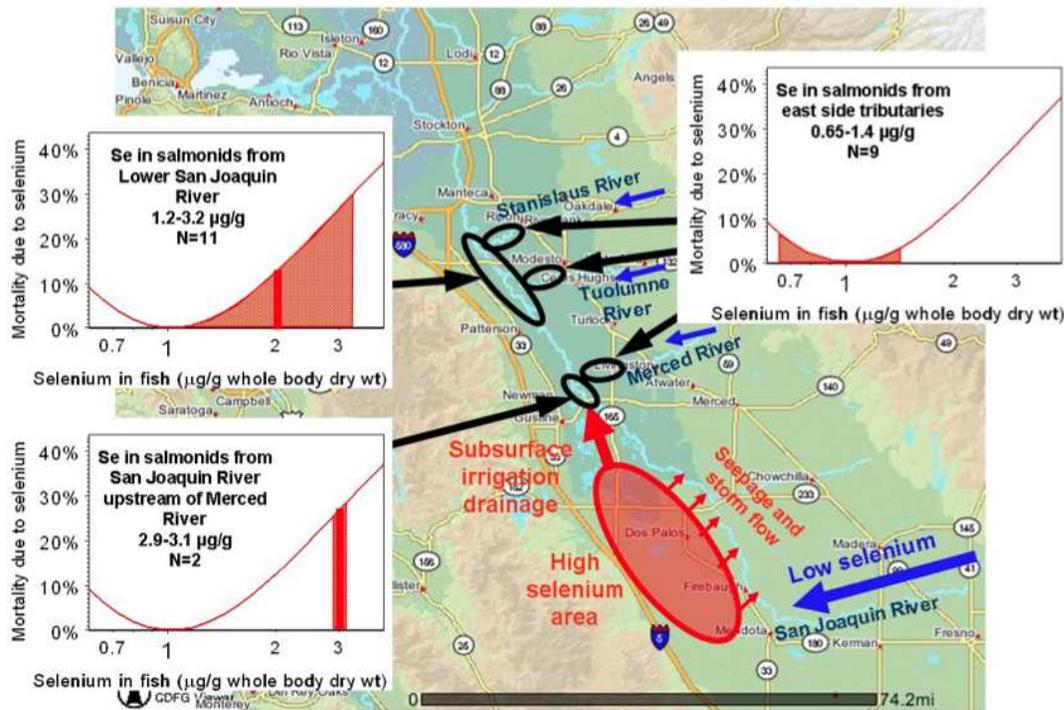


Figure 9. Risk of mortality to juvenile Chinook salmon based on selenium measured in the salmon (Saiki, *et al.* 1991) and the toxicity data shown in Figure 8 (presented here as mortality). Solid red bars represent the geometric mean selenium concentration in sampled fish at each location or cluster of locations. The stippled red areas span the ranges of concentrations in fish at the respective locations.

17. **Steelhead (Rainbow) Trout** are also believed by Beckon and Maurer to be at risk from selenium exposure, which could confound efforts to restore this fish to the upper San Joaquin River as well.
18. **White Sturgeon**, another migratory fish eats a major portion of its diet from bottom-dwelling (benthic) organisms, such as clams, which predominate in their diet. Beckon expresses hope that the exposure of white sturgeon to selenium will diminish as the State Water Resources Control Board's Total Monthly Mean Load regulations for selenium are implemented.
19. **Sacramento Splittail**, of which some 7 million individuals were killed after being entrained by state and federal pumps in the Delta during 2011, face important risks of selenium exposure. They reside mainly in slow-water estuarine habitat and rely on the Asian clam and other mollusks as about one-third of their diet. Beckon expresses hope that the exposure of Sacramento splittail to selenium will diminish as the State Water Resources Control Board's Total Monthly Mean Load regulations for selenium are implemented.

Beckon and Maurer included the Delta smelt in their survey of selenium exposure to listed species. In the case of Delta smelt, there is disagreement in the literature about the role selenium exposure may play in the decline of Delta smelt abundance in the last decade or

so.⁷⁰ Beckon and Maurer characterize the risk of selenium exposure by Delta smelt to be low. Delta smelt adults reach a maximum of about 4.7 inches in length.⁷¹ They feed on zooplankton, primarily which is not a significant selenium partitioning pathway into Delta food webs, but Delta smelt also consume aquatic insect larvae when available.⁷² Moreover, their spawning takes place in April and May in slow-water environments (e.g., side channels and sloughs) of the upper Delta and the lower Sacramento River in periods of low tidal activity. Beckon and Maurer report that Delta smelt larvae are “ecologically similar to larval and juvenile striped bass” in that they are not motile, but instead float in the water column where feeding occurs through random particle interactions.⁷³ (Bennett 2005: 18) Beckon and Maurer further note that Delta smelt obtained from the area of Chipps Island during the springs of 1993 (a wet year) and 1994 (a dry year, the seventh out of the previous eight) had whole body selenium concentrations of 1.5 µg/g dw (n=41, range from 0.7 to 2.3 µg/g dw; Beckon and Maurer 2008: 32), which are substantially lower than concentrations found in clams in the same region.

Delta smelt are known to prefer low salinity environments of from 2 to 7 parts per thousand salinity, such as is found in Suisun Bay and the northern and central Delta (McGinnis 2006). In drier years, the low salinity zone of the Delta estuary shrinks, however, and consequently Delta smelt habitat shrinks accordingly. Delta smelt eggs are spawned, fertilized, and attach initially during the April and May spawning season to the bottoms of slow-water hydrologic environments (e.g., backwaters in Table 7) prior to developing into larvae that then float in the water column in open water. These stages of Delta smelt life history take place in intimate proximity to hydrologic locations that are typical of selenium chemical speciation and partitioning, especially in lower flow regimes. Beckon states that Delta smelt spawning sites are now found largely in the north Delta channels associated with “the selenium-normal Sacramento River.” However, Beckon appears to base his assessment of Delta smelt risk on a 1996 US Fish and Wildlife Delta smelt recovery plan, stating that Delta smelt “are nearly absent from the south-Delta channels associated with the selenium-contaminated San Joaquin River.” This assessment appears to ignore at least two consecutive years (2000 and 2001) in which thousands of Delta smelt were killed at the state and federal project’s pumping plants in the south Delta during the winter.⁷⁴ Beckon does not report on what if any selenium sensitivity studies have been done on Delta smelt in the field or in laboratory conditions.

Presser and Luoma (2010b) and Beckon and Maurer both consider the Delta smelt to be at risk of selenium exposure in the Bay-Delta estuary. Presser and Luoma cite as reasons for its at-risk classification that its overall threatened status as an endemic Delta fish species, and the fact that it feeds on insect larvae that may take up selenium. They agree with Beckon that it does not feed in a clam-based food web since zooplankton are the more

⁷⁰ *Ibid.*, p. 31.

⁷¹ *Ibid.*, p. 31.

⁷² McGinnis, S.M., *Field Guide to Freshwater Fishes of California*, revised edition, California Natural History Series No. 77, Berkeley, CA: University of California Press, 2006, p. 197.

⁷³ Bennett, W.A. 2005. Critical Assessment of the Delta Smelt Population in the San Francisco Estuary, California. *San Francisco Estuary and Watershed Science* 3(2), Article 1, September, p. 18. Bennett has observed directly that in the water column Delta smelt larvae “swim continuously, and feeding success requires practically bumping into prey items rather than a coordinated attack behavior.”

⁷⁴ Swanson, C. 2001. *The First Annual State of the Environmental Water Account Report*. The Bay Institute of San Francisco, September, 39 pages; and Swanson, C. 2002. *The Second Annual State of the Environmental Water Account Report*. The Bay Institute of San Francisco, October, 33 pages.

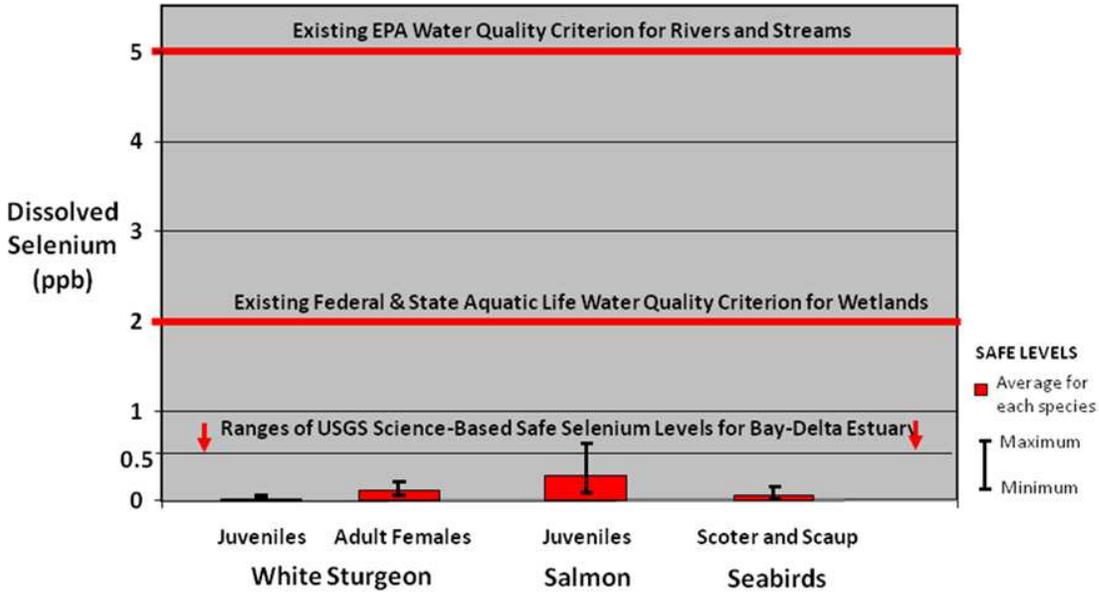
important component of Delta smelt diets. They write, “the sensitivity of delta smelt to selenium is unknown; population numbers are alarmingly low, so this species is particularly vulnerable to any adverse effect.”⁷⁵

Presser and Luoma (2006) earlier concluded from their selenium loading projections that white sturgeon (an Endangered Species Act-listed species) and greater and lesser scaup, surf and black scoters are at risk of significantly elevated selenium exposure given these selenium loading projections.⁷⁶ White sturgeon is a migratory fish, while the scaups and scoters are migratory estuary-based water birds that dive to prey on clams and other bottom-dwelling organisms.

Presser and Luoma continue to develop a modeling methodology by which regulators may reasonably set protective water column selenium concentrations that are appropriate to the ecosystems and hydrologic environments that need protection. They examine a broad spectrum of environments and identify partitioning factors (K_d) that characterize the relative rates of selenium partitioning (wherein selenium comes out of solution into particulate phase, available for bioaccumulation into food webs). Their broad characterizations of hydrologic environments and food webs is summarized in Table 7 (above).

Existing Selenium Water-Quality Standards Do Not Protect Bay-Delta Species:

A new USGS study, which will be used by EPA to revise standards, shows that much lower levels of selenium will be required to protect critical species.



Critical Bay-Delta Estuary Species

Source: <http://www.epa.gov/region9/water/ctr/http://www.epa.gov/region9/water/ctr/>

⁷⁵ Presser, T.S. and S.N. Luoma, 2010b. *Ecosystem-Scale Selenium Modeling in Support of Fish and Wildlife Criteria Development for the San Francisco Bay-Delta Estuary, California, op. cit.*, Table 4, p. 8, footnote 10.

⁷⁶ Presser and Luoma 2006: Table 33: 93; Presser and Luoma, 2010a; and Presser and Luoma, 2010b.

Their method links the detailed biogeochemistry of selenium in different environments to their food web relationships. Using these relationships, they expect to derive water column-based selenium criteria that link ecological relationships and hydrologic environments through which selenium moves.⁷⁷ Selenium has multiple routes through which it can expose fish and wildlife to its toxicity.

Policy choices are critical when applying Presser and Luoma's selenium model to the setting of protective selenium criteria. See Appendix D for a chronology of selenium regulation in the Bay Delta Estuary and its Central Valley watershed.

Policy choices such as 1) the predator species [meant] to represent an ecosystem (e.g., toxicologically sensitive, ecologically vulnerable based on food web, resident or migratory, commercially or esthetically valuable) and 2) the food web [used] to represent an ecosystem (e.g., potentially restored food webs in addition to current food webs) also serve as important initial inputs into the development of protective scenarios for a site or watershed.⁷⁸

These potential policy choices illustrate some of the many options for key species and ecosystems needing protection. There are many sensitive species for whom selenium exposures and possible food web pathways to selenium exposure have not been identified. Two key listed species in the Delta for which either no or limited data are available are the Delta smelt and Chinook salmon, discussed above. They deserve consideration by the State Water Resources Control Board and the US Environmental Protection Agency as sensitive listed species whose protection should be an important foundation on which selenium regulation should be revised in the San Joaquin River Basin and the Bay-Delta Estuary. The Bay-Delta Water Quality Control Plan has not yet had specific criteria pertaining to toxic contaminants. C-WIN believes the time is long past due for the State Water Resources Control Board to integrate the management of toxic contaminant threats such as selenium into its Bay-Delta estuary regulatory framework.

A great risk to the Delta's future health and quality are systemic changes that are likely to lengthen the residence time of waters passing through the Bay-Delta Estuary on their way to the Pacific Ocean, and in so doing increase risks of selenium poisoning and ecological damage in the Bay-Delta Estuary.⁷⁹ These risks originate with agricultural drainage accumulating in the San Joaquin River Basin due to irrigation of lands with soils impregnated with naturally occurring high selenium, salt, and other toxic contaminant concentrations and loads that must eventually be disposed of, else cultivation of western San Joaquin Valley lands will eventually go out of production.

There are three principal large-scale changes that each contribute to the prospect of increasing residence time in the Delta:

- Construction and operation of a peripheral canal or tunnel that would change the point of diversion for the south Delta pumping plants of the state and federal projects to the inflows of the Sacramento River at a north Delta diversion.
- Rising sea level in the Delta; and

⁷⁷ Presser and Luoma, *Methodology*, *op. cit.*, p. 704, 707.

⁷⁸ *Ibid.*, p. 707.

⁷⁹ Presser and Luoma 2006, 2010.

- Climate change affecting the volume, timing, and amount of inflows to the Bay-Delta Estuary from its major tributary watersheds, the Sacramento River Basin (including the Trinity River) and the San Joaquin River Basin

Under current hydrologic regimes, residence times of water in the south Delta and the North Bay can last from 16 days to three months in Suisun Bay during low flow, depending on levels of through-Delta discharge and mixing activity.⁸⁰ Removal of Sacramento River flows from the Delta will result in less overall fresh water reaching central Delta channels, such as through Georgiana Slough (or via the Delta Cross Channel, a Central Valley Project facility that serves the same purpose to get fresh water across the central Delta to the pumping plants in the south Delta). To compensate, far more water would have to flow into the Delta from the San Joaquin River, but this river on average has the capability of delivering only a fraction of Sacramento River flows under unimpaired conditions.

While San Joaquin flows need to be increased from its major tributaries to provide dilution flows (discussed above and in the Instream Flows chapter below), the San Joaquin can never fully replace Sacramento river flow volumes or timing. As a result, longer residence times should be expected for water containing selenium even in current selenium Total Mean Monthly Load (TMML)-compliant concentrations. The longer the residence time of flows from the San Joaquin River, the more opportunity there is for selenium to transfer chemically from its dissolved phase to particulate forms and become “bio-available.” Once it becomes bio-available, selenium is readily accumulated by aquatic food webs in low- or no-flow areas of the Delta and Suisun Bay. If San Joaquin River Restoration Program activities restoring floodplain and riparian habitat where slow-water environments are created for rearing juvenile salmon and steelhead and Sacramento splittail, these environments may also become sites for growing selenium exposure and its damaging ecological effects. It will be vital to keep flows moving to avoid selenium toxicity exposures in the lower San Joaquin River and south and central Delta regions.

Mud Slough (north) on the west side, the lower San Joaquin River, and Suisun Bay are hydrologically connected. Rising selenium levels threaten many species, including salmon, white sturgeon, green sturgeon, and migratory birds that feed on bottom-dwelling organisms like clams and worms burrowing through sediments where selenium collects. Selenium concentrations in subsurface drain water in the San Joaquin River Basin exceed US Environmental Protection Agency aquatic selenium criterion for rivers and streams by 13 to 20 times (depending on whether the arithmetic or geometric mean is compared); by 32 to 50 times the aquatic criterion for westlands in California, and 130 to 200 times the level recommended as non-toxic in animal tissues by the US Geological Survey in recent research.⁸¹ This is the reservoir of selenium toxicity that builds up. Selenium regulation needs to catch up with this reality.

⁸⁰ Presser and Luoma, 2006, p. 17; Presser and Luoma, *Methodology*, p. 707; and Smith, L.H. 1987. *A Review of Circulation and Mixing Studies of San Francisco Bay, California*. US Geological Survey Open-File Report 87-534, 38 pages.

⁸¹ Presser and Luoma, *Methodology*; Presser and Luoma, *Modeling*; and California Department of Water Resources. 2010. *San Joaquin Valley Drainage Monitoring Program, 2003-2005 District Report*, December. 132 pages, including appendices. Accessible online at http://www.water.ca.gov/pubs/drainage/2003-2005_drainage_monitoring_report_san_joaquin_valley/sjv_dmr_2003-2005_final.webfile.pdf.

Sea level rise also poses toxic challenges to the Delta's future. With the water in Delta channels at present sea level, direct concerns focus on additional hydrostatic pressures that rising sea levels will place on Delta levees. For this discussion, however, sea level rise is likely to result in two other aspects of hydraulic pressures upstream of the Delta:

- (a) Larger and deeper (hence heavier) volumes of tidally influenced sea water reaching the Delta is expected to slow the rate at which subsurface flows into the Delta from both the Sacramento and San Joaquin River Basins can drain into the Delta.
- (b) Larger volumes of tidally influenced sea water in the Delta will also slow the rate at which surface inflows to the Delta from major tributary watersheds will reach the Delta. (This potential effect could be compounded if the Sacramento River is diverted in the North Delta for direct delivery to the south Delta pumps.⁸²)

Slowing the escape of subsurface flows from the tributary valleys may result in slowed subsurface flow in both valleys, which could contribute to rising water table elevations. If groundwater elevations get to close to root zones, agricultural production can be disrupted. In areas where groundwater tables may be relatively deep, however, having them rise could be a benefit to some groundwater pumpers.

But in the San Joaquin River Basin, west side groundwater elevations are already very close to the surface, as discussed above. Having them rise further, with their saline and selenium-tainted water quality could be detrimental to irrigated cultivation in this part of the Basin.

This potential impact of climate change in the San Joaquin River Basin and the Delta would be further compounded by the trend, now seen in reduced snowpack and spring snowmelt, and increased rainfall and runoff. While extreme events like flooding and droughts may occur with greater frequency in the future in California, it is also anticipated that overall water supplies will decrease. In that event, residence time of waters in the Delta can be expected to increase as well with its implications of toxic damage in slow-water environments of the lower reaches of the San Joaquin River Basin and the Bay-Delta Estuary.

Regulatory Setting Omissions

Public Trust obligations of the State Water Resources Control Board are omitted.

It is not yet time to balance the public trust. The State Board should be setting water quality objectives that protect beneficial uses, period.

By setting its proposed San Joaquin River flow objectives at a percentage of unimpaired flow that maintains or closely approximates the status quo of actual flows in the river—flow levels that neither protect fish and wildlife beneficial uses in the river nor in the Delta—the Board fails to disclose in either its proposed Bay-Delta Plan amendment and its Draft SED that it has used an inchoate methodology to balance public trust beneficial uses to arrive at its flow proposal, or it has instead proposed a flow objective that ignores its obligation to

⁸² Hanson, R., C. Faunt, M. Dettinger, and F. Munoz-Arriola. 2012. *Climate Data for CVHM [Central Valley Hydrologic Model]*, presentation delivered January 24, 2012, at US Bureau of Reclamation Offices, Sacramento, California, slide 42. Accessible online at <http://ca.water.usgs.gov/projects/cvhm/cvhmWorkshop.html>.

protect public trust beneficial uses of fish and wildlife in order to facilitate a transfer of flows from San Joaquin River tributaries (where agricultural beneficial uses would forego diversions) to route those foregone supplies to the South Delta export pumps of the state and federal water projects.

Governments have a permanent fiduciary responsibility and obligation to protect the public trust.⁸³ In *National Audubon Society v. Superior Court*, the California Supreme Court held that “the public trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people’s common heritage of streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when abandonment of that right is consistent with the purposes of the trust.”⁸⁴ The act of appropriating water is an acquisition of a property right from the waters of the state, an act that is therefore subject to regulation under the state’s public trust responsibilities.

The State Water Resources Control Board has invoked its public trust responsibilities in regulating the waters of California and acknowledges that the public trust is one of its ongoing regulatory responsibilities. Its most publicly prominent instance came in Water Rights Decision 1631 (D-1631) in 1994.⁸⁵ In D-1631, the Board balanced the needs of the City of Los Angeles for water supply from the tributaries of Mono Lake with the lake’s own needs for water to sustain its ecosystem. It required Los Angeles to make releases from each of its tributaries that would sustain riparian ecosystems and help restore fish populations to the tributaries by prescribing lake level targets in a specified time period. The Board has also adopted regulations governing how it treats the public trust in matters of the appropriation of water in California.⁸⁶

D-1631, however, was not a water quality control plan. It was a water right decision that followed on litigation over what terms and conditions should be imposed on the water right licenses of the City of Los Angeles by the State Water Resources Control Board. The Board’s role in *planning* designating beneficial uses and identifying water quality objectives to protect them under the state and federal water quality control laws was not part of that decision. But it is in this instance.

⁸³ Wrote Justice Racanelli in 1986: “In the new light of *National Audubon*, the Board unquestionably possessed legal authority under the public trust doctrine to exercise supervision over appropriators in order to protect fish and wildlife. That important role was not conditioned on a recital of authority. It exists as a matter of law.” California Supreme Court, *National Audubon Society, et al., v. The Superior Court of Alpine County and Department of Water and Power of the City of Los Angeles*, et al. S.F. 24368. Filed February 17, 1983. Cited as 33 Cal.3d 419, (189 Cal.Rptr. 346, cert. denied, 464 U.S. 977), p. 441. Accessible online at <http://www.monobasinresearch.org/images/legal/nassupct.htm>.

⁸⁴ *Ibid.*

⁸⁵ State Water Resources Control Board, *Mono Lake Basin Water Right Decision 1631: Decision and Order Amending Water Right Licenses to Establish Fishery Protection Flows in Streams Tributary to Mono Lake and to Protect Public Trust Resources at Mono Lake and in the Mono Lake Basin*, September 28, 1994, 212 pages. Accessible online at http://www.swrcb.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1631.pdf.

⁸⁶ State Water Resources Control Board, *California Code of Regulations, Title 23 Waters, Division 3 State Water Resources Control Board and Regional Water Quality Control Boards* (Sections pertaining to water rights), January 2011, 168 pages. See Article 14, Standard Permit Terms and Conditions. Accessible online at http://www.swrcb.ca.gov/laws_regulations/docs/wrregs.pdf.

The California Legislature consolidated the State of California's water rights and water quality control responsibilities in the State Water Resources Control Board in 1967. Since that time, the Board has considerable authority to grapple with these questions and arrive at answers and solutions from them. The Board has authority to:

2. Plan for water quality control.
3. Receive, condition, and approve new water rights applications as permits.
4. Regulate and license water rights permits specifying the point of diversion, diversion flows, place of use, and purpose of use for water.
5. Investigate pre-1914 and riparian water rights to determine whether such claims to divert and use water are legal, including follow-up enforcement against illegal uses when determined (discussed below).
6. Investigate and enforce the state's prohibition of waste and unreasonable use and wasteful and unreasonable method of diversion of water under the California Constitution, Article X, Section 2.
7. Protect the public trust. As an agency of the state, the Board is charged with ensuring the state of California carries out its fiduciary responsibility to protect air, running water, the sea, and the seashore, "these things that are common to all," as stated originally in Roman law (the Institutes of Justinian).

California's constitution promises water rights only up to what is a reasonable use. No one has a right in California to use water unreasonably, not even the federal government.⁸⁷ The Public Trust Doctrine provides that no one has a vested right to appropriate water in a manner harmful to the interests protected by the public trust.⁸⁸ And the dictionary definition of usufructuary rights, of which both riparian and appropriative water rights are examples, indicates that a fundamental principle of usufruct is that it connotes only a right to *use* a resource like water, not to waste or use it unreasonably. The State Water Resources Control Board will be deciding whether and how California's abundant legal authorities apply to the Bay-Delta Estuary's Central Valley watershed, assuming it does not abuse its administrative discretion in so doing.

In mid-2009, the State Water Resources Control Board updated its review of the Water Quality Control Plan which its Water Right Decision 1641 (D-1641) implements. The Board took the position that to change its water quality and flow criteria it needed more scientific information about flows reasonably needed to protect fish and wildlife beneficial uses.⁸⁹ Its impetus to consider making changes at that time included pronounced fisheries declines among both open water resident and migratory fish, and the still-unfolding impacts of climate change and its impacts on the Bay-Delta estuarine system.⁹⁰ The California

⁸⁷ California Constitution, Article X, Section 2.

⁸⁸ *National Audubon Society, op. cit.*

⁸⁹ State Water Resources Control Board, *Periodic Review of the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, Adopted by Resolution 2009-0065, August 4, 2009, p. 17. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/index.shtml.

⁹⁰ *Ibid.*, p. 9.

Department of Fish and Game sought to build a salmon survival model to assist the Board's need for additional information.⁹¹

Later in 2009, the California Legislature directed the State Water Resources Control Board to prepare a report on Delta flow criteria that would "develop new flow criteria for the Delta ecosystem necessary to protect public trust resources" and in so doing "use the best available scientific information." The Legislature directed the Board to gather the information as part of an "informational proceeding" rather than through an evidentiary hearing. And the Legislature charged the Board with including volume, quality and timing of water necessary for the Delta ecosystem under different conditions.⁹²

The Board produced its Delta flow criteria report after taking detailed testimony on the best available science for key fish species and ecosystems. The report identified a set of broad flow regimes for upstream tributaries providing inflow to the Bay-Delta Estuary that fish need to survive and recover. They represent the Board's consideration of the best available fishery and hydrologic science it considered during 2010 addressing the question: what flows do fish need? The Board confirms this when it stated in a footnote, "...the flow criteria developed in this proceeding are intended to halt population decline and increase populations of certain species," and acknowledged that, "Recent Delta flows are insufficient to support native Delta fishes for today's habitats....Flow and physical habitat interact in many ways, but they are not interchangeable."⁹³

The Board states that the flow criteria "must be considered" in context:

- a. The flow criteria do not consider any balancing of public trust resource protection with public interest needs for water.
- b. The State Water Board does not intend that the criteria should supersede requirements for health and safety such as the need to manage water for flood control.
- c. There is sufficient scientific information to support increased flows to protect public trust resources; ***while there is uncertainty regarding specific numeric criteria, scientific certainty is not the standard for agency decision making.***⁹⁴

The Board's flow determinations are:

- 1) 75 percent of unimpaired Delta outflow from January through June.
- 2) 75 percent of unimpaired Sacramento River inflow from November through June.

⁹¹ California Department of Fish and Game. 2010. *Flows Needed in the Delta to Restore Anadromous Salmonid Passage from the San Joaquin River at Vernalis to Chipps Island, Central Region*, February, Prepared for the Informational Proceeding to Develop Flow Criteria for the Delta Ecosystem Necessary to Protect Public Trust Resources Before the State Water Resources Control Board, 38 pages. Accessible online at http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/exhibits/dfg/dfg_exh3.pdf.

⁹² Water Code § 85086(c).

⁹³ State Water Resources Control Board, *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem*, Prepared pursuant to the Sacramento-San Joaquin Delta Reform Act of 2009, p. 5 and 120. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/fin_al_rpt080310.pdf. Approved unanimously by the Board in Resolution No. 2010-0039. Hereafter cited as "2010 Delta Flow Criteria Report."

⁹⁴ *Ibid.*, p. 4.

- 3) 60 percent of unimpaired San Joaquin River inflow from February through June.
- 4) Increased fall Delta outflow in wet and above normal years.
- 5) Fall pulse flows on the Sacramento and San Joaquin Rivers to stimulate migrating fish.
- 6) Flow criteria in the Delta interior to help protect fish from mortality in the central and southern Delta caused by operations of the state and federal water export pumps.

In essence, these flow determinations represent the Board's answer to the question, "what flows do fish need in the Central Valley watershed and the Bay-Delta Estuary?" The Board's flow determinations also answer the question of what level of flow protects the most sensitive beneficial uses in the Delta, as we have described in Section II of this letter. The State Water Resources Control Board's 2010 Delta flow criteria report acknowledged that protective Delta outflows start with protective tributary inflows to the Delta. The Board's Delta inflow criteria rely on a percentage of unimpaired flow measure, which enables the flow criteria on the Sacramento and San Joaquin rivers to more closely mimic their natural hydrographs than now occurs.

For the San Joaquin River, the State Water Resources Control Board approved its determination that 60 percent of unimpaired flow from February through June for the river basin would protect juvenile Chinook salmon during their peak emigration period. For the Sacramento River, the Board adopted the criterion of 75 percent of unimpaired flow from November through June. (This is because numerous runs of migratory salmon use the Sacramento River Basin for more of the year.) These constrained periods would also benefit the rearing period of juvenile salmon in the basin's major tributaries upstream. The Board also adopted in that report (2010) a fall season Delta inflow criterion calling for an average flow of 3,600 cubic feet per second for 10 days sometime during late October.

Nearly all scientists testifying to the Board in March 2010 agreed that mimicking the natural hydrograph (in shape if not in magnitude and volume of flow) is necessary to improve conditions for native fish species, and to counter invasive species in the Delta. Existing Board water quality and flow objectives intended to protect fish and wildlife beneficial uses in the south Delta are not working, as shown in abundant evidence presented to the Board at its hearings for the Delta Flow Criteria report. The Board includes much of that data in its report.⁹⁵

In August 2010, the State Water Board approved these currently nonbinding Delta inflow determinations for the Sacramento and San Joaquin rivers.⁹⁶ The State Water Resources Control Board observed that using such flow criteria would mean that "to achieve the attributes of a natural hydrograph, the criteria are advanced as a percentage of unimpaired flow on a 14-day average, *to be achieved on a proportional basis from the tributaries to the San Joaquin River.*"⁹⁷ (State Water Resources Control Board, 2010: 120, emphasis added) The Board makes an important point that mimicking natural hydrograph and improving prospects for species recovery depends on achieving proportional flow allocations from all the major tributaries. Proportional tributary contributions would be needed to implement the Board's broader Delta inflow criteria. The Board will need to answer key questions

⁹⁵ *Ibid.*, pp. 41-98.

⁹⁶ *Ibid.*, pp. 114-123.

⁹⁷ *Ibid.*, p. 120.

including: what should those proportions be, how should responsibility for them be assigned, and who will be responsible for providing them? And: when will the upper San Joaquin River be included by the Board in making these determinations?⁹⁸

A question for the Board is how to do proportional flows *legally*. Proportional tributary contributions from Delta inflow are not new. In 1992, the California Department of Fish and Game proposed a method to identify tributary contributions to Delta inflows based on the pro rata share of unimpaired runoff each tributary generates to the Delta, as identified in the California Department of Water Resource's Bulletin 120 each year.⁹⁹ Other allocation methods could be devised as well, such as one based on reservoir storage on these same tributaries. The State Water Board in its Draft Water Right Decision 1630 presented such a method, but which, like the proposal now under consideration, excluded contributions from the San Joaquin River above Mendota Pool.¹⁰⁰

Proportional tributary contributions needed to fulfill Delta inflow determinations from the major tributaries of the Sacramento and San Joaquin River Basins will require changes to the water rights of major water users in these Basins. The State Water Resources Control Board has authority over water rights to reallocate water usage and ensure compliance with the Board's Delta inflow objectives. The Board received testimony from EWC member organizations California Water Impact Network, California Sportfishing Protection Alliance, and AquAlliance providing a method that incorporates all demands for water in the watershed of the Bay-Delta Estuary by capturing full natural (unimpaired) flow, flows needed for nonconsumptive instream uses, and flows available for consumptive uses (nearly all of which are based in water rights claims).¹⁰¹ That water availability analysis complies with Justice Racanelli's legal standard for attaining a "global perspective" in determining demands of water by all beneficial uses without omitting the other water users (holding water rights) that Racanelli wanted included by the Board. The Board should make clear in the Bay-Delta Plan that the implications of such a water availability analysis be addressed in the Bay-Delta Plan's implementation program.¹⁰²

⁹⁸ Right now, the Board excludes the upper San Joaquin River from its Bay-Delta Estuary planning deliberations. C-WIN evaluates the Board's stance in Appendix B of Stroshane, *Testimony on Water Availability analysis, op. cit.*

⁹⁹ California Department of Fish and Game. 1992. *Summary and Recommendations for the Department of Fish and Game's Testimony on the Tributaries to the Sacramento-San Joaquin Estuary*, presented to the State Water Resources Control Board, Interim Water Rights Actions Phase, Bay-Delta Estuary Proceedings, WRINT-DFG Exhibit No. 29, 8 pages.

¹⁰⁰ State Water Resources Control Board. 1992. *Draft Water Right Decision 1630: San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, December, 121 pages, Tables IV and V.

¹⁰¹ Stroshane, T., *Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay-Delta Estuary*, Submitted by the California Water Impact Network on behalf of California Sportfishing Protection Alliance, and AquAlliance on October 26, 2012, for Workshop #3: Analytic Tools for Evaluating Water Supply, Hydrodynamic, and Hydropower Effects of the Bay-Delta Plan. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/comments111312/tim_stroshane.pdf.

¹⁰² Assuming that the State Water Board adopts the 75 percent unimpaired flow determination for the upstream tributaries of the Sacramento River Basin, the 60 percent of unimpaired flow determination for the San Joaquin River Basin, and that the water rights priority system is applied, it becomes evident that several significant water rights claimants that are junior in priority contribute dramatically to the problem of paper water: They have been promised water far in excess of flow conditions available to them in most years.

Appendix D.1 of Mr. Stroshane’s testimony for C-WIN (submitted October 26, 2012 to the State Board for the Bay-Delta Plan comprehensive review) is an example of what Justice Racanelli stated the Board should provide in its water quality planning for the Bay-Delta Estuary.¹⁰³

By adopting its public trust Delta inflow and outflow determinations as flow objectives in the Bay-Delta Plan for each major tributary, and applying water rights priorities—in that order—the State Water Resources Control Board can use its authority to eliminate paper water (propertied beneficial uses of water that do not have a basis in water quality law) in the Bay-Delta Estuary’s Central Valley watershed. This is because beneficial uses and water quality objectives *define* reasonable use and protection of the public trust simultaneously, in practical and legally compliant terms. The California Constitution reminds us that no one in California has a right to use or divert water wastefully or unreasonably. The state’s public trust responsibility requires protection of the waters of the state for the benefit of all beneficial users, not just water rights holders. The federal Clean Water Act requires that the protections adopted must be for those beneficial uses that are the most sensitive to impairment from whatever cause. The state’s water quality control planning obligation is to carry out this responsibility. It also helps the state meet its public trust obligations as well. The doctrine of prior appropriation requires that senior water right holders be served before junior water right holders. The water quality control planning process and the water rights priority system on the major tributaries of the Sacramento and San Joaquin River Basins should be used as tools for eliminating paper water—that is, for quieting water titles, and ending trespasses and boundary disputes that impair public trust resources—to uses that conflict with legitimately designated beneficial uses.

The Board has omitted nearly all reference to the 2010 Delta Flow Criteria Report and its informational proceeding. It is omitted from the Board’s Draft SED timeline appearing in Sections ES4 and Table 1-1 as well. In neither Appendix K, containing the proposed San Joaquin flow and South Delta salinity objectives, nor Chapter 19 of the Draft SED (addressing “Antidegradation Policy Analysis”), nor the rest of the Draft SED, has the State Board conducted an analysis of how it takes account of, let alone balances, the public trust and antidegradation policy, as it is obligated to do. The State Board abuses its discretion by neglecting this obligation. We respectfully request that the Board decline to certify the Draft SED and the proposed San Joaquin River flow and South Delta salinity objectives until these rationales behind its inchoate decision-making are disclosed.

The Board fails to disclose the vital role of federal Clean Water Act policies and regulations with which the State Water Resources Control Board must comply.

The Board fails to disclose federal Clean Water Act requirements in its regulatory setting, leaving readers with the impression that Porter-Cologne Water Quality Control Act requirements dominate the regulatory requirements for which the Board plans and with which it must comply. Such an implication would be incorrect about the legal framework within which the State Water Board must act. The proposed plan amendments and the Draft SED fail to disclose that the Board must consider new water quality objectives that protect the most sensitive beneficial uses in the Bay-Delta Estuary under the federal Clean Water

¹⁰³ Appendix D.1 in Stroshane, *Testimony on Water Availability Analysis, op. cit.*

Act and its implementing regulations administered by the US Environmental Protection Agency.

The primary purpose of water quality control planning under the federal Clean Water Act is to prepare or develop comprehensive programs for preventing, reducing, or eliminating the pollution of the navigable water and ground waters and improving the sanitary condition of surface and underground waters. The Act continues:

In the development of such comprehensive programs *due regard shall be given to the improvements which are necessary to conserve such waters for the protection and propagation of fish and aquatic life and wildlife*, recreational purposes, and the withdrawal of such waters for public water supply, agricultural, industrial, and other purposes.¹⁰⁴

Congress clearly intends through the Clean Water Act that water quality control plans are to be used to *improve* water quality, not merely maintain it. Congress's declaration of goals and policy for the Act call for restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. It states goals for eliminating discharge of pollutants; protecting and propagating fish, shellfish, and wildlife; prohibit discharge of toxic pollutants; and to recognize, preserve, and protect the primary responsibilities and rights of states to prevent, reduce, and eliminate pollution, plan the restoration, preservation, and enhancement of land and water resources. Research priorities funded under the Act are intended to foster prevention, reduction and elimination of pollution in the waters of the United States. These goals intend neither *stasis* nor *degradation*; they intend *change in the direction of making water quality better*.

The heart of water quality control under these laws is first the designation of the beneficial uses to be protected, and second the setting of standards, criteria, and objectives that provide reasonable protection for those beneficial uses. This vital principle of water quality control law is omitted from the regulatory setting. From this omission flows a cascade of planning failures by the Board, making this a deeply flawed process.

From this Draft SED, it appears the Board does not intend to use its water quality control powers to materially improve water quality in the South Delta and the lower San Joaquin River. Similarly, the Board proposes a new set of flow objectives for San Joaquin River inflow to the Delta that offers no significant change in flows while providing for no significant change in south Delta exports to state and federal water contractors by the California Department of Water Resources and the US Bureau of Reclamation. The Board goes to great lengths to avoid dealing with the Delta's well-documented ecological collapse.

The State Water Resources Control Board is accountable to the US Environmental Protection Agency under the federal Clean Water Act. The Board is obligated by the Clean Water Act to operate a "continuing planning process." Each time the State Board approves a new plan, the federal Clean Water Act requires that the EPA Administrator "shall from time to time review each State's approved planning process for the purpose of insuring that such planning process is at all times consistent with" the legal standards of the Clean Water

¹⁰⁴ 33 USC 1252. Emphasis added.

Act.¹⁰⁵ The EPA Administrator is empowered by the Clean Water Act to disapprove any water quality objectives approved by the State Board which in the Administrator's view are inconsistent with Clean Water Act requirements. The Administrator may promulgate compliant water quality standards instead within a specified time period.¹⁰⁶ The USEPA still maintains a placeholder regulation for "California" in its Clean Water Act regulations.¹⁰⁷

The State Water Resources Control Board is also authorized to implement Clean Water Act requirements for water quality control policy and enforce water quality objectives through the Porter-Cologne Water Quality Control Act. This information is vital for readers to understand exactly what is involved in the Board's decisions concerning San Joaquin River flow and South Delta salinity objective changes. Why did the State Water Board omit these vital legal requirements from the above regulatory setting sections of the Draft SED?

The Board fails to disclose in its regulatory setting (especially Sections 1.5 and in Chapter 5) that there are important steps it must follow to designate beneficial uses and establish water quality objectives to protect them.

There are three key elements in water quality planning law: the designated beneficial uses, water quality standards or objectives, and compliance with antidegradation policy. Whenever the State Board revises or adopts a new standard, the Board must submit it to the EPA Administrator for review. Such standards are to consist of "designated uses" (which the California Porter-Cologne Water Quality Control Act calls "beneficial uses") and "water quality criteria" (which the Porter-Cologne Water Quality Control Act calls "water quality objectives") that represent the level of protection for the beneficial use.

Such standards shall be such as to protect the public health or welfare, *enhance* the quality of water and serve the purposes of this chapter. Such standards shall be established taking into consideration their use and value for public water supplies, *propagation* of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.¹⁰⁸

The purposes of the Clean Water Act, which this section incorporates, include:

- b. Restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters;
- c. Protecting and propagating fish, shellfish, and wildlife
- d. Providing for recreation

¹⁰⁵ 33 U.S.C. 1313(e)(2). Moreover, this section states, "The Administrator shall not approve any State permit program under subchapter IV of this chapter for any State which does not have an approved continuing planning process under this section."

¹⁰⁶ 33 U.S.C. 1313(a)(2).

¹⁰⁷ 40 CFR 131.37, accessible online at <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=d5e7e1e03ae07b72fb89e47ac2e6b5b9&rgn=div8&view=text&node=40:23.0.1.1.18.4.16.7&idno=40>.

¹⁰⁸ 33 U.S.C. 1313 (c)(2)(A). Emphasis added. "Enhance" means to "intensify, increase, or further improve the quality, value, or extent of" something. One meaning of "propagate" is to "cause (something) to increase in number or amount." "Restore" can mean to "return (someone or something) to a former condition, place, or position." In general, the plain language of Clean Water Act policies on protection of beneficial uses is not merely intended to maintain water quality but to increase or improve water quality as well as to return water quality to former conditions of chemical, physical, and biological integrity..

- e. Prohibiting discharge of toxic pollutants
- f. Protecting the right of states to prevent, reduce, and eliminate pollution
- g. Planning for development and use (including restoration, preservation, and enhancement) of land and water resources
- h. Preventing, reducing and eliminating pollution through research and financial aid.¹⁰⁹

Under the Porter-Cologne Water Quality Control Act, beneficial uses to be “*protected against quality degradation*” may include domestic, municipal, agricultural and industrial supplies; power generation, recreation, aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.¹¹⁰ The Act identifies the definition of beneficial uses simultaneous with the need to protect the uses from quality degradation. Under this Act, “water quality objectives” are defined to mean the “limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.”¹¹¹ Porter-Cologne recognizes “that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses.” But before doing so, the Board must take account of several factors, the relevant parts here including:

- Factors to be considered...in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:
 - Past, present, and probable future beneficial uses of water.
 - Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto
 - Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
 - Economic considerations.
 - The need for developing housing within the region.
 - The need to develop and use recycled water.¹¹²

The State Water Resources Control Board has since 1991 designated 17 specific beneficial uses of water in its Bay-Delta Estuary water quality control plans.¹¹³ These beneficial uses have not changed during this period. Thus, the Bay-Delta Estuary and its watershed contain waters with multiple beneficial uses by the State Board. EPA Clean Water Act regulations require that water quality criteria (or in California’s term, “water quality objectives”) must be based on sound scientific rationale and must contain sufficient parameters or constituents. Such objectives shall protect the most sensitive beneficial use in areas where there are multiple uses.¹¹⁴

¹⁰⁹ 33 U.S.C. 1251(a) and (b).

¹¹⁰ California Water Code §13050(f). Emphasis added.

¹¹¹ California Water Code §13050(h).

¹¹² California Water Code §13241.

¹¹³ These beneficial uses include: municipal and domestic supply, industrial service supply, industrial process supply, agricultural supply, groundwater recharge, navigation, contact and non-contact water recreation, shellfish harvesting, commercial and sport fishing, warm fresh water habitat, cold fresh water habitat, migration of aquatic organisms, spawning, reproduction and/or early development of fish, estuarine habitat, wildlife habitat, and rare, threatened or endangered species’ habitats.

¹¹⁴ 40 CFR 131.11(a).

Existing South Delta Salinity Objectives

The Board has since 1978 treated salinity as a nonpoint source pollutant that potentially harms agricultural beneficial uses in the western and southern Delta. Since 1978, the Board's South Delta salinity objectives regulate salinity concentrations at Vernalis on the lower San Joaquin River and at the interior South Delta monitoring stations at Tracy Boulevard Bridge at Old River, Old River near Middle River, and Brandt Bridge on the San Joaquin River (downstream of the head of Old River). These interior South Delta objectives currently range from 0.7 Electrical Conductivity (EC) during the irrigation season (April 1 through August 31) to 1.0 EC from September 1 through March 31. Enforcement has long been lax. It was not until the State Water Resources Control Board issued Water Rights Decision 1641 (D-1641) in March 2000 that it assigned responsibility to the Department of Water Resources and the US Bureau of Reclamation for attaining these salinity objectives.

The existing South Delta salinity objectives are intended to protect South Delta agricultural beneficial uses, which includes protection of the water rights of South Delta agricultural water users. The current objectives protect these water rights by providing that level of salinity (as measured in terms of electrical conductivity) that meets the quality requirements of the beneficial uses served by those rights. To relax these objectives would be a conscious State Water Resources Control Board choice to impair agricultural beneficial uses and injure water rights of these beneficial users in the South Delta. This proposed action would violate the federal Clean Water Act's antidegradation policy and the Board's own 1968 resolution protecting against antidegradation of the state's waters.

In the 1978 Bay-Delta Water Quality Control Plan, the State Water Board established water quality objectives of 500 milligrams per liter (mg/L) at Vernalis, and 0.7 EC (maximum 30-day running average of mean daily EC in mmhos) during the irrigation from April 1 through August 31, and 1.0 EC from September 1 through March 31.¹¹⁵ At that time, the Board wrote,

An implementable solution for the southern Delta has eluded the best efforts of responsible public agencies for well over twenty years. *Prior to 1944 water quality in the southern Delta was suitable for agricultural uses. Upstream depletions and water quality degradation of the San Joaquin River and its tributaries have greatly reduced the flows and quality available for protection of the southern Delta.*

...Implementation of these standards could be achieved through the Board's broad enforcement authority. As previously indicated, all of the water right permits for the San Joaquin River Basin upstream of the Delta include a paramount provision that appropriations under these Board entitlements are subject to prior vested rights.

The California Third District Appellate Court in 1986 criticized the Board for protecting water rights rather than beneficial uses when making its water quality decisions. But nowhere in the Board's findings in either Chapter V or VI of the 1978 plan did the Board take note of or consider setting its South Delta salinity objectives with reference to agricultural beneficial uses *in the export service areas of the federal Central Valley Project and the State Water Project*. (The Board acknowledged that these uses of water existed in

¹¹⁵ State Water Resources Control Board, *Water Quality Control Plan, Sacramento-San Joaquin Delta and Suisun Marsh*, August 1978, Table VI-1, p. VI-29. The interior South Delta salinity objectives have been applied by the Board ever since 1978. The Vernalis salinity objective was changed to match the interior South Delta objectives in the 1991 Bay-Delta Water Quality Control Plan. Emphasis added.

the planning area, but did not take those uses of water as an object for setting the South Delta salinity objectives.) At the time, the State Water Board set the water quality objective to protect agricultural beneficial uses using the least tolerant, and therefore most sensitive agricultural uses. The interior South Delta salinity objectives were set with respect to the salt tolerance of beans in the summer irrigation season (0.7 EC) and alfalfa in the winter irrigation season (1.0 EC).¹¹⁶ (No entity was made responsible for compliance at that time, however.)

In the 1995 Bay-Delta Water Quality Control Plan, the State Water Board stated for agricultural beneficial uses:

*The water quality objectives in Table 2 are included for the reasonable protection of the beneficial use, AGR, from the effects of salinity intrusion and agricultural drainage in the western, interior, and southern Delta. With the exception of the effective date of the salinity objectives for the southern Delta stations on Old River, these objectives are unchanged from the 1991 Bay-Delta Plan.*¹¹⁷

These water quality objectives were again left unchanged in the 2006 Bay-Delta Plan.

*The beneficial uses to be protected were established in the 1978 Delta Plan and the 1991 Bay-Delta Plan. Since all of the beneficial uses exist and there were no requests for changes in the beneficial uses, these uses are carried over in this plan from earlier plans, including the 1995 Plan.*¹¹⁸

Over the last 35 years, water exportation from the Delta has not been a designated beneficial use and under the Board's water quality control plans receives no explicit consideration for protection as a beneficial use in any of these water quality control plans. As shown by the Board's own consistent record of designating and maintaining South Delta agricultural beneficial uses and salinity objectives together, the question arises: On what basis does the Board propose relaxing south Delta salinity objectives?

Not only are there no Delta export beneficial uses in the record of the last four Bay-Delta water quality control plans, but in D-1641 the Board placed responsibility for meeting South Delta salinity objectives to protect South Delta agricultural beneficial uses on the shoulders of the US Bureau of Reclamation and the California Department of Water

¹¹⁶ According to the 1978 Bay-Delta Water Quality Control Plan, page VI-18: "The drainage and high water table problems in portions of the southern Delta limit the type of crops which can be grown. For instance, beans were grown on about 20,000 acres in the southern Delta during the early 1930s. Field beans are now grown on only about 2,400 acres in the southern Delta. A reason advanced for this decline is the poorer water quality presently available to the southern Delta. Most of the beans now grown in this area are black-eyed beans, because they are more salt tolerant. Even these salt tolerant beans are grown generally in areas receiving Delta-Mendota Canal water due to its better quality." Emphasis added.

¹¹⁷ *Water Quality Control Plan for Salinity, San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, 95-1WR, May 1995, p. 12 and Table 2, p. 17. Emphasis added.

¹¹⁸ *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, December 13, 2006, p. 8, and Table 2, p. 13. Emphasis added. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/docs/2006_plan_final.pdf.

Resources, the exporters themselves.¹¹⁹ The Board did so recognizing that the major source of salinity in the San Joaquin River to the South Delta was a result of agricultural drainage generated by naturally salinized lands of the western San Joaquin valley which were irrigated with water exported by the Central Valley Project from the Delta.

Antidegradation Policy—Failure to Protect Agricultural Beneficial Uses in the South Delta From Unjustified Degradation of Salinity Conditions, and Failure to Provide an Antidegradation Analysis at all.

National water quality policy since 1972 obligates the states, including California, to improve water quality, whatever its current condition, and since 1987 requires satisfaction of antidegradation requirements that EPA established in Clean Water Act regulations.¹²⁰ US EPA established a regulatory framework for antidegradation policy that requires states to develop antidegradation policies. The heart of EPA antidegradation criteria include: Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

Lowering of water quality may only be tolerated in instances where it “is necessary to accommodate important economic or social development in the area in which the waters are located...after full satisfaction of the intergovernmental coordination and public participation provisions of the State’s continuing planning processes.” The Board can only proceed with lowering water quality objectives where it provides and sustains a clearly supported and convincing argument about the economic and social development in the area. Since the Board merely describes the antidegradation policies that apply to its proposed actions evaluated in the Draft SED, and does not provide any such economic or social analysis in that antidegradation chapter, the Board cannot proceed with lowering either the water quality of the South Delta or the objective intended to protect agricultural beneficial uses there.

Moreover, the state must still assure water quality adequate to protect existing agricultural uses fully even if it proceeds with relaxing the South Delta salinity objectives. Further, the state shall assure that there shall be achieved the “highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.”¹²¹

Antidegradation analysis under federal policy must assure that “existing instream water uses and the level of water quality necessary to protect the existing uses” is “maintained and protected.”¹²² In addition, the Draft SED for the San Joaquin River flow and South Delta

¹¹⁹ State Water Resources Control Board. 2000. *Revised Water Right Decision 1641: In the Matter of Implementation of Water Quality Objectives for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; A Petition to Change Points of Diversion of the Central Valley Project and the State Water Project in the Southern Delta; and A Petition to Change Places of Use and Purposes of Use of the Central Valley Project*, December 29, 1999, revised in accordance with Order WR 2000-02, March 15, 1993 pages. Accessible online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641_1999dec29.pdf

¹²⁰ 33 U.S.C. 1313 (d)(4)(B).

¹²¹ 40 CFR Part 131.12(a)(1) and (2).

¹²² 40 CFR 131.12(a)(1).

salinity objectives states that “the project area’s water bodies are classified as Tier 2 water bodies as per the Federal Antidegradation Policy.”¹²³ This *only* allows consideration of lowering water quality “where it is necessary to accommodate important economic or social development *in the area in which the waters are located.*” From the standpoint of South Delta agricultural beneficial uses to be protected, there should have been *no* consideration of changing the existing interior South Delta salinity objectives. There was no legal reason to.

The State Water Resources Control Board’s own “Statement of Policy with Respect to Maintaining High Quality of Waters in California” states:

Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.”¹²⁴

Our analysis in this letter demonstrates that the State Water Board has never designated as a beneficial use for purposes of Delta water quality planning the export areas served by the federal Central Valley Project and the State Water Project. These areas, therefore, are not to be considered as areas of “important economic or social development” in relation to the “area where the waters are located.” In this instance, that area is the South Delta; the South Delta does not extend to include the San Luis Unit or Delta-Mendota Canal service area of the Central Valley Project, or any service area served by the State Water Project’s California Aqueduct. In this light, under federal Clean Water Act antidegradation policy the State Water Board abuses its discretion by undertaking a planning process to lower the salinity objectives in the South Delta area, and we respectfully request that the Board not approve the proposed salinity objectives it has developed through this deeply flawed process.

Antidegradation Policy—Application to San Joaquin River Flow Objectives

US EPA Region 1, consistent with *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 511 U.S. 700 (1994), has found that a state’s antidegradation program “must obviously address water withdrawals” as well as discharges.¹²⁵[1] California’s antidegradation policy (Resolution 68-16, Oct. 1968) contemplates the policy’s application to water rights permits, reading in part:

WHEREAS the California Legislature has declared that it is the policy of the State that *the granting of permits and licenses for unappropriated water* and the disposal of wastes into the waters of the State *shall be so regulated as to achieve*

¹²³ 2012 Draft SED, p. 19-2.

¹²⁴ State Water Resources Control Board, Resolution No. 68-16 (Oct. 28, 1968), Part 1. Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/laws_regs_policies/rs68-016.pdf.

¹²⁵ Letter from John DeVillars, US EPA Region 1, to Timothy Keeney, Rhode Island Department of Environmental Management (June 25, 1996), p. 3 (available upon request).

*highest water quality consistent with maximum benefit to the people of the State....*¹²⁶

Antidegradation analysis of water withdrawals has particular importance in California given a recent decision of the Third Appellate Court. In the *Asociacion de Gente Unida* decision, the Court found that “[t]he antidegradation policy measures the baseline water quality as that existing in 1968 and defines high quality waters as the *best quality achieved since that date*.”¹²⁷ It further finds that any actions to lower water quality below that level trigger the antidegradation policy, unless those levels are consistent with state-adopted water quality objectives.¹²⁸ By this definition, the proposed actions trigger preparation of an adequate antidegradation analysis, which must include findings to support the above requirements if lowering of water quality is to be legally allowed. Water quality lowering almost invariably accompanies water diversions, in the form of changes in flow-related parameters such as dissolved oxygen, temperature, sediment, bacteria, and other pollutants.

As summarized by US EPA, all three water quality law components—designated uses, criteria to protect the designated uses, and the state’s antidegradation requirements—are “relevant and vital tools to protect and restore healthy hydrology.”¹²⁹ California must consider hydrology impacts in its antidegradation analysis, and perform the assessments necessary to justify any concomitant degradation consistent with state and federal antidegradation policies.

¹²⁶ State Water Board Resolution No. 68-16, *op. cit.*, note 73 above.

¹²⁷ *Asociacion de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board* (Cal. App. 3d, Nov. 6, 2012), No. C066410, p. 22. Emphasis added.

¹²⁸ *Ibid.*, pp. 21-22.

¹²⁹ Letter from James Giattina, US EPA Region 4 to Lance LeFleur, Alabama Department of Environmental Management, “Alabama Water Agencies Working Group: EPA Region 4 Stakeholder Comments,” p. 9 (Nov. 19, 2012) (available upon request).

Regulatory Setting Omissions—Selenium Regulation

Because of the absence of substantive environmental setting descriptions involving selenium discharge and toxicity, there is also inadequate treatment in the Draft SED of the Board's regulation of selenium since its toxicity and prevalence became widely known in the 1980s. We respectfully request that the Board include this setting information in chapters 5 and 9 of the Draft SED pertaining to water quality and groundwater.

The Grasslands Bypass Project was started in 1996 as a means of preventing discharge of selenium-contaminated subsurface agricultural drainage water into wildlife refuges and wetlands in the Grasslands Basin, tributary to the San Joaquin River. The Grassland Bypass Project is operated by the Bureau of Reclamation and the San Luis & Delta-Mendota Water Authority. The drainage water is "bypassed" around the refuges, wetlands and Salt Slough, and is conveyed into a segment of the San Luis Drain where it discharges to Mud Slough (north), a tributary of the San Joaquin River a few miles from the former Kesterson evaporation ponds. (See Figure A-3.)

The Grasslands Drainage Area is primarily in the northerly area of the San Luis Unit, but also includes lands within the Delta Mendota Canals Unit of the CVP as well as a portion of the San Joaquin River Exchange Contractors. Figure A-2 shows the geographic location of the Grassland Drainage Area in relation to the service areas of the local water providers.

The GDA is located on the western side of the San Joaquin River roughly between Los Banos to the north and Mendota to the south. The GDA consists of Charleston Drainage District, Pacheco Water District, Panoche Drainage District, a portion of the Central California Irrigation District (CCID) known as Camp 13 drainage area, Firebaugh Canal Water District, Broadview Water District (acquired by Westlands Water District following retirement from irrigation), and Widren Water District. The In-Valley drainage reuse area, called the San Joaquin River Water Quality Improvement Project (SJRIP), is owned and operated by Panoche Drainage District.¹³⁰

¹³⁰ San Luis & Delta Mendota Water Authority and United States Bureau of Reclamation. 2009. *Final Environmental Impact Statement/Environmental Impact Report on Grassland Bypass Project, Appendix E.2: Selenium Ecological Risk Assessment*, 12 pages.

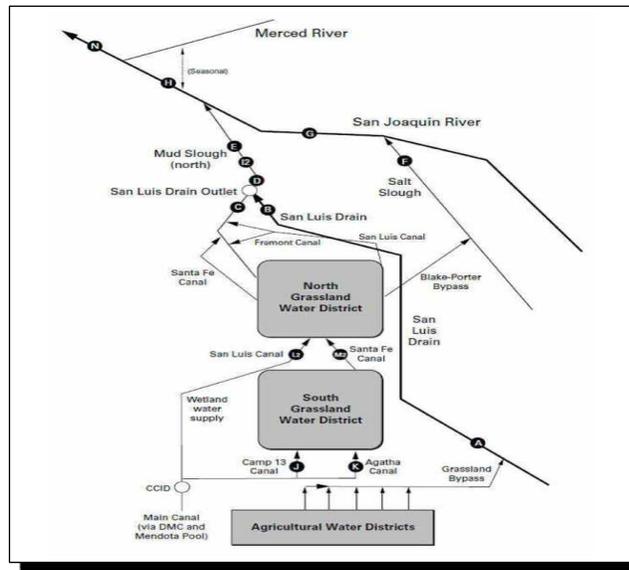


Figure A-3: Schematic Map of the Grassland Bypass Project. Source: US Bureau of Reclamation.

The principal features of the Grasslands Bypass Project are drainage collection and drainage reduction. A portion of the federally owned San Luis Drain is the conveyance structure to discharge the drainage to areas outside of the Grassland Bypass Project service area at Mud Slough (north; see Figure A-3). Grassland Bypass Project proponents claim that the reductions in drainage volume, selenium, salt and boron are a direct result of source control (lining ditches, reducing seepage, irrigation system improvements, etc.), groundwater management, dust control using drainage water, and reuse at the San Joaquin River Improvement Project. Land retirement must also play a role (see below)

The Grassland Bypass Project is facilitated by a Use Agreement signed by Reclamation and the San Luis Delta Mendota Water Authority on behalf of the Grassland Drainers to establish conditions for use of a portion of the San Luis Drain to discharge selenium and other pollutants from the Grassland Drainage Area. The first Use Agreement was signed in 1996 and was renewed and amended in 2009. The Use Agreement includes monitoring provisions, penalties for selenium discharges in excess of Waste Discharge Requirements and limitations on the volume of drainage water that can be conveyed in the San Luis Drain.

While the Grassland Bypass Project has improved water quality in Salt Slough, the wildlife refuges and wetlands, the Project discharges pollutants directly into Mud Slough and the San Joaquin River, thereby increasing pollution there. It has sustained the productivity of 97,000 acres of irrigated acres, mostly in the northerly area of the San Luis Unit at the expense of water quality in Mud Slough and the San Joaquin River. The Grassland drainers do not have the same problems with high salty groundwater that the Westlands irrigators have because they are able to export their salty drainage water via Mud Slough and the San Joaquin River. The Grassland Bypass Project is the de facto San Luis Drain, emptying pollution into Mud Slough and the San Joaquin River. Salt, selenium and boron are the major sources of pollution from the Grassland Bypass Project, but nutrients and other pollutants are also discharged. Excessive nutrients from Mud and Salt Sloughs have been linked to dissolved oxygen water quality problems in the San Joaquin River deepwater ship

channel.¹³¹

The selenium control program described in the Central Valley Regional Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) includes a prohibition of discharge of agricultural subsurface agricultural drainage unless the discharge is regulated by Waste Discharge Requirements or water quality objectives for selenium are met. Selenium water quality objectives are 5 µg/L (4 day mean) for the San Joaquin River and 2 µg/L (4 day mean) for Salt Slough and wetland water supply channels identified in the Basin Plan. The Basin Plan amendment in 1996 included a compliance time schedule establishing October 1, 2010, as the effective date of the prohibition of discharges for Mud Slough (north) and the San Joaquin River above the mouth of the Merced River. Waste Discharge Requirements were issued by the Central Valley Regional Board allowing selenium discharges in excess of the Basin Plan selenium objective and larger than the allowable monthly and annual selenium loads at Vernalis contained in the San Joaquin River TMDL until October 1, 2010.¹³² The Waste Discharge Requirements includes monthly monitoring for molybdenum and nutrients (nitrate, ammonia, total Kjeldahl nitrogen, total phosphate, and orthophosphate) as well as weekly analyses of salinity, selenium, boron, and other parameters, and chronic toxicity testing. The Waste Discharge Requirements also outline a program to monitor storm water releases from the Grassland Drainage Area into the Grassland wetland supply channels should they occur.

State Board Also Delays Selenium Protections

The 1996 Grassland Bypass Project Basin Plan Amendment and waste discharge requirements were originally approved by the Central Valley Regional Board to establish an end to seleniferous discharges into Mud Slough North by October 1, 2010. The intent was to have zero selenium discharges by that time as a result of treatment through source control and reuse, with reverse osmosis and biotreatment for the remaining volume of drainage. However, by 2007 it became apparent that there was no “Best Practicable Treatment and Control” option to treat the selenium pollution, so the Grassland Drainers and Reclamation requested and received a time extension in 2010 from the Central Valley Regional Water Quality Control Board and the State Water Resources Control Board to delay implementation of selenium water quality objectives in the San Joaquin River and Mud Slough North until December 31, 2019. An unenforceable “performance goal” of 15 µg/L monthly mean has been established for December 31, 2015 by the CVRWQCB.¹³³ (California

¹³¹ Lee, G.F. and A. Jones-Lee. 2003. *Synthesis and Discussion of Findings on the Causes and Factors Influencing Low DO in the San Joaquin River Deep Water Ship Channel near Stockton, CA: Including 2002 Data*, March, 284 pages. Accessible online at <http://www.gfredlee.com/SynthesisRpt3-21-03.pdf>.

¹³² California Regional Water Quality Control Board, Central Valley Region. 2001a. *Total Maximum Daily Load for Selenium in the Lower San Joaquin River*, August, 32 pages. Accessible online at http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_se/se_tmdl_rpt.pdf; and California Regional Water Quality Control Board, Central Valley Region. 2001b. *Waste Discharge Requirements Order No. 5-01-234 for San Luis & Delta Mendota Water Authority and United States Department of the Interior, Bureau of Reclamation, Grassland Bypass Channel Project (Phase II), Fresno and Merced Counties*, September 21, 29 pages. Accessible online at http://www.swrcb.ca.gov/rwqcb5/board_decisions/adopted_orders/fresno/5-01-234.pdf.

¹³³ California Regional Water Quality Control Board, Central Valley Region. 2010b. *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins to Address Selenium*

Regional Water Quality Control Board 2010) The U.S. Environmental Protection Agency declined to approve or disapprove of the Basin Plan Amendment, claiming that it was not subject to federal jurisdiction.¹³⁴

The two main reasons given for the delay are the lack of effective drainage treatment options and lack of funding. Reclamation and the San Luis Delta Mendota Water Authority had originally anticipated that effective drainage treatment technology could be identified prior to 2010, but it did not occur. Several technologies were tested but results have not been positive, with no clear Best Practicable Treatment and Control option identified. Prior to full-scale implementation, treatment technology must still be tested and validated. Over \$100 million in state, federal and private monies have been spent on the Grassland Bypass Project.¹³⁵ (Water Education Foundation n.d.) The Grassland Drainers were spending a \$25 million grant award when the State Department of Finance issued Budget Letter 08-33 stopping payment of awarded grant funds and forcing the Grassland Drainers to stop work. The “halt work” order came when the project had completed a series of local source control projects and the SJRIP drainage reuse area had been constructed, but before treatment technology could be identified, constructed, tested and used.

The rationale for the Central Valley Regional Board’s action to extend the compliance date for the 5 µg/L (4 day mean) selenium water quality objective can be summed up in the following paragraphs from its Resolution R5-2010-0046 approving the Basin Plan amendment:

8. In a 13 December 2006 letter to the US Bureau of Reclamation, the GAF [Grassland Area Farmers] informed the Bureau and Central Valley Water Board staff that the GBP [Grassland Bypass Project] would be unable to eliminate all surface water discharges of agricultural subsurface drainage by 30 October 2010 without increased risks of loss of soil productivity; accelerated loss of beneficial use of groundwater due to salinization; a significant decrease in farm profitability stemming from a rising water table if irrigation continues; or low or no returns if fields are dryland farmed or fallowed. Rising groundwater would also increase groundwater seepage to surface water channels and open ditches, potentially increasing selenium in channels now protected by the monitoring and management of the regional drainage program. Continued farm productivity and profitability is necessary to fund ongoing regional drainage management in this area; and continued wildlife protection is consistent with state, federal, local and GBP priorities.

9. The GBP [Grassland Bypass Project] operators anticipate that the project area will be able to achieve full control of agricultural subsurface drainage if an additional nine years, three months beyond the existing compliance date is granted.” (California Regional Water Quality Control Board 2010a, 2010b)

The Central Valley Regional Board Final Staff Report for the Basin Plan Amendment also

Control in the San Joaquin River Basin, Final Staff Report, May, 61 pages. Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/sac_sj_basins_salinity_staffrpt.pdf.

¹³⁴ Strauss, A. 2011. *Letter to Tom Howard, Executive Director, State Water Resources Control Board*, Director, Water Division, US Environmental Protection Agency, Region IX, San Francisco, 3 pages. Accessible online at http://www.c-win.org/webfm_send/227.

¹³⁵ Water Education Foundation. n.d. Westside Resource Conservation District, maps of selenium and salinity impacted soils. 5 pages. Accessible online at <http://www.watereducation.org/userfiles/WestsideResourceConservationDistrict.pdf>.

justified the requested delay as follows:

The compliance time schedule currently in the Basin Plan includes compliance dates prior to 2010 for other channels and other reaches of the River. The Grassland Area Farmers (GAF), the subset of local agencies within the Authority participating in the GBP, have met the interim milestones of the selenium control program, complying with the prohibition of discharge or meeting the selenium objective in the channels where these requirements are now in effect (see Figures 3, 4 and 6 in Section 1 of this report). Given this history, it is reasonable to expect that if the Board approves the requested time extension by adopting the proposed amendment, the GAF will develop full drainage management capacity in the project area. In this context, “full drainage management capacity” means that, consistent with the Grassland Bypass Project’s dual goals of water quality and environmental protection and maintaining the viability of farming in the area, the dischargers are able to control all agricultural subsurface drainage generated in the drainage area without discharge. The Grassland Area Farmers expect to achieve this by further development of the source control measures and drainage reuse strategies in current use and by treating drainage to remove selenium and/or salt. Expanded source control and reuse alone could potentially increase the Project’s drainage management capacity sufficiently to achieve water quality and environmental goals, but at a cost. If the Board adopts the proposed amendments, dischargers will need to weigh those costs and determine whether drainage treatment is truly feasible for this area; and report their decision to the Board in 2013.”

Currently, the Bureau of Reclamation is funding a selenium demonstration treatment plant in the Panoche Drainage District. The project, estimated to cost \$37 million¹³⁶ (United States District Court, Eastern District 2011), will treat 200 gallons per minute constantly for 18 months (470 AF). At that treatment rate, the cost of treating agricultural drainage only for selenium (excluding salt and boron treatment) is \$78,723 per acre-foot, not counting transportation and disposal of the processed solid waste to a hazardous waste facility. Even at that cost, the potential for economic feasibility is at best low. A 2010 Report by CH2M Hill for the North American Metals Council determined the following:

While these physical, chemical and biological treatment technologies have the potential to remove selenium, there are very few technologies that have successfully and/or consistently removed selenium in water to less than 5 µg/L at any scale. There are still fewer technologies that have been demonstrated at full-scale to remove selenium to less than 5 µg/L, or have been in full-scale operation for sufficient time to determine the long-term feasibility of the selenium removal technology. There are no technologies that have been demonstrated at full-scale to cost-effectively remove selenium to less than 5 µg/L for waters associated with every one of the industry sectors.”¹³⁷

The Grassland Bypass Project has resulted in a reduction of the volume of drainage water and pollutants as follows for Water Years 1997 through 2010:

¹³⁶ United States District Court for the Eastern District of California. 2011. *Supplemental Declaration of Donald R. Glaser re: Revised Control Schedule in the case of Firebaugh Canal Water District and Central California Irrigation District v. United States of America et al.* Case 1:88-cv-00634-LJO-DLB Document 921-1, filed November 4, 7 pages. Accessible online at http://www.cwin.org/webfm_send/226.

¹³⁷ CH2M Hill. 2010. *Review of Available Technologies for the Removal of Selenium from Water*, prepared by Tom Sandy, P.E., and Cindy DiSante, P.E. for North American Metals Council. Accessible online at <http://www.namc.org/docs/00062756.PDF>.

- B. Discharge volume (Acre-Feet) reduced by 64% (39,856 AF to 14,529 AF)
- C. Selenium load reduced by 77% (7,096 lbs. to 1,601 lbs.)
- D. Salt load reduced by 61% (172,608 tons to 67,661 tons)
- E. Boron load reduced by 58% (753,000 lbs. to 315,000 lbs.)¹³⁸

These improvements are achieved at enormous cost relative to the economic activity it is intended to support: agriculture. The U.S. Geological Survey, in its 2008 “Technical Analysis of In-Valley Drainage Management Strategies for the Western San Joaquin Valley, California” stated in regard to the possibilities for treatment of drainage water that:

The treatment sequence of reuse, reverse osmosis, selenium bio-treatment, and enhanced solar evaporation is unprecedented and untested at the scale needed to meet plan requirements.”¹³⁹ (Presser and Schwarzbach 2008)

Purpose and Formulation of Plan Amendments and the Analysis of Alternatives is Inadequate

The following narrative discussing Plan amendment problems from the Draft SED and its appendices are based on review of the following sections of the Draft SED:

1. Executive Summary, Section 5 “Alternatives”, especially Sections ES5.1 through ES5.4
2. Executive Summary, Section 8, “Preferred Alternative,” especially Sections ES8.1 and ES8.2.
3. Chapter 3, Section 3.2, “Purposes and Goals”

Purpose and Formulation of the Plan Amendments ignore Delta Reform Act requirements that govern State Water Resources Control Board actions in the Delta Estuary and its watershed.

The policies and requirements of the Delta Reform Act of 2009 apply to the State Water Resources Control Board, except where it is otherwise stated.

The Delta Reform Act acknowledged in 2009 that “The Sacramento-San Joaquin Delta watershed and California’s water infrastructure are in crisis and existing Delta policies are

¹³⁸ McGahan, J.C. 2010. *Waste Discharge Requirement Order No. 5-01-234, Long-Term Drainage Management Plan*, Drainage Coordinator, Grassland Area Farmers and San Luis Delta-Mendota Water Authority, letter to Rudy Schnagl, Central Valley Regional Water Quality Control Board, December 29, 16 pages. Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/2010_longterm_drainage_plan.pdf.

¹³⁹ Presser, T.S. and S.E. Schwarzbach. 2008. *Technical Analysis of In-Valley Drainage Management Strategies for the Western San Joaquin Valley*, US Geological Survey Open File Report 2008-1210. Accessible online at <http://pubs.usgs.gov/of/2008/1210/>.

not sustainable. Resolving the crisis requires fundamental reorganization of the state's management of Delta watershed resources."¹⁴⁰

The Draft SED and its Appendix K fail to acknowledge that this crisis originates with past State Board water quality policies and objectives. Originating with adoption by the State Water Board of the 1995 Bay-Delta Water Quality Control Plan (and the proposed objectives of the 1994 Bay-Delta Accord) CalFED's "No Net Loss to Exports" policy is what led to the Delta Reform Act's passage in the first place, through the partial implementation of D-1641, modified by the San Joaquin River Agreement and its failed Vernalis Adaptive Management Plan.

The Delta Reform Act of 2009 has at its core the assignment of "coequal goals":

"Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.¹⁴¹

The Draft SED makes clear that the Board wishes to use its deeply flawed, segmented process for amending the 2006 Bay-Delta Plan to merely tweak inflows from major tributaries of the San Joaquin River and divert what additional fresh flows that reach the South Delta from these tributaries to state and federal export pumps.

The Board is effectively requiring reduced tributary diversions by senior water right holders so that the extra flows may reach the South Delta where they would be diverted at state and federal pumps. This also violates the Delta Reform Act of 2009 because the Appendix K flow objective threatens to impair the prior water rights of major service providers on the major San Joaquin River tributaries.¹⁴² The US Bureau of Reclamation's water rights on the Stanislaus River are junior to these rights. The Bureau's rights to the upper San Joaquin River, which the Board has unjustifiably excluded from its Plan Area, date only as early as 1915, and at that point is only a small portion of the Bureau's total water rights claims to the river.

Through its proposed San Joaquin River flow objectives, the Board is effectively aiding and abetting a water heist benefitting CVP and SWP contractors at the expense of senior water rights holders on the Stanislaus, Tuolumne, Merced and San Joaquin rivers. This outcome is contrary to the doctrine of prior appropriation and wholly inconsistent with the Delta Reform Act requirement to reduce reliance on the Delta as a source of water supply:

¹⁴⁰ California Water Code §85001(a).

¹⁴¹ California Water Code §85054.

¹⁴² California Water Code §85031 (a): "This division does not diminish, impair, or otherwise affect in any manner whatsoever any area of origin, watershed of origin, county of origin, or any other water rights protections, *including, but not limited to, rights to water appropriated prior to December 19, 1914, provided under the law.*" According to pre-1914 water rights records compiled by C-WIN and submitted to the State Water Resources Control Board, there are at least 16.125 million acre-feet of riparian and pre-1914 water rights claims (the vast majority of which are pre-1914 claims) made upon an annual average unimpaired flow in the San Joaquin River Basin of 6.18 million acre-feet. See Tim Strohane, *Testimony on Water Availability Analysis*, *op. cit.*

The policy of the State of California is to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.¹⁴³

The Delta Reform Act of 2009 reaffirms existing water rights doctrines and environmental laws that implement the public trust doctrine.¹⁴⁴

The State Water Resources Control Board shies away from its duty to use the water quality control planning process under sway of the public trust doctrine to revise its Bay-Delta Estuary basin plan to comply with the spirit and letter of the Delta Reform Act.

The State Water Resources Control Board fails to integrate the plan amendments with the “whole of an action” in formulating overall revisions of the Bay-Delta Plan.

The California Environmental Quality Act defines a “project” to mean “an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is” undertaken by any public agency, supported through monetary or contractual arrangements from one or more public agencies, or involves issuance to a person of a lease, permit, license, certificate or other such entitlement by one or more public agencies.¹⁴⁵ The CEQA Guidelines further define a “project” to mean the “whole of an action” that would cause direct or reasonably foreseeable indirect physical environmental changes.¹⁴⁶

CEQA case law has resulted in the definition of “project” receiving a broad interpretation in order to maximize environmental protection. Plans or programs are typically schemes in which multiple actions are coordinated or facilitated within a framework of policies that govern the sequence or series of those actions. In performing CEQA analysis of a plan or program, then, agencies should not “piecemeal” or “segment” a project by splitting it into two or more segments.¹⁴⁷ CEQA prohibits piece mealing because to segment a project can submerge the cumulative impact of individual environmental impacts. In *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376, 396 [253 Cal. Rptr. 426] the court declared that environmental reviews must “include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable *consequence of the initial project*; and (2) future expansion or action

¹⁴³ California Water Code § 85021.

¹⁴⁴ California Water Code §85031 and §85032. In addition, §85057.5(c) states, as part of the definition of “covered action”: “Nothing in the application of this section shall be interpreted to authorize the abrogation of any vested right whether created by statute or by common law.”

¹⁴⁵ California Environmental Quality Act, §21065.

¹⁴⁶ CEQA Guidelines, §15378.

¹⁴⁷ “This approach ensures ‘that environmental considerations not become submerged by chopping a large project into many little ones, each with a potential impact on the environment, which cumulatively may have disastrous consequences.’ *Burbank-Glendale-Pasadena Airport Authority v. Hensler* (2d Dist. 1991) 233 Cal. App. 3d 577, 592 [284 Cal Rptr. 498], cited in Michael Remy, Tina A. Thomas, James G. Moore, and Whitman F. Manley, *Guide To CEQA*, 11th ed., Point Arena, CA: Solano Press Books, 2007, p. 89. Hereafter cited as Remy, et al, *Guide to CEQA*.

will be significant in that it will likely change the scope or nature of the initial project or its environmental effects.”

CEQA case law has also evolved an “independent utility” test for assessing the piece meal issue. (*Del Mar Terrace Conservancy, Inc. v. City Council of the City of San Diego* (1992) 10 Cal. App. 4th 712 [12 Cal. Rptr. 2d 785]) Under this test, an environmental review may focus solely on one project that is arguably part of a larger scheme when that project has “independent utility” that justifies its separate processing and approval.

The State Water Board segmented review under CEQA of the San Joaquin River flow and South Delta salinity objectives from the rest of its activities updating the 2006 Bay Delta Water Quality Control Plan. Specifically, the Board refers in descriptions of its planning process to Phase I being the revision of the flow and salinity objectives, while Phase II is the “comprehensive review” of the 2006 Bay-Delta Plan. The Board has also issued two separate notices of preparation (NOPs) for each segment of its planning process. The first NOP, dated February 13, 2009, stated:

The State Water Resources Control Board (State Water Board or Board) will be the lead agency and will prepare environmental documentation for the potential update and changes to implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta) (Bay-Delta Plan). The Bay-Delta Plan identifies beneficial uses of the Bay-Delta, water quality objectives for the reasonable protection of those beneficial uses, and a program of implementation for achieving the water quality objectives. The proposed Project includes both: 1) the review and update of water quality objectives, including flow objectives, and the program of implementation in the Bay-Delta Plan; and 2) changes to water rights and water quality regulation consistent with the program of implementation. Accordingly, the environmental documentation will identify and evaluate the significant environmental impacts associated with potential changes to the Bay-Delta Plan and potential changes to water rights and other measures implementing the plan that may be needed to ensure the reasonable protection of beneficial uses in the Bay-Delta watershed. Through the environmental review process, the Board will identify possible ways to minimize the significant effects and describe a range of reasonable alternatives to the potential changes to the Bay-Delta Plan and its implementation through water rights and other measures.¹⁴⁸

The February 2009 notice from the Board stated the Project Title as “Update and Implementation of the Water Quality Control Plan for the San Francisco Bay / Sacramento-San Joaquin Delta Estuary.” Its stated project location is “the Bay-Delta watershed and its upstream tributaries and any reservoirs for which water may be used to meet the water quality objectives, including upstream reservoirs and San Luis Reservoir. The area of potential environmental effects encompasses most of the State,” including the Bay-Delta watershed, the Trinity River watershed from which water is imported to the Bay-Delta watershed, and areas receiving water exported from the Bay-Delta watershed.¹⁴⁹

¹⁴⁸ State Water Resources Control Board, *Notice of Preparation and of Scoping Meeting for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Southern Delta Salinity and San Joaquin River Flows*, 13 February 2009, p. 2. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/index.shtml.

¹⁴⁹ *Ibid.*, p. 3.

Two years later, the Board issued a second NOP, dated April 1, 2011.¹⁵⁰ This NOP was intended to first clarify the scope of the “Board’s current review of the southern Delta salinity and San Joaquin River flow objectives and the program of implementation for those objectives” through the Bay-Delta Plan and substitute environmental documentation under CEQA. Second, this NOP provided opportunity for public comment on the clarified scope. The clarified scope reiterated the Board’s focus on water quality objectives for the south Delta salinity and San Joaquin River flow. The Board also stated its intention to change its monitoring and special studies program in the 2006 Bay-Delta Plan. This second notice stated that the Board “is not currently considering any other changes to the Bay-Delta Plan or any specific changes to water rights and other requirements implementing the Bay-Delta Plan.”¹⁵¹ It stated the Project Title as “Update to the Water Quality Control Plan for the San Francisco Bay/Sacramento San Joaquin Delta Estuary: Water Quality Objectives for the Protection of Southern Delta Agricultural Beneficial Uses; San Joaquin River Flow Objectives for the Protection of Fish and Wildlife Beneficial Uses; and the Program of Implementation for Those Objectives.” Its project location map indicates that this project scope had two project areas: the South Delta, which appears to coincide with the service area of the South Delta Water Agency (and including the interior South Delta salinity compliance monitoring sites), and the major tributaries of the lower San Joaquin River: the Merced, Tuolumne, and Stanislaus rivers, together with the lower San Joaquin River itself.

In between these two notices, the State Legislature passed Water Code Section 85086 as part of the Delta Reform Act of 2009 (passed in November 2009). Section 85086(c)(1) required of the State Water Resources Control Board that:

For the purpose of informing planning decisions for the Delta Plan and the Bay Delta Conservation Plan [BDCP], the board shall, pursuant to its public trust obligations, develop new flow criteria for the Delta ecosystem necessary to protect public trust resources. In carrying out this section, the board shall review existing water quality objectives and use the best available scientific information. The flow criteria for the Delta ecosystem shall include the volume, quality, and timing of water necessary for the Delta ecosystem under different conditions. The flow criteria shall be developed in a public process by the board within nine months of the enactment of this division. The public process shall be in the form of an informational proceeding...and shall provide an opportunity for all interested persons to participate. The flow criteria shall not be considered predecisional with regard to any subsequent board consideration of a permit, including any permit in connection with a final BDCP.

The State Water Board completed this task and made several determinations identifying flow criteria that would protect public trust resources (about which more below), and approved these determinations on August 3, 2010.¹⁵² The report approved by the Board is significant for having determined several flow criteria for both the Sacramento and San Joaquin River as well as for Delta outflow. It identified a number of other criteria for which additional research would be needed to support. The report treated flow criteria for protecting public trust resources as an integrated set of actions that would be needed. The criteria represented in the best sense the “whole of an action” that the Board could take that would protect public trust resources. Moreover, the Delta Reform Act, quoted above, states that the purpose of these criteria is to “inform planning decisions for the Bay Delta Plan...”

¹⁵⁰ State Water Resources Control Board, *Revised Notice of Preparation and Notice of Additional Scoping Meeting*, 1 April 2011.

¹⁵¹ *Ibid.*, p. 3.

¹⁵² Delta Flow Criteria Report, *op. cit.*, note 36 above.

Completing its formal segmentation of the “Project” of updating the Bay-Delta Plan, the Board issued a third NOP for the Bay-Delta Plan’s Comprehensive Review in January 2012.¹⁵³ This notice states the Project Title simply as “Update of the Water Quality Control Plan for the San Francisco Bay / Sacramento-San Joaquin Delta Estuary: Comprehensive Review.” This notice clearly states that “The State Water Board is not soliciting information regarding these [the San Joaquin River flow and South Delta salinity objective] potential amendments and related SED at this time. Instead, this aspect of the proposed Project involves the comprehensive review of the other elements of the Bay-Delta Plan and potential changes to protect beneficial uses in the Bay-Delta.” The notice indicates that the Board includes among these “other elements” and “potential changes” those items recommended in the Board staff’s 2009 review of the 2006 Bay-Delta Plan, including Delta outflow objectives, export/inflow objectives, Delta Cross Channel closure objectives, Suisun Marsh objectives, reverse flow objectives for Old and Middle Rivers, potential new floodplain habitat flow objectives, changes to the monitoring and special studies program, and potential changes to the implementation program.¹⁵⁴ The Board also announced it would consider information submitted through the NOP’s scoping process, from the Bay Delta Conservation Plan (BDCP), and the 2010 Delta Flow Criteria Report. The NOP’s project location not only includes the Bay-Delta Estuary watershed, but Suisun Marsh, and the waters of San Francisco Bay, in addition to the other locational elements included in the original 2009 NOP.

What started in 2009 as an apparently unified project (the update and revision of the 2006 Bay-Delta Plan) has thus been artificially bifurcated by the Board by 2011 where San Joaquin River and South Delta issues and water quality objectives (what the Board calls “Phase I”) are considered separately from the rest of the elements included in the Bay Delta Plan scope (what the Board calls “Phase II comprehensive review”).

The Board offers no explanation as to *why* it has segmented consideration of South Delta salinity and San Joaquin River flow objectives from the rest of “comprehensive review” of the Bay-Delta Plan and its other water quality objectives, except that there were “compliance problems” discussed above in this letter. But not even this reason is given in the NOPS. This is true not only of the NOPS but the Board’s silence on this question carries over into the Draft SED for Phase I. The Board merely states that in its 2008 *Strategic Work Plan for Activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* it “committed to begin the process to review and potentially amend the SJR flow and southern Delta salinity objectives and associated program of implementation included in the 2006 Bay-Delta Plan.”¹⁵⁵ The Board continued this unexplained commitment to review the flow and salinity objectives in its 2009 staff report on the Periodic Review of the 2006 Bay-Delta Plan, characterizing them as “emerging issues,” a term that has no significance in water quality control law.

¹⁵³ State Water Resources Control Board, *Supplemental Notice of Preparation and Notice of Scoping Meeting for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Comprehensive Review*, issued 24 January 2012. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/environmental_review/docs/notice_baydeltaplancompreview.pdf.

¹⁵⁴ *Ibid.*, p. 3.

¹⁵⁵ Draft SED, p. 1-4.

This contrasts sharply with past Board practice updating Bay-Delta Estuary water quality control plans. Dating back to at least 1978, the Board has included review of Sacramento River and San Joaquin River water quality objectives in a unified way, as essential elements in the “whole of an action” undertaken as development of the Bay-Delta water quality control plan.¹⁵⁶ And as shown in the 2010 Delta Flow Criteria report, the Board has recently considered the two river basins together and simultaneously in the midst of the process it runs to update the Bay-Delta Plan.

The State Water Board’s decision to evaluate revision of the San Joaquin River flow and South Delta salinity objectives separately from the rest of its review and update of the 2006 Bay-Delta Water Quality Control Plan constitutes piece mealing of its project description, the revision of all the elements of the Bay-Delta Plan. Piece mealing, or segmenting of “the whole of an action” is prohibited under the California Environmental Quality Act. The Board itself fails to acknowledge this piece mealing problem, yet it has acknowledged that the administrative records for the two separate “phases”—which the Board operates in overlapping fashion since 2011—will be considered together for each Phase. Our organizations support this decision by the Board because it is logical. But the Board has scheduled a sequential timing of approval first for the flow and salinity objectives of Phase I, followed later by Board approval of the rest of the Bay-Delta Plan’s “comprehensive review.”

By the same logic, however, the State Water Board should be considering Phase I and Phase II as an integrated whole and for several reasons. First, the hydrodynamics of the Delta are not readily segmented, but connected and continuous, even if there are gradients of salinity or other biophysical factors typical of estuaries. Sacramento and San Joaquin River inflows meet in the central and south Delta river channels, and are intermingled with tidal flows as well which come in from the west via Carquinez Strait and Suisun Bay. Second, in terms of water quality, robust inflows from the San Joaquin River contribute to freshening of waters reaching the central Delta as well as Old River channels from which state and federal project pumps near Tracy draw water for exports. Third, ecologically, Sacramento and San Joaquin River inflows together help govern the timing and magnitude of salmon recruitment from the ocean and salmon smolt outmigration, as well as the degree to which open water conditions provide critical habitat for both salmon and resident species like steelhead, longfin smelt, Delta smelt, and striped bass. In terms of hydraulics, water quality, and ecology, these rivers must be considered together in evaluating environmental effects on the Bay-Delta Estuary, as they always have.

The Draft SED finds that the revised San Joaquin River flow and South Delta salinity objectives will not affect state and federal exports and will have no change to Delta outflows or the size of X2. These findings are made without reference to water quality objectives for

¹⁵⁶ See State Water Resources Control Board, *Water Quality Control Plan, Sacramento-San Joaquin Delta and Suisun Marsh*, August 1978, Table VI-1, p. VI-29; *Water Quality Control Plan for Salinity, San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, 91-15WR, May 1991, Table 1-1; *Water Quality Control Plan for Salinity, San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, 95-1WR, May 1995, Table 1; and *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, December 13, 2006, Tables 1 through 3. In each of these tables it is evident that the Board considers and treats through regulation the flow and salinity objectives from both the Sacramento and San Joaquin Rivers simultaneously and together and not in a segmented fashion.

Sacramento River inflows, changes to export/inflow ratios, Delta Cross Channel closure objectives, Suisun Marsh objectives, Old and Middle River reverse flow objectives, or other changes to water quality objectives that are reasonably foreseeable from Phase II proceedings to date, and the 2010 Delta flow criteria proceedings. It is reasonably foreseeable that changes to any or all of these objectives could affect or undermine the conclusory results of this Draft SED. And the Draft SED fails to acknowledge this reality by excluding the rest of these reasonably foreseeable water quality elements from its analysis. The environmental effects of changes to these other elements of the comprehensive review of the Bay-Delta Plan (i.e., Phase II) altered and therefore undermine the anticipated water quality, aquatic and terrestrial resource effects of the Draft SED now under review.

Finally, there is no “independent utility” claim that can be reasonably sustained by the State Water Board on behalf of the proposed Phase I water quality objectives because it already acknowledges in its NOPs that: 1) the proposed Project in 2009 is declared to be the “update and implementation of the Water Quality Control Plan” for the Bay-Delta Estuary; 2) there remains connections between Phase I and Phase II that are inextricable because the proposed draft language of the flow and salinity objectives in Phase I are intended by the State Water Board for eventual inclusion in the updated Bay-Delta Plan; and 3) by issuing the NOP for the comprehensive review, the State Water Board intends to reintegrate the segmented pieces, though it is unclear how or when.

The State Water Resources Control Board fails to follow Clean Water Act requirements to develop water quality objectives that protect designated beneficial uses.

Existing and Proposed Flow Objectives

The State Water Resources Control Board re-adopted water quality objectives in the 2006 Bay-Delta Plan that it claims provide reasonable protection for fish and wildlife beneficial uses. The Board fails to identify which of these beneficial uses are the “most sensitive” whose protection would determine what water quality objective would be chosen. The Board held to this finding despite the fact that by 2005, the same water quality objectives contained in D-1641 had failed to protect a spectrum of pelagic fish and aquatic species in the Delta Estuary whose abundances had begun declining rapidly in 2000, the very year that those same water quality objectives were implemented through Water Rights Decision 1641 and the Vernalis Adaptive Management Plan. The Board stated in 2006 that:

Information available in 1995 indicated that, unlike water quality objectives for parameters such as dissolved oxygen, temperature, and toxic chemicals, which have threshold levels beyond which adverse impacts to the beneficial uses occur, there were no defined threshold conditions that could be used to set objectives for flows and project operations. Instead, available information indicated that a continuum of protection exists. Based on that information, higher flows and lower exports provided greater protection for the bulk of estuarine resources up to the limit of unimpaired conditions. *Therefore, these objectives were set based on a subjective determination of the reasonable needs of all the consumptive and nonconsumptive demands on the waters of the Estuary.* After completion of the POD [Pelagic Organism Decline] studies, the State

Board will review the study results and may consider amending this Plan to improve water quality protections for fish and wildlife in the Estuary.¹⁵⁷

The Board does not elaborate on the nature of the “subjective determination of the reasonable needs of all the consumptive and nonconsumptive demands on the waters of the Estuary.” This is precisely where it should have provided the analysis Justice Racanelli called for in the 1986 Appellate Court decision. Readers are left to presume, however, that in 2006, as in 1995, the Board avoided doing a water availability analysis.

The Board also does not tease out which of the 2006 Table 3 water quality objectives are intended to protect which specific beneficial uses. Some, like Suisun Marsh salinity objectives, are far more related to Sacramento River inflow than San Joaquin River inflow. Others, however, like the dissolved oxygen, salmon protection, Delta outflow, San Joaquin River salinity (between Jersey Point and Prisoners Point), the San Joaquin River flow at Vernalis, and export limits receive important contributions from actual San Joaquin River flows.

Other objectives besides San Joaquin River flow objectives are affected by the latter. Existing San Joaquin River flow objectives are tied to Delta outflow objectives through footnotes that link both to the sizing of fresher open water habitat critical to estuarine beneficial uses (EST) and rare, threatened or endangered species (RARE). The very construction of the Delta outflow and San Joaquin River flow objectives are inextricable because they regulate the hydraulic connectivity that is essential to protecting both estuarine habitat and species and RARE beneficial uses, which include listed species like longfin smelt, Delta smelt, and Chinook salmon.

Delta outflow is an example of hydraulic connection between Table 3 objectives, part salinity and part flow objective. During the month of January, the flow objective of 4500 cfs for Delta outflow may be increased to 6000 cfs if the Eight River Index for December is greater than 800, 000 acre-feet.¹⁵⁸ From February through June, the minimum daily outflow is 7,100 cfs (calculated as a 3-day average). If either the daily average or 14-day running average electrical conductivity (EC) at the confluence of the Sacramento and San Joaquin rivers is less than or equal to 2.64 mmhos/cm, the requirement is also met.

Other thresholds apply depending on the status of the Eight River Index (an aggregation of all major upstream river inflows to the Delta culminating in the Sacramento or San Joaquin river systems) and salinity in the confluence of the two main rivers.¹⁵⁹ Moreover, the current Delta outflow is affected explicitly by the San Joaquin River flow objective requiring spring season pulse flows out of the San Joaquin River to provide spring outmigration “flushing flows” for salmon smolts as well as October attraction pulse flows.¹⁶⁰

¹⁵⁷ “The water quality objectives in Table 3 provide reasonable protection of fish and wildlife beneficial uses in the Bay-Delta Estuary including EST, COLD, WARM, MIGR, SPWN, WILD, and RARE. Protection of these fish and wildlife beneficial uses also provides protection for the beneficial uses of SHELL, COMM, and NAV.” State Water Resources Control Board, *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, December 13, 2006, p. 11. Emphasis added.

¹⁵⁸ *Ibid.*, Table 3, footnote 10, p. 15, 16.

¹⁵⁹ *Ibid.*, Table 3, footnote 11, p. 15, 16.

¹⁶⁰ *Ibid.*, Table 3, footnotes 15 and 16, p. 15, 16.

Flow objectives on the San Joaquin for the rest of the February through June period are increased when X2 is required to be at or west of Chipps Island for the Delta outflow objective between February and June.¹⁶¹ This alone is evidence that the proposed San Joaquin River flow must be reintegrated into the comprehensive review of the Bay-Delta Plan (what is now called Phase II). And it is also evidence of why Appendix K plan amendments should actually be treated in the Draft SED as part of the whole Bay-Delta Plan. This river's hydraulic connectivity through the Delta is integral to the current regulatory scheme the Board employs in broadly protecting beneficial uses with water quality objectives in the Bay-Delta Estuary. Again, the Board fails to justify segmenting proposed new flow objectives from the actions called for in the rest of Phase II of this process.

In actuality, the Board is formulating the plan amendment to continue the status quo of poor ecological conditions in the south Delta. The Board apparently wishes only to adjust *how* it regulates San Joaquin River flow at Vernalis. The Board seeks to maintain existing conditions that fail to protect the pelagic and migratory beneficial uses of fish and wildlife, rather than improve or increase the protection for these beneficial uses. Figure 3 is from Appendix C to the Draft SED.¹⁶² For observed and unimpaired flows at Vernalis, there is great similarity between the record of observed flow between 1984 and 2009 (represented by reddish-brown triangles) and the record of 40 percent of unimpaired flow for the 1923-2009 period (represented by short dark blue-dashed lines). Observed flows for the 1984-2009 period are, in about 62 percent of years, somewhat lower than the curve showing 40 percent of unimpaired flow and roughly approximate the proposed flow objective of 35 percent of unimpaired flow. This exceedance curve thus illustrates that for about 60 percent of the time, the proposed San Joaquin River flow objective at 35 percent of unimpaired flow will be approximately the same as that of existing flow conditions for the San Joaquin River at Vernalis. (In the 38 percent or so of historic wetter years in the observed flow record at Vernalis, the effects of climate change may result in fewer of these, since the very "stationarity" of relying on historic flow records to indicate future flow outcomes are called into question under changing climatic conditions.)

The Board *has* done much of the analysis needed to set flow objectives that will protect fish beneficial uses that are the most sensitive: the rare, endangered and threatened species of longfin smelt, Delta smelt, and Chinook salmon. But none of it appears in the Draft SED or in Appendix K, the plan amendment.

Yet, the proposed water quality objective to govern San Joaquin River flow for fish and wildlife beneficial uses calls only for a narrative "value" from February through June in all water years.¹⁶³ It proposes to "maintain flow conditions from the San Joaquin River Watershed to the Delta at Vernalis...sufficient to support and maintain the natural production of viable native San Joaquin River watershed fish populations." These vague flow conditions "that contribute toward maintaining viable native migratory San Joaquin River fish populations" include flows that mimic natural hydrographs to which fish species are adapted, and the relative magnitude, duration, timing and spatial extent of flows "as they would naturally occur." Indicators of viability would include abundance, spatial extent or distribution, genetic and life history diversity, migratory pathways, and productivity.

¹⁶¹ *Ibid.*, Table 3, footnote 14, p. 15, 16.

¹⁶² Draft SED, p. 2-13.

¹⁶³ See Appendix K, Draft SED, page 1 of 11.

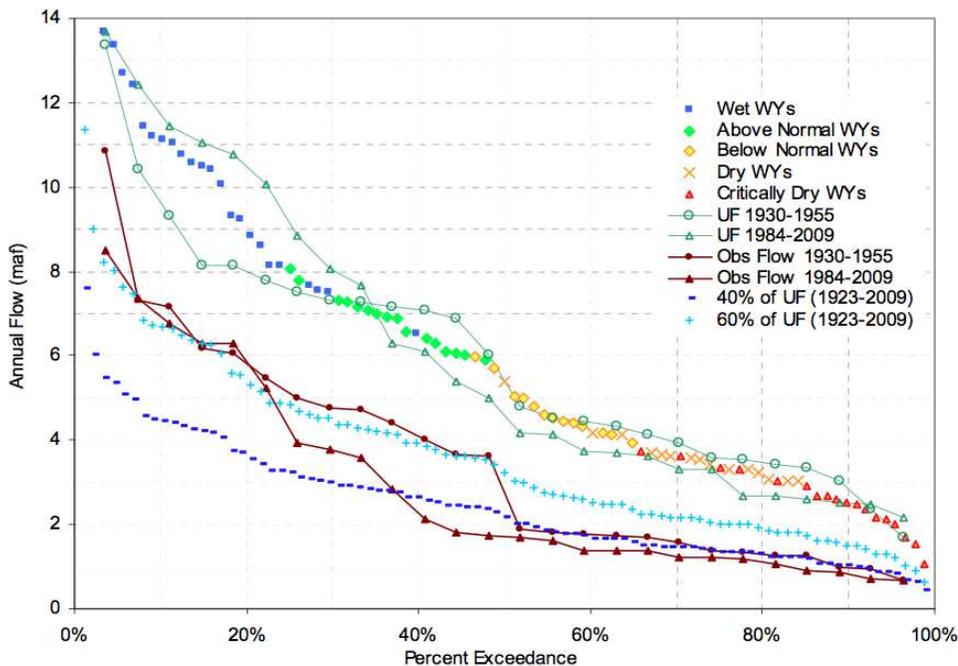


Figure 2.5. Exceedance Curves of Observed and Unimpaired Flow Hydrology in the San Joaquin River at Vernalis

These are important flow conditions to maintain in the San Joaquin River in the abstract, but they come at the expense, it appears, of the State Board eliminating the comparatively concrete goal of doubling salmon populations established in state Fish and Game Code and the federal Central Valley Project Improvement Act.¹⁶⁴ What is the State Water Board’s rationale for extending and diversifying the measuring sticks for San Joaquin River inflow objective at Vernalis, while abandoning the salmon doubling goal that remains state and federal law and policy in California?¹⁶⁵ How does the State Board justify its proposed San Joaquin River flow objective in relation to EPA Clean Water Act regulations that call for the water quality objective to protect the most sensitive beneficial uses in the Delta Estuary? Has the Board done the requisite continuing planning process to analyze and make the necessary findings that its proposed San Joaquin River flow objective would meet this legal standard (i.e., 35 percent of unimpaired flow), that is “sufficient to support and maintain the natural production of viable native San Joaquin River watershed fish populations migrating through the Delta”? Saying that the objective is *intended* to protect ALL fish in the San Joaquin River system to Vernalis still fails to identify the objective that would protect the most sensitive fish beneficial use in the system and regulate to that objective as called for by EPA Clean Water Act regulations. The Board has failed to analyze its proposed flow

¹⁶⁴ The US Fish and Wildlife Service has developed numeric goals as required by the Central Valley Project Improvement Act, passed by Congress in 1992. Anadromous fish data accessible online at <http://www.fws.gov/stockton/afrp/>.

¹⁶⁵ Central Valley Project Improvement Act of 1992, Section 3406(b)(1), accessible online at <http://www.fws.gov/stockton/afrp/title34.cfm>; and California Fish and Game Code Section 6902(a).

objective to that standard, or has produced competing analyses and has not disclosed why one may be more correct than the other.¹⁶⁶

RARE and MIGR—Salmon Beneficial Uses

The State Water Resources Control Board did in fact study the question “what flows do fish need?” as directed by the State Legislature under the Delta Reform Act of 2009. At that time, the Board determined, after considering the science, life histories, and population trends of both migratory and pelagic (resident) fish species in the Bay-Delta estuary, that these fish could recover their populations if flow objectives were set at 60 percent of unimpaired flow in the San Joaquin River Basin.¹⁶⁷

Fortunately, the Board provided scientifically sound analysis of this matter in its 2010 Delta Flow Criteria Report. In that report, the Board determined that public trust resource protection on the San Joaquin River would be attained through application of three criteria:

- At Vernalis: 60 percent of 14-day average unimpaired flow
- At Vernalis: 10-day minimum pulse flow of 3,600 cubic feet per second in late October (e.g., October 15 to 26)
- At Vernalis: 2006 Bay-Delta Plan October flows.

The basis for these determinations rested on the Board’s findings that they would, first, increase juvenile Chinook salmon outmigration survival and abundance and provide conditions that will generally produce positive population growth in most years and achieve the doubling goal in more than half of years; second, provide minimum adult Chinook salmon attraction flows to decrease straying, increase dissolved oxygen concentrations in the San Joaquin River main stem through the Stockton Deep Water Ship Channel, reduce temperatures, and improve olfactory homing fidelity; and third, provide adult Chinook salmon attraction flows.¹⁶⁸ *These findings, while made with direct application to San Joaquin River flows, depend implicitly yet essentially on San Joaquin River flows continuing throughout the Delta to become part of Delta outflow.* The Board clearly indicates that salmon are the most sensitive species for which it developed public trust-protective flow criteria in 2010. All three justifications for its San Joaquin River inflow criteria are rooted in the sensitivities of salmon populations to changes in and timing of flow through the Bay-Delta Estuary. The Board qualifies its 2010 flow criteria for the San Joaquin River by stating that “these flow criteria do not consider any balancing of public trust resource protection with public interest needs for water.”¹⁶⁹

The Board has concluded it wishes to use this proposed objective to “maintain flow conditions from the San Joaquin River watershed to the Delta at Vernalis.”¹⁷⁰ The Board says only of its proposed narrative flow objective: “Thus, the State has determined that 35 percent of unimpaired flow is required from February through June from each of the Merced, Tuolumne, and Stanislaus Rivers on a 14-day running average, unless otherwise

¹⁶⁶ That is, one analysis is contained the Draft SED in Chapter 20 and Appendix C, while the other, more thorough and complete analysis is provided in the 2010 Delta Flow Criteria Report.

¹⁶⁷ 2010 Delta Flow Criteria Report.

¹⁶⁸ 2010 Delta Flow Criteria Report, p. 133, Table 22.

¹⁶⁹ *Ibid.*

¹⁷⁰ Appendix K, *op. cit.*

approved by the State Water Board through the adaptive management framework described below.” It is silent about the fate of fish populations beyond Vernalis that migrate to and through the Delta as part of their life histories that involve the San Joaquin River. The Board fails to provide an analysis to justify its determination that indicates *how* and why it chose to reduce its flow determination for the San Joaquin at Vernalis from 60 percent of unimpaired flow in 2010 to 35 percent now. This 35 percent of unimpaired flow objective is not even stated in the amended Table 3 objective in Appendix K of the Draft SED. The Board fails even to state *whether or that it used a method to balance the public trust resources* in whose name the Board made this determination, let alone explain what that method was.

RARE and EST—Longfin smelt and Delta smelt

Not only has the Board failed to complete its task of properly analyzing whether its proposed flow objectives will improve the chances of migratory salmon in the San Joaquin River basin, but it has failed to undertake and complete the same task with respect to estuarine habitat and listed pelagic resident species like longfin smelt and Delta smelt.

In effect, the State Water Board has treated the San Joaquin River flow objective revision as simply an isolated river reach that by logical deduction from the Draft SED connects hydrodynamically only to the South Delta export pumps. As noted above, the Board’s current regulatory scheme assumes some level of hydraulic connectivity that goes unused in its proposed attempt to justify the new San Joaquin River flow objective. The Board’s analysis for the proposed San Joaquin River flow objective should have been done in the context of its relationship to other estuary-related water quality objectives like Delta outflow, export limits and the like—in other words, in the context of a full comprehensive review of all water quality objectives of the Bay-Delta water quality control plan.

Oddly, the Board *did* do an analysis for listed pelagic resident fish species in its 2010 Delta Flow Criteria Report. It has ignored its recent work for this flow objective analysis, but it would apply logically to flow objectives to protect the EST, MIGR, SPAWN, and RARE beneficial uses of the Bay-Delta. Table 2 of the Delta Flow Criteria Report summarizes “species of importance” (or “most sensitive fish beneficial uses”) from analyses prepared by the California Department of Fish and Game, the relevant life stage, the “mechanism” (a mix of both beneficial uses and water quality objectives), and the “time when flows are most important.” Relevant to revising the San Joaquin River flow objectives, Table 2 notes that:

2. San Joaquin River Chinook salmon smolts out migrate between March and June
3. San Joaquin River Chinook salmon eggs and fry are vulnerable to temperature, dissolved oxygen conditions, and predation in the vicinity of the temporary barriers and other state and federal water facilities between October and March.
4. Longfin smelt eggs need fresh to brackish water habitat between December and April.
5. Longfin smelt larvae need fresh to brackish water habitat between December and May.
6. Delta smelt larvae and pre-adults need flows for transport and habitat needs between March and November.¹⁷¹

Bearing in mind that Sacramento and San Joaquin River inflows are key components of Delta outflow, the State Water Resources Control Board “determined” for Delta outflow that

¹⁷¹ 2010 Final Delta Flow Criteria Report, Table 2, p. 45-46.

...as a Category A criterion, that 75% of 14-day average unimpaired flow is needed during the January through June time period to promote increased abundance and improved productivity for longfin smelt and other desirable estuarine species. It is important to note that this criterion is not a precise number; rather it reflects the general timing and magnitude of flows needed to protect public trust resources in the Delta ecosystem. However, this criterion could serve as the basis from which future analysis and adaptive management could proceed.¹⁷²

“Other desirable estuarine species” includes Delta smelt which was included in the Board’s review of “important species.” The Board defines a “Category A criterion” as one that is “supported by more robust scientific information.” The emphasized passage indicates that the Board has in fact identified an estuarine flow objective that would meet federal Clean Water Act legal standards for establishing an objective that is consistent with the Act’s purposes. It qualifies as a flow objective for Delta outflow; by definition of the Interagency Ecological Program’s “Dayflow” database of Delta flow indicators, it must have a San Joaquin River inflow objective set that will help meet the Delta outflow objective.¹⁷³ While the State Water Board has not analyzed whether its 2010 San Joaquin River inflow criterion of 60 percent of unimpaired flow would be a sufficient objective to meet the 75 percent of unimpaired flow objective for Delta outflow, it is certainly true that 60 percent of unimpaired flow is greater than 35 percent of unimpaired flow, and it would therefore have a better likelihood of not only facilitating the increase of native estuarine species populations (i.e., estuarine beneficial uses) but also complying with federal Clean Water Act regulations governing protection of beneficial uses through setting and enforcing water quality objectives.

The State Water Resources Control Board fails to formulate its proposed plan amendments and their alternatives to attain compliance with both state and federal antidegradation policies.

Why Revise the South Delta Salinity Objectives?

Because the Board wishes the problem of salty San Joaquin River flows would go away. It proposes to change Table 2 to show 1.0 EC applied as a salinity objective year-round for the southern Delta, while in the proposed Program of Implementation, the Board anticipates “maintaining current protective salinity levels” in the southern Delta by continuing to condition the Bureau’s water rights permits at 0.7 EC. It has not explained the reason for this. So, the Bureau further complicates a possible antidegradation analysis and judicial review by implementing a more restrictive water quality objective against only the Bureau in its water rights permits.¹⁷⁴

¹⁷² *Ibid.*, p. 99. Emphasis added.

¹⁷³ According to Dayflow program documentation, Delta outflow (QOUT) is the sum of total Delta inflow, Delta precipitation runoff estimates, Delta gross channel depletions (i.e., consumptive use), Delta exports, and total flooded island and island storage diversions. Total Delta inflow consists of Sacramento River inflow plus Eastern Delta inflow and Yolo Bypass inflow. Eastern Delta inflow is the sum of inflows of the San Joaquin, Cosumnes, Mokelumne, and miscellaneous small creek flows. Accessible online at <http://www.water.ca.gov/dayflow/documentation/>.

¹⁷⁴ Draft SED, Appendix K, p. 2 of 5.

This two-way approach to southern Delta salinity objectives in Appendix K is illegal. The Board was already informed by Justice Robie in 2006 that the water quality objectives adopted in basin plans, like the Bay-Delta Plan, must be implemented.¹⁷⁵ We recommend that the Board revise the proposed southern Delta salinity objective to be consistent with the current objectives in the 2006 Plan. Apart from its legality it can help the Board avoid preparing an antidegradation analysis it cannot conceivably justify.

In 2005, the Department and the Bureau informed the State Water Resources Control Board they would not be able to comply with the salinity objectives in the South Delta. The Board in 2006 issued a Cease and Desist Order against the Bureau and the Department for violating the objectives almost as soon as they became responsible for meeting them. The Board adopted a Cease and Desist Order in 2006, giving the Department and the Bureau until July 1, 2009, to comply or face additional enforcement actions.

The State Water Resources Control Board allows the Bureau and the Department to divide the responsibilities of complying with these salinity objectives. The Department has three main facilities in or directly affecting the San Joaquin River Basin: the San Luis Reservoir, the California Aqueduct's northern reach, and the Banks Pumping Plant, which exports Delta water through the Basin via the Aqueduct's northern reach (ultimately to some water contractors along the way and to the San Luis Reservoir for later export out of the Basin). Consequently, the Department's activities directly concerning the San Joaquin River occur mainly in the Delta where it operates Banks Pumping Plant. In the Delta itself, the Department attempts to manage the hydrodynamics of Delta flow and salinity conditions, some of which are caused by Banks Pumping Plant.

Water levels in neighboring channels that are used by Delta farmers to divert water to irrigate their fields. (If water levels are too low, their pumps may not connect and they cannot divert.) Many of these farmers are water right holders whose rights are either paramount (that is, riparian) or senior (that is have earlier appropriation dates) to those of the Department for Banks Pumping Plant and must not be harmed.

Finally, the Department has obligations to minimize impacts to fish and wildlife from its diversions and their effects on neighboring channels.

When the salinity objective violations at interior South Delta monitoring stations were reported to the State Water Resources Control Board, the Department of Water Resources and the Bureau of Reclamation were completing planning and environmental documents for a "South Delta Improvement Program" which would, among other things, install permanent operable tidal barriers intended to influence hydrodynamics and interior South Delta salinity conditions. Through operation of the barriers, it was hoped that salinity, water level, and fish passage issues could be addressed.

¹⁷⁵ *State Water Resources Control Board Cases*, 136 Cal.App.4th 674 (2006). See section on the Vernalis Pulse Flow Objective. Justice Robie writes that Water Code Section 13247 provides that "state offices, departments, and boards, in carrying out activities which may affect water quality, *shall* comply with water quality control plans approved or adopted by the state board unless otherwise directed or authorized by statute..." Emphasis in original.

The Board issued draft Cease and Desist Order, held evidentiary hearings led by Board prosecution team, and adopted the Order in February 2006. The Order required, among other things, that:

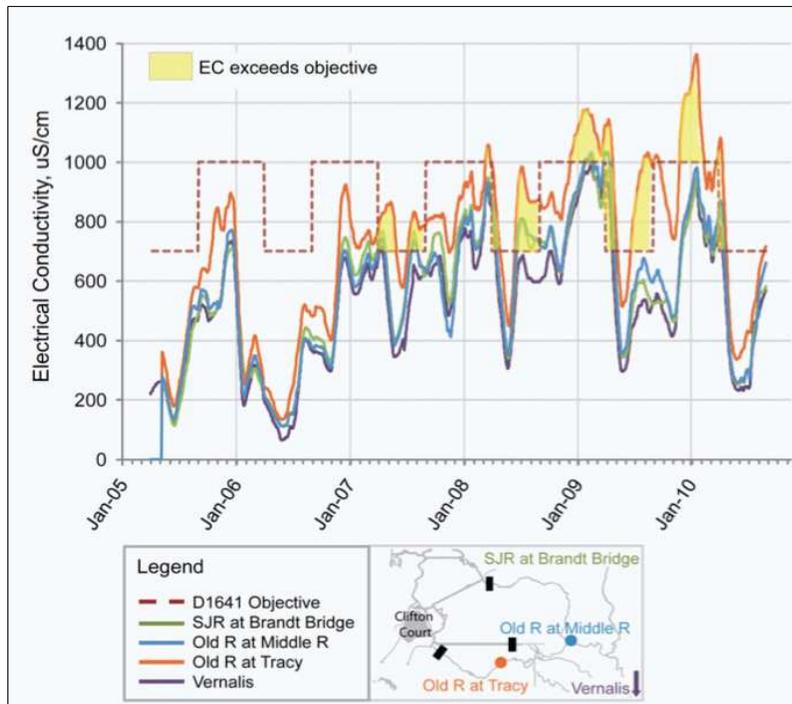
- The Department and the Bureau “obviate the threat of non-compliance with the 0.7 EC [electrical conductivity] interior southern Delta salinity objectives by July 1, 2009.
- The two agencies prepare within 60 days of issuing the Order a “detailed plan and schedule” for the Board that would obviate the threat of salinity violations by providing for “equivalent measures” that “will provide salinity control at the three compliance stations equivalent to the salinity control that would be achieved by permanent barriers.”
- The two agencies were also to prepare “an operations plan that will reasonably protect southern Delta agriculture” for Board approval no later than January 1, 2009.
- Corrective actions may include “but are not limited to additional releases from upstream Central Valley Project facilities or south of the Delta State Water Project or Central Valley Project facilities, modification in the timing of releases from Project facilities, reduction in exports, recirculation of water through the San Joaquin River, purchases or exchanges of water under transfers from other entities, modified operation of temporary barriers, reductions in highly saline drainage from upstream sources, or alternative supplies to Delta farmers (including overland supplies).”¹⁷⁶

Even the State Board’s Cease and Desist Order prosecution team could not help noticing the absurd delays by the Department and the Bureau in achieving compliance with south Delta salinity objectives:

Considering that the objectives were first adopted in the water quality control plan in 1978 [in D-1485], and there is evidence that salinity is a factor in limiting crop yields for southern Delta agriculture, the State Water Board will not extend the date for removing the threat of non-compliance beyond July 1, 2009.¹⁷⁷

¹⁷⁶ State Water Resources Control Board, *Order WR 2006-0006: In the Matter of Draft Cease and Desist Order Nos. 262.31-16 and 262.31-17 Against the Department of Water Resources and the United States Bureau of Reclamation Under their Water Right Permits and License*, adopted February 15, 2006, pp. 29, 30. Accessible online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2006/wro2006_0006.pdf.

¹⁷⁷ *Ibid.*, p. 27.



As with the water quality control plans before it, this Cease and Desist Order recognizes that the rationale for the South Delta salinity objectives is rooted in the protection of South Delta agricultural beneficial uses, not those of the western and southern San Joaquin Valley.

Despite the array of “corrective actions” the Board suggested in the Cease and Desist Order to the Department and the Bureau, the two water agencies fixed on the permanent operable barriers of the South Delta Improvement Program serve as their solution to their salinity control problems near the export pumps. The Department informed the State Board in February 2007 that its consultation process with US Fish and Wildlife Service and National Marine Fisheries Service was delayed due to the fishery agencies’ concerns about the interrelatedness of the South Delta Improvement Program and the long-term operation of the CVP and SWP. Ultimately, neither the Bureau nor the Department would lift a finger for any other “corrective action” available to them to try to address south Delta salinity objective compliance. Figure 4 records the extent of violations the two water agencies allowed to occur during dry years.

In the 2006 Bay-Delta Water Quality Control Plan, the Board announced that among its “Measures Requiring a Combination of State Water Board Authorities and Actions by Other Agencies” it would conduct a workshop in January 2007

to commence proceedings to receive information and conduct detailed discussions regarding the southern Delta salinity objectives, the causes of salinity in the southern Delta, measures to implement salinity objectives for southern Delta agriculture, and other factors.¹⁷⁸

¹⁷⁸ 2006 Bay-Delta Plan, p. 29.

The Board did not offer to explain in the Bay-Delta Plan that year the necessity to “commence proceedings” on the South Delta salinity objectives through the mechanism of the 2007 workshop. In the same Plan, the Board wrote, “The water quality objectives in Table 2 [those for agricultural beneficial uses] provide reasonable protection of the beneficial use AGR, from the effects of salinity intrusion and agricultural drainage in the western, interior, and southern Delta,” so there appears no obvious reason from that Plan itself of the need to revise the South Delta salinity objective.

At the January 2007 workshop, representatives of both the South Delta Water Agency and the Central Delta Water Agency participating in the Board’s public workshops in 2007 that addressed south Delta salinity objectives submitted letters and expert testimony indicating that revisions to these objectives were neither necessary nor desired by their agencies or their constituents. In fact, these agencies state they were deeply concerned that the State Board would relax the south Delta salinity objectives.¹⁷⁹ The logical explanation, however, for the Board’s January 2007 workshop was to give the Department and the Bureau an opportunity to undermine the existing South Delta salinity objectives.

The following year, the Board completed a Strategic Work Plan for the Bay-Delta Estuary. Through it, the Board announced its intent to undertake an “activity” “to ensure that the South Delta salinity objective is “protective of the specified beneficial uses and that the objectives are appropriately implemented.” The Board justified the activity this way:

Impetus: The southern Delta salinity and San Joaquin River flow objectives and the implementation of those objectives *may not be appropriate*. Revised objectives and implementation may benefit beneficial uses including: San Joaquin Basin salmonids, pelagic organisms and other species; and may improve San Joaquin River water quality (salinity, DO, and other constituents). In addition, the State Water Board committed to review these issues in the 2006 Bay-Delta Plan. Further, *both issues constitute an ongoing compliance problem*. Lastly, the State Water Board must address the expiration of the VAMP scheduled for the end of 2011 and other issues associated with the VAMP.¹⁸⁰

“Appropriateness” of a water quality objective is not the legal standard by which water quality objectives are to be evaluated. Given that the Board announces with this Draft SED its intent to relax South Delta salinity objectives, it is difficult to see how this “activity” would result in improvement to San Joaquin River water quality, let alone improvements in the Delta. By “compliance problem” the Board appears to mean that it dislikes having to

¹⁷⁹ Letter of Dante Nomellini, Central Delta Water Agency, to Gita Kapahi, Special Projects Unit, State Water Resources Control Board, January 5, 2007. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/sds_srjf/sds/docs/cdwa010507_ah.pdf; Testimony of Alex Hildebrand, South Delta Water Agency, to the State Water Resources Control Board, January 16, 2007, accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/sds_srjf/sds/docs/sdwa010507_ah.pdf; and other submittals from Central and South Delta water agencies accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/sds_srjf/sds/index.shtml.

¹⁸⁰ State Water Resources Control Board, *Strategic Workplan for Activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, July 2008, p. 62. Emphasis added. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/strategic_plan/docs/baydelta_workplan_final.pdf.

enforce salinity objectives on the Bureau and the Department for their project operations in the South Delta, perhaps in part because the violations are nearly continuous at times. Under ordinary circumstances, it is the Bureau and the Department that have compliance problems. The Board has failed to explain why, as the enforcer of water quality objectives, it believes itself to have the “compliance problem.” Would the Board please explain this rationale?

By June 2009, less than 30 days before deadlines in the 2006 Cease and Desist Order were to lapse, the Department on behalf of the Bureau announced to the State Water Board that the agencies were about to violate interior south Delta salinity objectives once again, and requested that the Board hold hearings to modify the Order. The Board hastily convened an evidentiary hearing to modify the Cease and Desist Order. (EWC members the California Water Impact Network and the California Sportfishing Protection Alliance participated as protestants in the Cease and Desist Order proceeding in the summer of 2009.) The Board moved to delay enforcement of the Order by five more years. As part of compliance with a modified Cease and Desist Order that the Board issued in January 2010, the State Board required the Department and the Bureau to “study the feasibility of controlling salinity by implementing measures other than the temporary barriers project, recirculation of water through the San Joaquin River, or construction of permanent operable gates.”¹⁸¹ Low-head pumping at the temporary barriers was to be studied by the Department, and dilution flows from the San Joaquin River Basin was to be studied by the Bureau.

The Department of Water Resources’ South Delta Low Head Pumping Study. The Department agreed to study “low head pumping” as a method for controlling salinity at key compliance monitoring stations in the South Delta (shown in the inset to Figure 4). The Bureau evaluated dilution flow needs and the potential for achieving interior South Delta salinity objectives. The goal for the study was to determine what flows and at which locations low head pumping would significantly reduce or eliminate the salinity objective violations by the Department and the Bureau. Water years 2007, 2008 and 2009 were dry or critically dry years, and so as time went on, fresh water flows with low salinity became harder to come by, and exceedances piled up. These “low head pumps” would in theory shunt high quality Sacramento River water upstream (eastward) around the temporary rock barriers with culverts through them that the Department installs each year in key interior Delta channels. It was hoped that low head pumping might improve the Department and the Bureau’s compliance record on salinity objectives with little cost of high quality fresh water from upstream sources.

The Department’s study results indicate that low head pumping could increase the dilution effects on salinity in south Delta channels by shifting higher quality Sacramento River water upstream of the barriers where the compliance points are. However, their effects appear to

¹⁸¹ State Water Resources Control Board. 2010a. *Order WR 2010-0002: In the Matter of Cease and Desist Order WR 2006-0006 against the Department of Water Resources and the United States Bureau of Reclamation in Connection with Water Right Permits and License for the State Water Project and Central Valley Project, Order Modifying Order WR 2006-0006, Condition 7.* Accessible online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2010/wro2_010_0002.pdf.

be small at best, even at pumping rates of from 500 to 1,000 cubic feet per second.¹⁸² *The most important factor in South Delta salinity, the Department acknowledged, was the sources of water reaching each south Delta compliance monitoring site.* From modeling results, the Department found that 83 to 93 percent of the salty water reaching the interior South Delta compliance monitoring sites originated from the San Joaquin River. While low head pumping at one location could move large proportions of Sacramento River water upstream of the barriers and improve water quality there, salinity concentrations at other (non-pumped) compliance points saw little or no improvement; the salty flows of the San Joaquin River continued to predominate in the South Delta. Even joint low head pumping at both Old and Middle River sites would not result in significant reductions in the likelihood of continued salinity violations by the Bureau and the Department. After trying almost 60 different modeling scenarios, the Department concluded that, while low head pumping can reduce salinities on the upstream side of the Delta's temporary barriers near salinity compliance points, this approach's ability to reduce salinity objective violations was minimal, and posed high costs for fish screens. Cost estimates also had very high ranges of uncertainty in the absence of more definite engineering designs.¹⁸³

The Bureau's Dilution Flow Study. The Bureau of Reclamation's 2011 study for the State Water Resources Control Board addresses the ability of such upstream dilution flows to attain salinity control and compliance at the interior South Delta monitoring sites. Table 1 above that fresh water flows from the major east side tributaries to the San Joaquin River exhibit sharp declines in flow from unimpaired to observed conditions, ranging from 53 percent on the Stanislaus River to 90 percent on the Upper San Joaquin River.¹⁸⁴ Higher unimpaired fresh water flows would contribute larger volumes of low salinity water that would help to dilute salinity concentrations from west side and Valley Floor drainage sources.

The Bureau acknowledges in its dilution flow study that the best watersheds from which to get ideal dilution flows would have salinity conditions that are "60% or lower" than the salinity targets with which the Bureau wants to comply. In other words, the Bureau recognizes in the study's methodology that the lower the salinity and hence the better the water quality of the dilution flows to be used for compliance, the more likely the Bureau could use less water to achieve compliance with the State Board's salinity objectives.

¹⁸² California Department of Water Resources. 2011. *Low Head Pump Salinity Control Study: Prepared to meet requirements of the State Water Resources Control Board Water Rights Order WR 2010-0002, Condition A.7.* Bay-Delta Office, April, p. 25-31. Accessible online at:

http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/docs/lhscs_rpt.pdf.

¹⁸³ California Department of Water Resources, *Low Head Pump Salinity Control Study*, prepared to meet requirements of the State of California State Water Resources Control Board, Water Rights Order WR 2010-0002, Condition A.7, April 2011, Tables III.3 through III.6 and Figures III.5 and III.6; cost data shown in Tables ES.1 and ES.2. Accessible online at:

http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/docs/lhscs_rpt.pdf.

¹⁸⁴ State Water Resources Control Board, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives.* October 2011, Tables 2.9 through 2.14, 170 pages, including appendices. Accessible online at

http://www.swrcb.ca.gov/water_issues/programs/peer_review/docs/sanjoaquin_river_flow/technical_report.pdf.

For its study, the Bureau assumed that the salinity of dilution flow would be 60 micro-mhos per centimeter of electrical conductivity, a very low salt concentration “representing eastside reservoir water quality.”¹⁸⁵ (This salinity is equal to about 38.4 mg/L (milligrams per liter) of salt as Total Dissolved Solids.¹⁸⁶) This would approximate the salinity of water originating from snowmelt in the High Sierra, either from the Stanislaus or the Upper San Joaquin Rivers, or both.

The Bureau found that the tributaries with the best water quality for dilution flows are the Stanislaus and the Tuolumne rivers. While the Merced River’s flows are of better quality than the those of the Bureau’s recirculation scenario (in which Delta water is imported into the Delta Mendota Canal, then released down eastbound “wasteways” to the San Joaquin River without being used for irrigation), its water quality is not as good as the Stanislaus and the Tuolumne and would therefore require greater volumes of water to achieve compliance. Of course, the Bureau, like the State Water Board, avoided the alternative of including dilution flows from Friant Dam to help address the “compliance problem” of the interior South Delta salinity objectives.

The Bureau found that using high quality water from an eastside reservoir (as yet unnamed), it would take about 100,000 to 200,000 acre-feet to comply with the most lenient of water quality objectives, and as much as 1.4 million acre-feet in dry years to meet “the most stringent” water quality objectives at Vernalis, which of course are years when such a supply of water is unlikely to be available.¹⁸⁷

These two studies emanating from the modified Cease and Desist Order of 2010 confirm what the Board proves unwilling to do water quality planning for: that *western* San Joaquin Valley tributaries cause most of the underlying salinity problems that plague the South Delta, the Bureau and the Department of Water Resources. Like the high quality waters of the upper San Joaquin River, they are excluded from the Plan Area since the drainage from these western valley sloughs and creeks join the San Joaquin River just upstream of the confluence with the Merced River. The Board refuses to deal with the reality that irrigating those salty lands with water imported from the tidally-influenced Delta is an unreasonable use of water. But it is an important part of the setting for southern Delta salinity objectives since this saline drainage makes it especially difficult for the Bureau to use only reservoir releases from New Melones Reservoir to dilute the salty waters below Vernalis that affect the interior southern Delta channels and monitoring sites, especially in drier years.¹⁸⁸

¹⁸⁵ United States Bureau of Reclamation, *Special Study: Evaluation of Dilution Flow to Meet Interior South Delta Water Quality Objectives: To Meet Water Rights Order 2010-002 Requirement 7*, April 8, 2011, p. 39. Accessible online at

http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/docs/spcl_stdy1.pdf for Main Report through Appendix C and

http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/docs/spcl_stdy2.pdf for Appendices D through G.

¹⁸⁶ Conversion from micromhos per centimeter to total dissolved solids (expressed in mg/L) is based on criteria conversions provided in Bauder, T.A., R.M. Waskom, P.L. Sutherland, and J.G. Davis, “Irrigation Water Quality Criteria,” Colorado State University Extension, “Salinity Hazard,” 2011, Table 3, page 3. Accessible online at <http://www.ext.colostate.edu/pubs/crops/00506.html>.

¹⁸⁷ *Ibid.*, p. 40.

¹⁸⁸ Bureau of Reclamation, *Special Study*, op. cit., p. 46. Here the Board states its non-binding opinion that “using dilution flows to achieve full compliance with the South Delta objectives would likely require an unreasonable amount of water.” The Bureau is only advocating here, and the Board should

Omitting the river depletions caused by diversions to Friant-Kern Canal and the saline drainage emissions to the San Joaquin River from the western San Joaquin Valley lands is achieved merely by defining them as outside the planning area. As expedient as that is, the Board has failed to disclose to the public that is what it is doing. We maintain that the Board's reliance on the present absence of salmon stocks upstream of the Merced River confluence is a red herring. The Board is thus improperly enabled to design plan amendments and alternatives analyses that are defined narrowly and endowed with purposes that utterly fail to address the larger salt and drainage issues of the lower San Joaquin River and the South Delta together, as part of the "whole of an action" sought in CEQA analysis.

Subirrigation, Hydraulic Connectivity, and Crop Tolerances in the Delta

The Board focuses its plan formulation for southern Delta salinity objectives narrowly on crop tolerance of existing crops grown on lands in the South Delta region. It does so at the expense of examining southern and central Delta agricultural practices into which crops are integrated, as a process of applying water not only to crops but to sustaining soils in a tidally-influenced environment. The Board has failed to use sound science to investigate subirrigation practices that enable Delta agriculture, infused with San Joaquin River inflows through the distributary system of Old, Middle and San Joaquin River main stem channels, to continue and to evaluate the salinity limits of applied water used to leach salts from Delta soils in winter. The Board's earlier, pre-1995 Bay-Delta water quality control plans recognized, and even complimented this agricultural practice.

The State Board revisited crop salt tolerances as a component of the objective-setting process. In 2010, the State Water Resources Control Board retained Dr. Glenn J. Hoffman, an expert on crop tolerance in agriculture, to evaluate the potential for changing or relaxing the South Delta salinity standard. The Board wished to see if the crop tolerances for South Delta crops could be adjusted based on recent research and modeling.

Dr. Hoffman recommended that "if the salt tolerance of bean is to be used to set the water quality standard for the South Delta, it is recommended that a field experiment be conducted to ensure that the salt tolerance is established for local conditions."¹⁸⁹ Hoffman also recommended that

If the water quality standard is to be changed throughout the year then the salt tolerance of bean at different growth stages (time of year) needs to be determined. No published results were found on the effect of salinity on bean at different stages of growth. This type of experiment can best be conducted at the U.S. Salinity Laboratory at Riverside, CA where the experimental apparatus and previous experience on studying salt tolerance at different stages resides.¹⁹⁰

remind the Bureau that it, along with the California courts, is the arbiter of waste and unreasonable use and method of use of water.

¹⁸⁹ Dr. Glenn J. Hoffman, *Salt Tolerance of Crops in the Southern Sacramento-San Joaquin Delta*, Final Report, January 5, 2010, for State Water Resources Control Board, Division of Water Rights, p. 102. Appendix E of Draft SED. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/final_study_report.pdf.

¹⁹⁰ *Ibid.*

Other methods for modeling crop salt tolerance would be far more data-intensive than is now available, according to Dr. Hoffman. He also indicated that boron concentrations in surface water and in subsurface drain discharge is a possible concern for impairing bean production, and he recommended “that this concern be studied to determine if there needs to be a boron objective for the surface waters in the South Delta.”¹⁹¹

Ultimately, however, Dr. Hoffman’s study is framed too narrowly to be of justifiable use for revising or relaxing the South Delta salinity objective. First, Dr. Hoffman identified a number of alternate irrigation methods used in the Delta from a Department of Water Resources survey during 2007.¹⁹²

Second, as the South Delta Water Agency made clear in its comments on Dr. Hoffman’s report, his crop tolerance methodology used lab results rather than field measurements of leaching fractions. His report relies on *no data* from actual areas of the South Delta region where the most sensitive crops are grown. The methods he used to compensate for the absence of data are inadequate science for purposes of revising the South Delta salinity objectives and providing for an adequate or satisfactory antidegradation analysis.

Third, the study focuses strictly on the agricultural beneficial uses of the South Delta Water Agency service area, as depicted in the Hoffman report.¹⁹³ This is relevant because as a simple matter of hydraulic connectivity, the agricultural beneficial uses of the “southern Delta” were identified as a larger area encompassing not only the South Delta Water Agency but areas of the central, western and northern Delta areas in the 1978 Water Quality Control Plan. In other words, there is an obvious hydraulic connection between the San Joaquin River at Vernalis, and the quality of waters along Old and Middle Rivers and the main stem San Joaquin as it flows through Stockton, past Jersey Point, joining the Sacramento River, and into Suisun Bay. This hydraulic connection yields beneficial use protection downstream:

The waters of the San Joaquin River flow into the Central Delta Water Agency and contribute to the water supply therein. Such water supply is used within the Central Delta Water Agency for agricultural, recreational, and domestic purposes as well as fish, wildlife, and general environmental purposes.¹⁹⁴

The Board ignores conscious Delta farming practices that manage salt and sustain their lands’ fertility. The extent reaches from the lower lands of the southern Delta to the south banks of the Sacramento River (as shown in the 1991 map below). The Department studied application of irrigation water and associated drainage in the Delta in the 1954 and 1955 prior to the State Water Project. It found that salt in Delta lowlands (a substantial portion of which occur in the South Delta) varied widely by month, with most of it accruing in Delta island soils during the irrigation season. By applying water to Delta island fields during

¹⁹¹ *Ibid.*

¹⁹² *Ibid.*, pp. 34-41.

¹⁹³ *Ibid.*, Figure 1.1, p. 2.

¹⁹⁴ Letter of Dante John Nomellini, Manager and Co-Counsel, Central Delta Water Agency, to Gita Kapahi, Chief, Bay-Delta/Special Projects Unit, Division of Water Rights, State Water Resources Control Board, January 5, 2007, p. 8. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/sds_srif/sds/docs/cdwa010507_ah.pdf.

winter months, however, farmers leached salts out of Delta soils. Department of Water Resources engineers concluded at the time that:

The Delta Lowlands act as a salt reservoir, storing salts obtained largely from the channels during the summer, when water quality in such channels is most critical and returning such accumulated salts to the channels during the winter when water quality there is least important. Therefore agricultural practices in that area enhanced rather than degraded the good quality Sacramento River water enroute [sic]to the [Central Valley Project's] Tracy Pumping Plant.¹⁹⁵

The Board's own 1978 Water Quality Control Plan comments on this irrigation practice. High groundwater table conditions in Delta lowlands coupled with the erodible and settling organic soils there

Make subirrigation a desirable method of water application for crop production. Subirrigation is the delivery of water to plant roots by capillary action from the underlying saturated soil strata, and is the primary method of irrigation in the Delta organic soils. (RT Vol. XX, pp. 112-115) *As practiced in the Delta, subirrigation may be the most efficient irrigation process in California from the standpoint of net water consumption.* (RT Vol. XIII, pp. 107-108). *However, because of soil and crop management constraints, this form of irrigation must be tied to a winter leaching program to remove salts accumulated in the root zone.* (RT Vol. XII, p. 47).

The Board's 1991 Water Quality Control Plan for the Bay-Delta Estuary also mentions Delta organic soils and the practice of subirrigation to maintain them, stating that "subirrigation is an irrigation technique by which water is delivered to the crop root zone by horizontal flow through the soil from the spud ditches."¹⁹⁶ The Board adds in a footnote about winter ponding that:

Winter ponding, currently in use in the Delta, is the practice of flooding large agricultural field areas for the purpose of controlling weeds, and reducing salt in the upper region of the soil profile. Other benefits are recreation, and possibly salt leaching.¹⁹⁷

Dante Nomellini of Central Delta Water Agency confirmed to Tim Strohane of the California Water Impact Network that subirrigation practices continue in their service area today.¹⁹⁸ Both the 1978 and 1991 Water Quality Control Plans present maps showing where subirrigation practice were applied. No such analysis of south and central Delta agricultural beneficial use irrigation practices appears in the State Water Board's 2006 Bay-Delta Plan or its appendices. Nor is it analyzed in Appendix K, nor anywhere else in the Draft SED.

The key agricultural beneficial uses that the Board should be planning to protect are not just crop salt tolerance but also the irrigation management practice that sustains agriculture in the rich organic soils of the lower South Delta Water Agency and most of the lands of the Central Delta Water Agency's service areas. This more holistic grasp of what comprised South Delta agricultural beneficial uses informed past Bay-Delta Plans prepare by the Board. Indeed it is the subirrigation and winter leaching practices that sustain irrigated

¹⁹⁵ California Department of Water Resources, *Investigation of the Sacramento-San Joaquin Delta. Report No. 4, Quantity and Quality of Waters Applied to and Drained from the Delta Lowlands*, July 1956, p. 30.

¹⁹⁶ State Water Resources Control Board, *Water Quality Control Plan for San Francisco Bay/Sacramento-San Joaquin Delta Estuary Technical Appendix*, 91-16WR, May 1991, p. 4.0-5.

¹⁹⁷ *Ibid.*

¹⁹⁸ Nomellini to Strohane, personal communication to Tim Strohane, February 15, 2013.

cultivation there, less so specific crop choices and their associated salt tolerances. The Board has opted to study only crop salt tolerance since it launched this process in early 2009, and therefore fails to account for the full nature of the agricultural beneficial use that is to be protected by the South Delta salinity objectives.

Dr. Hoffman’s report does not examine this practice of subirrigation by Delta farmers. More importantly, the State Water Resources Control Board’s own proposal to relax South Delta salinity objectives would allow degradation of salinity loads and concentrations in Delta channels used on both the organic (lowland) and mineral (upland) soils of the Delta, and would interfere with the subirrigation and winter leaching practices that occur in the lowland (Central Delta Water Agency) areas, as well as increasing the need to leach salts out of soils in the South Delta Water Agency’s service area as well. Such degradation of San Joaquin River salinity levels is entirely inconsistent with federal Clean Clean Water Act antidegradation policy and would be expected to fail even to maintain actual water quality for economically and socially important beneficial uses in the Delta.

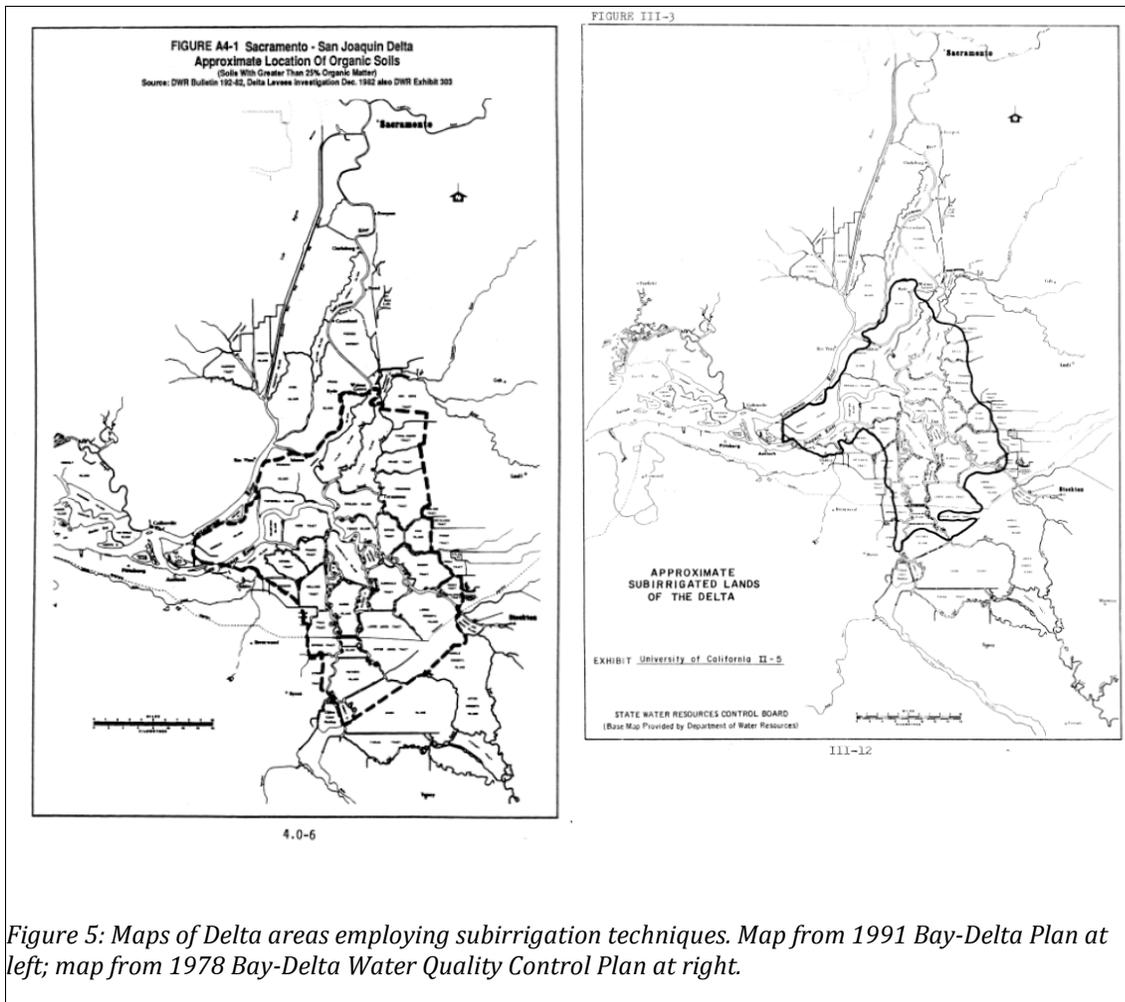


Figure 5: Maps of Delta areas employing subirrigation techniques. Map from 1991 Bay-Delta Plan at left; map from 1978 Bay-Delta Water Quality Control Plan at right.

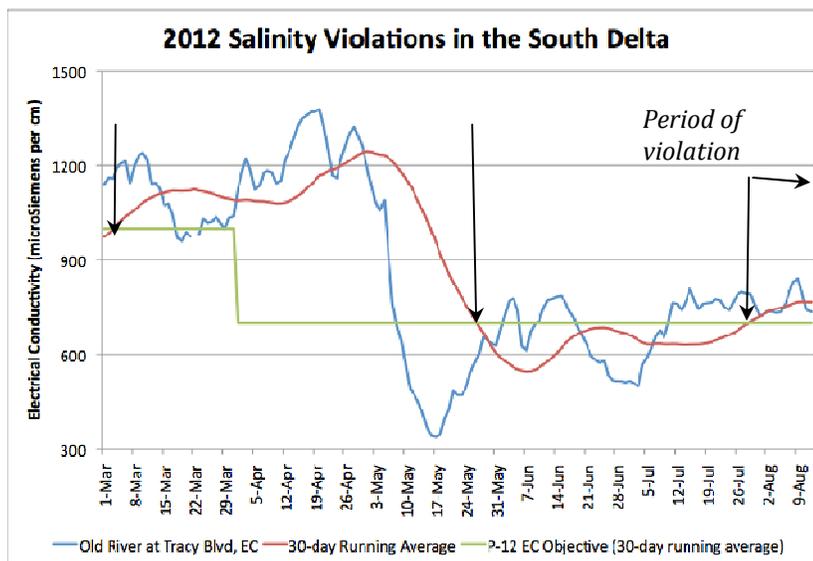
In mid-2009, the National Marine Fisheries Service in its just-issued biological opinion on the coordinated operations of the State Water Project and the Central Valley Project, rejected permanent operable barriers as essentially magnets for predators consuming

juvenile salmon and salmon smolts migrating to the ocean. Throughout the 2009 evidentiary hearing, the Department and the Bureau held to their belief that pursuing the permanent operable barriers remained their preferred course of action, and won from the State Water Board a modified Cease and Desist Order that postpones any enforcement action by the Board against them until at least 2014. There is no certainty at this time that National Marine Fisheries Service will alter its opinion of the permanent operable barriers. But by 2014, at least nine years will have elapsed during which the Department and the Bureau are and are not held responsible for complying with interior South Delta salinity objectives of the 1995 Bay-Delta Water Quality Control Plan, D-1641, and the subsequent 2006 Bay-Delta Water Quality Control Plan.

Salinity violations continue during 2012 in the South Delta. Figure 2 shows the trends in actual electrical conductivity at monitoring station P-12 (Old River at Tracy Boulevard), the calculated 30-day average of EC values at this location, and the salinity objective of 1000 microSiemens per centimeter (mS/cm) through March 31 and the 700 mS/cm from April 1 through August 31. The red curve in Figure 6 shows that the 30-day running average for electrical conductivity exceeded the P-12 EC objective for 84 consecutive days between March 4 and May 26, nearly three months of compromised water rights for South Delta diverters.

The Board excuses these violations in the Draft SED:

Since the issuance of the [Cease and Desist Order], there have been many instances of exceedance of the EC objective in the southern Delta, in particular at the Old River near Tracy Road Bridge, Station P-12 [shown above]. Typically this exceedance occurs due to dry hydrologic conditions in the Sacramento River and SJR Basins and degradation occurring downstream of Vernalis.¹⁹⁹



¹⁹⁹ Draft SED, p. 1-9.

The violations do tend to occur during “dry hydrologic conditions,” but this should not be occasion for excusing them. Every spring in California inaugurates a six-to-eight month drought season typical of our state’s Mediterranean climate. The Bureau and DWR plan for flood storage each year just in case of heavy runoff late in the rainy season, as required by the Army Corps of Engineers. They should be planning for releases from storage in the spring to meet those southern Delta salinity objectives as well. And the Board as the chief state water regulator should not be making excuses in such matters for the Bureau and the Department’s inattention to complying with water quality law.

The State Board’s serial failures to prevent salinity impacts on the South Delta predate enactment of the Clean Water Act by several decades.²⁰⁰

The State Water Resources Control Board’s misplaced concern for the “compliance problem” of the South Delta leads it to propose reducing violations of the South Delta salinity objectives *not* by improving water quality there. Instead, the Board would relax the salinity objectives themselves so that the Bureau and the Department would not violate them so routinely.

The Board’s proposed action violates the spirit and the letter of both its own antidegradation policy and that of the federal Clean Water Act. Relaxing the objective will reduce the incentive to the Bureau and the Department to comply with the standard by directly allowing them to provide less dilution flows to the south Delta. To use a football metaphor, the Board proposes to move the figurative “goalpost” closer so that the Bureau and the Department find it easier to score points (i.e., avoid salinity objective violations). The Board’s proposed action is neither protective of agricultural beneficial uses in the south Delta, nor compliant with federal Clean Water Act antidegradation policy. We do support continuing the more restrictive April to August salinity objective for the South Delta on the Bureau; the Board should also continue this objective in the Bay-Delta Plan.

Legally speaking, the Board appears to be protecting a use that it has not designated as a beneficial use to protect, while degrading protections for a beneficial use that has had salinity objectives in place over 35 years and whose agricultural beneficial users are located in and downstream of the “south Delta” and who also reject the proposed changes to the salinity objective when given opportunities to express their views to the Board.

The Board’s actions thus far distort and confuse the federal Clean Water Act’s process for setting water quality objectives and should be halted immediately. We conclude that the State Water Resources Control Board abuses its discretion by undertaking to revise the South Delta salinity objectives rather than enforce existing objectives against the Department and the Bureau, and has failed to disclose the full significance of the Cease and Desist Order proceedings carried out by the Board in the regulatory setting of the Draft SED.

²⁰⁰ See especially Stroshane, *Testimony on Recent Salinity and Selenium Science and Modeling for the Bay-Delta Estuary*, *op. cit.*, Appendix A, “Drainage Salt and Selenium in the San Joaquin Valley”; and Appendix C, “Chronology of State Water Board Actions and Related Studies Concerning Salinity Control and Fish Protection.” Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/cmnt081712/tim_stroshane.pdf.

The Draft SED for the San Joaquin River flow and South Delta salinity objectives states that “the project area’s water bodies are classified as Tier 2 water bodies as per the Federal Antidegradation Policy.”²⁰¹ This allows consideration of lowering water quality “where it is necessary to accommodate important economic or social development *in the area in which the waters are located.*” But since the beneficial users in the area in which the waters are located (i.e., the South Delta) already indicate that they reject relaxation of the existing objectives, the need for such an analysis is moot.

We discuss a reasonable alternative to the Board’s proposed southern Delta salinity objectives below.

The State Water Resources Control Board fails to analyze competing demands for water by all beneficial uses in the formulation of the plan amendments and their alternatives.

Appellate Justice Racanelli clarified the application of these legal standards to the Board’s quasi-legislative task of completing a water quality control plan. Racanelli told the Board in 1986 that “the Board is directed to consider *not only* the availability of unappropriated water (§174) but also *all* competing demands for water in determining what is a reasonable level of water quality protection (§13000).” “[N]othing in the federal act or California’s Porter-Cologne Act allows the Board to limit the scope of its basin planning function to such water quality standards as are enforceable under the Board’s water rights authority.”²⁰² Water rights yields are thus useful for identifying and potentially designating beneficial uses, but they should reflect the yields of all propertied beneficial uses for water in the watershed for which water quality control planning is occurring. Those yields do depend on water rights priorities. But that doesn’t mean the Board ignores actual water demands in formulating its water quality objectives:

...[T]he Board need only take the larger view of the water resources in arriving at a reasonable estimate of all water uses, an activity well within its water rights function to determine the availability of unappropriated water. [citation] We think a similar global perspective is essential to fulfill the Board’s water quality planning obligations.²⁰³

Justice Racanelli also cited several sections of the California Water Code that obligate the State Water Resources Control Board to consider the public interest in its appropriation and water quality control planning decisions. The Board has omitted these Water Code Sections from its Regulatory setting discussions in the Draft SED and failed to apply them in formulating its proposed plan amendments. These Water Code sections also further clarify his direction to the Board to employ a “larger view” and “global perspective”:

²⁰¹ 2012 Draft SED, p. 19-2.

²⁰² *United States v. State Water Resources Control Board*, 182 Cal.App.3d 82. The problem in the 1978 Delta water cases was that the State Board had only taken account of federal Central Valley Project and State Water Project water rights in arriving at its Water Quality Control Plan objectives: “The implementation program [of the plan] was flawed by reason of the Board’s failure in its water quality role to take suitable enforcement action against other users as well.” Section II.A.

²⁰³ *Ibid.*, Section I.A.

The use of water for recreation and preservation and enhancement of fish and wildlife resources is a beneficial use of water. In determining the amount of water available for appropriation for other beneficial uses, *the board shall take into account, whenever it is in the public interest, the amounts of water required for recreation and the preservation and enhancement of fish and wildlife resources.*²⁰⁴

In determining the amount of water available for appropriation, *the board shall take into account, whenever it is in the public interest, the amounts of water needed to remain in the source for protection of beneficial uses, including any uses specified to be protected in any relevant water quality control plan established pursuant to Division 7 (commencing with Section 13000) of this code.*²⁰⁵

If ever there was a time when the Board needs to determine the amount of water available for appropriation and to do so in the public interest, now is it. A compliant water quality control planning process should look like this: First, designate beneficial uses of water in the water body. Second, answer the question of what level of water quality is needed to protect those beneficial uses. To do this with regard to regulating flow, the Board must answer the question: What are the volumes of water needed in the water body that protect (and sustain) the beneficial uses and in so doing protect the public's interest in that beneficial use? Finally, the plan must contain an implementation program (not the actual implementation of the plan).

For water availability analysis in support of Justice Racanelli's "global perspective," the Board correctly attempts to apply a flow objective for the San Joaquin River that would mimic natural hydrograph conditions. However, its proposed flow objective at 35 percent of unimpaired flow is well below a protective flow level the Board identified in 2010 at 60 percent of unimpaired flow, and does so without explaining reasons for the reduction. This is vital because the Board did explain why it determined that 60 percent of unimpaired flow was a protective level of flow in its 2010 Delta Flow Criteria report.

The Board should instead have identified in the proposed Bay-Delta Plan amendment (i.e., Appendix K of the Draft SED) what the various water demands are for beneficial uses. Next, it should identify which of the beneficial uses are the most sensitive, so that it can comply with the federal Clean Water Act requirement that requires the most sensitive beneficial uses be protected. As we read Racanelli's decision, the Board may use a water availability analysis that quantifies overall natural (or unimpaired flow), followed by the increment of flow that is necessary to sustain (i.e., increase, propagate, enhance, benefit) the most sensitive nonconsumptive, instream beneficial uses of the Bay-Delta watershed (e.g., longfin smelt, Delta smelt, and salmon fish species), and then followed by the increment of flows that are available for riparian and appropriative consumptive use. This is the method that the California Water Impact Network applied in Phase II workshop testimony for the comprehensive review of the Bay-Delta Plan last fall.²⁰⁶

²⁰⁴ California Water Code §1243. Emphasis added.

²⁰⁵ California Water Code Section §1243.5. Emphasis added.

²⁰⁶ Strohane T., *Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay-Delta Estuary*, Submitted by the California Water Impact Network on behalf of California Sportfishing Protection Alliance, and AquAlliance on October 26, 2012, for Workshop #3: Analytic Tools for Evaluating Water Supply, Hydrodynamic, and Hydropower Effects of the Bay-Delta Plan. Accessible online at

The State Water Resources Control Board has failed to comply with this method at each step. First, the Board has not designated beneficial uses for which its proposed South Delta salinity objective are intended to protect. Second, the Board proposes San Joaquin River flow objectives that maintain the status quo, albeit through a new method of regulation. By doing so, the Board fails to comply with the federal Clean Water Act purposes of enhancing water quality and fish and wildlife populations wherever improvements are possible. Improvements are certainly possible. Third, the Board fails to include an analysis of water availability as Justice Racanelli reads applicable water quality control law to require and to take full account of competing demands for water from all beneficial uses in that context.

The State Water Resources Control Board failed to analyze reasonable and feasible alternatives to achieve the purpose of the Delta Reform Act that would increase Delta outflow and critical estuarine open water habitat, improve hydraulic connectivity of the San Joaquin River to the Bay-Delta Estuary, restore fish beneficial uses, and reduce salinity loading and concentrations to the interior southern Delta.

What if water now exported from the San Joaquin River Basin was brought back to flow into the Delta? The Central Valley Regional Water Quality Control Board explored this question briefly in 2006. If the City and County of San Francisco's exports of 250,000 acre-feet of Tuolumne River flows and 17,000 tons of salt were hypothetically reintroduced to the San Joaquin River, it would "have a large cumulative effect," according to the Central Valley Regional Board:

Removal of this high quality, low salinity, water has a relatively large impact on water quality in the San Joaquin River. If this 250,000 acre-feet of water per year were added to the mean annual discharge for the San Joaquin River from 1985-to 1994, mean annual [electrical conductivity, a direct measure of the presence of salts in water] would have been reduced from 570 to 506 [microSiemens, a unit of electrical conductivity]. Similar results could be expected with flow augmentation from other high quality sources or reduced consumptive use of water in the Basin.²⁰⁷

The reduction in salinity concentration is significant: the Central Valley Regional Board finds it would result in an 11 percent average decrease in salinity from the addition of 250,000 acre-feet annually of high quality water during a hydrologic period in which 7 of 10 years were dry or critically dry (1985, 1986 and 1993 were the exceptions).

What if upper San Joaquin River flows could be returned to the San Joaquin River Basin, the Bay-Delta Estuary, and San Francisco Bay? Returning an average of over 800,000 acre-feet of Upper San Joaquin River flows that are exported under the Bureau's Friant Dam water

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/comments111312/tim_stroshane.pdf.

²⁰⁷ California Regional Water Quality Control Board, 2006, *op. cit.*, p. 44-45. This example illustrates the effect of returning a large bloc of dilution flows on San Joaquin River salinity conditions; we do not advocate this specific action for the City and County of San Francisco's Tuolumne River supplies at this time.

rights via the Friant-Kern Canal would also reduce salinity concentrations from imports substantially. Assuming a linear extrapolation of the electrical conductivity relationship the Regional Board identifies above (that is, for every 250,000 acre-feet of fresh water returned to the river, an 11 percent decrease in salinity would result), a cumulative 46 percent reduction in average annual salinity concentration would result from returning about 800,000 acre-feet of Upper San Joaquin River water from Friant Dam to the Delta from this extrapolation, a decrease from 570 to about 307 microSiemens of salinity. *Such an action would reduce salinity by nearly one-half in the San Joaquin River.* It would increase Delta outflow and estuarine habitat volume while pushing a much greater share of San Joaquin River flows past the export pumps to Chipps Island, thereby helping both Delta agricultural beneficial uses. And migratory fish survival would likely rise as well.

In addition to such water quality improvements from returning unimpaired flows from the Upper San Joaquin River to the Delta, other gains in salinity reduction would occur from retiring saline irrigated lands in the western San Joaquin Valley and ending Delta imports of salty water there.

The EWC believes the review of alternatives in this Draft SED and the formulation of the State Board's Bay-Delta Plan amendment are wholly inadequate. The Board has avoided reasonable and feasible alternatives for improving salinity and flow conditions in the San Joaquin River and the South Delta by defining a plan area that avoids important sources of both fresh high quality water and large concentrations and loads of salinity. By defining these sources out of its plan area, the Board avoids responsibility for undertaking reasonable and feasible water quality control actions that would address.

Land Retirement

While drainage reduction through source control and reuse have likely led to reductions in salt, selenium and boron discharges into Mud Slough, the role of land retirement has not been adequately analyzed to determine its role in reducing the amount of pollution discharged by the Grassland Bypass Project. Land retirement policies are currently voluntary.²⁰⁸

A crucial component of such an alternative that the Board should consider in the SED, but has failed to so far, is inclusion of a program for retiring cultivated land in the western San Joaquin Valley from irrigation water use. Including west side land retirement in this alternative would enable the Board to inform itself and the public of the benefits in water quality improvements for the San Joaquin River and the aquifers of the San Joaquin Valley that would follow from implementing such a program.

While drainage reduction through source control and reuse have likely led to reductions in salt, selenium and boron discharges into Mud Slough, the role of land retirement has not been adequately analyzed to determine its role in reducing the amount of pollution

²⁰⁸ United States Bureau of Reclamation. 2005. Draft Environmental Impact Statement on the San Luis Drainage Feature Re-Evaluation, Mid-Pacific Region, Sacramento, California, May, 1,591 pages. Accessible online at <http://www.usbr.gov/mp/sccao/sld/docs/index.html>; and United States Bureau of Reclamation. 2006. Final Environmental Impact Statement on the San Luis Drainage Feature Re-Evaluation, Mid-Pacific Region, Sacramento, California, Accessible online at <http://www.usbr.gov/mp/sccao/sld/docs/index.html>.

discharged by the Grassland Bypass Project. Land retirement policies are currently voluntary. The State Water Board should analyze an alternative that includes a comprehensive land retirement program that would greatly reduce the discharge of salts, boron, and selenium to the San Joaquin River and western valley aquifers that drain toward the river.

Table A-2 Drainage and Water Quality Effects of Land Retirement in the Broadview Water District Along West Side of San Joaquin River

<i>Broadview Water District Water Quality Indicators</i>	<i>Existing Conditions</i>	<i>Under Proposed Action Conditions</i>	<i>Estimated Reduction Attributable to Proposed Action</i>
Drainage to San Joaquin River	3,700	1,100	2,600
Estimated Salt Production (tons/year)	24,300	7,300	17,000
Estimated Selenium Production (pounds per year)	2,140	640	1,500
Estimated Boron Production (pounds per year)	74,000	22,000	52,000
Source: Environmental Sciences Associates 2004; California Water Impact Network.			

The 2004 Draft Environmental Assessment on Broadview Water Contract Assignment Project identified significant reductions in the volume of drainage water, salt, selenium and boron from the retirement from irrigation of 10,000 acres in the Broadview Water District, as shown in Table A-2.²⁰⁹

The Northerly subarea of Westlands Water District, which drains subsurface flows to the Grassland area, has also had substantial land fallowing/retirement due to shallow salty groundwater within the root zone.²¹⁰ So much land has been retired in the Northerly subarea of Westlands that Westlands does not believe it is cost effective to install drainage service for the remaining acreage.²¹¹ It is unknown how much total land has been retired in Westlands' Northerly subarea, but it is likely to be at least 40,000 acres. (Water Education Foundation, n.d.) Based on the estimates from the Broadview Contract Assignment Project Draft Environmental Assessment, extrapolation of potential drainage, salt, selenium and

²⁰⁹ Environmental Sciences Associates. 2004. *Broadview Water Contract Assignment Project Environmental Assessment/Finding of No Significant Impact*, prepared for US Bureau of Reclamation, April. Accessible online at http://www.c-win.org/webfm_send/195.

²¹⁰ California Water Research Associates. 2011. *Mendota: Evidence That Soil and Groundwater Salinization is the Predominant Cause of Land Fallowing*, June. Accessible online at <http://www.scribd.com/doc/56909617/Mendota-Evidence-that-soil-and-groundwater-salinization-is-the-predominant-cause-of-land-fallowing>.

²¹¹ United States Court of Federal Claims. 2012. *Complaint of Westlands Water District in Westlands Water District v. The United States*. Case 1:12-cv-00012-ECH, Document 1, 58 pages.

boron savings from the retirement of an estimated 40,000 acres in the northerly area of Westlands and the 10,000 acres in Broadview could result in the following reduction in discharges:

Drainage to San Joaquin River (AF)	13,000
Salt (tons)	85,000
Selenium (lbs.)	7,500
Boron (lbs.)	260,000

The above sample estimated numbers could represent a significant percentage of the total reduction in drainage volume, salt, selenium and boron from inception of the Grassland Bypass Project in 1996 through 2010 and do not count other retired lands such as Widren, Eagle Field and Mercy Springs water districts, and may not include all of the retired lands within Westlands' northerly subarea. Most of the reduction in drainage, salt, selenium and boron discharged from the Grassland Bypass Project would come from retirement of irrigation from lands with drainage problems and reductions in water deliveries due to drought. Other measures may be given unwarranted credit for the savings. However, there has not been a definitive study on the issue to determine the specific reason for reductions in pollution.

As of early 2012, significant new grants and subsidies have been awarded to the Grassland Drainers through the Panoche Drainage District. The Selenium Demonstration Treatment Facility at Panoche is estimated to cost \$37 million, averaging over \$78,000 per acre-foot of treated drainage water. In September 2011, the Pacheco Water District was awarded a \$262,000 CALFED water efficiency grant to line three miles of open channel (US Bureau of Reclamation 2011) in order to reduce seepage and creation of drainage water. The lowest annual volume of drainage water discharged into Mud Slough from the Grassland Bypass Project was 13,166 acre-feet in Water Year 2009. As recently as Water Year 2005, drainage volume was 29,957 AF. (McGahan 2010) The efficacy of the proposed treatment methodology has yet to be proven, as noted above.

The Bureau of Reclamation's National Economic Development feasibility analysis found that land retirement is the most cost effective solution to resolve problems associated with irrigation of these toxic soils. (US Bureau of Reclamation 2008) The Bureau's Land Retirement Demonstration Project has shown significant and immediate success in lowering contaminated groundwater levels and selenium exposure from land retirement. Presser and Schwarzbach of the US Geological Survey found that:

When lands are retired, there is an overall reduction in water applied to a district. In general, less water applied as irrigation means less drainage produced, which in turn means less drainage requiring treatment and storage.²¹²

Ceasing imported water deliveries from the Delta to these toxic lands need not preclude agriculture. The lands could return to dry farming (where growers rely on rainfall for their crops, as occurred in this area prior to the arrival of surface water supplies in the 1960s and 1970s). The west side of the San Joaquin Valley sees rainfall of between 5 and 10 inches a year. Before completion of the California Aqueduct in 1967, groundwater was the primary source of irrigation water in the area. This dependence led to land subsidence of an average

²¹² Presser and Schwarzbach, 2008, *op. cit.*, p. 9.

of one foot across the whole region, but as much as 29 feet in some localized areas. But presently, imported supplies have shifted the groundwater budget from one of overdraft to one of surplus. Groundwater elevations in the area of Panoche and Cantua creeks in the western San Joaquin Valley rose 100 to 200 feet between 1967 and 1984. Belitz and Phillips state that this rise in the water table “represents a recovery of nearly one half the total drawdown that had occurred” prior to development of imported water supplies.²¹³

The lands may also be used for other purposes compatible with adjacent land uses such as solar “farms.” Solar farms would provide much needed sustainable electricity to complement the hydropower generation from the east side’s dams on the San Joaquin River and its tributaries.

Land retirement already occurs here. Since the 1990s, Westlands Water District (the largest water district in California’s Central Valley) has purchased outright about 100,000 acres of drainage problem lands within its limits. However, the land retirement alternative appears to have plateaued in deference to continued delivery of imported subsidized water.

Researchers have not undertaken yet to model the potential impacts of climate change for the forecasting and handling of toxic contaminants like selenium in the state’s water quality regulation and policy frameworks. C-WIN urges the State Water Resources Control Board to seek such research as soon as possible. Presser and Schwarzbach have laid out the two principal scenarios, however, which state and federal regulators, and the communities of the San Joaquin Valley will increasingly have to confront:

The draining of accumulated reservoirs of salt and selenium stored in the soils and aquifers of the valley to surface impoundment [i.e., to some form of surface storage such as evaporation ponds and other treatment processes] may have large-scale implications for the future of the valley in terms of tradeoffs of contaminated groundwater aquifers (i.e., life of the aquifer for irrigation and drinking water use) for contaminated land-surfaces (i.e., creation of salt waste dumps and landfills for designated bio-treatment waste).²¹⁴

There is hazardous agricultural drainage water collecting in aquifers year after year in the western San Joaquin Valley. There is already a significant unaddressed backlog of seleniferous hazards waiting to be addressed. C-WIN believes that California’s water regulators should act now to stop creation of yet more hazardous wastewater by retiring lands from irrigation with imported surface supplies in areas known to contain high selenium concentrations, under the prohibition on waste and unreasonable use of water in the California Constitution, Article X, Section 2.

San Luis Drainage Feature Re-Evaluation

As a result of years of litigation regarding drainage issues and a Ninth Circuit Court of Appeals decision on the responsibility of Reclamation to provide drainage service to Westlands and other San Luis Unit contractors, Reclamation issued a final Environmental Impact Statement and Record of Decision (ROD) for the San Luis Drainage Feature Re-

²¹³ Belitz, K. and S.P. Phillips. 1995. Alternative to agricultural drains in California’s San Joaquin Valley: Results of a regional-scale hydrogeologic approach. *Water Resources Research* 31(8): 1847.

²¹⁴ Presser and Schwarzbach, 2008, *op. cit.*, p. 14.

Evaluation. The Final Environmental Impact Statement was issued in 2006, with the Record of Decision issued in 2007. (US Bureau of Reclamation 2005, 2006)

While the environmentally preferred alternative in the San Luis Drainage Feature Re-Evaluation Environmental Impact Statement was the “In Valley/Drainage Impaired Land Retirement” alternative which would have retired all 298,000 acres of drainage impaired lands in Westlands, Reclamation selected the “In-Valley Water Needs Land Retirement” alternative to retire just 194,000 acres of impaired lands, which also includes existing land that is retired.

The San Luis Drainage Feature Re-Evaluation Record of Decision called for a combination of land retirement, reuse, reverse osmosis, biotreatment and evaporation ponds to reduce the formation of drainage and to treat drainage that remains. It includes continuation of the Grassland Bypass Project, with little or no additional land retirement in that area. The U.S. Fish and Wildlife Service recommended that Reclamation consider an alternative retiring all of the 379,000 acres of drainage impaired lands in the San Luis Unit (including the Grassland area), but Reclamation did not consider retirement of the portion of the San Luis Unit within Grassland Drainage Area. (US Bureau of Reclamation 2005: Appendix M)

The National Economic Development Act (NED) analysis for the San Luis Drainage Feature Re-Evaluation Environmental Impact Statement showed that the “In Valley/Drainage Impaired Land Retirement” alternative was the most cost effective, with a \$5 million/year benefit. However, Reclamation requested and received a waiver of the National Economic Development Act requirement to adopt the most cost effective alternative and instead adopted the “In-Valley Water Needs Land Retirement” alternative, which would lose approximately \$10 million/year. (US Bureau of Reclamation 2005: Appendix N, Cost-Benefit Analysis, Table N-10, p. N-17)

The Environmental Working Group report, “Throwing Good Money at Bad Land” estimated that crop subsidies provided to the drainage impaired lands in the San Luis Unit are approximately \$10 million per year. (Environmental Working Group 2011) Environmental Working Group estimated that adding the crop subsidies to the drainage subsidies for San Luis Drainage Feature Re-Evaluation would result in a \$20 million loss to the taxpayers, and concluded that land retirement would be the most cost effective solution to resolving drainage problems.

As of early 2012, resolution of drainage issues within the San Luis Unit remains problematic. The ceiling of appropriations for the San Luis Unit is lower than the projected cost of a drainage collection and treatment system for all drainage impaired lands, and Reclamation has identified and recommended increases in federal subsidies will be necessary to allow the project to proceed. (US Bureau of Reclamation 2008) Westlands Water District filed a lawsuit in the federal claims court in January 2012 asking for damages from Reclamation’s lack of progress in providing drainage service. (Unites States Federal Court of Claims 2012)

Presser and Schwarzbach (2008) recommended a “Decision Analysis” process to resolve San Luis Drainage problems, but to date no action has been taken to initiate such a process. They also recommended as much land retirement as possible, noting, “Land retirement is a key strategy to reduce drainage because it can effectively reduce drainage to zero if all drainage-impaired lands are retired.” (Presser and Schwarzbach 2008) However, despite

land retirement recommendations from them and the Bureau's San Luis Drainage Feature Re-Evaluation ROD's inclusion of 194,000 acres of retired land, there has been no additional land retirement within the San Luis Unit since 2007.²¹⁵

Presser and Schwarzbach identified several problems for implementation of the San Luis Drainage Feature Re-Evaluation Record of Decision as follows:

4. "Regardless of what drainage plan is implemented, the amount of salt in groundwater will increase. Based on projections of future total dissolved solids in groundwater of the Westland and Northerly Areas, the useable life of the aquifer under various irrigation and drainage management goals is estimated to be between 25 and 220 years." (Presser and Schwarzbach 2008: 2)
5. They recommend a "program that substitutes groundwater pumping for surface water delivery, thus helping to shift the groundwater budget from large surplus to small deficit and to stem any expansion of the drainage problem through time with continued irrigation." (Presser and Schwarzbach 2008: 3)
6. A Decision Analysis process would allow objective and scientific analysis of different treatment options, but it would require stakeholder participation. (Presser and Schwarzbach 2008: 3)
7. "A drainage alternative that exports wastewaters outside of the valley may slow the degradation of valley resources, but drainage alone cannot alleviate the selenium build-up in the valley, at least within a century, even if influx of selenium from the Coast Ranges could be curtailed." (Presser and Schwarzbach 2008: 6)
8. "If the goal is to create a sustainable integrated production/habitat system, then up-gradient land retirement emerges as the most logical strategy. Implementation of a successful land retirement program may require an approach that weighs independently the benefits of drainage reduction, selenium reduction, habitat creation, water acquisition and removal of lands that are no longer productive. Such an approach would also serve to identify target lands within each category that might not be considered for land retirement under a voluntary land retirement program." (Presser and Schwarzbach 2008: 10)
9. "The stream of RO [Reverse Osmosis] treated water produced would be available for other uses, but some water- quality issues (e.g., boron and mercury) remain for the product water. For example for planning for agricultural use of RO product water, it would be necessary to dilute the concentration of boron in the product water by up to 36-fold with CVP water to obtain a boron concentration that would not impair plant growth (San Luis Drainage Feature Re-EvaluationE Environmental Impact Statement, 2007, Response to Comments)." (Presser and Schwarzbach 2008: 15)
10. "A review of treatment technologies in 2004, evaluated the advantages and disadvantage of a number of technologies specifically tested on agricultural

²¹⁵ Lee, S. 2012. Personal communication representing U.S. Bureau of Reclamation Central Valley Project Improvement Act Land Retirement Program with Tom Stokely, Water Policy Coordinator, California Water Impact Network, February 13.

drainage waters from the valley. Some initial reduction of selenium concentration is possible (e.g., from 400 µg/L to 100 µg/L), but achieving levels low enough to meet regulatory requirements (2-5 µg/L) to protect the environment were found difficult and expensive.” (Presser and Schwarzbach 2008: 25)

11. “The concentration of selenium in liquids associated with the sludge bio-waste in the scenarios illustrated in figures 6-12 may be as high as 1,068 µg/L if a two-fold concentrating factor is assumed. The final concentration of selenium in the bio-waste would depend on an assumed density, but the potential exists for the production of liquids and solids that would be designated or hazardous selenium wastes. The selenium criteria for a hazardous waste are 1,000 µg/L for a liquid and 100 µg/g wet weight for a solid (U.S. Department of Health and Human Services, 1996).” (Presser and Schwarzbach 2008: 27)
12. “If 100,000 acres of land is retired under the *Groundwater Quality* alternative, then 412,772 tons salt/year are available for storage at the end of the evaporation process. Assuming a bulk dry density of 1 g/cm³, then 13.24 million feet³ [cubic feet of] salt are produced per year. At one-foot depth, this amount would cover 311 acres. In 50 years, the salt waste pile would rise to 50 ft. on the assumed 311 acres. This amount would be produced each 50 years into perpetuity.” (Presser and Schwarzbach 2008: 27)
13. “...[A]irborne particulates from salt waste piles may provide an additional pathway of exposure to wildlife and humans. Air quality problems may arise from wind-driven salt particles containing selenium.” (Presser and Schwarzbach 2008)
14. “A scenario that successfully scales-up drainage water reuse, selenium bio-treatment, and evaporation of water to concentrate salt to magnitudes effective in treating planned volumes of drainflow may create new selenium exposure pathways that pose potential risks at levels that are currently undefined. However, selenium risk may be greatest at reuse areas.” (Presser and Schwarzbach 2008: 28)

A September 1, 2010, letter from the Michael Conner, Commissioner of Reclamation to Senator Dianne Feinstein identified numerous problems with implementation of the San Luis Drainage Feature Re-Evaluation ROD. Reclamation had attempted to negotiate a legislative settlement with the San Luis Unit contractors and interested public in 2007 and 2008, but no consensus could be reached. The letter identifies the inadequate authorization ceiling of appropriations for San Luis Drainage Feature Re-Evaluation implementation and also states that while the 2008 Feasibility Report identified that the San Luis Drainage Feature Re-Evaluation Record of Decision is financially and economically infeasible “because the costs exceed the national economic benefits and are beyond the ability of the beneficiaries to repay.”

Despite the recommendation from Reclamation to increase the authorized ceiling of appropriations for the San Luis Unit and increase allowable subsidies, Congress has taken no action. There is only adequate funding authorization remaining to construct drainage collection and treatment facilities in one subarea of Westlands. Reclamation and Westlands continue to negotiate which area that will be (northerly sub-area or central sub-area of Westlands). Meanwhile, Reclamation continues to deliver hundreds of thousands of acre-feet, sometimes over a million acre-feet of water to the San Luis Unit. Each acre-foot of

clean water delivered to that area results in creation of highly seleniferous drainage water that either goes into shallow or deep aquifers, and/or the Grassland Bypass Project for discharge into Mud Slough and the San Joaquin River. As long as irrigation deliveries continue to these poisoned lands, pollution will occur.

Conclusion

The State Water Resources Control Board has the authority to bring order, economic sanity, and environmental protection to drainage, salinity, and selenium problems of the Bay-Delta Estuary and the western San Joaquin Valley by acting through the Bay-Delta Water Quality Control Plan to prioritize land retirement as the most economically feasible option for reducing saline and seleniferous drainage to the lower San Joaquin River and the Bay-Delta Estuary. The time for Board action is long past due.

Other CEQA Problems with the Draft SED

The “rule curve” methodology for modeling water supply effects (i.e., Appendix F1, Tables F.1-1 to F.1-3 supporting Chapter 5) of alternatives is problematic. It is problematic because it does not make clear whether all beneficial uses are being included in the methodology. Does the analysis in Appendix F1 cover the competing demands for water of all beneficial uses, or is the rule curve only accounting for propertied beneficial uses and only seeming like it supplies an analysis of all beneficial uses?

Groundwater analysis (chapter 9) assumes that any and all surface water diversions no longer available from the tributary streams will be replaced with groundwater pumping. This assumption is entirely consistent with assumptions about grower behavior with irrigation water supplies in modeling packages like DWR’s CalSIM II and the US Geological Survey’s use of the Farm Process module in its overall Central Valley Hydrologic Model.

However, the Ag Resources chapter (Ch. 11) makes an opposing assumption: it assumes instead that loss of surface water diversions leads farmers to taking (often prime) irrigated land out of production, a dubious assumption that contradicts the impact analysis method in Chapter 9 for groundwater impacts. The effect of these conflicting methods is to exaggerate the overall impacts of the Board’s proposed plan amendments on agriculture. This exaggeration of impacts is essentially double counting of impacts, distorting the reader’s perception of the plan amendment’s impacts on both groundwater and agricultural resources. The Board cannot have it both ways with groundwater and irrigated land cultivation impacts. Either there will be groundwater substitution primarily, a mix of groundwater substitution and land fallowing, or mostly land fallowing. But to base impacts on the worst case of both ends of the spectrum is absurd and baseless. It results in making LSJR 3 and LSJR 4 look worse overall than they would otherwise be.

Also in the Agricultural Resources Chapter 11, the definition of Prime Farmland of Statewide Importance includes the criterion that the land’s water supply is available to it 8 of every 10 years. On this basis, more marginal lands should see irrigation surface diversions taken away first under water rights priorities, before taking water from Prime Farmland or even Unique Farmland. The SED should make reasonable assumption that Prime means Prime. Has the Board’s methodology accounted for this likelihood? It’s not speculative that water rights priorities should apply to these lands for analytic purposes.

<i>Alternative</i>	<i>Farm Equivalents Affected</i>	<i>Percent of All Farms in California</i>
LSJR 2	41	0.05%
LSJR 3	290	0.35%
LSJR 4	466	0.57%

The overall agricultural resources effects are not given a sufficient economic context. Since this is a statewide program it's reasonable to look at the consequences of some negative agricultural economic effects (which are not well analyzed) in a statewide context. Here we estimate the number and percent of total state farms taken out of production this way from the SED's data.

The following Environmental Water Caucus affiliated organizations support the conclusions shown in the San Joaquin SED comment letter dated March 26, 2013, and the attached report.

The corresponding logos are shown at the front of this document.

*Gary Adams
California Striped Bass Association*

*Sara Aminzadeh
Policy Director
California Coastkeeper*

*Dan Bacher
Editor
Fish Sniffer*

*Colin Bailey
Executive Director
Environmental Justice Coalition for
Water*

*Barbara Barrigan-Parrilla
Executive Director
Restore the Delta*

*Lloyd Carter
President
California Save Our Streams Council*

*Jennifer Clary
Water Policy Analyst
Clean Water Action*

*Joan Clayburg
Executive Director
Sierra Nevada Alliance*

*Deirdre Des Jardins
California Water Research*

*Robyn DiFalco
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Butte Environmental Council*

*Siobahn Dolan
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Desal Response Group*

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Southern California Watershed Alliance*

*Zeke Grader
President
Pacific Coast Federation of Fisherman's
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*Bill Jennings
Executive Director
California Sportfishing Protection
Alliance*

*Carolee Krieger
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California Water Impact Network*

*Roger Mammon
President
Lower Sherman Island Duck Club*

*John Merz
President
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*Jonas Minton
Senior Water Policy Advisor
Planning and Conservation League*

*Andrew J. Orahoske
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*Pietro Parravano
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*Lynne Plambeck
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*Mark Rockwell
Co-Conservation Director
Northern California Council Federation
of Fly Fishers*

*Adam Scow
California Campaign Director
Food and Water Watch*

*Linda Sheehan
Executive Director
Earth Law Center*

*Chief Caleen Sisk
Spiritual Leader
Winnemen Wintu Tribe*

*Esmeralda Soria
Legislative Advocate
California Rural Legal Assistance
Foundation*

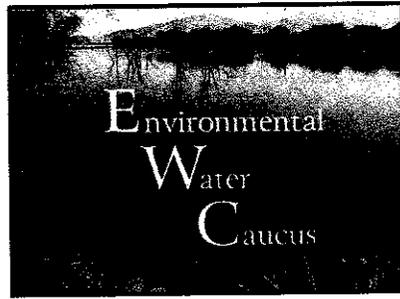
*Craig Tucker
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*Eric Wesselman
Executive Director
Tuolumne River Trust*

*Bob Wright
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Friends of the River*

*Chris Wright
Executive Director
Foothill Conservancy*



Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95814-0100

March 29, 2013

Subject: Supplemental Comments on San Joaquin River Flows and Southern Delta
Water Quality SED

Dear Ms. Townsend and Members of the Board:

In addition to the formal comments on the San Joaquin SED that was submitted by the Environmental Water Caucus on March 26, we have attached the following letters and memos to add as a supplement to those comments.

Following the hearing it became apparent that the record which is being considered by the State Water Board for the flow requirements needed to restore habitat, protect endangered species, and preserve public trust values was incomplete. Specifically the Board did not appear to consider water transfers, exchanges, or Warren Act contracts that significantly reduce flows to the San Joaquin River. Further the Board did not appear to consider the continued discharge of pollutants to the San Joaquin River that have significant impact on fish and wildlife mortality, bioaccumulate in the food chain, and are at times in excess of established standards known to protect fish and wildlife potentially resulting in significant mortality.

We request that you add these attachments to your record for the SED.

A handwritten signature in black ink that reads 'Nick DiCroce'. The signature is written in a cursive, flowing style.

Co-Facilitator



Via electronic mail

February 11, 2013

Mr. Brad Hubbard
United States Bureau of Reclamation
2800 Cottage Way, Rm. 410
Sacramento, CA 95825
bhubbard@usbr.gov

Ms. Jane White
San Joaquin River Exchange Contractors Water Authority
541 H Street
Los Banos, CA 93635
jwhite@sjrecwa.net

Re: Water Transfer Program for the San Joaquin River Exchange Contractors Water Authority,
2014-2038 (State Clearinghouse No. 2011061057)
Comments on Final Environmental Impact Statement / Environmental Impact Report

Dear Mr. Hubbard and Ms. White:

On behalf of AquAlliance, California Water Impact Network and the Center for Biological Diversity, thank you for consideration of the following comments on the Final Environmental Impact Statement / Environmental Impact Report (FEIS/EIR) for the 25 year "exchange" of up to 150,000 acre-feet per year of Central Valley Project (CVP) water from the San Joaquin River Exchange Contractors (SJREC).

Overall, the proposed Project's FEIS/EIR is inadequate to the extent that no Project approval should be granted by either agency on its basis. Commenters ask that a new EIS/EIR be prepared that complies with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), including (but not limited to) a strong and enforceable mitigation and monitoring program that ensures no further depletion of groundwater and no further harm to the giant garter snake.

The discussion and analysis of environmental impacts contained in the Final EIS/EIR is cursory and falls short of NEPA and CEQA requirements. This stems from having an unclear and poorly described narrative for the Proposed Project. It obscures realistic chains of cause and effect, which in turn prevent accurate and comprehensive accounting of environmental baselines in the hydrologic areas of origin. The earlier 2010/2011 Water Transfer Program coalition comments illustrate many of the individual and cumulative impacts from water transfers from the Bureau,

the Department of Water Resources (DWR), and local water agencies' activities; these impacts must also be considered here¹. The lead agencies for the proposed Project must also revise the year and amount of project water used the baseline for analysis. Using the present export rate as the baseline obfuscates impacts and deprives the public of a comprehensive analysis on which to comment. Lastly, without disclosure of the failings of federal, state, and local agencies to implement and enforce existing environmental laws, the public cannot understand how likely it is that agreements, plans, projects, and laws will be ignored by the Proposed Project.

These comments supplement those previously submitted on July 3, 2012 by environmental organizations for the proposed Project's Draft EIS/EIR, and are arranged by section in the following order:

- A. Purpose and Need / Project Description**
- B. Project Location**
- C. Environmental Baseline**
- D. No-Action Alternative and Other Alternatives**
- E. Surface Water Impacts**
- F. Groundwater Impacts**
- G. Biological Resources: Impacts to Giant Garter Snake**
- H. Mitigation and Monitoring**
- I. Cumulative Impacts**

These comments reference and are supported by the attached documents, listed at the end of this letter and referenced in the body of the comments as appropriate.

A. Purpose and Need / Project Description (Sections 1.0-1.2)

Purpose and Need

The Proposed Project's purpose and need are to acquire water for multiple wildlife refuges, and/or to transfer water to other CVP and SWP contractors. (1-1) Yet each of these purposes works at the expense of the other: if the purpose and need of the project is to supply water to the wildlife refuges, then the water cannot be transferred instead to CVP and SWP contractors; that would, by definition, defeat the purpose and need of the supplying sufficient refuge water from proposed project. Conversely, if the purpose and need of the project is to supply CVP and SWP contractors with Project water, then devoting the water to satisfy wildlife requirements would not

¹ Attached to these comments are environmental organizations' 2010/2011 Water Transfer Program Draft Environmental Assessment (2010/2011 Water Transfer Program) comments that were referenced in our July 3, 2012 comments on the Draft EIS/EIR for the 150,000 AFY transfer of San Joaquin River Exchange Contractors Water Authority (Proposed Project). The 2010/2011 Water Transfer Program comments are already in the Bureau's possession (http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=4699). The Proposed Project Final EIS/EIR's response to comments (Appendix G) correctly asserts that the 2010/2011 Water Transfer Program was a separate and distinct project. The Final EIS/EIR claims that it "[c]annot and does not assume that the comments from 2010 pertain to the project analyzed in the current 2012 Draft EIS/EIR," (G-116) deprives the lead agencies of valuable information that has a direct bearing on the Proposed Project. We are pleased to explain the relevance of these earlier comments below.

meet this purpose and need. The problem here is that the proposed Project contains no metric by which to allocate water to one source or the other, and appears arbitrary as a result. Which intended recipient will get the water in a dry season, when it is needed most— and how is one to gauge the benefits to the refuges, or the impacts from increased farming, if the proposed Project cannot provide any formula or detail in this regard? As this question is left unanswered, the impacts of the proposed Project cannot be ascertained. By not setting specific allocations to these two fundamentally different uses, the two purposes and needs are inherently frustrated by shifting water allocations, by the project's very design. The FEIS/EIR's logic that water to the wildlife refuges is needed, hence the Project, is frustrated by the option to deliver no water at all to the refuges.

In the alternative, the FEIR/EIS contends that the Project water is required to satisfy obligations under the CVPIA and analyses the transfer accordingly—but reserves the right to not, in fact, use the water to satisfy the CVPIA and to transfer it to other contractors instead. If the need is for CVPIA satisfaction, then some set quantity of water must be allocated for this purpose, or else the purpose and need may not be satisfied by the project. The absence of set quantities to divert to wildlife refuges and to CVP/SWP contractors is a fundamental flaw in the entire environmental analysis and renders a fair assessment of impacts virtually impossible.

Further, this project functions to *remove* water through additional conservation measures from Mud Slough and Salt Slough; both provide essential habitat for the endangered giant garter snake. The presumed destruction of habitat by the project clearly undermines the very purpose and need to deliver other water to wildlife refuges and is a flawed, rob-Peter-to-pay-Paul approach to wildlife management.

Project Description

The project has an inadequate and inaccurate project description. First, the current Project is not a "continuation" of a previous or existing project. The FEIS/EIR declares that this project is a "continuation" of an existing project authorized in 2005, which was a 10 year transfer of 130,000 acre-feet. This is inaccurate: the currently proposed Project transfer is different because the existing project was only a ten-year transfer, whereas the present Project is a 25-year "permanent" transfer. The existing Project's impacts were evaluated accordingly with that horizon in the existing project's environmental review, as if the transfer were only ten years long and not long-term. The previous environmental review assumed the project would sunset, and did not consider long-term impacts from that 10-year transfer.

Second, even if the project can be considered to "continue" a previous, temporary transfer, the environmental factors have changed markedly, warranting a new environmental review and making the project description inaccurate that the transfer will occur "in the same manner." This is because groundwater extraction was relied upon in the previous, temporary project (1-1) while the proposed project disavows use of groundwater in "exchange" for selling CVP water.

The existing project extracted groundwater for a portion of its "exchange" of CVP water. In contrast, the proposed Project claims to not rely on groundwater. However, the FEIS/EIR uses inappropriate metrics to measure groundwater use, because *all* groundwater use by the Exchange

Contractors should be considered an environmental impact of selling away its CVP allocations. In other words, each acre-foot of CVP water “exchanged” is another acre-foot of groundwater that could have been conserved through using CVP water. With increasing subsidence and lowering of aquifer tables, this is a major impact that goes unaddressed: the FEIS/EIS does not describe the existing rate of depletion of groundwater in the underlying aquifers, nor the expected groundwater levels under the future project. The groundwater extraction aspect of the proposed Project is inadequately described and must be provided, in all alternative scenarios and in its evaluation of impacts to water supply and water quality, and as a component of monitoring, reporting and mitigation.

Fourth, the numbers for the existing and proposed Projects do not add up. The proposed Project is for up to 150,000 acre-feet of water, but the existing conditions/environmental baseline states that the existing Project is for between 80,000 and 88,000 acre-feet of water (2-12). The proposed Project should then account for at least 70,000 acre-feet of new water development, plus the groundwater used in the existing Project that will be replaced in the proposed Project. Yet the FEIS/EIR evaluates only 20,000 acre-feet of additional water for the proposed Project—a deficit of over 50,000 acre-feet left unaccounted for. The FEIS/EIR vaguely explains that land fallowing makes up the difference, but impacts from this magnitude of land fallowing are not fully considered in the FEIS/EIR, and they are certainly not to the tune of 70,000 acre-feet worth of water. The proposed Project should fully analyze the impacts of developing at least 50,000 acre-feet of water unaccounted for in the FEIS/EIR, even assuming (falsely) that the environmental baseline is correct. But assuming *arguendo* that 20,000 acre-feet is the appropriate measure of new impacts, even these impacts are improperly analyzed in the FEIS/EIR.

Fifth, a vagueness regarding the sources and likely recipients of the water permeates the entire document, including the description and purpose/need statement, making it impossible to adequately adjudge the impacts to the Project water recipients. The description declares that the purpose of the project is to provide water for wildlife sanctuaries, yet the project may in fact provide *zero* water to such facilities. Along the same lines, it is impossible to adequately gauge the likely impacts resulting from expanded irrigation, M&I and/or domestic uses on the target delivery locations for Project water, when there is no firm allocation set to various destinations.

B. Project Location (2.1)

The Project location, defined only as located within the Exchange Contractors’ 240,000-acre service area, (p. 2-2) is far too vague and inexact to provide the public with meaningful public disclosure of Project impacts to affected areas. Without details regarding specifics as to where the conservation, groundwater extraction and land fallowing are to occur (or indeed are already occurring), is impossible to determine the extent of impacts from groundwater extraction, resulting subsidence in and around the Project area, and impacts on Mud and Salt sloughs caused by decreased return flows— despite ample evidence that aquifer depletion, land subsidence and loss of habitat in Mud and Salt sloughs are occurring. If the project is to be continued in the same manner as claimed, then these details are already known to the Exchange Contractors and should be provided. Conversely, it is impossible to adequately monitor and mitigate against

groundwater depletion, subsidence and loss of habitat in Mud and Salt Sloughs without a detailed description of what lands will be followed (limiting runoff to the sloughs), and what sources of groundwater will be (necessitating monitoring and mitigation). Without such specifics the mitigation and monitoring are by definition inadequate. These specifics must be provided in greater detail; as presently described the extremely vague Project location description undermines the evaluation of environmental impacts for the entire project. While little information is provided regarding the specific locations of Project water sources, still less information is provided on the locations of the intended recipients. Here, the only indication of where the water will go are three maps encompassing a large portion of the Golden State. This vagueness in location prevents the ability to properly gauge impacts from delivering 150,000 acre-feet of water to various parts of the state.

Finally, the existing and proposed Projects rely on installation of tailwater recovery systems, yet there is no analysis of the impacts of the construction and operation of these elaborate and extensive systems. The tailwater recovery systems and associated pumping infrastructure must be evaluated for direct, indirect and cumulative impacts for the proposed Project.

C. Environmental Baseline (2.2)

The environmental baseline for the proposed Project was set at "existing physical conditions in 2011 when the Notice of Preparation of an EIR was released." (p.2-11) As identified on p.2-12 of the FEIS/EIR, the existing conditions are being used for the Proposed Project as the environmental baseline, and already includes the development and export of up to 88,000 acre-feet of water. Largely for this reason, the EIS/EIR repeatedly contends that the project has no significant environmental impact, despite the clear effects of exporting this water on groundwater supplies, land subsidence and habitat in Mud and Salt Slough for the Giant Garter Snake.

The baseline is not always equal to the existing environmental conditions: "the existing environmental setting will *normally* constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant." (CEQA Guidelines § 15125(a), emphasis added.) Crucially, the use of "normally" to qualify this passage enables agencies to be flexible in setting the baseline in order to take into account the full scope of environmental impacts from the entire project. This is because the very same section of the Guidelines requires the EIR to "demonstrate that the significant environmental effects of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context." (CEQA Guidelines § 15125(c).)

Reliance on previous environmental review does not provided justification for the environmental baseline used in the Project EIR, because the actual impacts from the 88,000 acre-feet of water included under "existing conditions" was never fully evaluated in any previous environmental document. Specifically, the 130,000 acre-feet was not evaluated in the 2005 EIS/EIR, in part because there, the "existing conditions" there were based on previous, shorter-term transfers. (2005 EIR Project Description.) As a result, the impacts of these transfers on groundwater, subsidence and habitat in Mud and Salt Sloughs have never been evaluated. In this instance, relying on existing conditions as the baseline, even though those baseline conditions have never

undergone environmental review, fundamentally undermines the purpose of NEPA and CEQA and renders the subsequent evaluation of alternatives, environmental impacts and mitigation needs inadequate and unsound. The environmental baseline should be changed so that impacts from the full 150,000 acre-foot transfer are fully detailed, reviewed and analyzed for environmental impacts.

There are major discrepancies between the baseline and the action alternatives, including the preferred alternative selected. If the proposed Project set a baseline of 88,000 acre-feet, even though the baseline was set in the FEIS/EIR at 80,000 to 88,000 acre-feet, the action alternatives only posit a further twist to the baseline,

Again, the environmental baseline (existing project) utilized *groundwater* extraction, while the present project promises not to do so. This means that a large portion of the baseline amount of water must now be developed by other, *new* sources. Yet the EIR does not quantify how much water *was* coming from groundwater, so it is impossible to know how much water now must be developed from other sources. Given the depletion of the aquifers and the resulting subsidence, however, commenters must assume that groundwater extraction for the existing project constitutes a large portion of the actual "exchange" water, meaning a large portion of water for the proposed project will either come from

Finally, The FEIS/EIR states that "Reclamation and the Exchange Contractors are parties to the Second Amended Contract for Exchange of Waters, Contract No. 11r-1144 (Contract), dated December 6, 1967, and incorporated by reference into this EIS/EIR. Under the Contract, Reclamation supplies the Exchange Contractors with a substitute supply of CVP water to be used in lieu of their rights to certain waters of the San Joaquin River. Pursuant to the terms of the Contract, up to 840,000 acre-feet of substitute water per year is made available for irrigation purposes by Reclamation from the Sacramento River and the Delta, and other sources through the CVP, and up to 650,000 acre-feet in critical dry years. The Exchange Contractors operations consist of the diversion of substitute water from the DMC, the Mendota Pool, and possibly the San Joaquin River and north fork of the Kings River. Without the transfers, the Exchange Contractors would divert all of their substitute water supply." (p. 2-14)

The source waters that are transferred from the Sacramento River watershed to the SJREC via the CVP have caused major impacts, which we described to the lead agencies by previously referencing the 2010/2011 Water Transfer Program comments (attached). As it is well known and documented, the myriad impacts from the CVP and SWP have so severely destabilized the San Joaquin River and its watershed, the Delta, and the Sacramento River watershed that gargantuan, tax-payer subsidized restoration projects are necessary to restore any semblance of a fishery on the San Joaquin River, accompanied by precipitous declines in fisheries abundance. Both of these trends continue but are not addressed in the FEIS/EIR, which fails to even consider the impacts of delivering CVP water.

D. No Action / No Project Alternative (2.2)

The proposed project considers the No Action / No Project alternative "would result in no transfer or exchange of water from the Exchange Contractors or to any of the other potential

water users at the conclusion of the existing Program on February 28, 2014 (through water year 2013)." (p.2-11)

The proposed Project's "No Action / No Project Alternative" (p.2-2) states that this choice would "reduce need for groundwater pumping that currently helps meet irrigation demands." (p.2-11). Given that groundwater is currently used as a source, it is imperative that the no-action alternative measure impacts to groundwater relative to the other alternatives. Yet no analysis is provided. The no action alternative correctly supposed that all of the other action alternatives would negatively impact groundwater relative to the no-action alternative. Yet the other alternatives do not evaluate how much groundwater pumping would occur, even though in the absence of the project groundwater pumping would supposedly be reduced. This is a critical flaw.

In addition, the No Action / No Project Alternative inaccurately describes return flows as remaining "approximately the same" with no project. Yet the majority of the new Proposed Project, which claims not to use groundwater, would be based on improved retention of return flows and fallowing of land, which in turn would also reduce return flows. The EIS/EIR fails to account for the actual return flows which would be produced in the no-project scenario. Along these same lines, the return flows directly impact the ability to maintain habitat for the Giant Garter Snake in Salt and Mud Sloughs. The no-action alternative would allow tailwater and runoff to provide habitat in Mud and Salt Slough, and would also keep crops in place that provide habitat for the Giant Garter Snake.

Action/Project Alternatives (2.3)

Even if using the 2011 Existing Conditions as the Baseline were appropriate (we do not believe it is), the EIS/EIR completely fails to evaluate cumulative impacts of the Alternatives when including the existing 80,000- 88,000 AF of water being transferred and the phantom 50,000 AF that was approved for transfer in the 2004 EIS/EIR. The FEIS/R only identifies impacts from the additional 20,000 AF of water from land fallowing. As a result, significant impacts are not identified and appropriate mitigation measures were neither proposed nor adopted to reduce impacts to less than significant.

For instance, in regard to the Giant Garter Snake (GGS), the amount of acreage planted in rice declined 50% after 2005 when the water transfer first began (USFWS 2009 Grasslands Bypass Biological Opinion, page 107). However, the EIS/EIR states that only a small amount of acreage has been removed from rice production since 2008-2010 (p 6-31). Because of the flawed baseline and incomplete cumulative impacts analysis, the analysis fails to take into account changes that have occurred since the original project was approved. An appropriate (CEQA-compliant) analysis would find that rice acreage has declined along with GGS habitat, and therefore, mitigation is required, such as dedication of X acre-feet of water for GGS summer habitat or a commitment to plant X acres of rice.

Further, these descriptions are inadequate as they do not account for the current use of *groundwater* in the baseline, as evidenced by the "Water Development Alternatives." The action / project alternatives "involve multiple sources of developed water" but with the qualification

that “Groundwater pumping...may occur... but would not be a method for developing water for the proposed 25-year program.” The EIS/EIR fails utterly to substantiate this claim, providing no analysis of current groundwater extraction or anticipated groundwater use elsewhere to compensate for export of CVP water. If groundwater was not actually being used for the project, then groundwater aquifers would be predicted to increase, yet only the no-project alternative makes such an analysis. The reason is that the Exchange Contractors are simply shifting groundwater use from an “exchange” purpose to an irrigation purpose, while ignoring that the Project is *still* developing groundwater for export: now, instead of directly withdrawing groundwater for export, lands that would have been supplied by CVP water “elsewhere” will now be supplied by groundwater. But the net effect of the exchange on groundwater supplies is exactly the same. The EIS/EIR must quantify the amount of groundwater that will be used on lands that could use CVP water in correlation with the amount of water to be exported under the proposed Project.

Quantifying the conserved water through land fallowing also improperly assumes that the fallowed land would use CVP water and not groundwater. In order to determine the source of the “exchange” water coming from fallowed land, the EIR/EIS would have to identify what land was fallowed that was previously and whether it was serviced by groundwater or by CVP water.

The Action Alternatives do not set defined amounts to be allocated to wildlife refuges, agriculture and/or M&I uses. Instead, the alternatives posit different “scenarios” where either all or none of the water is used for the refuges, irrigation, or even residential/domestic uses. (2-21-24 “water acquisition scenarios.”) This inability for the FEIS/EIR to actually know what allocation will occur undermines the ability to provide an accurate description of likely impacts from the different Action Alternatives, and renders the FEIS/EIR inadequate and incomplete.

E. Surface Water Resources (4.0)

As noted previously, the FEIS/EIR applies an improper baseline/existing conditions which functions to drastically understate impacts to surface water resources by the proposed Project. Even though CEQA requires use of existing conditions at the time of the NOP, the baseline using the existing 80,000 AF of water transfers creates an improper and unbalanced analysis because it does not provide for analysis of the entire project. Even then, this baseline requires the FEIS/EIR to analyze around 70,000 acre-feet worth of water development and its impact on surface waters, but no such analysis was provided for this amount.

The flawed existing conditions / environmental baseline and cumulative impact analysis in the FEIS/EIR fails to capture significant impacts from the proposed Project. For instance, the 2004 EIS/EIR on the existing, 10-year project identified that : “For each acre-foot of water recaptured, an acre-foot of water is removed from the river” (p. 4-16). However, this document does not identify significant reductions in San Joaquin River flows, and neither does the FEIS/EIR for the proposed Project. If the information from the 2004 EIS/EIR cited above is true, then the cumulative impact of implementing Alternative D, for instance, would be to reduce flows in the San Joaquin River by 100,000- 150,000 AF annually. However, neither the alternative analysis nor the cumulative impacts analysis of this FEIS/R identify that large of a reduction of San Joaquin River flows by 100,000 – 150,000 AF, which would surely be a significant impact

requiring mitigation. The failure of the proposed Project's FEIS/R to identify cumulative impacts to flows in the San Joaquin River at Vernalis is demonstrated by contrast with the 2004 FEIS/EIR finding that such flow reductions would range from zero to 11 percent (Page 6-23)-- yet the current FEIS/R only makes an admission of very minor reductions in those flows.

Furthermore, while the FEIS/R acknowledges some reductions (1-4 cfs) in San Joaquin River flows at Vernalis, it improperly assumes New Melones operations and San Joaquin River Restoration Program flows will provide mitigation (4-18). Because of the court decision regarding use of New Melones water, Reclamation will no longer always have the option of increasing New Melones releases to meet water quality and quantity in the San Joaquin River. The purpose of SJRRP increased flows is to restore the fishery, not to make up for lost tailwater and groundwater contributions to the San Joaquin River; this purpose is defeated by the proposed Project.

The 2004 EIS/R for the existing project assumed that the Grasslands Bypass Project would halt discharges to area waters, causing a substantial improvement in water quality in the San Joaquin River and its tributaries, leading to a finding of significant cumulative impacts. However, the GBP has been extended until December 31, 2019 and is therefore still polluting the San Joaquin River and its tributaries, while the selenium limits set in the basin plan were suspended in 2010. This is a fundamental change in the underlying assumptions left unaddressed in the FEIS/EIR. This project has been improperly segmented into existing and proposed projects and inadequately evaluated in this FEIS/R for cumulative impacts for the entire project dating back to 2005 (and the temporary transfers before that), producing an erroneous finding of no significant cumulative impacts to water quality.

As explained in greater detail in the biological resources comments, the impacts to flows in Mud and Salt Sloughs are inadequately described in the FEIS/EIR, including here in the surface water section. The analysis uses average daily and monthly flows, but does not evaluate the increased frequency of zero flows in the sloughs and wetland water supply channels with resultant adverse impacts to wildlife species using them as habitat and transportation corridors (applies to GGS).

Of course, delivery of the CVP water in the first place is responsible for changes to salinity and selenium, and these larger impacts remain unaccounted for in the FEIR/EIS. The SWRCB's D-1641 found that "the actions of the CVP are the principal cause of the salinity concentrations exceeding the objectives at Vernalis. The salinity problem at Vernalis is the result of saline discharges to the river, principally from irrigated agriculture, combined with low flows in the river due to upstream water development. The source of much of the saline discharge to the San Joaquin River is from lands on the west side of the San Joaquin Valley which are irrigated with water provided from the Delta by the CVP, primarily through the Delta-Mendota Canal and the San Luis Unit. The capacity of the lower San Joaquin River to assimilate the agricultural drainage has been significantly reduced through the diversion of high quality flows from the upper San Joaquin River by the CVP at Friant. The USBR, through its activities associated with operating the CVP in the San Joaquin River basin, is responsible for significant deterioration of water quality in the southern Delta." The impacts of CVP water imports are improperly excluded from the FEIR/EIS.

F. Groundwater Resources (5.0)

The proposed Project relies to a significant extent on groundwater substitution, even though it expressly denies it. The exchange contractors can obtain irrigation water from either the Central Valley Project or from groundwater. Table 5-1 in the FEIR/EIS provides the only glimpse into groundwater pumpage, and even then it excludes all private wells, meaning the data represents only a small fraction of groundwater pumping. Even as a small percentage of the total, however, the groundwater use by SJREC contractors should be measured as an impact in direct comparison with the sale of CVP water in the proposed Project; the failure to do so is a fundamental flaw in the FEIS/EIR.

If groundwater is not actually used for the project, a simple set of data would suffice: how much has groundwater use (including *both* private and SJREC wells) changed by SJREC contractors since *before* the temporary, ten-year and now 25-year transfers of CVP water began; the increase in groundwater use would be directly correlative with the sale of CVP “exchange” water. Yet this information is absent from the analysis.

Groundwater pumping has also been obscured by its incorporation into the “existing conditions” of the existing Project’s EIS/EIR. The 2005 EIS/R identified that groundwater baseline pumping was 130,000 AF/year within the SJREC service area, the sustained yield of local aquifers. Alternative A of the existing Project would increase that pumping by an annual average of 11% (14,000 AF/year) *above* the reliable yield of the aquifer. This impact should have been identified in this FEIS/R under cumulative impacts to groundwater. Again, by comparing all alternatives, including cumulative, to a 2011 baseline, no impacts are shown. The 2004 EIS/R stated that groundwater monitoring would identify impacts, but there is no discussion of groundwater monitoring and potential impacts of the project since 2005.

The Exchange Contractors essentially copied and pasted into the FEIR/S major portions of its Appendix D into Chapter 5 where the groundwater analysis occurs, providing little original analysis of its own. Moreover, major portions of the early sections dealing with groundwater quality and pumping rates in Kenneth D. Schmidt and Associates’ earlier reports have been re-used or recycled in later reports (especially the 2007 and 2011 reports relative to the 1997 reports). The descriptive geology is not new: there isn’t much change in the geologic characteristics of the aquifers over a 16 year period, and there is not much new information being generated that has yet been released. The US Geological Survey is undertaking extensive groundwater studies and modeling efforts (particularly on land subsidence) right now, but most results from the Exchange Contractors’ service areas are not yet available.

The FEIR/S also states (p. 4-17) that water developed by their conservation and tailwater recapture programs is a less costly water supply than pumping available groundwater resources. The report further states that reused tailwater would reduce deep well groundwater pumping that currently helps meet irrigation demand. It should be borne in mind that the tailwater will have water quality that more resembles surface deliveries from the Delta Mendota Canal (250 to 900 EC, according to Table 5-2, varying with higher ECs in winter and lower ECs in summer

irrigation season) than to pumpage from the aquifer. They say the groundwater is “not needed” but it may be just as true that the cost of treating this water to a level tolerable for irrigation uses may be too high as well: the tailwater is of too poor quality to “exchange” and sell, but no evidence or analysis has been provided as to the method or feasibility of filtering tailwater sufficient to make the target supplies for the proposed Project of an appropriate quality for export.

Lastly, the groundwater section fails to adequately address subsidence. The FEIS/EIR states: “Land subsidence in the region has resulted from excessive pumpage of groundwater from the lower aquifer. As explained in Appendix D, the land surface can subside when water levels in confined aquifers decline and interbedded fine-grained confining beds are compacted. Subsidence begins when the water surface in the aquifer falls below a certain threshold level. The rate of subsidence depends on how far water levels fall below that level, how long they remain there, and the characteristics of the sediments.” (p.5-2). This statement suggests that land subsidence is occurring, that groundwater depletion is at fault and that the “certain threshold” referenced has already been passed, hence the current subsidence. Yet, because the proposed Project EIR/EIS does not consider groundwater pumping as part of the proposed Project, no such effects analysis was conducted. However, as explained in these comments, groundwater pumping is a measureable impact of the proposed Project, the existing Project, and related projects, because the Exchange Contractors could be using CVP water but are choosing to use groundwater instead. At minimum, subsidence should have been evaluated and mitigated as a cumulative impact of the proposed Project and the existing 10-year project.

Michelle Sneed of the United States Geological Survey is studying subsidence in the area, which is useful for understanding the importance of the issue.² In a presentation entitled “Renewed Rapid Subsidence in the San Joaquin Valley, California,” Sneed writes: “extensive groundwater withdrawal in the San Joaquin Valley (SJV) caused widespread aquifer-system compaction and resultant land subsidence that locally exceeded 8 m during 1926–70. Surface-water importation in the early 1970s resulted in decreased pumping, recovery of water levels, and a reduced rate of subsidence in some areas. However, reduced surface-water availability during subsequent droughts resulted in increased pumping, causing groundwater-level declines and renewed subsidence, which has reduced freeboard and flow capacity of the Delta-Mendota Canal, the California Aqueduct, and other canals that deliver irrigation water and transport floodwater.”

Sneed adds: “The location and magnitude of land subsidence during 2006–10 in parts of the SJV were determined by using an integration of Interferometric Synthetic Aperture Radar (InSAR), Global Positioning System (GPS), and borehole extensometer techniques. *Results of the InSAR measurements indicate that a 3,200-km² area was affected by at least 20 mm of subsidence during 2008–10, with a localized maximum subsidence of at least 540 mm.* [emphasis added] Furthermore, InSAR results indicate subsidence rates doubled during 2008. Results of a comparison of GPS, extensometer, and groundwater-level data suggest that most of the compaction occurred in the deep aquifer system, that the critical head in some parts of the deep

² An overview of the Ms. Sneed’s ongoing studies is found at <http://ca.water.usgs.gov/projects/central-valley/delta-mendota-canal-subsidence.html>

system was exceeded in 2008, and that the subsidence measured during 2008–10 was largely permanent. The information derived from these integrated measurements is being used to improve coupled numerical models of groundwater flow and land subsidence, which are being used to evaluate water-resource management strategies.” Thus there is new information readily available on subsidence in the project area that should have been considered in the FEIS/EIR, but was not.

G. Biological Resources and Impacts to Giant Garter Snake (6.0)

Regarding biological impacts of the proposed Project, the FEIS/EIR concludes: “In summary, none of the action alternatives would result in potentially significant impacts on biological resources within the Exchange Contractors’ service area or the Program area and vicinity. Table 6-4 summarizes the impacts of the No Action/No Project and action alternatives on biological resources under CEQA. The existing conditions set the baseline against which the alternatives are evaluated for CEQA.” (FEIS/EIR p. 6-40) This analysis is incorrect: there are very likely many significant impacts from the proposed project on habitat and livelihood of the giant garter snake.

The giant garter snake is a federally-listed endangered species and a California state threatened species. (See 58 FR 54033, October 20, 1993). According to Section 3.2 of the 2010-2011 Water Transfer Program Biological Assessment, “San Joaquin Valley populations [of GGS] have apparently suffered severe declines over the last two decades (USFWS 1999). Surveys in the San Joaquin Valley in the 1990’s found giant garter snakes at Caldoni Marsh/ White Slough Wildlife Area in San Joaquin County (G. Hansen 1996), Mendota Wildlife Area in Fresno County (G. Hansen 1996), and within the Grasslands Ecological Area in Merced County (USFWS 1999).”

The GGS lives only in very limited habitat, and that habitat is being reduced by the existing project and will be further reduced by the proposed project. The U.S. Fish and Wildlife Service submitted comments on the ADEIR and DEIR informing the lead agencies that USFWS could not conclude that the proposed Project would have an insignificant effect on the snake.

The Giant Garter Snake is a federal and state-listed endangered species. (See 58 FR 54033, October 20, 1993 and Endangered Species Act, 16 U.S.C. 1531 *et seq.*) The population of giant garter snake resides in the Project area and is in a state of precipitous decline; according to the Bureau of Reclamation, one of the co-lead agencies for the proposed Project, “San Joaquin Valley populations [of GGS] have apparently suffered severe declines over the last two decades (USFWS 1999). Surveys in the San Joaquin Valley in the 1990’s found giant garter snakes at Caldoni Marsh/ White Slough Wildlife Area in San Joaquin County (G. Hansen 1996), Mendota Wildlife Area in Fresno County (G. Hansen 1996), and within the Grasslands Ecological Area in Merced County (USFWS 1999).” (U.S. Bureau of Reclamation, 2010-2011 Water Transfer Program Biological Assessment, Section 3.2.)

The proposed Project’s FEIS/EIR fails to adequately describe or mitigate the impacts to the giant garter snake. The Biological Resources section of the FEIS/EIR does not describe impacts from the proposed Project on the giant garter snake, even though the same document admits that “the

species is reported to occur in Mud and Salt sloughs,” both of which have water supplies significantly reduced under the existing and proposed Projects. (FEIS/EIR at 6-2 and 6-13).³

The giant garter snake is likely to be harmed by the proposed Project. First, the Project will continue and expand tailwater recovery, responsible for the loss of habitat in Mud and Salt Slough. Second, land fallowing of rice fields eliminates further habitat for the snake. Third, the proposed project will increase the concentrations of selenium in Mud and Salt Slough so that the remaining runoff is more concentrated and toxic for species encountering this water, in particular the giant garter snake. None of these impacts are given more than cursory review in the FEIS/EIR, and no attempt is made to monitor or mitigate these impacts on the giant garter snake. Likewise, the FEIS/EIR describes these impacts as insignificant to the giant garter snake, but without any basis for doing so. The primary reason, of course, is that most of the impacts to habitat and water quality are improperly incorporated into the existing conditions/environmental baseline, but are not then considered as impacts of the proposed Project or cumulatively. These separate and cumulative impacts are likely to threaten the continued livelihood of giant garter snake, and as a result, a formal consultation with U.S. Fish and Wildlife Service is required. USFWS confirms this view in its 2009 biological opinion for the grassland bypass: “If giant garter snakes are found or their habitat may be affected, consultation with the Service will be required.” (USFWS 2009 Grasslands Bypass Biological Opinion, p. 23) Despite impacts to wetlands and sloughs, both considered habitat for the giant garter snake, the FEIS/EIR does not indicate that any such consultation has occurred. The FEIS/EIR should detail all findings and concerns conveyed by USFWS regarding the proposed project.

The U.S. Fish and Wildlife Service (USFWS) provided comments on the administrative Draft EIR for the proposed Project on February 13, 2012. These comments are attached and incorporated here by reference, and were improperly not included and not adequately addressed in the FEIS/EIR.⁴ In these comments, USFWS explained that it had provided informal consultation on the previous 10-year transfer and had agreed that the previous project “may affect, but is not likely to adversely affect (NLAA), the federally-listed as threatened giant garter snake (*Thamnophis gigas*).” (*Id.* at 2) However, USFWS based this conclusion on two assumptions: “(1) there will be no loss of listed species habitat as a result of these transfers, and (2) Reclamation will track the monitoring of water quality and selenium levels in Salt Slough to assist in identifying factors that could affect giant garter snake habitat and the ongoing effect of the tailwater recapture program.” (*Id.*)

Unfortunately, neither of USFWS’ assumptions proved correct: the previous 10-year transfer caused extensive loss of giant garter snake habitat in Mud and Salt Sloughs, and Reclamation failed to monitor water quality and selenium as promised. Regarding the loss of habitat, the proposed Project states that the tailwater recovery component of the existing project was responsible for removing up to 40,000 acre-feet per year of water from Mud and Salt Sloughs—both considered important habitat for the giant garter snake. This fact in the FEIS/EIR *de facto*

³ According to the 2009 Biological Opinion for Grasslands Bypass, “Wylie (1998b) also documented 14 captures and recaptures of giant garter snakes using natural channels or sloughs in the Grasslands Area in Merced County, compared to four captures and recaptures of snakes using irrigation canals.” (USFWS 2009 Grasslands BiOp, p.33)

⁴ These comments also note discrepancies in the EIS/EIR’s description of decreased flows,

demonstrates that the previous project destroyed giant garter snake habitat— and as an “existing condition” of the proposed Project it will continue to do so. In fact, the proposed Project will expand on the tailwater recovery component, over 50,000 acre-feet-- and further destroy this habitat. (*Id.* at 3.) As USFWS points out, this impact (both from the prior and proposed projects) is mentioned nowhere in the FEIS/EIR, as indeed *any* impact from 50,000 acre-feet of additional tailwater recovery.

Regarding monitoring of Salt Slough, USFWS’ comments on the ADEIR explain that no analysis or evaluation of the tailwater conservation has been conducted: “These results were to be evaluated and reported annually following the final operations of the water year. Although the Service does receive reporting of water quality in the Grassland wetland channels associated with the Grassland Bypass Project, there has been no analysis or evaluation of the effect of the tailwater recapture program on flows and water quality in those channels.” (*Id.*) Because both of the prior assumptions were false, USFWS was unable to conclude that the proposed Project would have less than a significant effect on the giant garter snake. (*Id.*)⁵ Further, USFWS’ comments detail reductions in water to Salt Slough since the transfer programs started.

The previous reviews by USFWS, primarily the 2009 Grasslands Biological Opinion, assumed that selenium concentrations would be reduced to less than significant levels due to limitations in the applicable water quality control plan. However, selenium was not, in fact, reduced to less than significant levels, as this parameter was revised for the plan by the State Water Resources Control Board on October 5, 2010. The selenium Basin Plan Amendment allows for continued discharges of highly contaminated groundwater from the 100,000 acre of the Grasslands Drainage Area through a portion of the Bureau of Reclamation’s San Luis Drain directly into Mud Slough which flows into the San Joaquin River. Average selenium concentrations in the San Luis Drain discharges into Mud Slough are up to 50 µg/l on a daily average.

In responding to the Water Board’s relaxing of selenium limits, USFWS identified selenium as an issue for giant garter snake: “Continuing unregulated sources of selenium contamination in the Grassland wetland supply channels are of concern to the health and integrity of wetland ecosystems, including federally listed species that utilize wetland habitats such as the giant garter snake. Selenium bioaccumulates rapidly in aquatic organisms and a single pulse of selenium (>10 ug/L) into aquatic ecosystems could have lasting ramifications, including elevated selenium concentrations in aquatic food webs (Besser et al. 1993; Graham et al. 1992; Maier et al. 1998; Nassos et al. 1980; Hamilton 2004).” (USFWS, Comment Letter - San Joaquin River Selenium Control Plan Basin Plan Amendment, September 22, 2010, at 4.) Without this cap in place, selenium levels continue to remain high under the existing project, and will increase under the proposed project, a further significant impact to the continued viability of the species that is neither addressed, monitored nor mitigated in the FEIS/EIR.

Fallowed rice fields under the existing and proposed Projects function to reduce giant garter snake habitat. The FEIS/EIR claims that only a single parcel of fallowed land was planted in

⁵ The impacts to Mud and Salt sloughs are significant and likely to affect giant garter snake, as reviewed and analyzed in the 2009 Grassland Bypass Biological Opinion, incorporated here by reference and attached as well.

rice” but also acknowledges that rice planting can vary by as much as 40 percent in a 10 year period, and that fallowing land will dramatically increase under the proposed Project. (See p. 6-13). There is no limitation whatsoever placed on the fallowing of this type of field, so this risk to habitat remains unaddressed, unmitigated and unmonitored in the FEIS/EIR. Further, the figure in the FEIS/EIR for rice fields is contradicted by the 2010/2011 Water Transfer biological opinion, which both identifies rice as a high-priority crop suitable for idling or shifting (p.11).

In an earlier consultation with USFWS, the Bureau of Reclamation declared “Temporarily idling or shifting rice fields under the Proposed Project will reduce the availability of stable wetland areas, which are important to stable giant garter snake populations, and may result in an increased risk of predation on individual giant garter snakes. Therefore, Reclamation has determined that implementation of the Proposed Project may affect and is likely to adversely affect giant garter snakes.” (Bureau of Reclamation, Request for Formal Consultation on the Proposed 2010-2011 Water Transfer Program, at 2). Here, the proposed Project does not quantify how many acres of rice fields will be fallowed under the proposed project; a proper analysis would detail which fields are to be fallowed and obtain an opinion from USFWS on whether fallowing such fields will reduce giant garter snake habitat.

The USFWS Grasslands Bypass Project Biological Opinion identifies water transfers, lack of summer habitat and a reduction in the acreage of rice planted as critical factors adversely affecting Giant Garter Snakes. (USFWS 2009, p.101). The USFWS findings conflict with the findings in proposed Project’s FEIS/EIR that water transfer will not adversely affect the giant garter snake. Page 107 of the 2009 Biological Opinion also cites this transfer and the 25 year groundwater pumping transfer as impacting giant garter snake habitat: “Further, since these transfer programs were implemented beginning in 2005, rice acreage has declined by more than 50% in the area between the Grassland wetlands and Mendota (County of Fresno Annual Crop Reports: <http://www.co.fresno.ca.us/DepartmentPage.aspx?id=33743>). This change in agricultural cropping pattern further reduces or eliminates connectivity between formerly robust populations of giant garter snake, resulting in further isolation and susceptibility to extirpation.” The USFWS GBP BO also cites water transfers as a cumulative impact on giant garter snake. (p. 139).

Furthermore, the EIS/R states for Alternative A Level 4 Refuge water supplies will be provided by the project and therefore “no reduction in habitat would occur.” (6-31). However, it cannot be assumed that any water will be made available for Level 4 refuge water supplies because final disposition of the water is not disclosed and may not be used for level 4 refuge water supplies. Therefore, it cannot be assumed that no reduction in habitat would occur.

H. Mitigation and Monitoring (14.0)

The proposed Project’s mitigation and monitoring program fails to adequately monitor groundwater levels for loss of groundwater, surface water in Mud and Salt sloughs, amount of rice fields fallowed, land subsidence, and giant garter snake populations, or mitigate these impacts to a less than significant level of effect. The FEIS/EIR erroneously claims that there are “[n]o potentially significant impacts or adverse effects to physical and biological resources; all adverse effects are less than significant impacts...” and “There were only “no effects/impacts” or

“less than significant impacts/minimal effects” on surface water resource from continuation of the Proposed Program with modifications from previous and existing programs. There were no potentially significant impacts to water resources.” (p. 14-2) As described in the cumulative impacts comments, below, without expanding the analysis to include the “baseline” and encompass all that is required of recently past, present, and reasonably foreseeable future projects, they are avoiding disclosing major impacts, and logically cannot monitor or mitigate these impacts as a result. If the proposed Project actually in fact does not rely on groundwater, actually does not rely on rice field fallowing, and actually will not reduce habitat in Mud and Salt sloughs, then the agencies should monitor these factors to ensure no impacts are indeed occurring. The absence of monitoring and mitigation is further evidence that groundwater levels will continue to decline and loss of habitat will continue to occur for the giant garter snake.

I. Cumulative Impacts

The FEIS/EIR does not adequately account for, analyze or mitigate the cumulative effects of the proposed Project combined with existing projects. The Ninth Circuit Court makes clear that NEPA mandates “a useful analysis of the cumulative impacts of past, present and future projects.” *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 810 (9th Cir. 1999). Indeed, “[d]etail is required in describing the cumulative effects of a proposed action with other proposed actions.” *Id.* The very cursory cumulative effects discussion contained in the Final EIS/EIR plainly fails to meet this standard.

CEQA defines “cumulative impacts” as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” (CEQA Guidelines § 15355.) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project “when added to other closely related past, present, and reasonably foreseeable probable future projects.” (Guidelines § 15355(b).) The discussion of cumulative impacts in an EIR is required to reflect “the severity of the impacts and their likelihood of occurrence.” Guideline § 15130(b). Required contents include either a list of past, present, and probable future projects producing related or cumulative impacts, or a summary of projections that describe and evaluate the conditions contributing to the cumulative effect. Guideline § 15130(b)(A), (B). It is clear that all projects within the watershed must be assessed, given that the Guideline section uses as an example: “Location may be important, for example, when water quality impacts are at issue since projects outside the watershed would probably not contribute to a cumulative effect.” (Guidelines § 15130(b)(2).)

CEQA requires an agency to assess the changing environment resulting from the incremental impacts of the project “when added to other closely related past, present, and reasonably foreseeable probable future projects.” “The Agency must interpret this requirement in such a way as to ‘afford the fullest possible protection of the environment.’” *Friends of the Eel River*, 108 Cal.App.4th 859, 868. In clear violation of the requirements of Guideline § 15130(b)(1), there is neither a list nor summary of projections of past, present, and reasonably foreseeable probable future diversions, transfers, or ground water substitutions in the Draft EIS/EIR or the Final EIS/EIR.

Examples of some of the projects in the Sacramento River watershed that should be included in cumulative impact analysis, many of which are in the 2010/2011 Water Transfer Program comments we provided, include, but are not limited to:

- Sacramento Valley Water Management Agreement (Phase 8, October 2001). To date there hasn't been any programmatic or tiered environmental review that would create a scientific basis upon which the lead agencies can arrive at a justifiable conclusion that the Proposed Project has no adverse environmental effect. In the area of origin.
- Draft Initial Study for 2008-2009 Glenn-Colusa Irrigation District Landowner Groundwater Well Program
- Regional Integration of the Lower Tuscan Groundwater Formation into the Sacramento Valley Surface Water System Through Conjunctive Water Management (June 2005). This program seeks to "integrate the Lower Tuscan formation aquifer system into the management of regional water supplies" and was funded by the Bureau and DWR. It was found that the only financially viable way to exploit the ground water system was through transfers to south of the Delta (<http://www.gcid.net/documents/NSVCWMP%20Final%20Report%20Oct%202012.pdf>). No environmental review.
- Sacramento Valley Integrated Regional Water Management Plan (2006). No environmental review.
- Sacramento Valley Regional Water Management Plan (January 2006). No environmental review.
- Stony Creek Fan Conjunctive Water Management Program (2008-2012). No environmental review..
- Stony Creek Fan Aquifer Performance Testing Plan for 2008-012. No environmental review.
- Woodland Davis water rights conditional approval to utilize not more than 45,000 AFY (SWRCB decision 1650, 2011).
- The proposed North to South Water Transfer Program (10-Year, 600,000 AFY) <http://www.usbr.gov/mp/cvp/ltwt/docs/FederalRegisterNoticeTenYearTransfers.pdf>
- Annual forbearance or ground water substitution agreements (see table below). The numerous water transfers, both past and planned, have not benefitted from programmatic NEPA or CEQA environmental review.

Past Water Transfers from the Sacramento Valley Through the Delta TAF Annually												
Program	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Potential 2012
DWR Drought Water Bank/Dry Year Programs	138	22	11	0.5	0	0	0	0	74	0	0	0
Enviro Water Acct	80	145	70	120	5	0	147	60	60	60	0	60
Others (CVP, SWP, Yuba, inter alia)	160	5	125	0	0	0	0	173	140	243	0	190
Totals (TAF)	378	172	206	120.	5	0	147	233	274	303	0	250

Amendment, September 22, 2010

- F. U.S. Bureau of Reclamation, Request for Formal Consultation on the Proposed 2010-2011 Water Transfer Program, January 2010
- G. U.S. Bureau of Reclamation, Biological Assessment for the 2010-2011 Water Transfer Program, January, 2010
- H. USFWS, Endangered Species Consultation on the Proposed Continuation of the Grasslands Bypass Project, 2010-2019 (Biological Opinion) December 18, 2009
- I. USFWS, Comment Letter - San Joaquin River Selenium Control Plan Basin Plan Amendment, September 22, 2010
- J. U.S. Bureau of Reclamation, Request for Formal Consultation for 2010-2011 Water Transfer Program, January, 2010
- K. CCID Irrigation Studies (excerpts).



Pacific Advocates

May 30, 2012

Susan K. Moore
USFWS Field Supervisor
2800 Cottage Way,
Room W-2605,
Sacramento, CA 95825

Larry Buklis, FOIA Coordinator
Fish and Wildlife Service
911 NE 11th Ave
Portland, OR 97232

Re: Freedom of Information Act Request Re USBR San Luis Drainage Feature
Reevaluation Demonstration Treatment Facility at Panoche Drainage District FONSI-10-
030]

Dear Ms. Moore & Mr. Buklis:

On behalf of Sierra Club California, Pacific Coast Federation of Fishermen's Association and, the Southern California Watershed Alliance all non-profit organizations, 501 (c)(3) corporations promoting the equitable and environmentally sensitive use of California's water through education, advocacy, and referral services, are requesting copies of records in the possession of the U.S. Fish and Wildlife Service, pursuant to the federal Freedom of Information Act, 5 U.S.C. 552.

The records being requested on behalf of these organizations are any notes, memoranda, emails, documents or analysis with regard to documents received, sent or in the possession of U.S. Fish and Wildlife Service and the United States Bureau of Reclamation or any of its contractors concerning the San Luis Drainage Feature Reevaluation Demonstration Treatment Facility at Panoche Drainage District [FONSI-10-030].

This indefinite project likely poses significant impacts to the surrounding wetlands, watersheds and potentially significant cumulative impacts to fish and wildlife. These groups specifically also seek these documents related to this selenium treatment project:

1. Reclamation proposes to construct, operate, and maintain for 18 months a Facility for drainage treatment within the geographical boundaries of the existing SJRIP reuse area. Subsequently, Reclamation may elect to continue operating the Facility indefinitely or delegate it to their designated operating partner for treating reuse drainage."(FONSI-1-030 at page 1-2) The proposed treatment facility, which may operate in perpetuity, extracts and stores hazardous wastes. Please provide memos,

notes, emails or analysis prepared by USFWS regarding the impacts from this project.

2. The above groups have commented that the biological impacts were not adequately considered under the virtually non-existent NEPA analysis. The effluent selenium concentrations and the assumptions about effluent treatment provided to USFWS by USBR and used in the 2009 Grassland Bypass Project Biological Opinion (BO) are different from the numbers presented in Appendix B of this Draft EA and the project schematic. Please provide any memos, notes, emails or analysis prepared by USFWS regarding the new selenium effluent concentrations and any re-consultation needed because there are numerous inconsistencies and changed assumptions regarding the concentrations, amounts and contaminants in the effluent to be discharged.
3. It appears reliance on the SLDFR Biological Opinion for this project is insufficient because the FONSI document relied upon the assumption that all discharges from the Grassland Bypass Project which this project proposes to dump the selenium and contaminant residue was suppose to cease by 2010. What if any impacts were identified by USFWS from the effluent selenium concentrations and the resulting impacts of discharging this effluent to the GBP reuse area or directly to Mud Slough and the San Joaquin River? Please provide any documents in the possession of USFWS regarding the need for re-consultation, the potential impacts from the effluent and efficacy of the proposed treatment process.
4. The Project area is home to over 42 species of birds. A compilation of data from 2003 through 2006 shows ranges and geometric mean selenium concentrations in bird eggs collected from the Panoche Drainage District reuse area were consistently at levels toxic to embryos during those four years. Selenium concentrations in avocets and stilts in 2006 exceeded 90 μ /g dry weight which is 9 times above the high risk level of 10 μ /g dry weight. Photos of a deformed embryo found in 2008 had selenium levels of 74.6 μ /g dry weight. These concentration levels exceed those found at the Kesterson National Wildlife Refuge when Westlands' toxic selenium waters were discharged to this area. This project does not propose any monitoring to determine the success of the project. Please provide any information USFWS has in its possession regarding the need for or proposed monitoring for this project.
5. Data from the previous pilot test demonstrated twice the selenium bio-concentration that was predicted by the bio-concentration model (SLDFR EIS Appendix B, page 18). The previous pilot did not perform to stated or planned

performance objectives. Please provide any analysis or explanation provided by USBR or its contractors or analysis done by USFWS regarding this project's ability to meet performance objectives or the likely failure to meet these performance predictions especially with respect to organo-selenium (e.g., biotreatment effluent will be < 10 µg/L primarily as inorganic selenium).

6. Monitoring and measurement of drainage water flows, groundwater levels, and water quality constituents are ongoing and will continue through construction. Please provide us with copies of any of these monitoring reports and measurements of drainage water flows, ground water levels and water quality constituents in USFWS's possession.
7. Reclamation and the Panoche Drainage District are preparing a Report of Waste Discharge (ROWD) for this demonstration treatment plant. We understand this will provide the basis for the issuance of an NPDES permit. Please provide us a copy of any notes, emails, documents or analysis in USFWS's possession regarding the proposed Report of Waste Discharge [ROWD] that is or will be prepared by USBR or its contractors.
8. Please provide any copies of USBR's Value Engineering studies referred to in Case 1:88-cv-00634-OWW-DLB Document 865 Filed 04/01/11 Pages3-5 that is in the possession of USFWS. Much of the information described in the Glaser 4-1-11 Declaration was not included in the FONSI/DEA thus, these groups were precluded from fully understanding the impacts of the proposed project analyze in the Value Engineering Investigations and water quality information: *"Final designs for the demonstration treatment plant were initiated in October 2010. Final designs are 30%complete for drainage conveyance pumps and pipelines, site layout, site security, storage tanks, structural foundations for tanks, power supply, and the treatment plant building; final designs are scheduled for completion in August, 2011. The 30% designs include quantity estimates, cost estimates, and preliminary drawings for pipelines, building plan and sections, and architectural features.... Reclamation awarded a design services contract in February 2011, to HDR Engineering, Folsom, CA, to prepare the final designs, specifications, and cost estimates for the water treatment equipment to be installed at the demonstration treatment plant; designs are in progress and are scheduled for completion in August, 2011."*

The above groups have extensive expertise and knowledge regarding the operation and impacts of the federal Central Valley Project, including but not limited to, the requirement of the San Luis Act (P.L. 86-488) to provide drainage which may include land retirement and compliance with the Reclamation Reform Act passed in 1982 along with state and federal laws designed to protect the beneficial uses of water and public trust values.

These groups will use this information and their proficiency to explain the economic benefits from providing subsidized water to irrigate selenium tainted large land holdings on the west side and the costs associated with the massive contamination in relation to protecting agriculture, wildlife and domestic water supplies from the resulting selenium contamination. These groups regularly comment on Reclamation public notices. To date, the public is in the dark regarding the water and wildlife impacts from this proposed demonstration plant. These non-profit groups will provide information and analysis to the public through their website, media releases, comments at public hearings and written comments on various related administrative actions.

The requested documents do not presently exist in the public domain; so accordingly, their release to these non-profit groups will increase the public's understanding of the operations and activities of the Bureau of Reclamation's attempts to comply with Congressional mandates to enforce reclamation law whereby, it has been alleged that large agricultural corporations game the regulatory framework to circumvent the law in order to receive taxpayer subsidized water on these large holdings. Research has shown these subsidies do not trickle down to the surrounding towns where there are consistent unemployment rates of 30%-40% whether the state is experiencing a drought or not. Further, it has been widely published these same recipients of taxpayer funded water also receive substantial welfare like entitlements from the US Department of Agriculture in the form of crop subsidies, direct payments and other payments. These groups anticipate collating this information with publicly available records to better determine the economic benefits from preventing pollution at its source. This collating of taxpayer benefits has not been done to date. Such analysis would enlighten the public and Members of Congress regarding the full costs of providing Delta water exports to irrigate these toxic lands on the Westside of the Central Valley.

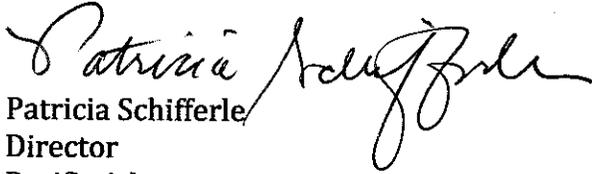
The above groups have no commercial interest and will realize no commercial benefit from the release of the requested information. Thus, pursuant to FOIA, 5 U.S.C. § 552 (a)(4)(A)(iii), these groups are entitled to a statutory fee waiver. The groups, therefore, ask that the Bureau of Reclamation and your office waive all fees and provide the requested documents free of charge. If you still plan to charge for any expense incurred in complying with this request, please notify me in advance.

If this request is denied in whole or in part please cite the specific exemptions that you believe apply and any case authority that you believe supports your conclusions. Also please inform me of the appeal procedures available to me.

If you believe a portion of the information I have requested is exempt from disclosure by express provisions of the law, please segregate and delete that material in order that the remainder of the information may be released, but please provide a list of the excluded material.

I look forward to hearing from you within the statutory 20-day period. If you have any questions regarding this request, please contact me.

Thank you for your assistance,



Patricia Schifferle
Director
Pacific Advocates
15652 Alder Creek Rd
Truckee CA 96161
(530) 550 0219

General Comments:

1. As specified in Appendix B Table 5 of the ADEIS/R, tailwater recapture by the Exchange Contractors (SJEC) has averaged (from 2003 to 2010) 134,161 AFY, yet the existing conditions in the document only consider the effects of 80,000 AFY created by tailwater recapture. Shouldn't the existing conditions include the additional 55,161 AFY? What was the environmental documentation that was done for the 250 low lift stations that were installed in the SJEC Service Area for tailwater recapture? Shouldn't the ADEIS/R reference this documentation?

Comparison of No Action with Proposed Action (quantities of water in acre-feet/year).

	Included in Existing Conditions (No Action)	25-year Transfer Program	Not Included in Existing Conditions or Proposed Action
Tailwater recapture:	80,000	80,000	54,161 ¹
Temporary Land Fallowing	8,000	50,000	
Deep Water Percolation & Applied water efficiency	0	20,000	
Total (acre-feet/year)	88,000	150,000	

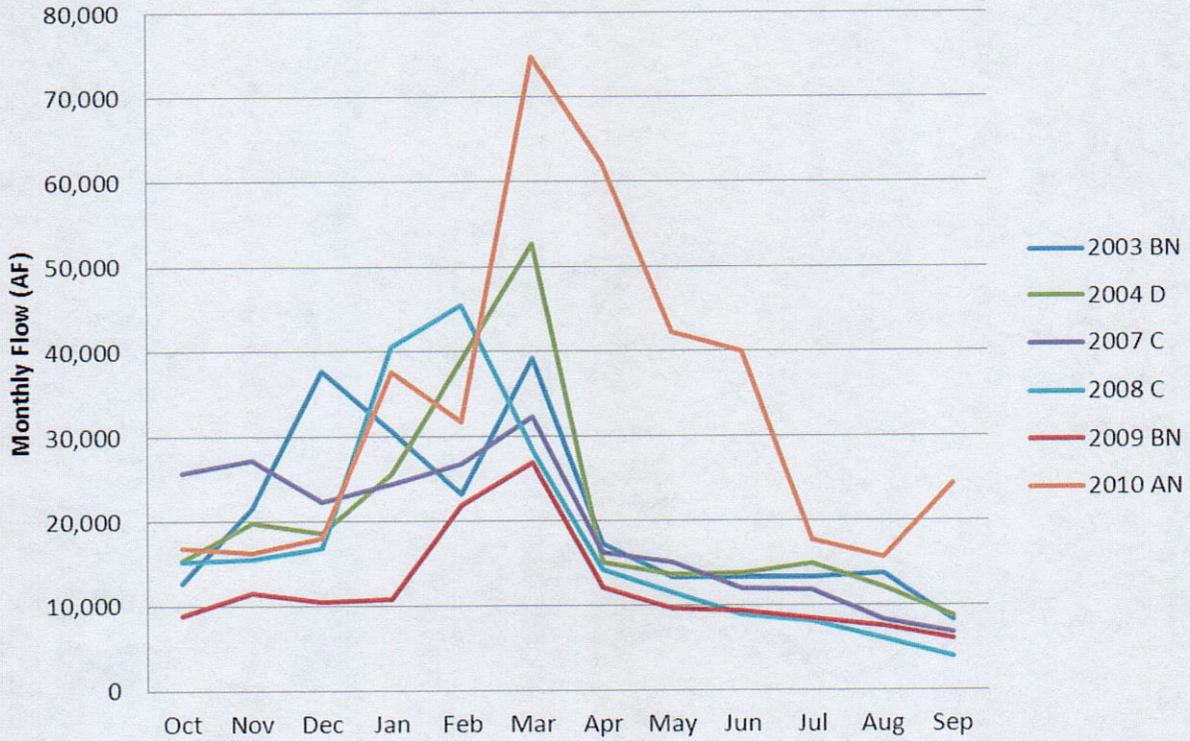
¹ Derived from Table 5 of Appendix B from the ADEIS/R as Average Total (134,161) minus 80,000 from existing conditions = 54,161 AFY.

2. A graphical analysis of flows in the San Joaquin River at Hills Ferry and Salt Slough at Highway 165 indicates that there has been a reduction of flows in all water years except those designated as "Wet" that may be associated with the transfer program and tailwater recapture actions. The year 2009 (designated as Below Normal) showed the most pronounced reduction in flow and was a year with the highest quantity of water transferred by the San Joaquin Exchange Contractors since 2000 (i.e., 88,132 AF):

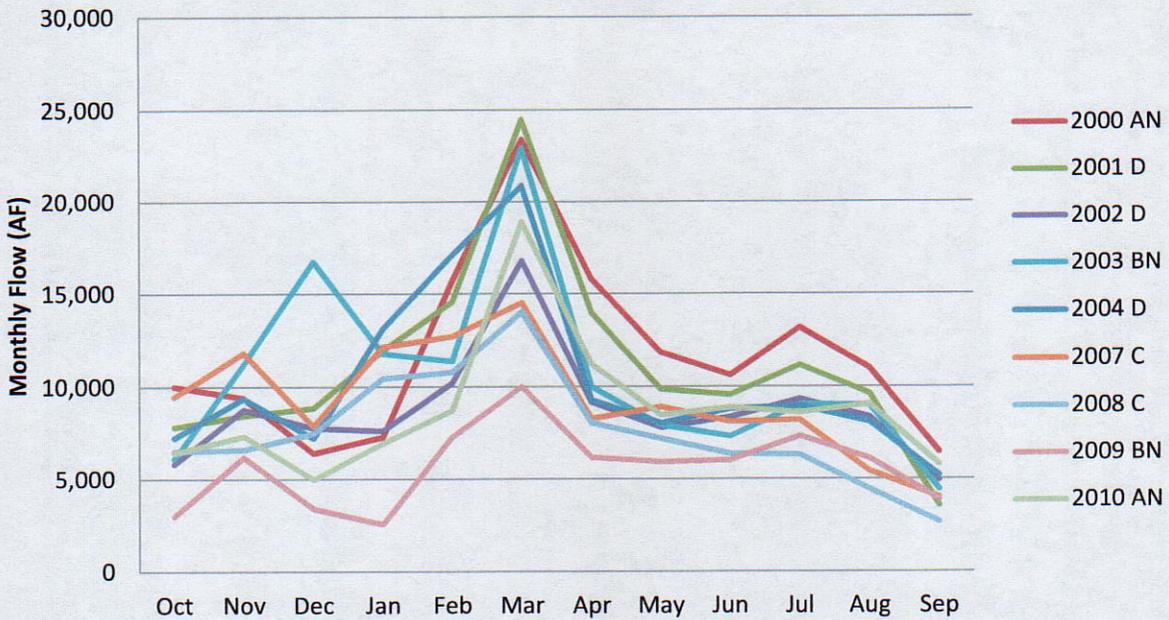
Table 4 Transferees of Exchange Contractors' Developed Water

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
USBR (Refuges)	21,500	49,000	63,500	60,000	50,210	7,800	49,583	30,000	24,132	18,887	27,714
Water Districts											
Westlands WD						53,958	24,889	41,994	42,021	43,540	46,496
San Luis WD						6,992	2,303	4,584	7,957	9,538	3,456
Panoche WD						4,411		3,650	4,969	4,851	1,443
Pacheco WD						473			309	885	
Del Puerto WD						4,000	2,602		4,623	4,970	
Mercy Springs - Panoche						133					
Santa Clara Valley WD						2,828	643	0	1,147	5,681	5,587
Total	43,000	15,500	2,000	11,637	30,000	72,795	30,417	50,228	61,026	69,446	56,981
Total Developed/Transferred (acre-feet)	64,500	64,500	65,500	71,637	80,210	80,595	80,000	80,228	85,158	88,132	84,695

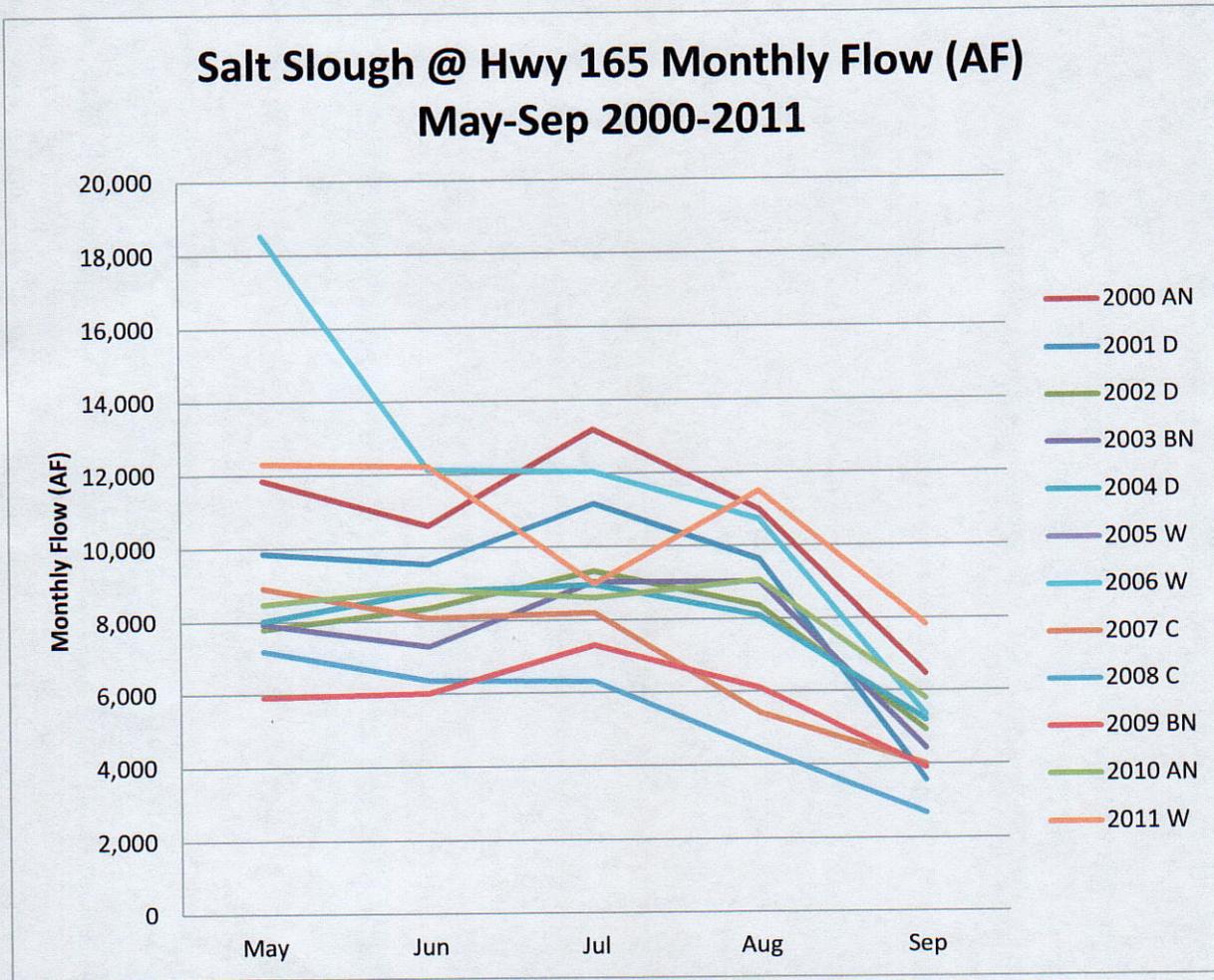
SJR @ Hills Ferry Monthly Flow (AF) AN, BN, D and C Water Year Types



Salt Slough @ Hwy 165 Monthly Flow (AF) AN, BN, D and C Water Year Types



Reductions in flows in Salt Slough could be indicative of conditions in the south Grasslands wetland channels and have implications for giant garter snake survival during the months of May through September:



Is

3. Is Kern County Water Agency in the CVP POU boundary? Would the transfer involve any changes to the permitted POU for this water? Has Pajaro Valley WMA (PVWMA) been included in the permitted Place of Use for the Central Valley Project by the State Water Resources Control Board (SWRCB)? PVWMA was not included as part of Reclamation's 1998 petition to the SWRCB to Consolidate and Conform the Places and Purposes of Use for the Central Valley Project which comprised phase 7 of the SWRCB water rights hearings, nor was it included in the SWRCB's D-1641 dated March 15, 2000. Please provide references in the EIS/R.
4. How is it decided which recipient districts will receive priority for transferred water (e.g., refuges, Ag or M&I)?
5. As most of the project area is within the SCCAO area, it would be beneficial if someone from the SCCAO NEPA or ESA team reviewed this document.
6. As there are potential impacts to the San Joaquin River (i.e. flow reductions) and overlap with the San Joaquin River Restoration Program, it would be advisable to have staff from SJRRP review this document as well.
7. Information was provided at the September 12, 2011 meeting on rice acreage within the SJEC that was helpful and should be included within the new environmental document to address potential effects of

loss of rice acreage/habitat on the giant garter snake. Please include specific data on the types and acreages of crops that have been fallowed since the 10 year transfer program began in 2005.

8. Please explain why Wet Year and Dry Year Contract quantities listed in the 2011 ADEIS/R for the 25 Year Transfer Program are in many cases different from the 2004 FEIS for the 10 Year Transfer Program:

From 2011 ADEIS/R

**Table 1-3
Existing Irrigation Water Deficit for Districts in the Project Area**

Water District	Wet Year with 100 Percent Contract Water Supply		Dry Year with 25 Percent Contract Water Supply	
	Contract Water for Agricultural Use (acre-feet)	Annual Irrigation Water Deficit (acre-feet)	Contract Water for Agricultural Use (acre-feet)	Annual Irrigation Water Deficit (acre-feet)
Westlands	1,183,853	13,944	295,913	1,522,585
Panoche	93,935	0	23,484	100,262
Pacheco	10,071	0	2,518	10,050
San Luis	124,263	0	31,066	112,728
Del Puerto	140,210	0	35,053	142,547
Patterson	22,500	17,299	5,625	54,096
Byron-Bethany	19,893	0	4,973	18,465
San Benito County	40,780	0	10,195	49,998
Santa Clara Valley (CVP)	103,033	0	25,758	28,609
Santa Clara Valley (SWP)	70,000		17,500	
Santa Clara Valley (Total)	173,033		43,258	
Friant Unit (Class 1) ^{1,2}	735,750	552,759	183,938	3,739,880
Friant Unit (Class 2) ^{1,2}	1,401,475		0	
Friant Unit (Total)	2,137,225		183,938	
Pajaro Valley	6,260	47,298	1,565	69,451
Kern County (SWP)	862,730	1,352,085	215,663	2,789,177
All Districts	4,814,553	1,983,385	853,270	8,637,867

Source: Water Balance Analysis (Appendix C).

¹ The Friant Unit was assumed to receive 100 percent of both Class 1 and Class 2 deliveries in a wet year, although unlikely to occur.

² The Friant Unit was assumed to receive no Class 2 deliveries and 25 percent of Class 1 deliveries in a dry year.

From 2004 FEIS 10-year Transfer Program:

**Table 1-3
Existing Seasonal Irrigation Water Deficit for Districts in Project Area**

Water District	Wet Year with 100 Percent Contract Water Supply		Dry Year with 25 Percent Contract Water Supply	
	Contract Water (acre-feet) ¹	Seasonal Irrigation Water Deficit (acre-feet)	Contract Water (acre-feet)	Seasonal Irrigation Water Deficit (acre-feet)
Westlands	1,150,000	85,869	287,500	1,265,433
Panoche	93,904	0	23,476	74,859
Pacheco	10,000	0	2,500	9,219
San Luis	124,502	0	31,126	107,031
Del Puerto	140,210	0	35,053	88,017
Patterson	22,500	11,275	5,625	41,640
Plainview	20,600	0	5,150	4,662
San Benito County	35,550	11,505	8,888	48,379
Santa Clara Valley	33,100	410	8,275	39,633
Friant Unit ^{2,3}	2,137,225	0	183,938	2,621,447
All Districts	3,767,591	109,059	591,529	4,300,320

9. The Proposed Action includes authorization to transfer water to recipient districts described in the existing 10 year transfer program, and expands the list of recipient districts to other CVP and SWP contractors in Alameda (EBMUD), Contra Costa (CCWD), Monterey (PVWMA), Santa Cruz (PVWMA), Santa Clara and San Benito (SCVWA), and Kern Counties (KCWA). Of those new recipient districts, there is no section 7 or section 10 coverage for water deliveries to SCVWA and KCWA. As described in Appendix B, page 22, KCWA member units include:

2.4.3 Kern County Water Agency

The Kern County Water Agency was created in 1961 by a special act of the California State Legislature and serves as the local contracting entity for the State Water Project. KCWA has long-term contracts with 13 local water districts, called Member Units, and Improvement District No. 4 for SWP water. Since 1968, the Member Units have received over 31 million acre-feet of SWP water. Its SWP contract is for 1,153,400 acre-feet. KWWA Member Units include:

- Belridge Water Storage District
- Berrenda Mesa Water District
- Buena Vista Water Storage District
- Cawelo Water District
- Henry Miller Water District
- Kern Delta Water District
- Lost Hills Water District
- Rosedale-Rio Bravo Water Storage District
- Semitropic Water Storage District
- Tehachapi-Cummings County Water District
- Tejon-Castac Water District
- West Kern Water District
- Wheeler Ridge-Maricopa Water Storage District

The Cross Valley Canal (CVC) serves as the Kern County Water Agency's (Agency) primary conduit for water deliveries to and from the California Aqueduct. With an average of less than six inches of rainfall per year, Kern County is a semi-desert region. Surface water supplies are not enough to meet the needs in the area, so groundwater plays an integral part in how water is managed in Kern County. Since the 1980s, numerous groundwater banking programs have been developed to supplement inconsistent water supplies and provide more reliable supplies during dry years. Area projects now include:

- City of Bakersfield 2,800 Acres Spreading Area
- Kern Water Bank
- Pioneer Banking Project
- Kern Fan Area Operations
- The Berrenda Mesa Water District/Kern County Water Agency Joint Groundwater Banking Project
- Semitropic Water Storage District's groundwater banking project
- Arvin-Edison Water Storage District's groundwater banking project
- The West Kern Water District/Buena Vista Water Storage District groundwater banking project
- Rosedale-Rio Bravo/Improvement District No. 4 Joint Use Recovery Project
- Cawelo Water District
- Kern Delta Water District

Selenium and the California Toxics Rule

Section 303 of the Clean Water Act (CWA) requires States to adopt and implement water quality standards to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Water quality standards consist of beneficial uses designated for specific water bodies and water quality criteria¹ necessary to protect those beneficial uses.

To comply with Section 303 of the CWA, the California State Water Resources Control Board (SWRCB) adopted water quality plans for Enclosed Bays and Estuaries (EBEP) and Inland Surface Water (ISWP) in the early 1990s. The plans established statewide water quality objectives for many toxic pollutants in California. However, various polluters filed suit against the State and won, resulting in the SWRCB rescinding the two water quality control plans in September of 1994. As a result, USEPA took over by promulgating federal water quality criteria with what is now called the California Toxics Rule.

Consultation under the federal Endangered Species Act was required for the California Toxics Rule because many listed species were affected. NMFS and USFWS issued a joint Biological Conference Opinion on March 24, 2000.² A remaining unresolved issue for California was the establishment of water quality criteria/objectives for selenium that takes into account bioaccumulation. The current State water quality objectives for selenium (2 µg/l monthly mean for lentic (still) waters of the Grasslands marshes; and 5 µg/l 4 day average for lotic/flowing waters of sloughs and rivers) do not consider bioaccumulation and are generally considered inadequate.

The CA Toxics Rule Biological Opinion (p 9-10) required that USEPA perform the following actions:

1. EPA will revise its recommended 304(a) acute and chronic aquatic life criteria for selenium by January 2002.
2. EPA will propose revised acute and chronic aquatic life criteria for selenium in California by January of 2003.

Neither of these requirements of the CA Toxics Rule Biological Opinion has yet to be implemented. However, USEPA has indicated in writing to the CVRWQCB³ that item 1

¹ In general, federal water quality standards are described as "**criteria**". State water quality standards are described as "**objectives**." State water quality objectives are then implemented through water quality proceedings, water rights, waste discharge requirements, NPDES permits, etc. by the Regional and State Boards. In most cases, USEPA has delegated its Clean Water Act Authority to California.

² USFWS/NMFS Biological Opinion on California Toxics Rule; letter to Felicia Marcus, Region IX USEPA Administrator, March 24, 2000. See http://www.c-win.org/webfm_send/40 accessed 5/19/210

³ http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/usepa_com.pdf accessed 5/11/2010

is imminent. USEPA has also stated verbally that item 2 will be implemented, but only for the San Francisco Bay/Delta within the next year.⁴

The new selenium water quality criteria will be based on consideration of bioaccumulation using the Presser/Luoma (USGS) selenium model and a recent study by Dr. Theresa Presser of USGS funded by USEPA that is currently undergoing peer review. The new selenium water quality criteria under both 1 and 2 above are likely to be lower than existing Basin selenium water quality objectives of 2 µg/l and 5 µg/l.

However, the study and subsequent water quality criteria do not go as far as establishing a new selenium water quality objective for all of California and particularly the San Joaquin River. Under a pollution waiver, west side irrigators have been allowed to use the federal San Luis drain and discharge directly into the San Joaquin River in violation of both state and federal selenium water quality standards under a 15 year waiver program. Now these same west side drainers are asking for approximately 10 additional years to meet safe selenium levels. They are seeking a basin plan amendment to continue waiving the 5 µg/l objective after 15 years of existing waivers.⁵

⁴ Tom Stokely Personal Communication with Diane Fleck, U.S. Environmental Protection Agency, Region IX, 4/7/2010. E-mail dated 5/10/2010.

⁵ http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/ . For monitoring reports on the Grasslands Bypass Project area see <http://www.sfei.org/grassland/reports/gbpdfs.htm>

Tom Stokely

From: "Terry Young" <terry_young@mindspring.com>
To: "Tom Stokely" <tstokely@att.net>
Cc: "Hal Candee" <hcandee@altshulerberzon.com>
Sent: Friday, January 15, 2010 3:34 PM
Subject: FW: Reply to the BOR response to FWS comment #10 on the Continuation of the GBP Draft EIS/EIR

Hi, Tom. I have this response from Maurer on the salmon issue, but I scanned my records and I don't have anything like a formal letter. I'll keep looking and send it on to you if I find it.

Dr. Terry F. Young
6114 La Salle Ave. #328
Oakland, CA 94611
T 510-531-4053
F 510-531-4049

-----Original Message-----

From: [Thomas Maurer@fws.gov](mailto:Thomas_Maurer@fws.gov) [mailto:Thomas_Maurer@fws.gov]
Sent: Monday, January 04, 2010 10:51 AM
To: terry_young@mindspring.com
Subject: Fw: Reply to the BOR response to FWS comment #10 on the Continuation of the GBP Draft EIS/EIR

Terry,

here is the final response I sent to BOR on the salmonid and selenium issue. If you have any other questions let me know.

Happy 2010!
Tom

~~~~~  
Thomas C. Maurer  
Chief, Investigations and Prevention Branch  
Sacramento Fish and Wildlife Office  
U.S. Fish and Wildlife Service  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825  
(916) 414-6594  
fax 414-6713  
[thomas\\_maurer@fws.gov](mailto:thomas_maurer@fws.gov)  
~~~~~

----- Forwarded by Thomas Maurer/SAC/R1/FWS/DOI on 01/04/2010 10:37 AM

Thomas
Maurer/SAC/R1/FWS
/DOI To
smcdonald@usbr.gov
11/18/2009 05:43 PM cc
Kathy Wood/R8/FWS/DOI@FWS, Joy

Winckel/SAC/R1/FWS/DOI@FWS, Janet
Whitlock/SAC/R1/FWS/DOI@FWS, Daniel
Welsh/SAC/R1/FWS/DOI@FWS,
Douglas.Hampton@noaa.gov

Subject

Reply to the BOR response to FWS
comment #10 on the Continuation of
the GBP Draft EIS/EIR

Dear Shauna,

I was asked to review the Bureau's response to Service comment #10 on the Grassland Bypass Project FEIS and to provide comments to you. Since Dr. Beckon is in the Ukraine on a Fulbright Fellowship it took awhile longer to get his input and respond than I had planned.

For many reasons the Bureau response to Service comment #10 in the Grassland Bypass Project FEIS (Appendix I-02 pages I-59 to I-65) minimizes the likelihood that selenium levels in the lower San Joaquin River are impacting salmonids now and in the future.

The Bureau response misinterprets the discussion of the Hamilton et al. (1990) study by the Service in its Beckon and Maurer (2008) document. Beckon and Maurer (2008) noted USEPA's perceived deficiencies with the 60-90 day dataset in Hamilton et al. (1990) only to articulate why USEPA discounted the results. Not noted by the Bureau response is that Beckon and Maurer (2008) also discusses why the Hamilton et al. (1990) results are actually reflective of real-world selenium exposures and are useful data that USEPA should not have discounted. Beckon and Maurer (2008) then go on to note several other studies on salmonid sensitivity to selenium that support the Hamilton et al. (1990) 60-90 day exposure results and confirm that salmonids are very sensitive to selenium.

Saiki et al. (1991) clearly documents that juvenile salmonids were present in the lower San Joaquin River for periods of time that were sufficient for them to accumulate selenium to levels that may have caused mortality in as much as 25 percent of the fish rearing in these areas. There is good reason to believe that right now, and in the future, juvenile salmonids continue to be at risk.

Site H is not as problematic a sampling site as it is described for monitoring selenium levels in this stretch of the San Joaquin River. Although the site is inappropriate to use for selenium load

1/15/2010

calculations, the historic data clearly shows that selenium concentrations here can reach high levels throughout much of the year regardless of Merced River influences. The highest selenium levels occur in the summer when Merced River flows through the side channel would not be influencing site H. Currently, sampling at site H is less frequent, and thus potential spikes of selenium may not be observed. A more detailed analysis of the data at this site may assess how well the current sampling regime would detect the highest selenium levels. Even the current reduced sampling effort shows concentrations over 9 µg/L. This is above the 20 percent mortality level and three times higher than the 10 percent mortality level for salmonids (attached chart includes more recent data for 2007).

The Bureau response to Service comments seems to imply that fish being exposed to selenium must reach an equilibrium tissue concentration before toxicity occurs, yet, this is not the case. Also, the 3.3 µg/L selenium concentration represents a direct 10 percent mortality-an extreme toxicological endpoint that puts an additional stress on an already challenged fish community. Selenium effects on other physiological functions that might influence smoltification and indirect survival are unknown but can not be discounted.

The Bureau response to Service comments also too easily brushes off steelhead as not being anymore at risk than Chinook salmon by simply comparing adult and juvenile migration patterns of steelhead to the spring-run Chinook. The references noted in Beckon and Maurer (2008) clearly show that steelhead migratory patterns are much more complicated-they are best described to be nearly year-round spawners, juveniles will hold over for many months to a year, or may not even migrate to the ocean. Beckon and Maurer (2008) referenced a study on rainbow trout, of which steelhead are a variant, indicating a 20 percent mortality of fry if female rainbow trout have a tissue selenium concentration of only 2.93 µg/g whole body dry weight. For these reasons steelhead are likely at greater risk than Chinook salmon.

In simple terms the fish will tell the story. The Service recommends that, at the very least, follow-up monitoring similar to Saki et al. (1991) should be conducted to show whether salmonids are being exposed to selenium for sufficient periods of time at the concentrations occurring in the lower San Joaquin River now and in the future.

A copy of Beckon and Maurer is also attached to this e-mail. Please don't hesitate to contact me if you have any questions.

Tom

Thomas C. Maurer
Chief, Investigations and Prevention Branch
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
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1/15/2010

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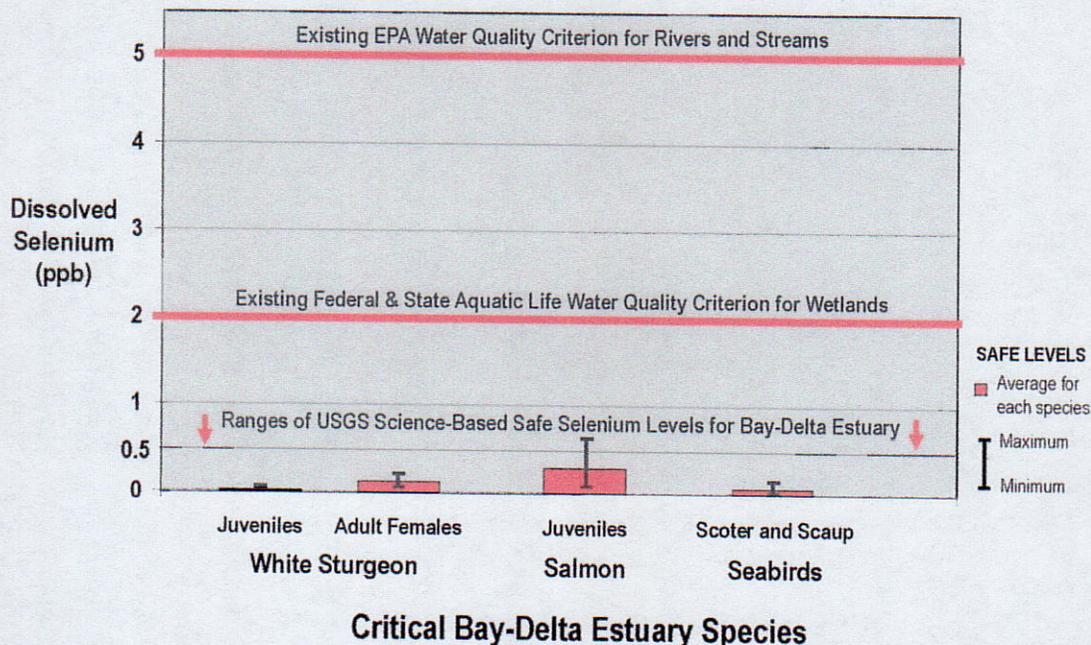
fax 414-6713

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[attachment "Reply to BOR response to FWS comment #10 on GBP EIR CHART.doc" deleted by Thomas Maurer/SAC/R1/FWS/DOI] [attachment "Beckon_Maurer_2008_Effects_Selenium_Listed_Species.pdf" deleted by Thomas Maurer/SAC/R1/FWS/DOI]

Existing Selenium Water-Quality Standards Do Not Protect Bay-Delta Species:

A new USGS study, which will be used by EPA to revise standards, shows that much lower levels of selenium will be required to protect critical species.



Since 2002, under the Clean Water Act, Section 303, and the Endangered Species Act, the United States Environmental Protection Agency (EPA) has been required to adopt acute and chronic aquatic life criteria for Selenium taking into account the bioaccumulation of this contaminant as it magnifies throughout the food chain often causing reproductive failure, teratogenic effects and death. The terms and conditions also included reevaluating and revising selenium criteria for the protection of semi-aquatic wildlife. The just released peer reviewed United States Geological Survey (USGS) study, also part of the terms and conditions, models the fate and transport of selenium in the San Francisco Bay-Delta Estuary and as agreed, the report will serve as the basis for revised water quality criteria for the protection of wildlife species. <http://www.epa.gov/region9/water/ctr/>

*** The above graph prepared by CSPA & CWIN is directly based on the results from the U.S. Geological Survey (USGS) study. http://www.epa.gov/region9/water/ctr/selenium-modeling_admin-report.pdf The USGS study evaluated a series of selenium exposure scenarios using a set of specific guidelines and modeling choices from the range of temporal hydrodynamic conditions, geographic locations, food webs, and allowable dissolved, particulate, and prey Se concentrations (which we have referred to as "safe levels"). According to the USGS, "The specificity of these scenarios demonstrates that enough is known about the biotransfer of Se and the interconnectedness of habitats and species to set a range of limits

and establish an understanding of the conditions, biological responses, and ecological risks critical to management of the Bay-Delta”.

The following scenarios were evaluated by USGS for a range of hydrologic conditions and residence times (See Tables 17, 18 and 19 in the USGS report):

- Predicted allowed dissolved Se concentrations for Bay-Delta transects at different effect guidelines and associated levels of protection (USFWS, 2009b) for a suspended particulate material>C. amurensis>sturgeon food web.*
- Predicted allowed dissolved Se concentrations for Bay-Delta transects at different effect guidelines and associated levels of protection (USFWS, 2009b) for a suspended particulate material>C. amurensis>clam-eating bird species food web.*
- Predicted allowed dissolved Se concentrations for landward transects at different effect guidelines and associated levels of protection (USFWS, 2009b) for a suspended particulate material>aquatic insect>juvenile salmon food web.*

The CSPA-CWIN summary graphic of this data shows the results for critical Bay-Delta species, aggregated across all combinations of target tissues (eg. Whole body, eggs, or diets) that have known levels of concerns, as summarized by the U.S. Fish and Wildlife Service. Results are also combined across all hydrologic conditions for each species.

The ranges of “allowable” or safe levels of dissolved selenium clearly show that, although EPA will need to specify exact safety levels, flow conditions, and species, new standards for the Bay-Delta will need to be substantially less than 0.5 parts per billion dissolved selenium to be protective.

From: Michael Chotkowski
To: Carl Wilcox; michael.tucker@noaa.gov; cdibble@dfg.ca.gov; scantrel@dfg.ca.gov; matt_nobriga@fws.gov
Subject: draft 'master brief'
Date: 04/09/2012 01:44 PM
Attachments: draft master brief 2012 04 09.docx

All - please have a look. I have (so far) left out an explanation of the role of the effects analysis saga and an explicit statement of our position on governance in order to be sure we agree on the basic document. They can be added. It also occurred to me that we might want to have a schedule question in part #2. Any comments, edits, advice appreciated. Please don't share outside your offices. Mike

Question #1: is there a project that is simultaneously economically viable and also likely to meet permit issuance criteria?

Initial Operations

- a) Can objectives include targeted operations criteria that conservation measures (including operations) are designed to achieve? If not, how are delta smelt and longfin smelt outflow requirements to be represented in the objectives?
- b) Is there a project if:
 - a. initial operations needed to contribute to recovery are as restrictive or more restrictive than the RPAs (Especially in Dry and Critically Dry years)?
 - b. we expect a long-term average yield of about 5.2 MAF from initial operations, with yield expected to be similar to current OCAP operations in Dry and Critically Dry years?

Adaptive Limits

- a) Adaptive limits are hard to satisfactorily define for a 50 year permit, especially given uncertainty associated with the rate of climate change and its effects on the ecosystem.
- b) Permit term affects our ability to formulate adaptive limits: prudent adaptive limits are easier to define for a shorter-term permit.
- c) Current thinking is that lower adaptive limits are likely to resemble Alternative 8 (SWRCB alternative) in some or most respects.
- d) Is there a project if package of adaptive limits puts predicted lowest long-term average yield at about 3.2 MAF?

Conveyance and Phasing

Is there a project if construction has to be phased according to the following table?

Conveyance (cfs)	3000	6000	9000	12000	15000
Phasing	None	None	Operational	Ops + construction	Ops + construction
Downstream* Intakes			0-1	1-2	2

*Downstream of Sutter and Steamboat Sloughs

Question #2: if there is a project, how is governance structured?

- a) Does Implementation Board that oversees all aspects of implementing the BDCP include FWS, NMFS, and DFG, or only the authorized entities?
- b) Does dispute resolution process occur locally within the '5-agencies', ending with directors/RDs?

From: [Lori Rinek](#)
To: [Michael Chotkowski](#)
Cc: [Jennifer Norris](#); [Kim S Turner](#); [Michael Hoover](#)
Subject: Fw: EPA comments on the preliminary admin draft of the BDCP DEIR/S
Date: 04/30/2012 09:37 AM

FYI

----- Forwarded by Lori Rinek/SAC/R1/FWS/DOI on 04/30/2012 09:36 AM -----

Lori Rinek/SAC/R1/FWS/DOI

04/30/2012 09:34 AM

To: Michael Tucker <michael.tucker@noaa.gov>
cc: "Chrisney, Ann C" <achrisney@usbr.gov>, "Barajas, Federico" <FBarajas@usbr.gov>
Subject: Re: FW: EPA comments on the preliminary admin draft of the BDCP DEIR/S

Hi Ann, yes please submit EPA's comments to ICF. I guess the one issue the lead agencies still need to discuss is how we want ICF to handle the cooperating agencies comments.

▼ [Michael Tucker <michael.tucker@noaa.gov>](mailto:michael.tucker@noaa.gov)

Michael Tucker
<michael.tucker@noaa.gov>

04/29/2012 08:19 PM

To: "Chrisney, Ann C" <achrisney@usbr.gov>
cc: "Rinek, Lori" <lori_rinek@fws.gov>, "Barajas, Federico" <FBarajas@usbr.gov>
Subject: Re: FW: EPA comments on the preliminary admin draft of the BDCP DEIR/S

No issues. These should definitely be submitted to ICF.

On Fri, Apr 27, 2012 at 4:14 PM, Chrisney, Ann C <achrisney@usbr.gov> wrote:
Lori and Mike, please let me know if you have any issues with submitting these comments to ICF. Thanks, Ann

From: Chrisney, Ann C
Sent: Friday, April 27, 2012 3:13 PM
To: 'Bogdan, Kenneth'
Cc: 'Lori_Rinek@fws.gov'; 'Michael Tucker'; Barajas, Federico; 'Stein, Russell'
Subject: FW: EPA comments on the preliminary admin draft of the BDCP DEIR/S

Ken, I am sending along comments from EPA (see email below) and also additional federal comments on Chapter 3. The Chapter 3 comments include a comment form and 3 supplemental documents to assist with revisions. Thanks, Ann

From: Barajas, Federico

Sent: Thursday, April 26, 2012 7:33 PM
To: Chrisney, Ann C; Russ Stein (rstein@water.ca.gov); cenos@water.ca.gov
Cc: Idlof, Patricia S (Patti); Fry, Susan M
Subject: FW: EPA comments on the preliminary admin draft of the BDCP DEIR/S

Hi Ann, Russ and Cassandra,

I'm not sure if you included the following EPA comments on your State/Federal submittal to ICF earlier today. See Karen's message below. Thanks, FB

From: Karen Schwinn [Schwinn.Karen@epamail.epa.gov]
Sent: Thursday, April 26, 2012 2:05 PM
To: Barajas, Federico
Cc: Idlof, Patricia S (Patti); Nawi, David; Michael.S.Jewell@usace.army.mil;
Michael.G.Nepstad@usace.army.mil; tanis.j.toland@usace.army.mil;
Paul.j.robershotte@usace.army.mil; michael.tucker@noaa.gov; Rinek, Lori; Shouse, Michelle K.; luana.kiger@ca.usda.gov; dalehf@water.ca.gov; King Moon, Laura
Subject: EPA comments on the preliminary admin draft of the BDCP DEIR/S

Date: April 26,2012

Subject: EPA Preliminary Administrative Draft Comments for the Bay Delta Conservation Plan DEIR/S

From: Karen Schwinn, Water Division
Kathleen Martyn Goforth, Environmental Review Office

To: Federico Barajas

As you know, the EPA agreed to be a cooperating agency in the preparation of this EIS/EIR in its letter dated November 12, 2008.¹ Over the past several months, chapters of the BDCP DEIS/DEIR as well as the Habitat Conservation Plan (HCP) have been intermittently released to the action agencies, cooperating agencies, and to the public simultaneously. EPA has provided comments on a number of these documents, as part of the Interagency Management Team (IMT) and pursuant to our review authority under Section 309 of the Clean Air Act.²

Given the importance and complexity of this project, we appreciate this unique opportunity for early input. EPA does not typically review NEPA documents concurrent with the lead agency review. We recognize that this is a work in progress and we anticipate significant changes in the documents as the lead agencies make revisions to the proposed project and analyses. Accordingly, we have not attempted a detailed or comprehensive review at this time. Instead, we are raising a few broad comments and suggesting corrections where we notice obvious errors or unfinished discussions. We may have additional substantive comments as additional revisions of the environmental documents and required documentation for CWA Section 404 permitting are available for early and formal review by our agency.

All parties involved in Bay Delta issues recognize that California is at a critical juncture in water resources management. EPA believes that a successful BDCP could be a useful component of a broader governmental response to water management for all uses. With that in mind, we offer the following observations and suggestions on the administrative draft.

Clean Water Act Section 404

Specific Comments

The current draft, at section 8.2.1 in the water quality chapter, includes a discussion of the federal regulatory regime applicable to the Delta region. We have not attempted an exhaustive edit of these general descriptions of the various federal regulatory programs. However, we offer the following necessary revisions of the 404 discussion, at page 8-108:

(1) The sixth sentence of the 404 discussion, line 23 ("If a federal agency is a partner...") is incorrect and should be deleted. Federal agencies must comply with 404 like any other prospective permittees. Congress can, on a project by project basis, exempt projects from the permit requirements of 404. See CWA Section 404[r]. Otherwise, federal agencies need to rely on a 404(b)(1) analysis and demonstrate that the chosen project is the LEDPA.

(2) The fifth sentence of the same paragraph, line 20 ("Under Section 404(b)(1) of the CWA, the Least Environmentally Damaging Practicable Alternative (LEDPA) must be identified from among those alternatives considered in detail in the Environmental Impact Statement (EIS)/Environmental Impact Report (EIR)") is misleading. It implies that the LEDPA is limited to the list of alternatives that were analyzed by the EIS. This inverts the analysis. The requirement is that the project proponent must demonstrate that the project is the LEDPA. If done correctly, the EIS will include an analysis of the LEDPA, but this is not inherently true. That is, the Corps may determine that the EIS does not properly evaluate the LEDPA, in which case additional review may be necessary. This sentence would be more accurate if it simply states that a project proponent must demonstrate that the Proposed Project represents the LEDPA that achieves the basic project purpose while meeting the costs, technical, and logistical feasibility factors associated with that basic purpose.

General comments on regulatory compliance

The document correctly points out that project implementation will require a significant number of permits under federal programs.³ Most of these permits require some form of NEPA compliance.

EPA, the Corps, and DWR have been discussing permit compliance for the BDCP for more than a year. EPA and the Corps recommended streamlining the federal natural resource permitting process by including CWA Section 404 information for the BDCP Delta Conveyance Project in the EIS/EIR. The goal of this approach is to allow the Corps to rely on the BDCP EIS/EIR to support a CWA Section 404 permit decision without significant supplemental NEPA environmental review. EPA and the Corps proposed a process for including information relevant to CWA Section 404 by the lead federal agencies and DWR. We have been working together during this time to integrate the CWA Section 404 information needs with the BDCP ESA NEPA process. Although an MOU among the lead agencies, the Corps, and EPA was drafted, DWR ultimately chose not to pursue this MOU. At this time, however, it is not clear whether this goal of integration will be attained.

EPA recommends that DWR and the lead federal agencies continue the efforts to incorporate CWA Section 404 information in the EIS/EIR by working with EPA and the Corps. The preliminary administrative Draft EIS states that CWA Section 404 information, including an alternatives analysis and identification of the LEDPA, will be included in the Final EIS. We are encouraged by this statement but note that limited progress in this effort has been made and that the majority of CWA Section 404 work remains incomplete. We suggest DWR and the federal lead and cooperating agencies begin by formally agreeing on a BDCP NEPA purpose statement followed by agreeing on a CWA Section 404 basic and overall purpose statements for the Delta Conveyance Project. These steps should be followed by agreeing on methods for estimating the extent of CWA jurisdictional waters, screening criteria, LEDPA identification methods, alternatives, LEDPA, and mitigation.

Incomplete Chapters or Analyses

The most current Administrative Draft includes some incomplete chapters and analyses. We list the following as examples of unfinished or fragmented information:

- 1) Alternatives screening criteria (Alternative Development Report, Appendix 3A),
- 2) Fish entrainment analysis for the new operational water conveyance intakes,
- 3) Appendix 29C Effects of Sea-Level rise on Delta Tidal Flows and Salinity,
- 4) Effects of the proposed project on water quality indicators for mercury and selenium,

- 5) Environmental effects on fish and aquatic resources in a No action scenario(s) (p. 11-127) and environmental effects of operations on fish and aquatic resources (for all action alternatives),
- 6) General conformity analysis including mitigation (p. 22-48)
- 7) Appendix 3D- Defining Existing Conditions, the No Action/No Project Alternative and Cumulative Impact Conditions

As these documents are noted to be under preparation, we take some comfort that they will be released with subsequent administrative drafts(s) but note that it is difficult to make meaningful comparisons amongst alternatives, evaluate significance thresholds, and understand impacts when many of the issues EPA believes to be most important are not yet evaluated. We also strongly encourage the development of robust cumulative impacts sections, particularly for the cumulative impacts to water quality, fish, etc. (these sections are not available for our review at this time).

Inconsistency Among Multiple Baselines and No Action Alternatives

The Draft EIS evaluates multiple baseline and No Action alternatives in the various impact chapters. Although we acknowledge the complexity of fulfilling various requirements under CEQA and NEPA regarding determination and selection of the No Action Alternatives, EPA believes there is inconsistency among the chapters that will be confusing for the public and the decision-makers. For instance, there are references to *the* No Action Alternative when comparing a constituent and/or future scenario (i.e. climate change effects on water supply under *the* No Action Alternative p. 29-23), and references to the suite of No Action Alternatives when referring to other constituents (i.e. impacts to ammonia concentrations for No Action Alternative Near-Term, No Action Alternative Early Long-Term, and No Action Alternative Late Long-Term). We note this is problematic for determination of a threshold of significance (see p. 8-130) because one impact deemed to be significant on one baseline may not be significant when compared against another. It is unclear how these discrepancies will be reconciled in the document. In some cases, these multiple baseline/existing condition scenarios may lead to questionable conclusions. For example, Chapter 8 Water Quality repeatedly states that impacts to dissolved oxygen will be identical to existing conditions for all alternatives, including Conservation Measure 14- Stockton Deepwater Ship Channel aeration facility (p. 8-187). This seems counter intuitive and we recommend that the Draft EIS provide further information regarding the analysis that supports this conclusion.

Sea Level Rise and the Design of New Facilities

Sea level rise and climate change projections suggest a number of long term challenges in the Delta, especially in terms of increased salinity intrusion, decreased Delta outflow, and potentially greater flood events. Furthermore, sea level rise itself would increase pressures on Delta facilities. It is stated that the proposed facilities under the Action Alternatives will that are predicted to occur such as those described above. This appears multiple times throughout Chapter 23- Climate Change for a variety of stressors (shift from snowfall to rainfall, increased water temperatures) as well as impacts (surface water, groundwater, and so forth).

With these problems on the horizon, EPA believes it will be important for the EIS/EIR to evaluate the design of the proposed Delta conveyance improvements to assure that they are appropriate and provide flexibility in a changing climate. Although some of these issues may not be direct environmental concerns, we believe that the integrity of the structural design for the below-sea-level Delta conveyance component is an important consideration in the Section 404 public interest determination.

Additionally, the format of the climate change chapter makes it difficult to compare alternatives and consider significant impacts as a result of climate change. For instance, although Table 29-4 details the linkages between climate change effects and resource topics, it gives no information regarding the potential impacts, nor any discussion of these impacts in relation to the alternatives. Due to the lack of analysis and organization in this chapter, it is difficult to accurately evaluate the impacts of the proposed project.

Lastly, the document's assumptions with regard to climate change are unclear. The document includes aggressive negative impacts from climate change when it evaluates future fisheries scenarios, but does not appear to make similar evaluations for the anticipated climate change effects on Northern California hydrological conditions (even though these projections are readily available in DWR documents- see generally <http://www.water.ca.gov/climatechange/articles.cfm>). For analytical purposes, the document and appendices need to make similar climate change assumptions for each resource area. That is, if there are "worst case" climate change assumptions being made for future fisheries scenarios, then there should be parallel "worst case" climate change assumptions in analyzing future hydrological (water supply) scenarios.

Readability of the document

To facilitate the development of informative environmental documents, NEPA encourages straightforward and concise reviews⁴ and an EIS should present the environmental impacts of the proposal and alternatives in comparative form (40 CFR 1502.14). We recommend a table and summary of environmental consequences for each aspect of the affected environment. Additionally, we cite CEQ's guidance on readability and note that EIS's "shall be analytic rather than encyclopedic" (40 CFR 1502(a)). For example, Chapter 8 Water Quality offers no comparison amongst impacts for various water quality constituents, and presents information in a list, rather than narrative form. Although we acknowledge the complicated nature of the project, we suggest that the document's readability be improved for the public and for the decision-makers.

EPA appreciates this early coordination opportunity and we look forward to our continued constructive involvement in developing the BDCP EIS/EIR. If you have any questions about our comments, please call Stephanie Skophammer, the lead NEPA reviewer, or Erin Foresman, the Water Division lead, for this project. Stephanie can be reached at (415) 972-3098 and Erin can be reached at (916) 930- 3722 and foresman.erin@epa.gov.

¹ In our letter agreeing to be a cooperating agency, EPA emphasized that our role as a cooperator was technical, and that it did not abridge or otherwise affect our independent NEPA review responsibilities under Section 309 of the Clean Air Act and the related CEQ Regulations.

² See our Scoping comments at <http://www.epa.gov/sfbay-delta/cwa-nepa.html>

³ Several potential permits have been identified under the Clean Water Act, including:
(1) Clean Water Act Section 404 (33 U.S.C. 1344) permits for discharges of dredge or fill material into waters of the United States ("404 Permits."). This permitting program is administered jointly by the U.S. Army Corps of Engineers (Corps) and EPA pursuant to a series of interagency agreements and regulations. Generally, the Corps issues the 404 permits, subject to oversight and potential veto by the EPA. See CWA Section 404(c). See, for example, 73 Fed. Reg. 54398 (09/19/08)(EPA veto of proposed Corps 404 permit for Yazoo Pumps project).

(2) Rivers and Harbors Act Section 10 permits (33 U.S.C. Section 403) authorizing modifications to the "course, condition or capacity" of any navigable water. This program is administered by the Corps.

(3) Permits for Modifying Corps Projects under Rivers and Harbors Act Section 14 (33 U.S.C. Section 408). This program is administered by the Corps. See generally Policy and Procedural Guidance for the Approval of Modification and Alteration of Corps of Engineers Projects, October 23, 2006. Under this guidance, Section 408 approval will generally require a public interest determination as well as appropriate NEPA documentation.

(4) Clean Water Act Section 401 water quality certifications, issued in California by the State Water Resources Control Board, which would ordinarily be required for the issuance of a 404 permit, a 408 modification, and/or a Rivers and Harbors Act permit.

⁴ See CEQ's Improving NEPA Efficiencies Guidance released March 6, 2012:

http://www.whitehouse.gov/sites/default/files/microsites/ceq/improving_nepa_efficiencies_06mar2012.pdf. This recent guidance reiterated the NEPA regulations' preference for brevity: "The CEQ Regulations indicate that the text of a Final EIS that addresses the purpose and need, alternatives, affected environment, and environmental consequences should normally be less than 150 pages and a final EIS for proposals of unusual scope or complexity should normally be less than 300 pages."

~~~~~  
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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
81420-2011-F-0855

JUN 04 2012

Memorandum

To: Chief, Resource Management Division, U.S. Bureau of Reclamation, South Central California Area Office, Fresno, California

From: Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: San Luis Drainage Feature Reevaluation Demonstration Treatment Facility at Panoche Drainage District

This memorandum responds to your September 16, 2011 and March 13, 2012 memoranda (Memos) requesting initiation of consultation pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (Act) (16 U.S.C. 1531 *et seq.*), for the San Luis Drainage Feature Re-evaluation (SLDFR) Demonstration Treatment Facility (Demo Facility) at Panoche Drainage District in Fresno County. The U.S. Bureau of Reclamation (Reclamation) has requested concurrence under the Act with their effects determinations that construction and operation of the SLDFR Demo Facility for 18 months is not likely to adversely affect (NLAA) the San Joaquin kit fox (*Vulpes macrotis mutica*) and the giant garter snake (*Thamnophis gigas*). This response is provided pursuant to section 7(a)(2) of the Act, and in accordance with the regulations governing interagency consultations (50 CFR §402). We received your Memos on September 19, 2011 and April 2, 2012, respectively. Your March 13, 2012 Memo provided additional avoidance measures to be incorporated into the Proposed Action, which are described in more detail below. A Draft Environmental Assessment (DEA) for the Proposed Action was made available for a 30-day public comment period on September 19, 2011.

We are also providing comments and recommendations under authority of, and in accordance with, provisions of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) and the National Environmental Policy Act (NEPA) (40 CFR Part 1500), through our role as a Cooperating Agency under NEPA for the SLDFR Project, and within associated guidance from the President's Council on Environmental Quality. The FWCA requires Federal agencies proposing water resource development projects involved in issuance of related permits or licenses to consult with the Service and provide equal consideration to the conservation, rehabilitation, and enhancement of fish and wildlife resources with other project purposes. We believe the Service's role as Cooperating Agency is to assist Reclamation in its identification of issues that are germane to subsequent actions it would take on the SLDFR project, to identify significant issues early, and to provide for better decision-making. Our focus is to assist Reclamation in its efforts to "...make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment" (40 CFR Part 1500.1[c]).

This memorandum transmits our concurrence with your effects determinations that the construction and operation of the SLDFR Demo Facility for 18 months is NLAA the San Joaquin kit fox and the giant garter snake. However, as we will describe in detail below, the Service believes that new information, subsequent to the 2006 SLDFR biological opinion and FWCA Report has become available that should be considered for all future SLDFR-related actions. The Service recommends therefore that prior to full-scale implementation of the SLDFR project within any of the subareas considered in the SLDFR EIS, reinitiation of formal consultation under the Act and revision of the FWCA Report is warranted.

Consultation History

September 19, 2011: The Service receives a memo from Reclamation requesting initiation of consultation for the SLDFR Demo Facility.

October 13, 2011: Reclamation clarifies via e-mail that the source of the drainwater for the Demo Facility will be sumps within the Grassland Bypass Project's drainage reuse area.

October 19, 2011: Reclamation clarifies via e-mail that the duration of the Project is 18 months.

October 23, 2011: The Service requests clarification on the predicted constituent concentrations in effluent and waste streams from the SLDFR Demo Facility and identifies several inconsistencies between the schematic of the Demo Facility provided on October 24, 2011, and Table 2-1 and text of the Draft EA for the project.

November 1, 2011: Reclamation transmits via e-mail a revised schematic for the SLDFR Demo Facility operations and confirmed that there would be monitoring to track the composition of drainage sump water and consequent waste-streams and sludge waste products and to quantify volumes, concentrations, and loads for disposal to assess the effectiveness and capacity of treatment technologies. Reclamation noted that they had not developed a testing and monitoring plan, however, this task is scheduled to be prepared during FY 2012.

November 4, 2011: The Service transmits a number of questions about the biotreatment process and expected water quality of the biotreatment effluent (for total dissolved solids [TDS] and other minor constituents), the mass balance of the schematic for selenium and TDS, the oxidation step on the biotreatment effluent, loss of selenium to volatilization, and connection of the San Joaquin River Improvement Project (SJRIP) to the Grasslands Bypass Project (GBP) and San Luis Drain (denoted by an arrow in the upper left corner of the schematic that Reclamation provided to the Service).

November 10, 2011: Reclamation and the Service participate in conference call to address questions submitted by the Service on November 4, 2011, including discussion of various materials provided by Reclamation since November 7, 2011.

November 13, 2011: The Service requests information on the final oxidation step after the biotreatment process used to convert organo-selenium into inorganic selenium and prior to disposal into evaporation ponds, including: 1) production and handling of waste products from the oxidation step; and 2) expected efficiency of the oxidation step.

November 16, 2011: The Service requests via e-mail data on TDS concentrations of SJRIP sump water that will be used in the SLDFR Demo Facility.

November 17, 2011: Reclamation transmits a revised construction schedule for the SLDFR Demo Facility.

November 21, 2011: Reclamation responds to questions from the Service about the ozonation treatment step after selenium biotreatment. Reclamation concluded that ozone is the most efficient oxidation process that can be used, and ozone transfer efficiency is projected to be 90 percent or greater.

November 21, 2011: Telephone call between Reclamation and the Service to discuss the status of the ESA consultation. The Service identified two key issues that needed to be addressed prior to concurrence: 1) fate of other constituents in the water as it moves through the system (e.g. mercury – does it become methylated, etc.); and, 2) post treatment water quality that would be released into the environment.

December 5, 2011: The Service transmits via e-mail a list of questions for the conference call with Reclamation and General Electric (GE) on the SLDFR Demo Facility scheduled for Wednesday December 7, 2011. The list of questions is attached to this Memo as Appendix A.

December 7, 2011: Representatives of the Service, Reclamation, U.S. Geological Survey and GE (the manufacturer of the treatment technology to be used at the Demo Facility) participate in a conference call to address questions raised by the Service in the December 5, 2011 e-mail to Reclamation.

December 13, 2011: The Service transmits two e-mails to Reclamation with information on selenium analytical techniques.

December 21, 2011: The Service transmits a list of suggested environmental commitments for construction and operation of the SLDFR Demo Facility. The list of suggested commitments is attached to this Memo as Appendix B.

January 11-February 1, 2012: Reclamation and the Service work on revisions to the December 21, 2011 list of suggested environmental commitments.

February 17, 2012: Reclamation notifies the Service via e-mail that Reclamation cannot commit to providing reports from GE establishing efficacy of the selenium biotreatment technology because those reports constitute proprietary information of the manufacturer.

March 13, 2012: Reclamation transmits a memorandum providing additional avoidance measures to be incorporated into the Proposed Action and requests concurrence with their effects determination that the construction and operation of the SLDFR Demo Facility is NLAA the San Joaquin kit fox or the giant garter snake. The list of commitments is similar in content to what was transmitted in the December 21, 2011 e-mail to Reclamation with the following exceptions: 1.) the commitment to conduct a bioassay study to establish environmental risk to food webs was removed; and 2.) the commitment to provide the Service reports on the efficacy of the selenium biotreatment technology was changed to sharing new information with the Service, as it becomes available, establishing

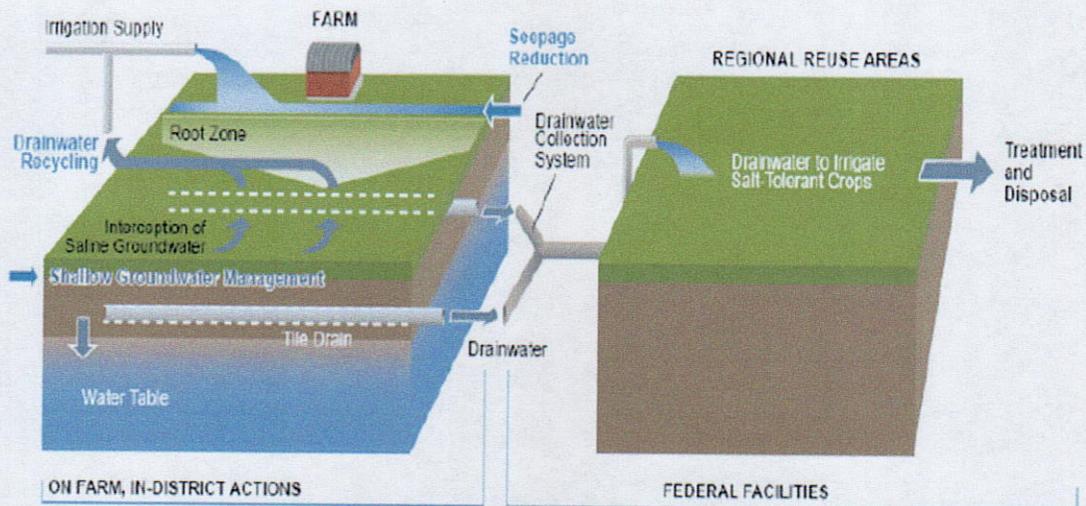
efficacy of the selenium biotreatment technology and efficacy of ozonation in reducing organoselenium to selenate.

April 23, 2012: Reclamation approves the Service's request via e-mail to change the word "would" to "will" in the list of environmental commitments transmitted in the March 13, 2012 Memo.

Background

The San Luis Unit (SLU) has received Central Valley Project contract water for more than 40 years, with only partial drainage removal services. Drainage service is needed to achieve a long-term, sustainable salt and water balance in the root zone of irrigated lands in the SLU and adjacent areas. The San Luis Act of 1960 (Public Law 86-488) recognized the drainage management requirement, and several lawsuit decisions confirmed the Federal government's obligation to provide drainage service when irrigation water is applied to the SLU. Reclamation completed the SLDFR plan to supply drainage service for the SLU in a Final EIS (FEIS) in 2006. The FEIS evaluated seven action alternatives in addition to the no action alternative for implementing drainage service within the SLU. Common elements of the SLDFR FEIS action alternatives are depicted in Figure 1 below. The Record of Decision (ROD) for the FEIS was signed March 9, 2007. Subsequently, Reclamation prepared the *San Luis Drainage Feature Re-Evaluation Feasibility Report* (Feasibility Report), which reviewed the performance of the treatment technologies and evaluated the feasibility of implementing the preferred alternative (USBR 2008).

Figure 1. Common Elements of SLDFR In-Valley Disposal Alternatives



Source: SLDFR Feasibility Report page 23 (USBR 2008).

Performance of Treatment Technologies during Previous SLDFR Pilot Studies

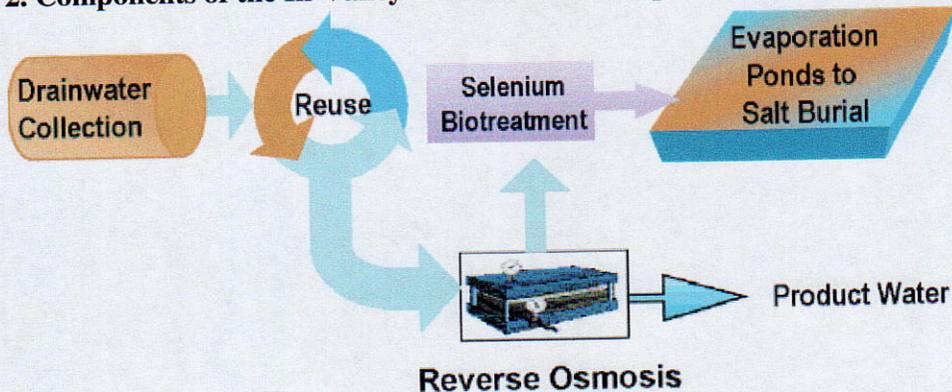
The SLDFR Pilot Studies conducted from 2004 to 2006 were unable to successfully implement the drainage treatment schematic or consistently meet project specifications of 10 µg/L selenium, primarily to be composed of inorganic selenate and/or selenite ions prior to discharge into evaporation ponds. The SLDFR FEIS Appendix B (USBR 2006) and Feasibility Report Appendices D and E (USBR 2008) documented numerous operational problems associated with the SLDFR treatment pilot studies implemented in 2004 through 2006. These problems included the following:

- Introduction of oxygen into the influent distribution line significantly diminishing the performance of the anaerobic bacteria in Reactor 1 to remove selenium and nitrate;
- Scaling problems on numerous occasions in the Reverse Osmosis (RO) and biotreatment systems which ultimately forced the shutdown of these systems (SLDFR Feasibility Report Appendix D page 20);
- Solidification of the granular activated carbon in the biotreatment system resulting in overflowing of bioreactor tanks on several occasions;
- Insufficient hydraulic head in the bioreactor tanks that could not produce sufficient pressure to move water through the fouled distribution headers and the carbon media. The bio-growth caused several shutdowns of the reactors;
- The biotreatment system at Red Rock Ranch experienced problems with its nutrient dosing system causing reduced efficiency of the biotreatment system;
- The granular activated carbon scaling at Panoche WD and the nutrient dosing problem at Red Rock Ranch caused performance problems which prevented the pilots from achieving the SLDFR performance criterion selenium level of 10 µg/L selenium (primarily in inorganic forms), prior to discharge into an evaporation pond. With the exception of the first month of the pilot, the biotreatment system at Red Rock Ranch was hindered by performance problems that resulted in effluent selenium concentrations higher than the target of 10 µg/L;
- A high proportion of organo-selenium in the biotreatment effluent resulted in twice the selenium bioconcentration in invertebrates in the evaporation pond than was predicted by the bioconcentration model presented in the SLDFR EIS (see pg 18, SLDFR FEIS Appendix B);
- During Phase III of the SLDFR Pilot studies, the bioreactors at Panoche WD operated without problems during the first three weeks of the pilot. During the week of June 27, 2006, nitrogen gas buildup in the bioreactors caused air binding (bubble accumulation) within the carbon media. The expanding carbon reached the top of the bioreactor and plugged the effluent port resulting in overflow from the bioreactors;
- The biotreatment systems in Panoche and Red Rock Ranch were only able to successfully meet the performance criterion of 10 µg/L Se in the biotreated effluent when treating raw drainwater (i.e., drainwater collected prior to being routed to a drainage reuse area; raw drainwater is significantly lower in total dissolved solids [TDS] and selenium). This differs substantially from the schematic in the SLDFR EIS which planned for RO treatment to occur on subsurface drainage collected from drainage reuse areas, and biotreatment to occur on effluent from the RO treatment process.

SLDFR Demo Facility Project Description

The proposed action, the SLDFR Demo Facility, will test the efficacy and operation of RO treatment and selenium biotreatment technologies for agricultural drainage disposal. As noted above, these technologies had previously been tested in SLDFR Pilot Studies Phases I thru III but results did not achieve performance specifications identified in the SLDFR FEIS (see SLDFR Feasibility Reports Appendices D and E, USBR 2008). Advances in biotreatment technology have been made since the last SLDFR pilot studies were completed in 2006. Reclamation intends to collect cost and performance data to use for final design, construction and operation of a full-scale drainage service facility in one sub-area of Westlands Water District consistent with the schematic depicted in Figure 2. A secondary purpose of the SLDFR Demo Facility is to evaluate other innovative technologies, which may reduce the cost and environmental impacts as compared to the technologies evaluated in the SLDFR Feasibility Report, while meeting the requirements for drainage service (Draft SLDFR Demo Facility Finding of No Significant Impact pages 1-2). These other technologies have not yet been identified and will likely require subsequent environmental analysis and may require separate consultation under the Act.

Figure 2. Components of the In-Valley Treatment and Disposal Alternatives in the SLDFR FEIS



Source: SLDFR FEIS, page ES-11 (USBR 2006).

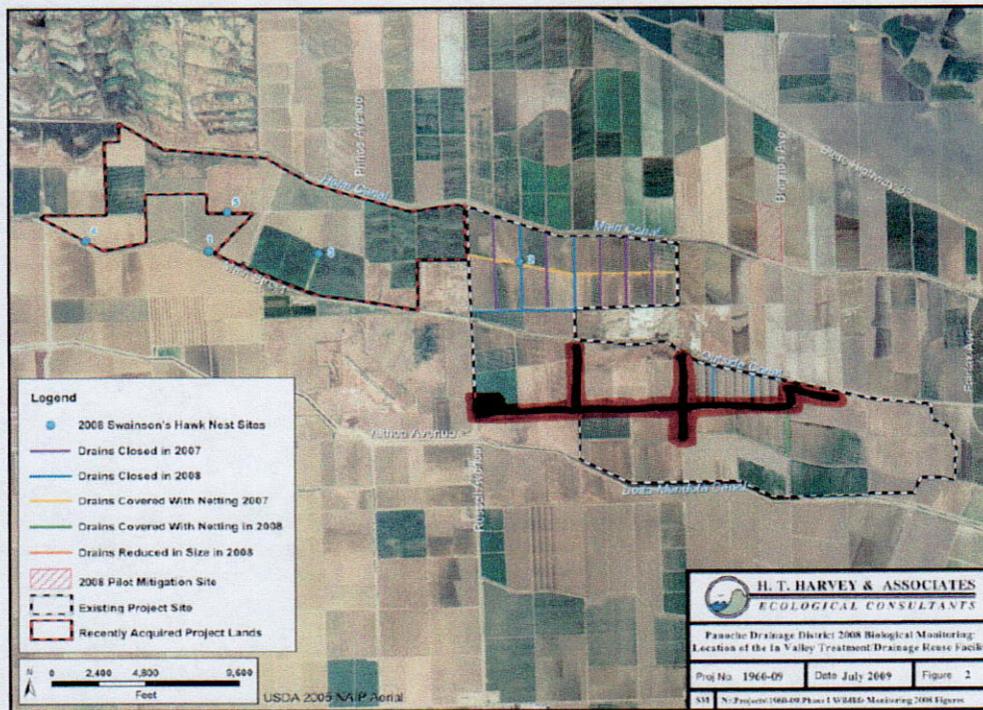
Construction

Reclamation proposes to construct, operate, and maintain for 18 months the SLDFR Demo Facility for drainage treatment within the geographical boundaries of the existing Grassland Bypass Project's Drainage Reuse Area (part of the SJRIP). According to the Draft Environmental Assessment for this project (DEA), the SLDFR Demo Facility may be operated by Reclamation staff, and/or contractors for at least 18 months to collect data for final designs. Subsequently, Reclamation may elect to continue operating the Facility indefinitely or delegate it to their designated operating partner for treating reuse drainage. Disposition and operation of the facility after the 18-month time period is unknown at this time and is not considered in this consultation.

The SLDFR Demo Facility is expected to occupy a rectangular area, approximately four-acres in size, adjacent to and immediately north and east of Panoche Drainage District's existing distribution canals and within the Grassland Bypass Project's SJRIP drainage reuse area. Additional pipelines will be constructed to convey drainage water from the seven existing reuse sumps to the Demo Facility (as

depicted in Figure 3). Proposed drainage water treatments will include RO, ultrafiltration, and selenium biotreatment and ozonation prior to discharge to the SJRIP. The Demo Facility may also evaluate up to two other innovative technologies as yet to be determined and not included in this consultation. The SLDFR Demo Facility footprint includes adequate land area to incorporate these additional technologies if and when they are built. Subsequent environmental analysis may be required for these additional technologies depending upon the type of treatment systems or equipment to be installed. The SLDFR Demo Facility will include an 11,600 square-foot metal building, a 21-foot by 71-foot covered multi-purpose concrete slab along the east side of the building, a concrete parking area and walkway along the south side of the building, fourteen steel and plastic tanks ranging from 8 to 65 feet in height adjacent to the building, and six inches of gravel across the Facility yard for the existing access road between Russell Avenue and the southeast corner of the Facility footprint.

Figure 3. SLDFR Demonstration Facility (depicted in red and black marker). Existing and Recently Acquired Project Lands are of the Grassland Bypass Project's San Joaquin River Improvement Project.



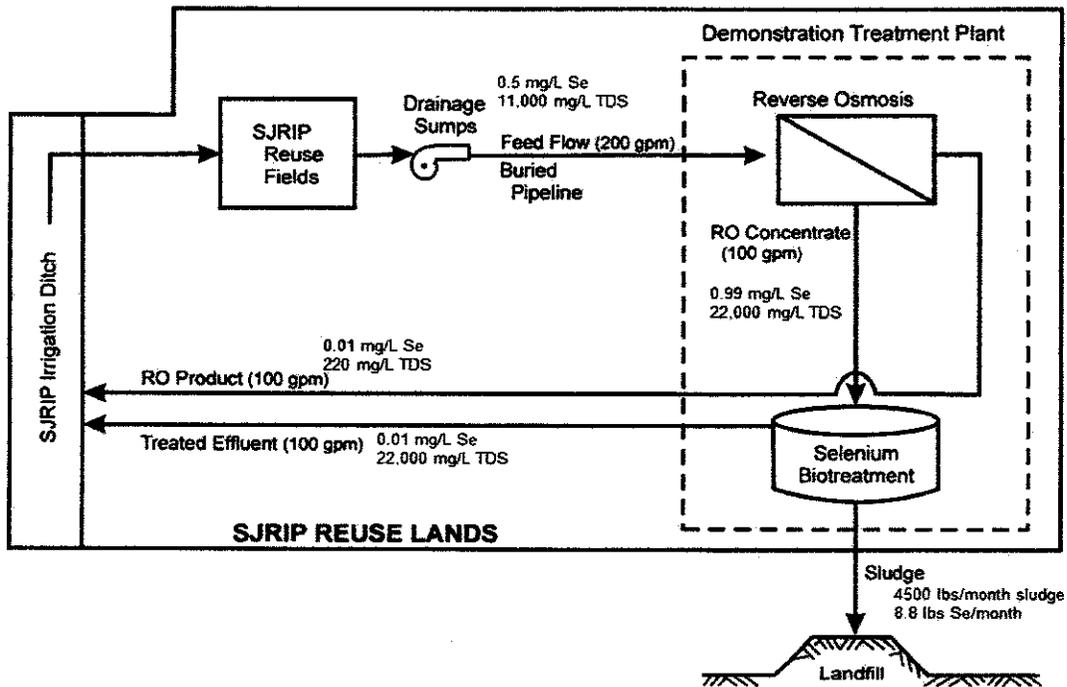
Sources: N. Gruenhagen *in litt.*, 9.26.2011; H.T. Harvey and Associates 2009.

SLDFR Demo Facility Operation

The SLDFR Demo Facility will follow a modified schematic from what was considered in the SLDFR FEIS. The SLDFR biological opinion and FWCA Report analyzed the effects of the components of In-Valley Treatment and Disposal Alternatives for the SLDFR EIS as presented in the schematic in Figure 2. By comparison, the schematic of the expected SLDFR Demo Facility operations with predicted flow volumes and selenium and total dissolved solids concentrations, is depicted in Figure 4

below (N. Gruenhagen, *in litt.*, 10.24.2011 and D. Hyatt, *in litt.*, 4.23.2012). The key differences between the SLDFR EIS schematic and the SLDFR Demo Facility are summarized in Table 1 below:

Figure 4. Schematic of SLDFR Demo Facility Operations



Source: Adapted from N. Gruenhagen, *in litt.*, 10.24.2011 and D. Hyatt, *in litt.*, 4.23.2012

Table 1. Differences between SLDFR FEIS and SLDFR Demo Facility DEA Schematics

	SLDFR EIS	SLDFR Demo Facility
Drainage conveyed to reuse area in closed pipes	Yes	No
Treatment Effluents and backwash disposed into Evaporation Ponds	Yes	No
Treatment Effluents discharged into drainage reuse area	No	Yes
Disposition of RO Product Water	Anticipated use was Ag	Blended with treatment effluent to be disposed of in SJRIP drainage reuse area

Water for the SLDFR Demo Facility will be provided from existing drainage water collected for use in the SJRIP drainage reuse area. Drainage flow of up to 400 gallons per minute (GPM) from tile drain sumps in the SJRIP will be provided to a 65-foot diameter regulating tank for Facility treatment

operations. From the feed tank, drainage flows will be pretreated to remove suspended particles that could clog the RO membranes. The SLDFR Demo Facility will evaluate two options for removal of suspended solids: (1) conventional pretreatment (i.e., flocculation, sedimentation, and sand/anthracite media filtration) and (2) membrane pretreatment (microfiltration or ultrafiltration). After pretreatment, approximately 200 GPM of drainage flows will be fed into the RO treatment system. Once through the RO treatment system, approximately 50 percent of the feed water (about 100 GPM) will be recovered as low salinity product water. The remaining 50 percent of the feed water (about 100 GPM) will exit the RO treatment system as a concentrated waste stream and be fed into the selenium biotreatment system. The concentrated waste stream produced after RO treatment will contain all the salts and selenium from drainage feed water (Table 2); therefore, the concentration is expected to be roughly double that of the feed flow. The RO concentrated waste stream will then be treated in bioreactor tanks to remove about 99 percent of the selenium. The biotreatment system is designed to primarily remove selenium from this waste stream. The residual selenium in the treated water will then be oxidized to ensure that it is converted to primarily inorganic selenate and/or selenite ions prior to discharge. The water quality of the biotreatment discharge water will be approximately the same as the water quality of the RO concentrate stream except that the selenium concentration will not exceed 10 µg/L in the biotreatment effluent. Effluent streams from the RO system (product stream) and the biotreatment system (treated effluent) will be conveyed in separate pipes to the SJRIP ditch and then blended with drainwater in the ditch, and returned for irrigation use on SJRIP drainage reuse area lands.

Post-biotreatment water will then be blended with the low-salinity RO treated water (product stream) and discharged into the existing drainage ditch adjacent to the western edge of the SLDFR Demo Facility footprint where it will be blended with other drainage water and used by the SJRIP drainage reuse area for irrigation in their drainage reuse areas. Reclamation clarified in their March 13, 2012 Memo that effluent from the SLDFR Demo Facility will be discharged to an irrigation ditch in the SJRIP and remain as reuse water within the SJRIP and will not flow to the San Joaquin River (D. Hyatt *in litt.*, 3.13.2012).

The bioreactor tanks will be periodically backwashed to remove accumulated solids and selenium. The backwash water will be sent to a clarifier tank to provide gravity separation of water and solids. The clarified water will be returned to the bioreactor feed tank for reprocessing. Prior to transport by truck to an off-site waste disposal facility the separated solids will be combined with solids from pretreatment backwashing and de-watered using a belt press. Up to 55,000 pounds of waste solids could be generated per year, which will be stored on-site in closed steel "roll-off" containers until transported to a disposal facility on a quarterly basis. The material stored will be "solids" and will have little opportunity to spread outside the secured area. Title 22 of the California Code of Regulations (§66261.24) defines acceptable quantities of selenium associated with solids as less than 100 mg/L. As the concentration of selenium present in the solid waste will be considered hazardous waste, Reclamation will comply with Resource Conservation and Recovery Act including temporary storage and containment requirements. Since selenium concentrations in the waste solids will likely be over 2,000 mg/L, the waste solids are defined as hazardous and as such, must be disposed of at a Class 1 Hazardous Waste Landfill approximately quarterly. The closest Class 1 landfill

is the Kettleman Hills Landfill in Kings County. The DEA for the SLDFR Demo Facility did not anticipate any adverse environmental impacts resulting from hazardous waste storage or disposal.

Table 2. Water Quality Projections for RO Treatment at SLDFR Demo Facility

Analyte	Units	Feed Concentration ¹ (200 GPM)	Percent of Analyte Rejection	Reject Concentration ² (100 GPM)	Product Concentration ³ (100 GPM)
Total Dissolved Solids	mg/L	14,828		29,318	340
Conductance	µS/cm	17,908		32,468	
pH		7.4		7.55	7.3
MAJOR COMPONENTS					
Bicarbonate	mg/L	161	96.70%	314.16	7.8
Bromide	mg/L	4	98.00%	7.88	0.12
Calcium	mg/L	113	99.00%	224.31	1.69
Carbonate	mg/L	0	98.00%	0	0
Chloride	mg/L	3,386	98.00%	6,671.43	100.00
Magnesium	mg/L	309	99.50%	615.69	2.3
Nitrate as N	mg/L	179	88.50%	328.8	29
Potassium	mg/L	23.7	98.20%	46.77	0.63
Silica	mg/L	6.7	97.00%	13.1	0.3
Sodium	mg/L	5,750	98.20%	11,346.13	150.00
Sulfate	mg/L	4,853	99.50%	9,669.69	36.00
MINOR COMPONENTS					
Ammonia	µg/L	3,400	95.00%	6,551.22	250.00
Aluminum	µg/L	0	95.00%	0	0
Arsenic	µg/L	8	98.00%	15.76	0.24
Boron	µg/L	33,000	90.00%	61,285.71	4,700.00
Cadmium	µg/L	3	99.50%	5.98	0.02
Chromium	µg/L	84	98.00%	165.5	2.5
Copper	µg/L	26	98.00%	51.23	0.77
Fluoride	µg/L	900	98.00%	1,773.27	26.00
Iron	µg/L	391	99.00%	776.16	5.8
Lead	µg/L	3	99.00%	5.96	0.04
Manganese	µg/L	26	99.00%	51.61	0.39
Mercury	µg/L	0.3	98.00%	0.59	0.01
Molybdenum	µg/L	150	98.00%	295.54	4.5
Nickel	µg/L	52	99.00%	103.22	0.78
Selenium	µg/L	330	99.50%	657.53	2.5
Silver	µg/L	3	98.00%	5.91	0.09
Strontium	µg/L	4,300	98.00%	8,472.28	130.00
Zinc	µg/L	26	98.00%	51.23	0.77

¹Pre-treatment drainage water analyte concentrations. Data for these concentrations are from a March 2010 flow-weighted blend (average) of all 7 sumps within the SJRIP.
²RO Concentrated waste stream to be sent for biotreatment.
³Low-salinity RO treated water.

Note: Data for this table has been updated since release of the draft EA to include more recent sampling data. Values for the Reject and Product concentrations are based on software that analyzes RO output. Actual values are likely to vary.

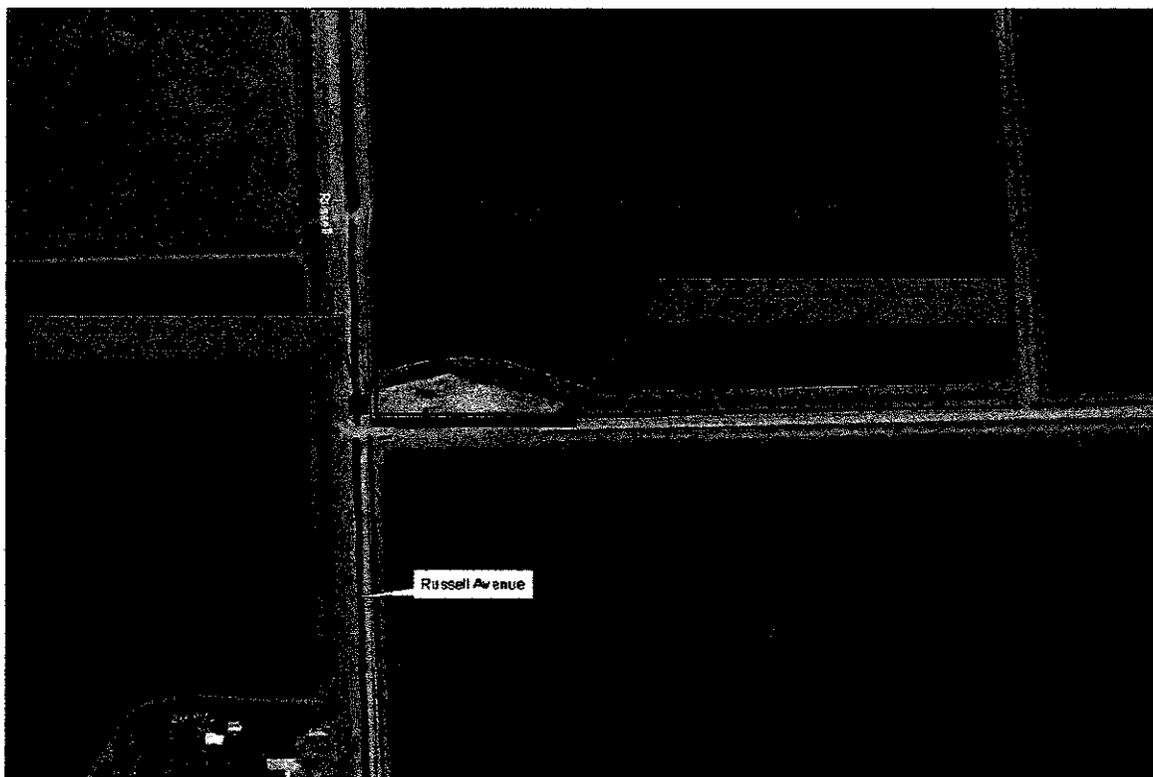
Source: R. Healer, *in litt.*, 11.7.2011.

Effects

The primary effect to biological resources of the SLDFR Demo Facility operation will be from treated water that will be released into an irrigation ditch. The DEA for the SLDFR Demo Facility concluded that because the treated water will be a minor fraction of the drainage reuse water pool carried in the irrigation ditch, it is expected to have minimal effect on the drainwater quality used to irrigate the SJRIP's drainage reuse area.

In addition, a limited amount of construction would occur in irrigation ditches that could have the potential to affect giant garter snakes. Approximately 650 feet of open irrigation ditch running from the existing RP-1 pump station along the graveled access road immediately south of the site for the proposed facility would be replaced with covered 48-inch concrete pipe as shown in Figure 5. Additional temporary activity would occur where another pipeline segment from the Facility would be connected to the irrigation ditch west of the Facility. Reclamation determined that this work is not likely to adversely affect the giant garter snake because the area is unlikely to be inhabited by the snake and avoidance measures would be implemented (See Environmental Protection Measures below); construction areas would be surveyed for garter snakes before work could begin and a biological monitor would be present when construction activities occur in aquatic habitat. If giant garter snakes are observed, work will not occur without further consultation with the Service. Replacing the open irrigation ditch will remove a small area of potential barren ditch habitat, but it also would remove a potential area for garter snake exposure to adverse elements. Nevertheless, because giant garter snakes are unlikely to be present in the area and there would be removal of a minimal amount of poor quality habitat, the effects to giant garter snakes from this portion of the Proposed Action are discountable and insignificant and therefore are not likely to adversely affect the giant garter snake (N. Gruenhagen, *in litt.*, 11.9.2011).

Figure 5. Approximate Location of Open Irrigation Ditch to be Enclosed in Concrete Pipe and Connection Point for Feed to SLDFR Demo Facility Storage Tank.



Environmental Protection Measures

Appendix C of the SLDFR Demo Facility DEA includes Environmental Protection Measures to reduce environmental consequences of the proposed action. These Environmental Protections Measures are summarized in Table 3 below.

Table 3. Environmental Protection Measures and Commitments

Resource	Protection Measure
Biological Resources	Preconstruction surveys and implementation of avoidance and minimization measures for San Joaquin kit fox (USFWS 2011; see Appendix C).
Biological Resources	Preconstruction surveys and implementation of avoidance and minimization measures for giant garter snake (see Appendix C).
Biological Resources	A biologist will be present at the inception of the construction and other times as required to insure that measures for avoidance of effects to species are implemented. Additionally, if a listed species is observed, work at the site will immediately stop and Reclamation biologists shall be notified. No work will continue without additional approval from Reclamation environmental staff, following further consultation with wildlife agencies, as appropriate.

In addition, Reclamation’s March 13, 2012 memo committed to add avoidance measures into the Proposed Action, to ensure that the action would not be likely to adversely affect species and critical habitat protected under the Act. Those avoidance measures are listed below with minor wording changes approved by Reclamation (D. Hyatt, *in litt.*, 4.23.2012).

1. Reclamation will fund and implement a program to monitor the composition of drainage sump water and consequent waste-streams and sludge based, as applicable, to the “Conceptual Monitoring, Compliance, and Adaptive Management Plan for San Luis Drainage” prepared by the Service in December 2007. The proposed monitoring program would be developed with guidance from technical experts within Reclamation, the Service, and U.S. Geological Survey. The program would measure the changes in concentration and chemistry of selenium* and mercury* (*organic and inorganic forms), as well as other constituents including arsenic, boron, cadmium, chromium, copper, manganese, molybdenum, nickel, nitrates, salts, and zinc. The program would include standard QA/QC protocols to provide accurate and verifiable results. The results will be compared to established thresholds of concern and toxicity. Reclamation will use the program results to guide operation of the Demonstration Facility.
2. Reclamation will provide the Service with monthly monitoring reports during the entire period of operation of the Demo Facility that will quantify daily volumes, summarize concentrations of the measured constituents, and calculate a mass balance to assess the effectiveness and capacity of the treatment facility.
3. If the monitoring program identifies contaminant concentrations in the biotreatment effluent greater than the established thresholds of concern, or if the tiered study identifies bioaccumulation risk with the potential to adversely affect species, Reclamation will fund and implement additional biological monitoring on the San Joaquin River Improvement Project’s drainage reuse area. Reclamation will determine whether or not to reinitiate ESA consultation.

4. Reclamation will continue to share information with the Service as new information comes available establishing efficacy of the selenium biotreatment technology (e.g., from full scale biotreatment of high TDS waters) and efficacy of ozonation in reducing organoselenium to selenate.
5. Reclamation will commit to using contract laboratories that would provide accurate verifiable results based on QA/QC protocols for water and sludge.
6. Within 90 days of completion of the Service's ESA consultation, Reclamation will fund and implement a comparative study of selenium analysis of typical SJRIP sump water (high salinity, high sulfates) using hydride generation and ICP DRC MS technology to confirm accuracy of these methods.

Further ESA and FWCA Analysis is Warranted for Full-Scale Implementation in any Subarea of SLDFR

As defined in 50 CFR §402.16, reinitiation of formal consultation is required if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered. The Service believes that new information on the performance of the biotreatment system and evaporation ponds, and on mercury in drainwater, subsequent to the 2006 SLDFR biological opinion and FWCA Report has become available that should be considered for all future SLDFR-related actions. This new information is discussed in greater detail below. The Service recommends therefore that prior to full-scale implementation of the SLDFR project within any of the subareas considered in the SLDFR EIS, reinitiation of formal consultation under the Act and revision of the FWCA Report is warranted.

At the time the FWCA Report and biological opinion for SLDFR were completed, and coincident with the SLDFR Final EIS, Reclamation had not yet selected precise locations for specific project features, although a general mitigation proposal (with an initial estimate of acreage obligations) and broad planning level analysis had been completed. The Service was able to analyze the proposed action in a similarly broad perspective, and Reclamation agreed that the specific siting of facilities associated with SLDFR would be subject to future consultations with the Service under the Act. Additionally, the Service intended to continue participation with the SLDFR Mitigation Work Group during future phases of the planning process, including assistance with the feasibility analysis, facilities siting, and the preparation of the mitigation monitoring and adaptive management plans. However, the SLDFR Mitigation Work Group has not met since the FWCA report was completed in 2006. The Service recommends therefore, that when Reclamation proceeds with a full-scale facility in the SLDFR Westlands central subarea, Reclamation reinitiate consultation under the Act and FWCA to address among other things, siting of facilities, evaporation pond mitigation acreage, and mitigation monitoring and adaptive management plans.

Bioaccumulation Potential in SLDFR Drainage Evaporation Ponds

In an interagency meeting held December 6, 2005, Reclamation indicated that the SLDFR project would be predicated on the successful compliance with the 10 µg/L waterborne selenium concentration following pre-treatment. Further, it was agreed at this meeting that the effluent would be treated to oxidize the selenium to selenate (SeO₄). These thresholds formed the basis for the underlying risk assessments in the SLDFR FWCA and biological opinion, and are therefore critical project elements. The Service's understanding of this agreement is that failure to meet these objectives would necessitate future FWCA, National Environmental Policy Act, and ESA consultation.

On March 31, 2006, the Service received the SLDFR Administrative Final EIS (AFEIS), along with a request for comments from Reclamation. The Service had already submitted the Final FWCA Report (USFWS, March 2006a) and biological opinion (USFWS, March 2006b) to Reclamation by this date, and, as a result, had not commented completely on the SLDFR as represented in the AFEIS. The Service reviewed the pertinent sections in the AFEIS and confirmed that new information had been presented for evaluation; specifically, the results from preliminary selenium treatment pilot studies (Appendix B in the AFEIS).

Appendix B of the SLDFR FEIS contains bioaccumulation data and water chemistry results from the field trial that ponded the selenium pretreatment effluent in evaporation pond mesocosms, information not available to the Service during the preparation of the Final SLDFR FWCA Report or biological opinion. In previous planning aid memoranda and the Draft FWCA Report, the Service repeatedly stressed the critical importance of treatment projection in relation to risk assessment (USFWS, Sep 2005; USFWS, Feb 2005; USFWS, Nov 2004; USFWS, Jul 2003). Given our review of the EIS and its associated level of commitment for selenium treatment, the Service believes it important to highlight the significance of this particular aspect of SLDFR within our FWCA mandate, and to reiterate risks associated with failure to meet this standard.

The SLDFR pilot evaporation pond data in the SLDFR FEIS demonstrated double the bioconcentration that was predicted by the bioconcentration model (see page 18, Appendix B). The highest reported invertebrate selenium concentration from the SLDFR pilot evaporation ponds was 225.7 $\mu\text{g/L}$ dry weight from a sample of aquatic nektonic invertebrates (primarily water boatmen) collected from pond 1 (see Appendix B, Attachment B-2, Table 10, SLDFR FEIS). Most selenium concentrations for invertebrates from the SLDFR pilot evaporation ponds were well above concentrations associated with adverse biological effects to wildlife (i.e., $>7 \mu\text{g/L}$ dry weight in invertebrates based on dietary effects on reproduction in chickens, quail and ducks, see Table 6-4, Recommended Ecological Risk Guidelines Based Upon Selenium Concentrations, on page 6-27 of the FEIS/R Grassland Bypass Project, 2010–2019, (USBR 2009)).

By comparison, concentrations of selenium in water boatman collected from Kesterson Reservoir in the mid-1980's were in the range of 5.9-130 $\mu\text{g/L}$ (See Moore et al., 1990 page 4-43). Beginning in the spring of 1983, the Service found abnormally high numbers of dead and deformed aquatic bird embryos, and dead adult birds at Kesterson Reservoir. Embryotoxicosis, nest abandonment, hatchling deformities, and reproductive failure were observed in numerous aquatic bird species from the 1983 through the 1986 breeding seasons (Ohlendorf et al., 1986b; Ohlendorf et al., 1989). The problems with avian reproduction and survival reported from 1983 to 1986 were primarily attributed to elevated concentrations of selenium in the waters and food-chain at the reservoir (Hoffman et al., 1988; Ohlendorf 1989; Ohlendorf and Skorupa, 1989; Ohlendorf et al., 1986a; Ohlendorf et al., 1986b; Williams et al., 1989; Williams 1986).

While the data in the SLDFR FEIS on selenium in invertebrates collected from the pilot evaporation ponds is too limited to draw definitive conclusions, it is safe to say from the waterborne selenium data and the existing monitoring indicated that treatment (RO and selenium biotreatment) had not been performing to performance objectives that the Service used for the basis of the FWCA Report and biological opinion ($<10 \mu\text{g/L}$ selenium in treatment effluents, primarily as selenate). The critical issue with respect to environmental risk is associated with bioaccumulation potential of waterborne selenium through the food-web and into higher trophic level consumers. A two-fold increase in bioconcentration

factors may have a pronounced impact on realized risks to wildlife populations because toxicity is not a linear phenomenon (i.e., the dose-response curve is sigmoidal). In the case of selenium, a trace element with a very narrow safety margin (the range between nutritionally beneficial and toxic concentrations), the dose-response curve is quite steep (see, for example, SLDFR FEIS Appendix M, USFWS Adult Avian Mortality Protocol).

The SLDFR Demo Facility provides an opportunity to address the issue of bioaccumulative potential of the waste streams that will be disposed of in evaporation ponds in a full-scale facility as planned to be implemented in Westlands central subarea starting in 2014. The Service made such a recommendation to conduct a lab-scale bioassay of the drainage disposal effluents in a recommended list of environmental commitments for the SLDFR Demo Facility submitted to Reclamation on December 21, 2011. However, Reclamation's March 13, 2012 Memo did not include a commitment to conduct a bioassay study to assess the bioaccumulative potential of the drainage treatment waste-streams. Absent a bioassay study, the best available information for analysis of a full-scale facility would be the data presented in Appendix B of the SLDFR FEIS which documented double the bioconcentration assumed in the the SLDFR FEIS and FWCA and ESA consultations.

Mercury in Drainage Water not Considered in SLDFR FEIS

The Service believes that new information, subsequent to the SLDFR FEIS, biological opinion and FWCA Report has become available on mercury in drainwater that should be considered in all future SLDFR-related actions. Mercury was eliminated as a constituent of concern in the SLDFR FEIS and is not considered in the DEA for the SLDFR Demo Facility based on estimates of mercury in drainage water from limited data collected from the project area in the 1980's and 1990's. The water quality projections in Table 2-1 in the DEA for this project (Table 2 above) were derived from the SLDFR FEIS, Appendix C (USBR 2006). Estimates of drainwater quantity and quality from farmed lands and reuse areas were developed in the SLDFR FEIS to enable calculation of discharge water quality for each disposal alternative. Water quality data in the SLDFR FEIS for Westlands drainage were derived from data collected in the mid 1980's (Page C-39 SLDFR FEIS) (CH2MHill 1985). Westlands North, South, and Central water quality data were estimated by scaling geostatistical analysis by a ratio of extrapolated TDS concentrations to the measured concentrations of each constituent in each subarea. Drainage water quality in the Northerly Area was based on samples collected in the San Luis Drain in 1997 (USBR 2001). Water quality projections for mercury in drainwater from the SLDFR FEIS indicated total mercury concentrations at or near the detection limit (100 ng/L or 200 ng/L). These water quality estimations served as the basis to eliminate mercury as a constituent of concern for the SLDFR planning effort.

In 1987, mercury was identified as a potential substance of concern in agricultural drainage water from the west-side San Joaquin Valley and was assigned to the highest priority rank (Hansen and Morhardt, 1987). The San Joaquin Valley Drainage Program identified mercury as a substance of concern that warrants further attention (Moore *et al.*, 1990). Deverel *et al.* (1984) observed elevated concentrations of mercury in the shallow groundwater in the SLU at concentrations approaching or exceeding water-quality criteria for protection of freshwater aquatic life (the maximum concentration of total mercury observed in this study was 1,600 ng/L).

Recent water quality monitoring has indicated that, at least in some areas within the SLDFR project area, mercury has accumulated to elevated concentrations in subsurface agricultural drainage water. For example, water quality sampling conducted by Reclamation since 2002 of the Delta Mendota

Canal (DMC) sumps (located along the DMC in the Firebaugh Canal Water District and within the Grassland Bypass Project's Drainage Project Area, i.e., the agricultural lands that participate in the Grassland Bypass Project) has documented significantly elevated concentrations of total mercury in at least some of the DMC sump water currently being pumped into the DMC upstream of the Mendota Pool. Total mercury in water from the DMC sumps has ranged from 200 ng/L to 3,000 ng/L as presented in Table 4 below (USBR 2010). The water quality data for mercury from the DMC sumps is significantly higher than what was estimated and considered in the SLDFR FEIS or the SLDFR Demo Facility DEA.

Table 4. Summary of total mercury in drainage water from the DMC sumps, 2002-2009

DMC Sump Site DMC Milepost Units ¹	Sump A&B MP 100.86 ng/L	Sump C MP 102.86 ng/L	Sump D&E MP 104.19 ng/L	Sump F&G MP 105.6 ng/L	Sump H&J MP 107.24 ng/L	Sump K MP 109.50 ng/L
Maximum	2,000	430	580	1,300	1,200	3,000
Minimum	200	190	200	300	670	500
Median	450	300	300	930	940	1,200
Average	659	312	353	959	943	1,353
Number of samples	15	15	15	15	15	15

Data Source: USBR 2010

¹ Nanograms per liter of Total Mercury

In a separate study of avian eggs at an evaporation pond in Westlands Water District, mercury was found to be elevated above toxic levels in some of the eggs collected. In 2002 the Service's Sacramento Fish and Wildlife Office, Environmental Contaminants Division, randomly sampled nine black-necked stilt eggs at the Britz-Deavenport evaporation pond. The mercury concentrations in those eggs ranged from 0.74 to 3.1 µg/g (ppm) dry weight, with a median value of 1.2 µg/g (Skorupa pers comm.; Service unpublished data). Based on data for mallards reported in Heinz (1979), the putative toxic threshold for mercury in avian eggs is 3 µg/g dry weight. In 2002, two of the nine eggs (22 percent) sampled at Britz-Deavenport contained ≥ 3 µg/g dry weight mercury.

Preliminary methyl mercury water data collected from the vicinity of the San Luis Drain was provided to the Service in a letter from Dr. Chris Foe, staff scientist of the CVRWQCB in 2005 (Foe 2005). In that letter Dr. Foe noted, "*Regional Board staff has been monitoring methyl mercury concentrations in the San Joaquin watershed for the past two years to identify sources and to characterize concentrations and loads. The highest concentrations in the Basin occur in Mud Slough downstream of the inflow from the San Luis Drain (GBP monitoring site D). Methyl mercury loads in Mud Slough are sufficiently high that they may account for 40-60 percent of the Vernalis load during non-irrigation season. Similar calculations have not been made for the irrigation season as the amount of water removed and returned to the River by water agencies and others is not known. However, Mud Slough concentrations and loads remain high suggesting that the Slough is still a significant source of River methyl mercury. The non-irrigation season loads imply that Mud Slough is responsible for about half the methyl mercury accumulating in fish in the main stem San Joaquin River in winter. The source of the methyl mercury in Mud Slough is not known.*" Table 5 summarizes the preliminary methyl mercury concentrations for the San Joaquin River at Vernalis, and for Mud Slough at site D and the San Luis Drain.

Table 5. Summary of unfiltered methyl mercury concentrations (ng/L) in the Grassland Bypass portion of the San Luis Drain, Mud Slough at Site D and San Joaquin River at Vernalis (from Foe 2005).

Date	San Luis Drain at Site B	Mud Slough at Site D (downstream of GBP San Luis Drain outfall)	San Joaquin River at Vernalis
6/14/05	0.302	0.671	0.235
7/13/05	0.648	0.769	0.218
8/9/05	1.150	1.430	0.226
9/12/05	0.846	1.070	0.062

Dr. Foe concluded that, “*The results suggest that methyl mercury concentrations at all three sites are elevated and may constitute a health hazard to wildlife consuming local fish. Methyl mercury mass balance calculations have not yet been made for Mud Slough. Regional Board staff has commenced a mass balance study to better define the primary source(s) of methyl mercury in Mud Slough.*”

Eighteen miles of Panoche Creek (from Silver Creek to Belmont Avenue) and the San Joaquin River (from Bear Creek to the Delta Boundary) are listed on the 2006 Clean Water Act section 303(d) List of Water Quality Limited Segments for mercury impairment (SWRCB 2007). Mercury levels in fish from the lower San Joaquin River and Mud Slough have been found to be elevated (Davis *et al.* 2000; Slotton *et al.* 2000). The principal finding of a CalFed Mercury Study in the San Joaquin Basin is that Mud Slough contributes about 50 percent of the methylated mercury at Vernalis (legal boundary of the Delta) but only 10 percent of the water volume during the non-irrigation season (September to March) (Stephenson *et al.*, 2005).

Mercury is a trace element with no known essential biological function. Mercury can exist in many forms including elemental form (Hg⁰), dissolved and particulate ionic forms, and dissolved and particulate methylmercury (Gill and Bruland 1990; Vandal *et al.* 1991; Mason and Fitzgerald 1993). Methylmercury may be formed either in the water column or in sediment. Methylmercury is the most toxic and the most bioaccumulated form of mercury. Intestinal absorption of inorganic mercury is limited to a few percent while absorption of methyl mercury is nearly complete (Scheuhammer 1987). Inorganic mercury appears to have the greatest effect upon the kidneys, while methylmercury is a potent embryo and nervous system toxicant. Methylmercury readily penetrates the blood brain barrier, produces brain lesions, spinal cord degeneration, and central nervous system dysfunctions. The proportion of total mercury which is found as methylmercury in biota increases with trophic level approaching 100 percent at trophic levels 3 and 4. Methylmercury is biomagnified between trophic levels in aquatic systems and in proportion to its supply in water (Wattras and Bloom, 1992). It is appropriate therefore to focus attention on the toxicity of methylmercury, particularly in higher trophic level organisms (Nichols *et al.*, 1999).

Toxic constituents such as mercury have a variety of different modes of action. Combinations may work additively, synergistically, or antagonistically to cause toxic effects. Some chemicals are more likely to cause acute effects, while others are more likely to cause chronic problems through bioaccumulation and food-chain transfer. Examples of chronic effects include mutagenic, carcinogenic, or teratogenic effects, as well as changes in behavior and decreased reproduction (USBR 2006, Appendix G, page G-16). It has been shown that mercury added to a selenium-enriched test diet for mallards increased the amount of selenium stored in the mallards eggs (Heinz and Hoffman 1998). In

addition, the Heinz and Hoffman (1998) study indicated that methylmercury chloride and selenomethionine may have antagonistic effects on adult mallards and synergistic effects on ducklings.

The SLDFR FEIS notes the following with respect to salt disposal and management of evaporation basin salts (Appendix I, pages I-1 – I-2): “*Evaporative concentration of salts could also result in concentration of toxic elements. Water treatment plants are planned to reduce selenium and nitrate levels; however, high levels of elements such as such molybdenum, mercury [emphasis added], nickel, and boron could complicate salt disposal and management of evaporation basin salts. The chemical reduction and lowering of pH associated with selenium removal could also affect the toxicity of other elements in the evaporation basin waters, which in turn could complicate management procedures and increase costs.*” As a result, we recommend that evaporation pond mitigation in the SLDFR FEIS and SLDFR Record of Decision (ROD) be re-evaluated based on actual field measurements of mercury in drainwater from the SLDFR project area and from the treatment effluents of the SLDFR Demo Facility.

According to projections in Table 2, most of the mercury in the drainage effluent from the RO Treatment for the SLDFR Demo Facility will be removed. It is unclear what the projections of post-RO treatment concentrations for constituents (such as mercury) in Table 2 above (Table 2-1 in the SLDFR Demo Facility DEA) are based on, since no actual data on these constituents from the SLDFR pilot studies of treatment and disposal was presented in the SLDFR FEIS or in the Review of Biotreatment Technology completed for Reclamation on SLDFR (Trussell Technologies 2006).

The current extent of mercury contamination in drainage water in much of the SLDFR project area has not been revisited since surveys were done in the 1980’s and 1990’s. It therefore would be prudent to perform a reconnaissance level survey to determine the extent and severity of mercury contamination in drainage water of the SLDFR project area and revise all appropriate aspects of the SLDFR FEIS/ROD accordingly. The mitigation prescriptions in SLDFR FWCA Report were based solely on effects of selenium to breeding waterfowl and will have to be revisited to consider effects from mercury based on treatment technologies’ performance.

Conclusion

As a result of the Environmental Commitments incorporated into the Proposed Action, including those provided in the DEA and Draft FONSI, and in Reclamation’s September 19, 2011 and March 13, 2012 Memos, and the short-term nature of the action, the Service concurs with Reclamation’s effects determination that the Proposed Action may affect, but is not likely to adversely affect the San Joaquin kit fox and giant garter snake.

However, the Service recommends that Reclamation reinitiate consultation under the Act and FWCA to address among other things, siting of facilities, evaporation pond mitigation acreage, and mitigation monitoring and adaptive management plans during the planning process for a SLDFR full-scale facility in the Westlands central subarea as is anticipated to begin in 2014. Further, as discussed in this memo, the Service believes that new information on the performance of the biotreatment system and evaporation ponds, and on mercury in drainwater, subsequent to the 2006 SLDFR biological opinion and FWCA Report has become available that should be considered for all future SLDFR-related actions. The Service recommends therefore that prior to full-scale implementation of the SLDFR

project within any of the subareas considered in the SLDFR EIS, reinitiation of formal consultation under the Act and revision of the FWCA Report is warranted. The Service additionally encourages Reclamation to conduct a field or lab-scale bioassay study of the SLDFR disposal effluents from the SLDFR Demo Facility prior to full-scale implementation of the SLDFR project (as these waste streams will ultimately be disposed in evaporation basins). Absent a bioassay study, the best available information for analysis of a full-scale SLDFR facility would be the data presented in Appendix B of the SLDFR FEIS which documented twice the bioaccumulative potential that was assumed in the SLDFR FWCA Report and biological opinion. Such an increase in bioaccumulative potential could translate into significant increases in wetland mitigation acreage needed to compensate for increased avian mortality. This magnitude of difference in mitigation would clearly have a bearing on cost and feasibility of potential mitigation actions associated with the SLDFR project.

Our concurrence with the NLAA determination for the SLDFR Demo Facility concludes consultation for this action. If you have questions or concerns regarding this action, please contact Daniel Russell, Thomas Leeman, or Joy Winckel at the letterhead address or at (916) 414-6600.

cc:

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Theresa Presser, U.S. Geological Survey, Menlo Park, California

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Appendix A. List of Questions provided to Reclamation and GE on December 5, 2011 regarding operations and performance of the SLDFR Demo Facility.

USFWS Questions about SLDFR Demo Facility for GE

1. What full-scale projects using ABMet are successfully operating with TDS concentrations in RO Concentrate in excess of 20,000 mg/L? How was "successfully operating" defined in those cases? What constituted success?
2. The water quality projections in Table 2-1 of the Admin Final EA for the SLDFR Demo Project for the RO Reject and Product water concentrations were based on software that analyzes RO output and includes the caveat: "Actual values are likely to vary." What is the anticipated efficiency of RO and ABMet processes at the high TDS concentrations expected with this project? What is the upper limit of TDS that the ABMet bacteria can effectively remove Se?
3. Are there peer-reviewed scientific papers or empirical data documenting the efficacy of the oxidation step using ozone to be employed to reduce organo-selenium in the treated water to ensure that it is converted to inorganic selenate and/or selenite ions prior to discharge? Are there other full-scale projects that have been implemented that have been able to meet the following performance standard for the SLDFR Demo Project?: "*The concentrations of organic selenium species in the treated effluent shall be less than the concentrations of organic selenium species in the influent untreated drainage.*"
4. The bottomline performance measure for successful drainage treatment is that algae and invertebrates grown in the product water and biotreatment effluent won't bioaccumulate tissue Se concentrations that would be problematic from a risk assessment perspective for wildlife (and fish if the product water is going to be discharged into waters of the U.S.). How is this bottomline performance measure going to be evaluated in this project? Shouldn't the Pilot Treatment Facility evaluate matrices such as algae, invertebrates, etc. to provide a credible analysis of environmental risk and treatment performance before a full-scale facility with evaporation ponds is built in Westlands?
5. Is GE responsible for the performance of the RO treatment as well as the ABMet biotreatment systems?
6. What improvements in the technologies have emerged since the Phase III of SLDFR pilot studies and retrofit were completed in 2006?
7. What is the methodology that will be used to analyze for selenium in the water effluents and sludge? What lab(s) will be performing these analyses? What are the difficulties associated with the analysis of water and sludge with extremely high concentrations of Se and TDS? Will the Se analyses be conducted on filtered samples? What are the Se detection limits for both the ICP DRC MS and IC ICP MS methodologies? What is the justification for using ICP DRC MS technology instead of the standard hydride generation with atomic absorption that has been used successfully on high concentration Se samples? USGS has tried ICP DRC MS technology for both As and Se and obtained erroneous results. Consequently, for Se analysis, USGS continues to use hydride generation with atomic absorption technology.
8. What is the turnaround time for the Se analyses for the 30-day initial period, and for the 18-month duration of the project?
9. Will the temperature be constant enough to maintain bacterial growth in the winter months?
10. Is there empirical data supporting the prediction that the SLDFR Demo Facility can be running continuously, 24 hours a day, 365 days per year?

11. What is the supplementary Ditch Water RP-1 listed in Table 44 45 00A – *Anticipated Feedwater Quality to Demonstration Treatment Plan* - going to be used for?
12. What influent can be used to meet the ABMet system treatment process performance requirements? Would a test of the ABMet system solely on Supplementary Ditch Water that meets performance requirements be considered sufficient?
13. What happens if the system fails to perform for a 30-day continuous period?
14. Will gases from the biotreatment be monitored? Appendix E of the SLDFR Feasibility Report noted off-gas sampling and analysis is important because: “1. *Determining the content of any gases generated by the biological processes to determine if supplemental off-gas treatment equipment is required for the full scale system.* 2. *Knowledge of gases would allow Zenon to determine if any special safety precautions would be necessary for operations staff.* 3. *Knowledge of gases would assist in the selection/evaluation of appropriate materials of construction for the reactor vessel structures, reactor internals and any other equipment associated with the project.*”

Appendix B. List of Suggested Environmental Commitments for Construction and Operation of the SLDFR Demo Facility provided to Reclamation on December 21, 2011.

1. Reclamation will commit to track the composition of drainage sump water and consequent waste-streams and sludge waste products for disposal (for selenium, total dissolved solids and drainwater constituents of concern) and quantify daily volumes, concentrations, loads and mass balance to assess the effectiveness and capacity of treatment technologies (as was recommended by Presser and Schwarzbach, 2008, Technical Analysis of In-Valley Drainage Management Strategies for the Western San Joaquin Valley, California, USGS Open File Report 2008-1210). Consistent with the San Joaquin Valley Drainage Program's Final Report (A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley, 1990), drainwater constituents of concern to be tracked in this monitoring program should include selenium (dissolved and total, and speciation), boron, molybdenum, arsenic, total dissolved solids, cadmium, chromium (including the hexavalent form), copper, manganese, nickel, zinc, and nitrates. In addition, based on newer information identifying elevated mercury in some subsurface drainage water (sources: USBR, 2010, Delta-Mendota Canal Water Quality Monitoring Program for Selenium, Salinity and, and Boron; Foe, C., November 14, 2005, Methyl Mercury Concentration in Mud Slough, San Luis Drain, and Refuge Wetlands. Letter from Central Valley Regional Water Quality Control Board, Rancho Cordova, CA, to T. C. Maurer, U.S. Fish and Wildlife Service, Sacramento, CA. 2 pp), we recommend that mercury (including organic forms such as methyl mercury) be included as a constituent of concern and also be tracked in a comprehensive monitoring program for this project.
2. During the first 30 days of operation, Reclamation will provide the Service with monitoring reports from GE within 30 days of receipt. Reclamation will commit to providing the Service with monitoring reports from the SLDFR Demo Treatment Facility for the remaining 17 months on a periodic basis (bi-weekly or monthly).
3. Reclamation will fund and contract for a laboratory scale bioassay study with the biotreatment effluent to establish environmental risk to food webs (i.e., food web modeling) of selenium in treatment effluent (if any).
4. If the monitoring identifies contaminant concentrations in the biotreatment effluent of concern, or if the bioassay identifies bioaccumulation risk, then Reclamation will, in coordination with Panoche Drainage District, fund and implement additional biological monitoring on the San Joaquin River Improvement Project's drainage reuse area to determine whether or not to reinitiate ESA consultation.
5. Prior to the conclusion of the consultation, Reclamation will provide reports to the Service from GE establishing efficacy of the selenium biotreatment technology (e.g., from full scale biotreatment of high TDS waters at Belews and Hyco Lakes) and efficacy of ozonation in

removing selenium and reducing organoselenium to selenate. These reports are needed to fill the data gaps between the 1st generation ABMet system documented in the SLDFR Feasibility Report and 3rd generation ABMet systems currently in operation.

6. Reclamation will commit to using hydride generation to analyze for selenium since it has been shown to be the most consistent and effective method (Moellmer et al., ICP-MS Analysis of Trace Selenium in the Great Salt Lake, Spectroscopy, January 2007). If Reclamation opts to use ICP DRC MS technology, they should employ octopole reaction cell (ORC) ICP-MS and fund a comparison of this technology with hydride generation technology to confirm accuracy of the methods.
7. Reclamation will revise the project description for the SLDFR Demo Facility to state that all the product water from the SLDFR Demo Facility Treatment Plants would be piped to the San Joaquin River Improvement Project's paspalum grass area, and would not be discharged back into the adjacent drainage ditch linked to the Grassland Bypass Channel. This would facilitate ESA consultation by clearly defining/restricting the action area. This change is based on a November 18, 2011 e-mail from Chris Eacock to Joy Winckel and Ned Gruenhagen. This e-mail transmitted a verbal commitment from Dennis Falaschi of Panoche Drainage District that all the product water from the SLDFR Drainage Treatment Plants would be piped to the paspalum grass area, and would not be discharged back into the adjacent drainage ditch linked to the Grassland Bypass Channel.





United States Department of the Interior



FISH AND WILDLIFE SERVICE

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Sacramento, California 95825-1846

In Reply Refer To:
81420-2011-TA-0701-2

To: Mr. Brad Hubbard, U.S. Bureau of Reclamation, Mid Pacific Regional Office,
Sacramento, CA

From: Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento CA

Subject: Comments on the Administrative Draft Environmental Impact
Statement/Environmental Impact Report on the Water Transfer Program for the San
Joaquin River Exchange Contractors Water Authority, 2014-2038

Attached are the comments of the U.S. Fish and Wildlife Service (Service) on the U.S. Bureau of Reclamation's (Reclamation) Administrative Draft Environmental Impact Statement/Environmental Impact Report for the Water Transfer Program for the San Joaquin River Exchange Contractors Water Authority, 2014-2038 (ADEIS/R; 25-Year Transfer Program). We provide these comments to assist Reclamation in writing a stronger and more defensible EIS. We appreciate the opportunity to coordinate early with Reclamation and the project proponents and to provide comments on this document prior to the public review period.

On January 11, 2012, the Service provided draft comments to Reclamation via electronic mail. The Service met with representatives of the San Joaquin Exchange Contractors Water Authority (SJEC) and their consultants, and Reclamation on January 18, 2012 to discuss Service comments on the ADEIS/R. During that meeting it was agreed to amend several items in the ADEIS/R including:

- Bringing forward information pertaining to the full extent of tailwater recapture actions (average acre-feet/year) identified in Appendix B Table 5 into the text of the ADEIS/R as part of the existing conditions;
- Adding to the DEIS/R real-time monitoring data for flows and water quality of the Grassland wetland channels collected by Nigel Quinn of Lawrence Berkeley Labs;
- Checking and verifying the Place of Use boundaries of all the recipient districts identified in the ADEIS/R as being eligible to receive Central Valley Project contract water;
- Providing more specific information on rice acreage in the SJEC Service Area;
- Correcting as necessary the discrepancies in the contract quantities between the 2004 10-Year Transfer Program EIS and the 2011 25-Year Transfer Program ADEIS/R of the recipient districts.

The Service previously completed an ESA consultation on the 10-year Transfer Program of the SJEC (Service File Nos., 04-I-2162 and 06-I-1131) and those memos are incorporated by

Mr. Brad Hubbard

reference. The 25-Year Transfer Program being considered in the ADEIS/R is an extension of the existing 10-Year Program. As we noted in our concurrence memo on the 10-year Transfer Program (06-I-1131), we do not have an accurate baseline condition from which to evaluate future actions in this area, including the 25 Year Transfer Program. Until the questions of the reduction in flows and effects to water quality in the Grasslands wetland channels associated with the 10-year transfer program, other SJEC transfers, and tailwater recapture actions have been examined more closely to establish the needed baseline condition, we will not be able to concur with a "Not Likely to Adversely Affect Determination" for the giant garter snake for the 25-Year Transfer Program.

Attached are our detailed final comments on the ADEIS/R. We appreciate the opportunity to coordinate early with Reclamation on this project. If you have any questions or concerns, please contact Dan Russell or Joy Winckel at 916 414-6600.

cc: Stephanie Skophammer, U.S Environmental Protection Agency, San Francisco, CA
Theresa Presser, U.S. Geological Survey, Menlo Park, CA
Leslie Mirise and Joe Dillon, National Marine Fisheries Service, Sacramento, CA
Kim Forrest, U.S. Fish and Wildlife Service, San Luis NWRC, Los Banos, CA
Rudy Schnagl, Central Valley Regional Water Quality Control Board
Julie Vance, California Department of Fish and Game, Fresno, CA
Bill Cook, California Department of Fish and Game, Los Banos, CA
Rick Ortega, Grassland Water District, Los Banos, CA

General Comments:

1. As specified in Appendix B Table 5 of the ADEIS/R, tailwater recapture by the Exchange Contractors (SJEC) has averaged (from 2003 to 2010) 134,161 AFY, yet the existing conditions in the document only consider the effects of 80,000 AFY created by tailwater recapture (see Table, below). Please explain why the existing conditions do not include the additional 54,161 AFY. Also describe what environmental documentation was done for the 250 low lift stations that were installed in the SJEC Service Area for tailwater recapture.

Comparison of No Action with Proposed Action (quantities of water in acre-feet/year).

	Included in Existing Conditions (No Action)	25-year Transfer Program	Not Included in Existing Conditions or Proposed Action
Tailwater recapture:	80,000	80,000	54,161 ¹
Temporary Land Fallowing	8,000	50,000	
Deep Water Percolation & Applied water efficiency	0	20,000	
Total (acre-feet/year)	88,000	150,000	

¹Derived from Table 5 of Appendix B from the ADEIS/R as Average Total (134,161) minus 80,000 from existing conditions = 54,161 AFY.

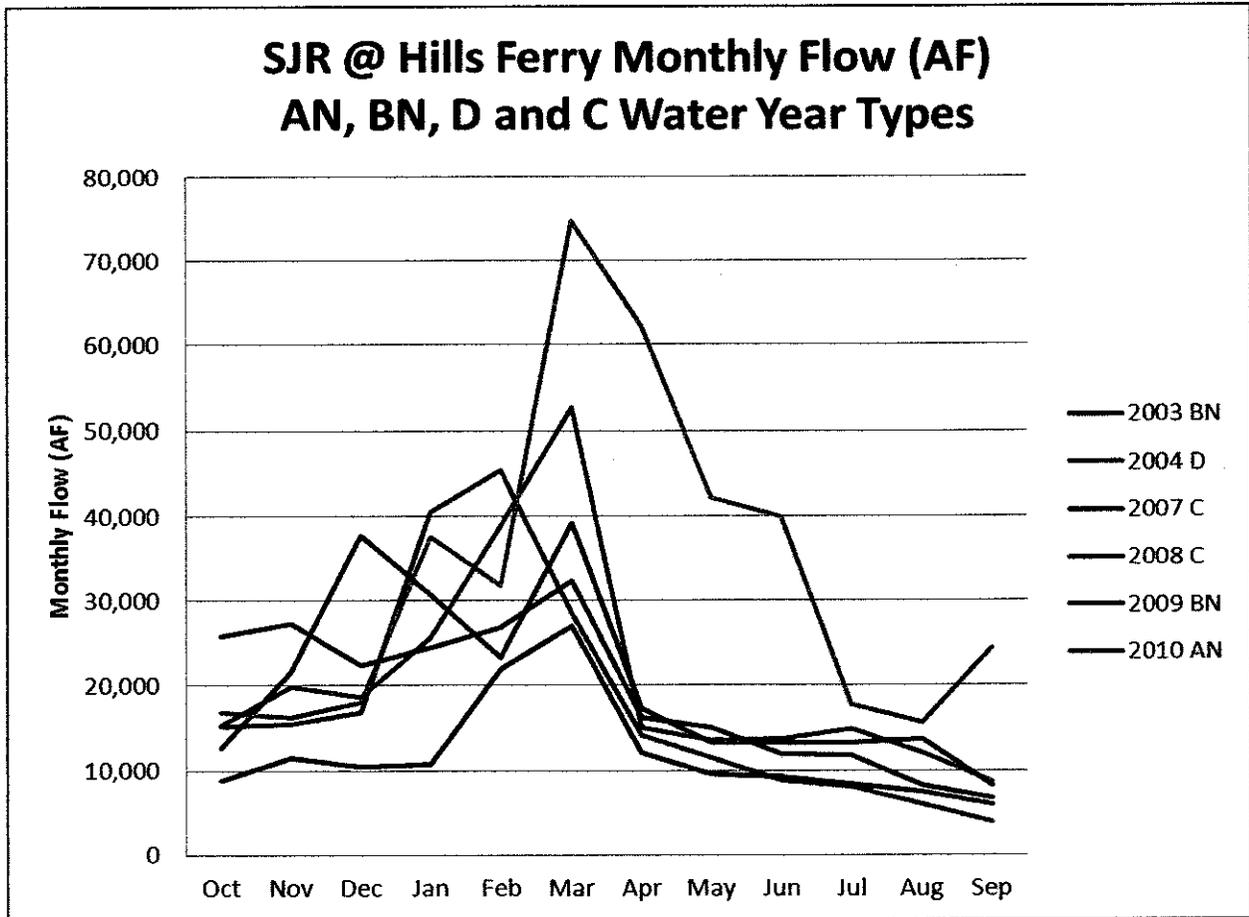
2. A graphical analysis of flows in the San Joaquin River at Hills Ferry and Salt Slough at Highway 165 indicates that there has been a reduction of flows in all water years except those designated as "Wet" that may be associated with this transfer program, other SJEC transfers, and tailwater recapture actions (data from Grassland Bypass Project Monthly Flows provided by C. Eacock, USBR SCCAO Fresno, 1.5.2012). The year 2009 (designated as Below Normal) showed the most pronounced reduction in flow and was a year with the highest quantity of water transferred by the San Joaquin Exchange Contractors since 2000 (i.e., 88,132 AF of transfer program water, 111,793 AF total SJEC transfers):

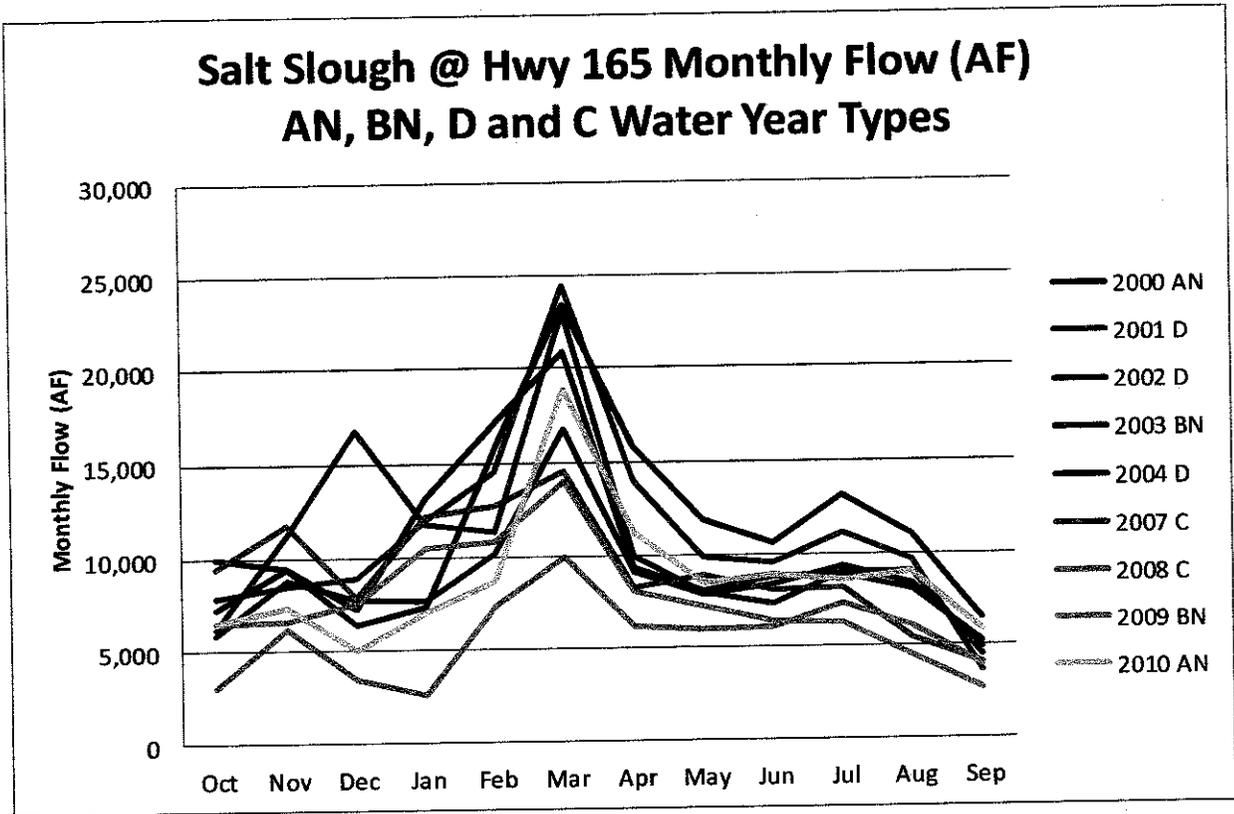
From Appendix B of ADEIS/R, Page 4

Table 2 Exchange Contractors Exchange Water Transfer Summary

Year	Within Exchange Contractors' 10-yr Transfer Program (and similar predecessor programs)			Other Transfers	Total Transfers
	To CVP Agricultural and MWD Users (acre-feet)	To Reclamation for Refuges (acre-feet)	Total (acre-feet)	Warren Act, Grower to Grower and VAMP (acre-feet)	(acre-feet)
1993	18,000	0	18,000	0	18,000
1994	0	0	0	0	0
1995	0	25,000	25,000	2,596	27,596
1996	0	30,348	30,348	2,160	32,448
1997	0	40,000	40,000	12,160	52,160
1998	0	0	0	0	0
1999	40,000	20,000	60,000	1,260	61,260
2000	43,000	21,500	64,500	1,360	65,860
2001	15,500	49,000	64,500	5,786	70,286
2002	2,134	63,500	65,634	6,414	72,048
2003	11,637	60,000	71,637	7,402	79,039
2004	30,000	50,210	80,210	10,900	91,110
2005	72,795	7,800	80,595	1,483	82,048
2006	30,417	49,583	80,000	0	80,000
2007	50,228	30,000	80,228	6,841	87,069
2008	61,026	24,132	85,158	15,071	100,229
2009	69,445	18,687	88,132	23,661	111,793
2010	56,981	27,714	84,695	10,798	95,493

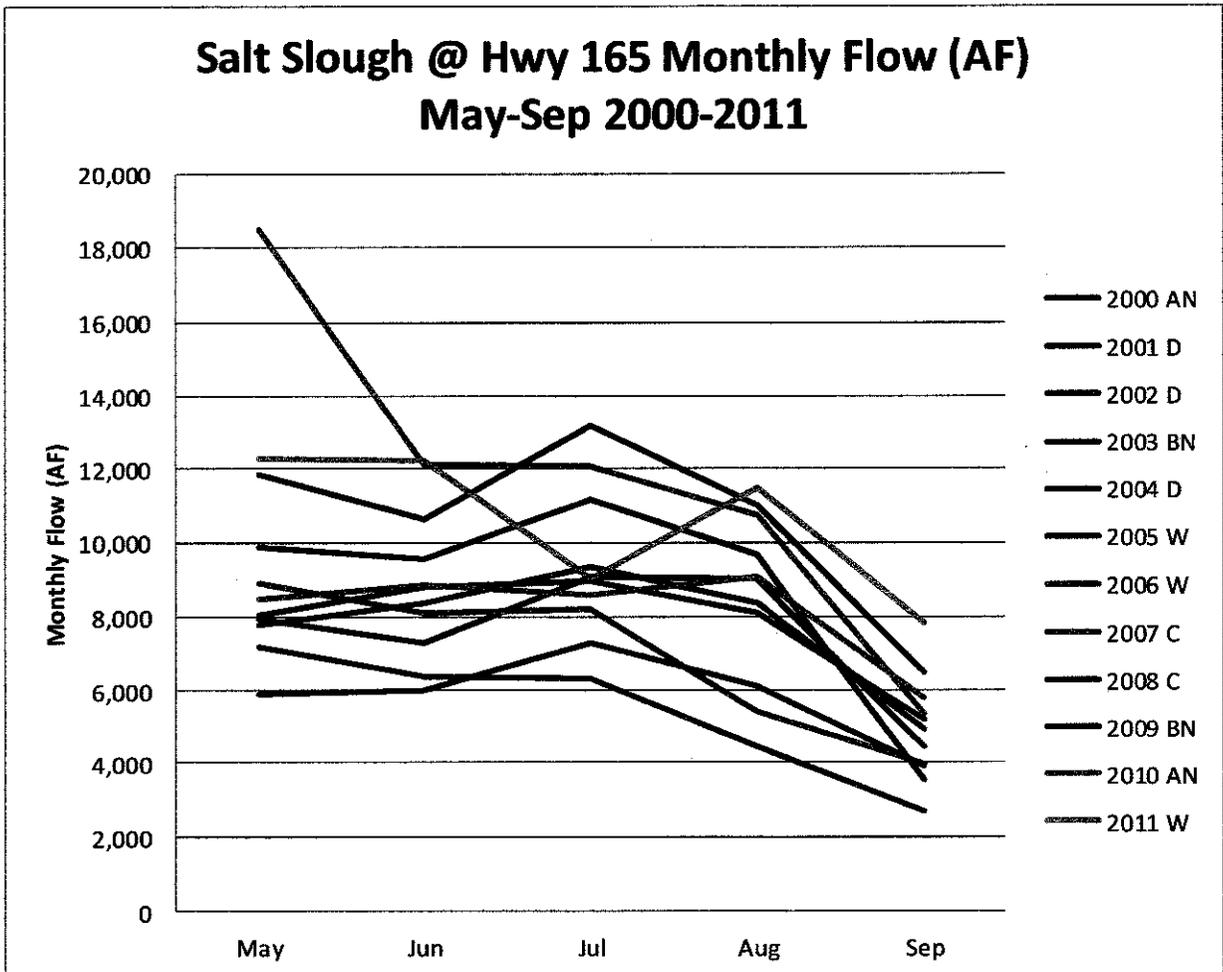
Source: J. White, personal communication, 2011.





Mr. Brad Hubbard

Reductions in flows in Salt Slough could be indicative of conditions in the south Grasslands wetland channels and have implications for giant garter snake survival during the months of May through September:



3. The ADEIS/R should include an effects analysis of reduced flows in the Grassland wetland channels (e.g., Mud Slough South and Salt Slough) associated with this transfer program, other SJEC transfers, and tailwater recapture actions on compliance with water supply objectives for those channels. The effects analysis should assess the frequency of water quality objective exceedences that may occur as a result of reduced flows in Mud and Salt Sloughs. This information is needed to help assess the impact of these water actions in the Grasslands wetlands on listed species.
4. We recommend that a program to monitor and report weekly flow in the Grassland Wetland Channels be included as a commitment in the Mitigation Monitoring and Reporting Program discussed in Chapter 14 of the ADEIS/R.
5. Is Kern County Water Agency in the CVP Place of Use (POU) boundary? Would the transfer involve any changes to the permitted POU for this water? Has Pajaro Valley WMA (PVWMA) been included in the permitted POU for the CVP by the State Water Resources Control Board (SWRCB)? PVWMA was not included as part of Reclamation's 1998 petition to the SWRCB to Consolidate and Conform the Places and Purposes of Use for the Central Valley Project which comprised phase 7 of the SWRCB water rights hearings, nor was it included in the SWRCB's D-1641 dated March 15, 2000. Please provide references in the EIS/R.
6. The EIS should describe the process for deciding which recipient districts will receive priority for transferred water (e.g., refuges, Ag or M&I). This information is important for assessing potential effects to listed species such as the giant garter snake.
7. As most of the project area is within the SCCAO area, we recommend that someone from the SCCAO NEPA or ESA team review this document.
8. As there are potential impacts to the San Joaquin River (i.e. flow reductions) and overlap with the San Joaquin River Restoration Program, we recommend that staff from SJRRP review this document as well.
9. Information was provided at the September 12, 2011 meeting on trends of rice acreage within the SJEC that should be included within the new environmental document to address potential effects of loss of rice acreage/habitat on the giant garter snake. Please include specific data on the types and annual acreages of crops that have been fallowed since the 10 year transfer program began in 2005.

10. Please explain why Wet Year and Dry Year Contract quantities listed in the 2011 ADEIS/R for the 25 Year Transfer Program are in many cases different from the 2004 FEIS for the 10 Year Transfer Program:

From 2011 ADEIS/R

Table 1-3
Existing Irrigation Water Deficit for Districts in the Project Area

Water District	Wet Year with 100 Percent Contract Water Supply		Dry Year with 25 Percent Contract Water Supply	
	Contract Water for Agricultural Use (acre-feet)	Annual Irrigation Water Deficit (acre-feet)	Contract Water for Agricultural Use (acre-feet)	Annual Irrigation Water Deficit (acre-feet)
Westlands	1,183,653	13,944	285,913	1,522,585
Panoche	93,936	0	23,484	100,262
Pacheco	10,071	0	2,518	10,050
San Luis	124,263	0	31,066	112,728
Del Puerto	140,210	0	35,053	142,547
Patterson	22,500	17,299	5,625	54,096
Byron-Bethany	19,893	0	4,973	18,485
San Benito County	40,780	0	10,195	40,996
Santa Clara Valley (CVP)	103,033	0	25,758	28,809
Santa Clara Valley (SWP)	70,000		17,500	
Santa Clara Valley (Total)	173,033		43,258	
Friant Unit (Class 1) ^{1,2}	735,750	562,759	183,938	3,739,890
Friant Unit (Class 2) ²	1,401,475		0	
Friant Unit (Total)	2,137,225		183,938	
Pajaro Valley	6,260	47,298	1,565	69,451
Kern County (SWP)	862,730	1,352,085	215,693	2,789,177
All Districts	4,814,553	1,983,385	853,270	8,637,867

Source: Water Balance Analysis (Appendix C).

¹ The Friant Unit was assumed to receive 100 percent of both Class 1 and Class 2 deliveries in a wet year, although unlikely to occur.

² The Friant Unit was assumed to receive no Class 2 deliveries and 25 percent of Class 1 deliveries in a dry year.

From 2004 FEIS 10-year Transfer Program:

Table 1-3
Existing Seasonal Irrigation Water Deficit for Districts in Project Area

Water District	Wet Year with 100 Percent Contract Water Supply		Dry Year with 25 Percent Contract Water Supply	
	Contract Water (acre-feet) ¹	Seasonal Irrigation Water Deficit (acre-feet)	Contract Water (acre-feet)	Seasonal Irrigation Water Deficit (acre-feet)
Westlands	1,150,000	85,869	287,500	1,265,433
Panoche	93,904	0	23,476	74,859
Pacheco	10,000	0	2,500	9,219
San Luis	124,502	0	31,126	107,031
Del Puerto	140,210	0	35,053	88,017
Patterson	22,500	11,275	5,625	41,640
Plainview	20,600	0	5,150	4,662
San Benito County	35,550	11,505	8,888	48,379
Santa Clara Valley	33,100	410	8,275	39,633
Friant Unit ^{2,3}	2,137,225	0	183,938	2,621,447
All Districts	3,767,591	109,059	591,529	4,300,320

11. The Proposed Action includes authorization to transfer water to recipient districts described in the existing 10 year transfer program, and expands the list of recipient districts to other CVP

and SWP contractors in Alameda (EBMUD), Contra Costa (CCWD), Monterey (PVWMA), Santa Cruz (PVWMA), Santa Clara and San Benito (SCVWA), and Kern Counties (KCWA). Of those new recipient districts, there is no section 7 or section 10 coverage for water deliveries to SCVWA and KCWA. As described in Appendix B, page 22, KCWA member units include:

2.4.3 Kern County Water Agency

The Kern County Water Agency was created in 1961 by a special act of the California State Legislature and serves as the local contracting entity for the State Water Project. KCWA has long-term contracts with 13 local water districts, called Member Units, and Improvement District No. 4 for SWP water. Since 1968, the Member Units have received over 31 million acre-feet of SWP water. Its SWP contract is for 1,153,400 acre-feet. KWWA Member Units include:

- Belridge Water Storage District
- Berrenda Mesa Water District
- Buena Vista Water Storage District
- Cawelo Water District
- Henry Miller Water District
- Kern Delta Water District
- Lost Hills Water District
- Rosedale-Rio Bravo Water Storage District
- Semitropic Water Storage District
- Tehachapi-Cummings County Water District
- Tejon-Castac Water District
- West Kern Water District
- Wheeler Ridge-Maricopa Water Storage District

The Cross Valley Canal (CVC) serves as the Kern County Water Agency's (Agency) primary conduit for water deliveries to and from the California Aqueduct. With an average of less than six inches of rainfall per year, Kern County is a semi-desert region. Surface water supplies are not enough to meet the needs in the area, so groundwater plays an integral part in how water is managed in Kern County. Since the 1980s, numerous groundwater banking programs have been developed to supplement inconsistent water supplies and provide more reliable supplies during dry years. Area projects now include:

- City of Bakersfield 2,800 Acres Spreading Area
- Kern Water Bank
- Pioneer Banking Project
- Kern Fan Area Operations
- The Berrenda Mesa Water District/Kern County Water Agency Joint Groundwater Banking Project
- Semitropic Water Storage District's groundwater banking project
- Arvin-Edison Water Storage District's groundwater banking project
- The West Kern Water District/Buena Vista Water Storage District groundwater banking project
- Rosedale-Rio Bravo/Improvement District No. 4 Joint Use Recovery Project
- Cawelo Water District
- Kern Delta Water District

Specific Comments:

Page 1-8, 2nd and 3rd paragraph and Page 3-34 Lines 10 - 18: Recommend Solicitor review of this language to ensure consistency with ongoing litigation.

Page 1-19, 1st para: SCVWD “negotiated a Water Service Contract...” SCVWD has a contract that is not due to expire to 2028. USBR’s mp website says the contract is “being negotiated.” Please explain the meaning of this sentence or reword as appropriate.

Page 1-19, line 33: “In 2001, the CVP contract was amended to provide for water delivery from three possible diversion points...” Please provide a reference.

Page 1-11, lines 31-36: regarding the PVWMA 3-way, we understand that that agreement was for 10 years and if PVWMA did not exercise their use of the water by 2009, the water would revert to SCVWA and WWD. Please explain the current status of the 3-way agreement.

Page 1-12, 1.3 Possible Related Projects

Delete duplicate Grassland Bypass Project (line 13 page 1-13)

Add the following:

Refuge water diversification projects (for Volta and Grassland Water District)

San Luis Drainage Feature Re-evaluation EIS, ROD, Feasibility Report, and Demo Treatment EA

San Luis Unit revised DEIS and Supplemental EIS

Page 1-14 Other activities: Add recent court decision on Stockton East v. U.S., 07-5142 and any potential changes to New Melones operations.

Page 1-14, Line 30: the “Regional Board adopted two conditional waivers of Waste Discharge Requirements...” please include the time periods for these waivers.

Page 1-15, Line 15: Please add more information on the timing of salmon restoration.

Page 1-15, Line 35: add info on EPA’s process to revise the selenium criteria in CA. See:

<http://www.epa.gov/region9/water/ctr/>

Page 1-16, Line 20: change San Joaquin River “Implementation Program” to “Improvement Project”

Figure 2-1 appears to be redundant with Figure 2-4 (which is better quality). Consider deleting 2-1.

Figure 2-4: Is Lower Tule River ID a Friant Division Contractor or a Cross Valley Canal Unit Contractor? Please clarify. LTRID is listed as a cross valley canal unit contractor on the USBR website:

http://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2012_int_cts/index.html

Page 2-24, Lines 14-21: Please cite the appropriate NEPA documentation (e.g, Article 5 exchanges).

Page 2-25, Lines 17-18: "None of the transfers or exchanges would involve a change of place and purpose of use..." Please add a map of the CVP Place of Use boundary.

Page 3-6, Delta Division: Consider moving Delta Division discussion to after San Felipe Division.

Page 3-6, Line 36-40: Spell out the 3 contractors in the DMC Unit that have not yet executed a long term renewal contract. Also, should mention city of Tracy's contract which expires in 2013. Consider deleting or rewording last sentence in this section on Line 40 as it sounds like Reclamation is pursuing execution of long term contracts within an interim period that has already expired (2008 – 2010).

Page 3-7, Lines 7-9: Please spell out which contracts in the AR Division were covered by the AR LTCR EIS ROD. Also, spell out which contracts are not covered by the ROD and are undergoing ESA Consultation. Consider deleting or rewording last sentence in this section on Lines 8-9 as it sounds like Reclamation is pursuing execution of long term contracts within an interim period that has already expired (2008 – 2010).

Page 3-7, Line 16: There is mention of 2 Divisions that cover DMC and SLU districts: West San Joaquin Division and Delta Division. Which is the correct name of this Division? Please revise accordingly. Also, move DMC and SLU paragraphs under the correct heading for this Division.

Page 3-20, Lines 22-34: Add discussion of Grassland Bypass Project Extension 2010-2019 and Biological Opinion (2009-F-1036) and San Luis Drainage Feature Re-evaluation and Biological Opinion (2006-F-0027).

3-24, San Felipe Division, PVWMA: This section cites the effects determinations made for long term contract renewal of a partial water assignment from Mercy Springs WD in the Delta Division to PVWMA, SCVWD and WWD that was available for public comment in 2004 but never finalized. The quantity of the water considered in this DEA was 6260 ac-feet/year. The Service does not believe that an EA that is 7 years old that was never finalized and did not receive ESA review sufficient to cover listed species issues for the current Transfer Program.

Page 3-25, San Felipe Division, SCVWD: This section cites the effects determinations in the FONSI and FEA made for a 21 year groundwater banking project of SCVWD's CVP supply in Semitropic WSD. Again, no ESA consultation was completed for this action and the Service believes that additional ESA review is warranted for SCVWD for the current Transfer Program.

Page 3-27, Friant Division, Lines 1-3: Add mention of the Biological Opinion on the Long Term Contract Renewals for the Friant Division (01-F-0027).

Page 3-27, Friant Division, Lines 34-38: Reference Reclamation and Applicant commitments in the Biological Opinion on the Long Term Contract Renewals for the Friant Division (01-F-0027).

Page 3-32, Other Related Biological Opinions: Add CVP Interim Contract Biological Opinions, Long Term Contract Biological Opinions (see list below), and San Luis Drainage Feature Re-evaluation Biological Opinion (2006-F-0027) and Grassland Bypass Biological Opinion (2009-F-1036).

CVP Interim Contract Renewals ESA Consultations

- a) 00-F-0056, Biological Opinion on Interim Contract Renewals
- b) 01-I-1211, Extension of 2000 Biological Opinion on CVP Interim Contract Renewals
- c) 02-F-0070, CVP Interim Renewal Contracts through February 29, 2004
- d) 02-TA-0782, Santa Clara HCP and Mercy Springs District Water Assignment
- e) 04-F-0360, CVP 2004 Interim Renewal Contracts
- f) 06-F-0070, CVP Interim Contract Renewals, 2006-2008
- g) 08-I-0944 Cross Valley Canal Unit Interim Water Contract Renewals
- h) 08-F-0538 San Luis Unit and Delta Division Interim Renewal of Water Service Contracts

CVP Long Term Contract Renewals ESA Consultations

- a) 01-F-0027, Formal Consultation on the Central Valley Project (CVP) Water Contract Renewals for Friant and Cross Valley Division Contractors
- b) 04-F-0490, Long Term Renewal of the CVP Water Service Contract for the East Bay Municipal Utility District
- c) 04-I-0707, Conclusion of Consultation on Long Term Renewal of Water Service Contracts in the Delta-Mendota Canal Unit
- d) 04-I-1504, Execution of a Long Term Water Service Contract Renewal for Contra Costa WD
- e) 04-F-0082, Reinitiation and Amendment of Formal Consultation and Conference on Contra Costa WD's Future Water Supply Implementation Program (File No. 99-F-0093) for the Renewal of the CVP Long Term Water Service Contract
- f) 04-F-0490, Final Biological Opinion, as Amended, for Long Term Renewal of the CVP Water Service Contract for the East Bay Municipal Utility District.

Page 4-3, Lines 9-14: Move this paragraph to precede discussion of delta pumping plants.

Page 4-6, Table 4-3, Other Transfer Column: Please explain how the water from the "Other Transfers" column was made available (e.g., tailwater recapture). How much of transferred water under "Other Transfers" was used for Warren Act, VAMP, etc. Please specify by year if possible.

Page 4-8, New Melones Operations: Will New Melones Operations change as a result of the recent court decision on *Stockton East Water District v. U.S.*, 07-5142? See: <http://www.ca9.uscourts.gov/images/stories/opinions-orders/07-5142.pdf>). The DEIS/R should evaluate potential changes in operations of New Melones Reservoir (associated with *Stockton East Water District v. U.S.*, 07-5142), combined with the continuation of the Grassland Bypass Project and its discharges to the San Joaquin River, and the Tailwater Recovery component of the proposed 25-Year Transfer Program on compliance with salinity and selenium water quality objectives in the San Joaquin River.

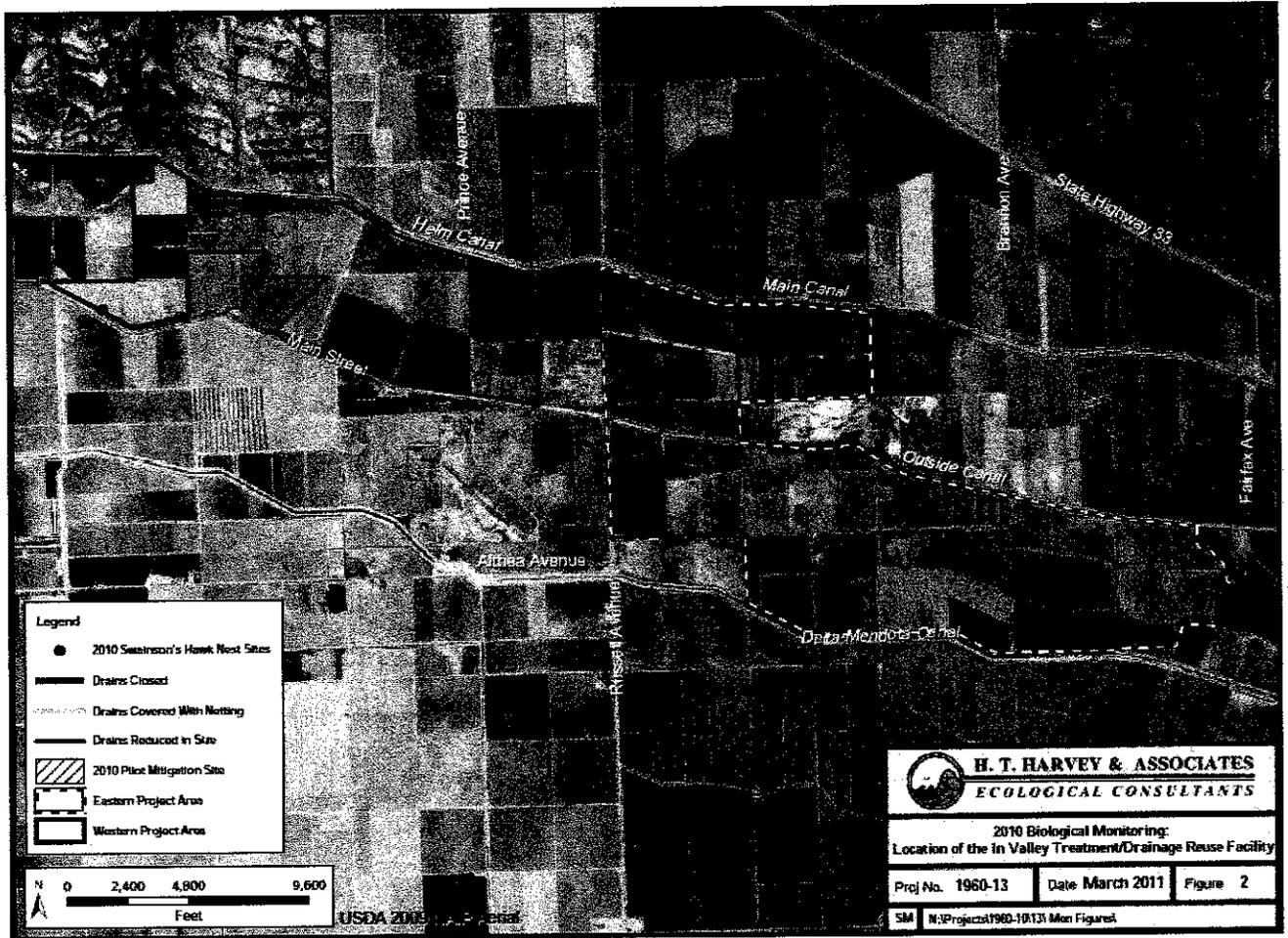
Page 4-43, Cumulative Effects, Line 10: This sentence discusses the effect of eliminating Grassland Bypass Project Discharges to the San Joaquin River by December 31, 2019 on water quality and flow at Vernalis. It would be helpful to include the reduction in flow anticipated from this action.

Page 5-7, Line 34: Please include citation(s) for the recent studies by the U.S. Geological Survey that have identified high concentrations of inorganic constituents in shallow groundwater associated with agricultural drainage.

Page 5-9, Line 11: Reword the beginning of the sentence on Line 11 to read, "Most of this drainwater is being managed under the Grassland Bypass Project." For further information, refer to the Service's 2009 Grassland Bypass Project Biological Opinion, pages 81-87.

Page 5-17, 5.2.3 Cumulative Effects: This section should add mention of the following projects that impact shallow groundwater conditions in the SJEC Service area: San Luis Drainage Feature Re-evaluation FEIS and ROD 2006, SJEC Groundwater Pumping/Water Transfer Project for 25 Consecutive Years FEA and FONSI 2007, Mendota Pool Group Pumpers 10-Year Exchange Agreements FEA and FONSI 2005, and the Transfer of up to 20,500 acre-feet of CVP water from CCID to San Luis, Panoche, Del Puerto and Westlands Water Districts and up to 5,000 acre-feet of CVP water from Firebaugh Canal Water District to San Luis Water District or Westlands Water District FEA and FONSI 2010.

Page 6-2, Land Use, Vegetation Communities, and Wildlife Habitat within the Exchange Contractor's Service Area: Please add a discussion and description of the extent and location of rice acreage in the SJEC Service Area. This discussion should include the 50 acre pilot mitigation site being managed by the Panoche Drainage District (see Figure below). This mitigation site has been cultivated in rice since 2006 to reduce impacts of the Grasslands Bypass Project's drainage reuse area (often referred to as the San Joaquin River Improvement Project) to nesting birds (HT Harvey and Associates 2011, San Joaquin River Water Quality Improvement Project (SJRIP) Wildlife Monitoring Report 2010, available at: <http://www.sfei.org/gbp/sjrip>)



Page 6-11 – 6-12, Giant Garter Snakes in the Program Vicinity: Information in this section is incomplete. Refer to the 2009 Biological Opinion on the Grassland Bypass Project (09-F-1036) for a more comprehensive and up to date environmental baseline for the giant garter snake in the Grasslands wetlands vicinity. Please revise this section accordingly.

Page 6-13, Lines 12-17: Please provide more detailed information on the total annual acreage and generalized location of rice production in the SJEC Service Area over the last 10 years.

Page 6-15, Mountain Plover: Please add mention of mountain plover sitings at the SJRIP drainage reuse facility on several instances during the winter months over the past 10 years. See the 2009 Biological Opinion on the Grassland Bypass Project (09-F-1036) for more information.

Page 6-16 to 6-17, San Joaquin kit fox: Please refer to the 2009 Biological Opinion on the Grassland Bypass Project (09-F-1036) and revise accordingly.

Page 6-19, Section 6.2.1 Key Impact and Evaluation Criteria: Please refer to our previous comment above on “Page 3-32, Other Related Biological Opinions” and revise accordingly in Section 6.2.

Page 6-23, Lines 32-38: This paragraph states, “Under the No Action/No Project Alternative, these transfers would no longer occur, and the refuges would obtain Incremental Level 4 water from other

sources." Please explain what those other sources would be as the availability of spot market purchased water is becoming increasingly limited.

Page 6-30, Lines 1-2: The first sentence states that "the reduction in flows in the San Joaquin River, Salt Slough, and Mud Slough would not be substantial [Note: on page 6-27 Lines 15-17 the reduction is described as a maximum of 19 percent reduction of the average daily flow in August in the San Joaquin River upstream of the Salt Slough Confluence. Assuming an even division of flow between Mud and Salt Sloughs, the largest reduction in flow would be 12 percent in August...] as these reductions would be small and spread across three waterways." However, the cumulative reduction of flow considering the impacts of the proposed action, other SJEC transfers, existing conditions and tailwater recapture actions could cumulatively be significant to the Grassland wetland channels and the aquatic habitats used by the giant garter snake. This section should include an effects analysis of reduced flows in the Grassland wetland channels (e.g., Mud Slough South and Salt Slough) associated with this transfer program, other SJEC transfers, and tailwater recapture actions on compliance with water supply objectives for those channels. The effects analysis should also compare the frequency of water quality objective exceedences with project and without project.

Page 6-30, Lines 3-7: We do not concur with the wording of these sentences. Although giant garter snakes are capable of travelling along canals and waterways to move to more suitable habitat, during the snake's active period (summer months) there is actually very limited summer water habitat available in the Grasslands. The Grassland wetland channels provides some of the only summer water habitat available to the giant garter snake until flood-up of the Grassland wetlands occurs in the fall. Please refer to the 2009 Biological Opinion on the Grassland Bypass Project (09-F-1036) and revise accordingly.

Page 6-30, Lines 12-16: Please provide data to show the annual acreage and location of rice that has been fallowed in the SJEC Service Area over the past 10 years.

Page 6-36, Line 29: Revise incomplete sentence ending with "therefore, no effect".

Page 6-41, Section 6.2.3 Cumulative Effects: Please add a description and discussion of the effects of other transfer programs involving the SJEC (e.g., groundwater pump in and exchanges, Warren Act transfers, etc.)

Page 7-3, Table 7-3: Please split out rice as a separate category from grains in this table.

Page 16-2, California Department of Fish and Game: This paragraph mentions the Fish and Wildlife Coordination Act. The FWCA is a federal act involving the USFWS and other federal agencies, not CDFG. Please revise accordingly.

Appendix B, Page 7, Second Paragraph: This paragraph discusses groundwater levels in spring of 1992 and spring of 2006. Is there any newer data to compare to?

Appendix B, Page 24, Second Paragraph: This paragraph identifies the primary locations where tailwater historically left the SJEC Service Area as: Sand Dam (Salt Slough), Boundary Drain (Mud Slough South), Mueller Weir (Arroyo/Santa Fe Canal), and Hereford Drain (Salt Slough). Please include a map that identifies these features and shows the locations of the tailwater recapture systems that have been installed by the SJEC.



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PCFFA
STEWARDS OF THE FISHERRIES

March 25, 2011

Michelle Banonis
Mid Pacific Region
U.S. Bureau of Reclamation, MP-170
2800 Cottage Way
Sacramento, CA 95828-1898

Subject: Comments on Draft EA/FONSI for Recirculation of Recaptured Water Year 2011 San Joaquin River Restoration Program Interim Flows EA

Dear Ms. Banonis:

It is our understanding that Reclamation proposes to recirculate and recapture up to 260,000 AF of San Joaquin River Restoration Program Interim Flows released from Millerton Dam for consumptive water use.

We find that the Draft EA and FONSI do not provide sufficient information to arrive at an informed decision regarding the environmental impacts of such a complex project. In particular, Sec 16(a) (1) of the San Joaquin River Settlement states: *"The Plan shall... (1) ensure that any recirculation, recapture, reuse, exchange or transfer of the Interim Flows and Restoration Flows shall have no adverse impact on the Restoration Goal, downstream water quality or fisheries"*

However, the Draft EA contains no analysis whatsoever of water quality or downstream fishery issues, such as meeting salinity requirements of SWRCB Order D-1641, the operational requirements of the various downstream Biological Opinions including Delta smelt and salmon, as well as, other water quality requirements for selenium, boron and nutrients. We point out that Reclamation and the California Department of Water Resources have been issued a Cease and Desist Order regarding ongoing violation of D-1641 water quality requirements. The Draft EA should disclose how implementation of the project will not adversely affect downstream water quality and how all downstream regulatory requirements will be met.

We also note that SWRCB Water Right Order 2010-0029-DWR modifying Reclamation's water rights for this project specifically states: *"Any San Joaquin River water temporarily stored or routed through San Luis Reservoir shall not be delivered to south-of-Delta contractors other than Friant Division Contractors. The water need not be directly delivered, but can be made available through transfers and exchanges. Reclamation shall document that it has taken all practicable measures to provide contract water to the Friant Division Contractors, while complying with all other conditions of this Order."*

We understand this language to mean no one but Friant Division Contractors have a claim on the recirculation water "stored" in San Luis Reservoir, but provided all state laws and federal laws are met perhaps Friant Division Contractors can sell it to others. Any sales, leases or exchanges should be fully disclosed. All impacts including delivering this water to toxic soils on the west side of the San Joaquin Valley should be analyzed for water quality impacts to ground water supplies, drinking water supplies and the beneficial uses of the San Joaquin River harmed by increasing these toxic drainage discharges. The Draft EA needs to disclose in plain English the reality of this reading of the statutes and let the public know specifically what Friant Division Contractors are entitled to do with the water and the resulting associated impacts.

The present Draft EA is confusing. The relationship with other or existing water sales, exchanges and transfers is not provided. Further confusing is how to reconcile the SWRCB order with this proposal. The Draft EA explains on page (6) that *"Friant contractors may transfer or exchange their water to other Friant or non-Friant CVP or SWP contractors, not in excess of the existing non-Friant contractor's CVP contract allocation."* The SWRCB Order prohibits any increase in non-Friant SOD water supplies, not a prohibition on increasing water above existing contract amounts. The Draft EA needs to fully disclose how to reconcile these state and federal actions. For example Reclamation has approved sales and exchanges to Westlands Water District of surface water supplies from Friant contractors, whereby these Friant contractors would use substitute supplies or groundwater supplies. Are there associated transfers made possible by the recirculation of the San Joaquin River water that will change surface or

groundwater uses? The impacts to surrounding groundwater users, increased pollution from the importation of water to irrigate toxic soils and other cumulative impacts on downstream users' fish, and wildlife needs to be disclosed and addressed.

It is also our understanding that every one of the 28 long term Friant Division contractors must decline to receive any Section 215 surplus water before that water can be delivered to non-Friant contractors. The Reclamation has provided notice, that Section 215 surplus supplies are likely to be available in water year 2011. This condition is not disclosed and explained to the public. This is a long term contract provision guaranteeing Friant contractors a "first right of refusal" to such periodic surplus flows out of Friant Dam. Reclamation should capture and make publicly available documentation demonstrating that all 28 Friant districts have formally declined the 'surplus flows' in question before authorizing any transfer of the water to non-Friant SOD contractors.

Specifically further disclosure and clarification is also needed at:

1. Page 38: The document should indicate conveyance capacity of the California Aqueduct.
2. Page 41: It is not clear how recirculated San Joaquin River water will end up in San Luis Reservoir if recirculation does not occur under the No Action Alternative. Wouldn't the water flow to the Delta instead? If there is a chance for "spilling" at San Luis Reservoir under No Action, wouldn't this result in reduced Delta exports and improved water quality in the South Delta, a beneficial impact?

Land Use: Given that the project could result in increased deliveries to saline, seleniferous lands such as San Luis Unit contractors, the document fails to disclose the impact of increasing these pollutants and metals such as selenium discharges to surface and/or groundwater. The amount of salt, boron and selenium created by irrigation of an acre of such land can be calculated from the Broadview Contract Assignment EA in 2004 (Reclamation), which calculated reductions in those pollutants as a result of retiring the Broadview Water District. The savings estimated from the Broadview Contract Assignment by acre are as follows: Salt- 1.57 tons/acre; Boron- 4.81 pounds/acre; Selenium- .139 pounds/acre. The EA should assume that increased water deliveries to similar soils will result in the creation of similar amounts of pollution discharged either to groundwater or surface waters. The EA and FONSI should disclose these impacts if water is transferred from Friant contractors to non-Friant contractors that have soils containing salts, metals such as selenium, boron and other contaminants.

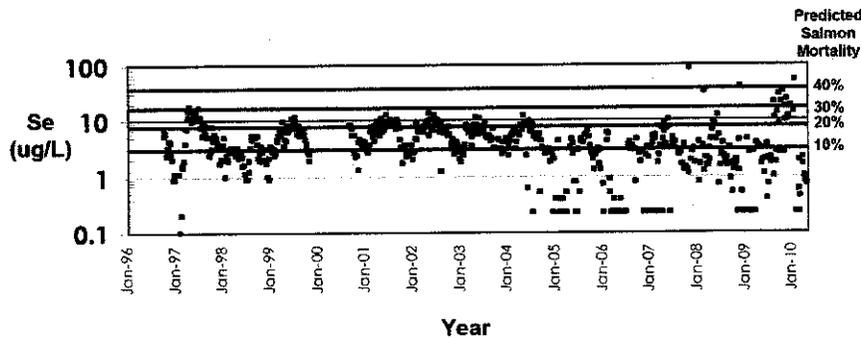
Biological Resources: The Draft EA should consider an alternative using some of the recirculated water to provide full Level 2 and/or Level 4 Refuge Water supplies.

If the project provides water to seleniferous saline lands that drain into Mud Slough, Salt Slough or the Grasslands Bypass Project, or result in ponding, there could be impacts to species covered by the Migratory Bird Treaty Act. The Grasslands Bypass Project has documented selenium mortality and elevated levels of selenium in birds covered by the MBTA.

Air Quality and Global Climate Change: Under the Proposed Action, the statement that electric motors do not emit greenhouse gases or air pollutants is completely misleading. While it is true that electric pumps don't discharge air pollutants, the energy sources for those pumps either uses greenhouse gases, or the increased energy use causes more fossil fuels to be burned. The document cannot claim that there are no impacts from the Proposed Action due to increased use of electric pumps. Electric pumps are also used for groundwater pumping, which is claimed to be a significant air quality impact of No Action. This type of analysis is not adequate. In order to make an adequate analysis and conclusion, there would have to be a comparison of the amount of electricity used for increased groundwater pumping as compared to increased pumping from recirculation. The analysis would also have to determine the amount of increased groundwater pumping, which is currently not disclosed.

Cumulative Impacts The Draft EA does not address cumulative impacts of irrigating seleniferous lands and the negative impact on the San Joaquin River Restoration Program. Selenium concentrations at Hills Ferry averaged over 15.6 ppb from Aug 11, 2009 to Jan 20, 2010. In 2009, selenium exceeded public drinking water standards measuring 52 ppb. See the charts below for impacts to juvenile salmonids from selenium exposure (Beckon, Pers Comm).

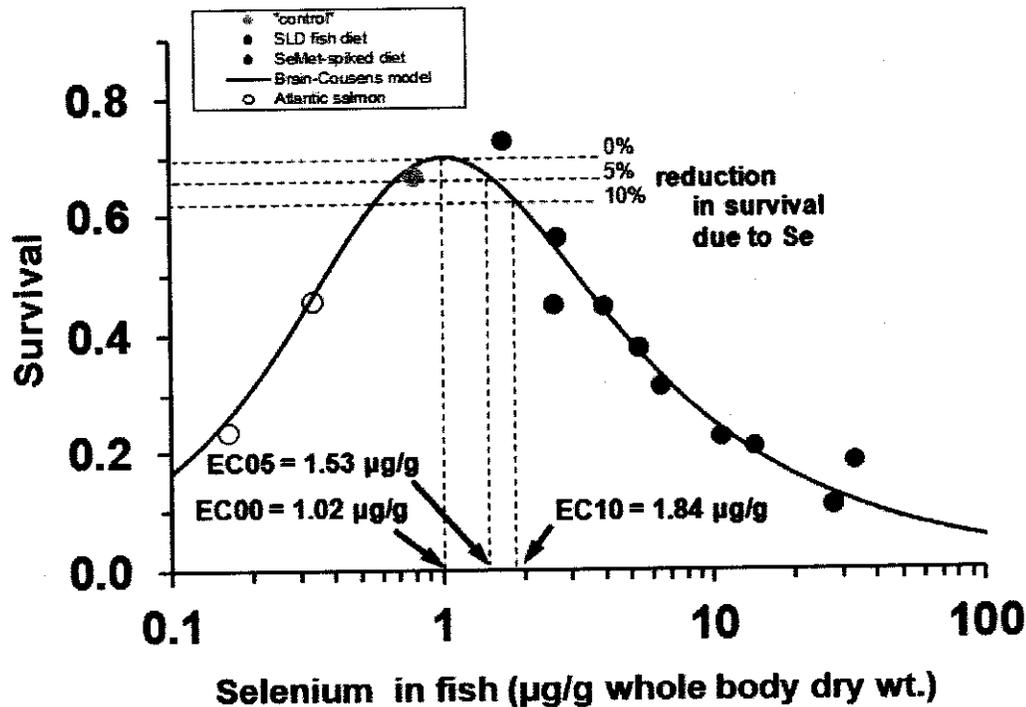
Selenium Levels and Predicted Salmon Mortality in the San Joaquin River



Selenium concentrations measured in the San Joaquin River at Hills Ferry (data from the U.S. Bureau of Reclamation)

Mortality Percent	Tissue selenium $\mu\text{g/g}$ whole body dry wt.	Water selenium $\mu\text{g/L}$
5%	1.531	1.92
10%	1.844	3.31
20%	2.485	7.98
30%	3.273	17.92
40%	4.336	41.01
50%	5.901	101.57
60%	8.447	291.87

These data are based on the following relationship and on Mike Saiki's data for juvenile salmon bioaccumulation in the SJ River. Depending on what model you use, and how you round off, you get slight variations from these numbers.



The Draft EA does not include any of the mitigation measures identified in SWRCB WRO 2010-0029 (DWR). All of those mitigation measures should be included.

We urge the Reclamation to either prepare a full Environmental Impact Statement or reissue the Draft EA and FONSI with additional analyses of downstream water quality effects, clarification of the apparent discrepancy between SWRCB WRO 2010-0029 (DWR), full disclosure of the biological and water quality impacts of applying additional water on saline, selenium soils, as well as an adequate analysis on air quality and greenhouse gases. Alternately, if the required analyses are complete and there are significant environmental impacts, Reclamation should complete a full environmental statement of this proposed transfer where up the amounts of water, the timing of transfer and the acreage and locations

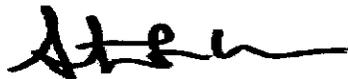
are clearly defined for the benefit of the public understanding along with the impacts to areas of origin, ground water aquifers, and the local areas transferring out "surplus" supplies. This Draft EA proposes up to 260,000 acre feet of water can be diverted before reaching the Delta estuary without harm to the San Joaquin River restoration effort and the estuary. Insufficient analysis is provided to scientifically support this conclusion.

Thank you for the opportunity to comment. Please add us to your notification list for this project.

Respectfully submitted,



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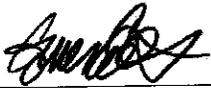
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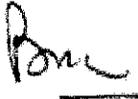
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Phillip Isenberg, Chair, Delta Stewardship Council
Senator Dianne Feinstein
Senator Barbara Boxer
California Congressional Delegation
Interested Parties



NORTH

COAST

RIVERS

ALLIANCE



November 4, 2010

Charles Hoppin, Chairman
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

E-mail <commentletters@waterboards.ca.gov>

Subject: Petition for Reconsideration—San Joaquin River Selenium Control Plan Basin Plan Amendment, Resolution 2010-0046

Dear Chairman Hoppin and Members of the Board:

Pursuant to California Water Code Sec 1120 et seq. and Title 23, California Code of Regulations, Sec. 768 et seq., Sierra Club California, Pacific Coast Federation of Fishermen's Associations, Institute for Fishery Resources, Planning and Conservation League, North Coast Rivers Alliance, and Southern California Water Alliance (Environmental Advocates) hereby jointly petition the State Water Resources Control Board (hereinafter "Board") to reconsider Resolution 2010-0046 approved on October 5, 2010 approving amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) to address selenium control in the San Joaquin river Basin (hereinafter "Basin Plan Amendment"). We adopt by reference comments and petitions filed by California Sportfishing Protection Alliance, California Water Impact Network, and AquAlliance.

STANDARD OF REVIEW

In accordance with California Water Code Section 1120 et seq., and title 23 of the California Coder of Regulations, Section 768 et seq., any interested party may petition the BOARD for reconsideration of a decision or order based on any of the following conditions:

- a. Irregularity in the proceedings, or any ruling, or abuse of discretion, by which the person was prevented from having a fair hearing;
- b. The decision or order is not supported by substantial evidence;
- c. There is relevant evidence, which in exercise of reasonable diligence, could not have been produced; or
- d. Error in law.

Environmental Advocates contend that BOARD Resolution 2010-0046 constituted an error in law and is not supported by substantial evidence

STATEMENT OF FACTS

On October 5, 2010, the BOARD approved the Basin Plan Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River to extend the compliance date for implementation of the 5 parts per billion (ppb) water quality objective for selenium in Mud Slough North and the San Joaquin River from Mud Slough to the Merced River until December 31, 2019. This approval followed the May 27, 2010 approval of Resolution R5-2010-0046 by the Central Valley Regional Water Quality Control Board (hereinafter "Regional Board").

Approval of the selenium Basin Plan Amendment provides for a cumulative 24-year and 9-month time extension (1996-2019) for the compliance date in meeting the 5 ppb selenium water quality objective (4 day average) in Mud Slough and the 8-mile portion of the San Joaquin River from Mud Slough to the Merced River. The BPA allows continued discharges of highly contaminated groundwater from the 100,000 acre Grasslands Drainage Area through a portion of the Bureau of Reclamation's San Luis Drain directly into Mud Slough which flows into the San Joaquin River. Average selenium concentrations in the San Luis Drain discharges into Mud Slough are up to 50 ppb on a daily average. Selenium readings at Hills Ferry downstream on the San Joaquin River have risen in recent years, with a reading of 52 ppb in January, 2010, exceeding the drinking water standard of 50 ppb.

Environmental Advocates, as well as, members of our organizations, other environmental and Delta representatives commented both orally and in writing for the hearing May 27, 2010 before the Regional Board and before the State the Board hearing October 5, 2010 regarding the Basin Plan Amendment. Environmental Advocates raised several significant technical and procedural issues to the Board. The Board completely dismissed all of concerns in their Basin Plan Amendment approval process. Thirty-five years after massive deaths and deformities found at the Kesterson National Wildlife Refuge, the Board extended the compliance schedule for selenium discharges into Mud Slough which runs through the Kesterson Unit of the San Luis National Wildlife Refuge and the San Joaquin River until December 31, 2019, totaling nearly a quarter of a century of non-compliance with selenium water quality standards.

ERROR IN LAW

As stated above, a petition for reconsideration may be made if there is an error in the law. Environmental Advocates hereby allege that the BOARD erred in its application and consideration of Basin Plan policies, the California Environmental Quality Act, the Porter-Cologne Act, the Federal Clean Water Act, the California Endangered Species Act, the Federal Endangered Species Act, the Fish and Wildlife Coordination Act, the Migratory Bird Treaty Act, the California Water Code, the Delta Protection Act, the Reclamation Act, the California Constitution's prohibition on Wasteful and Unreasonable Use of Water (Article X, Sec 2) and state and federal anti-degradation policies before approving Resolution 2010-0046 for the selenium Basin Plan Amendment.

THE RESOLUTION IS NOT SUPPORTED BY THE EVIDENCE

A petition for reconsideration may be made if the resolution is not supported by the evidence. Environmental Advocates believe that the BOARD's decision is not supported by substantial evidence, and therefore warrants reconsideration by the Board.

Resolution 2010-0046 does not address the fact that selenium concentrations in the San Joaquin River at Hills Ferry have been increasing since 2007. BOARD Resolution 2010-0046 approves REGIONAL BOARD Resolution R5 2010-0046. Resolution R5 2010-0046 justifies the selenium Basin Plan Amendment in paragraph 8 on page 2, stating that:

In a 13 December 2006, letter to the US Bureau of Reclamation, the GAF informed the Bureau and Central Valley Water Board staff that the GBP would be unable to eliminate all surface water discharges of agricultural subsurface drainage by 30 October 2010 without increased risks of loss of soil productivity; accelerated loss of beneficial use of groundwater due to salinization; a significant decrease in farm profitability stemming from a rising water table if irrigation continues; or low or no returns if fields are dryland farmed or fallowed. Rising groundwater would also increase groundwater seepage to surface water channels and open ditches, potentially increasing selenium in channels now protected by the monitoring and management of the regional drainage program. Continued farm productivity and profitability is necessary to fund ongoing regional drainage management in this area; and continued wildlife protection is consistent with state, federal, local and GBP priorities.

The Board by adopting Resolution 2010-0046 fails to control this selenium pollution at its source. Instead the pollution is exported to the Delta estuary. The Board refused to consider controlling this Delta export of water to irrigate toxic selenium soils and then sending the polluted selenium drainage back to the river and estuary. Such pollution control and unreasonable use *is* within the State Board's authority.¹ Additionally, the Board by adopting

¹ See Racanelli Decision (*United States v. State Water Resources Control Board*, 182 Cal.App.3d 82, 130 (1986)):

Resolution 2010-0046 refuses to effectively address partially regulated and the unregulated discharges of pollutants from adjacent and north Westside upslope areas into the Grasslands Watershed.

The Board's adoption of Resolution 2010-0046 fails to comply with federal and state laws to control pollution. As the Regional Board's Staff Report acknowledged, "[a]ny proposed changes to the Regional Water Board Basin Plans must be consistent with existing Federal and State laws and regulations..." (Regional Board Staff Report, p. 23.) Both the EPA and USFWS raised concerns regarding the adequacy of the Regional Board Staff Report's analysis and the proposed amendments themselves. The points raised by the federal agencies with responsibilities over the water quality and wildlife affected by the proposed amendments underscored those raised by the Environmental Advocates in their own comments to the Board. None of the Board or Regional Board's responses adequately addressed these concerns.

Too much selenium in streams kills or deforms fish and other aquatic life, and in high levels can damage human health. Selenium is one of a number of contaminants that are discharged from the federally owned San Luis Drain directly into the waters of the state. This failure to enforce protective selenium water quality standards transfers pollution from these Grassland drainers through this federal drain to the waters of the state, harming beneficial uses of these waters for our members' recreational use, domestic water supply, public health and public trust values.

The BOARD's justification for approving the selenium Basin Plan Amendment is based on maintaining one beneficial use at the expense of other beneficial uses and a faulty assumption that regional efforts to reduce selenium contaminated discharges to Mud Slough would end if discharge prohibitions were enforced. Despite significant concerns of the United States Environmental Protection Agency ("EPA") and United States Fish and Wildlife Service ("USFWS") regarding the harmful impacts of the Basin Plan Amendment to allow increased selenium discharges for such a prolonged period and the potential for violations of federal environmental standards, the Board rejected a feasible and less risky alternative put forth by a coalition of environmental groups to limit the amendment for a period of two years.

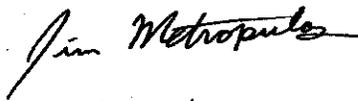
We perceive no legal obstacle to the State Board's determination that particular methods of use have become unreasonable by their deleterious effects upon water quality. Obviously, some accommodation must be reached concerning the major public interests at stake: the quality of valuable water resources and transport of adequate supplies for needs southward. The decision is essentially a policy judgment requiring a balancing of the competing public interests, one the Board is uniquely qualified to make in view of its special knowledge and expertise and its combined statewide responsibility to allocate the rights to, and to control the quality of, state water resources. ([Water Code] § 174.) . . . We conclude, finally, that the Board's power to prevent unreasonable methods of use should be broadly interpreted to enable the Board to strike the proper balance between the interests in water quality and project activities in order to objectively determine whether a reasonable method of use is manifested.

Admittedly there is no known effective treatment process for such huge volumes of polluted selenium contaminated groundwater and no known funding exists. For these and the following reasons the Environmental Advocates believes the Board's Resolution 2010-0046 is unsupportable due to its conflict with federal and state laws and policies.

REQUEST FOR RELIEF

The Environmental Advocates hereby respectfully request that the BOARD reconsider Resolution 2010-0046 and remand the selenium Basin Plan Amendment to the REGIONAL BOARD to adopt National Pollutant Discharge Elimination Service (NPDES) permit conditions to control selenium discharges from these pipes, ditches, sumps and canals, to fully regulate all selenium discharges into the Grasslands Watershed Basin, consider alternatives such as land retirement and a shorter compliance schedule for implementing the selenium objectives for Mud Slough North and the San Joaquin River upstream of the Merced River.

Respectfully submitted this 4th day of November 2010,



Jim Metropulos
Senior Advocate
Sierra Club California



Steven L. Evans
Conservation Director
Friends of the River



Zeke Grader
Executive Director
Pacific Coast Federation of Fisherman's
Federation Association Inc.



Jonas Minton
Senior Water Policy Advisor
Planning and Conservation League



Conner Everts
Executive Director
Southern California Watershed Alliance



Byron Leydecker
Chair
Friends of Trinity River

Frank Egger President
North Coast Rivers Alliance

Pietro Parravano, President
Institute for Fisheries Resources

Attachment:

Memorandum and Points and Authorities In Support of Sierra Club California, Pacific Coast Federation of Fishermen's Associations, Institute for Fishery Resources, Planning and Conservation League, North Coast Rivers Alliance, and Southern California Water Alliance (Environmental Advocates) Joint petition for Reconsideration of Resolution 2010-0046

Points and Authorities

The Board's adoption of the San Joaquin River Selenium Control Plan Basin Plan Amendment, Resolution 2010-0046 allows the continued violation of selenium pollution standards and other pollutants being discharged from the San Luis Drain into the San Joaquin River from the Grassland Bypass Project (GBP) by delaying the compliance time schedule in the current Basin Plan. The Basin Plan Amendment includes a revised compliance schedule for meeting selenium water quality objectives in Mud Slough (north) and the San Joaquin River (from Sack Dam to the Merced River). This revised compliance schedule includes a non-binding *Performance Goal* of 15 µg/L monthly mean by December 31, 2015, and a binding objective of 5 µg/L 4-day average for the reaches of Mud Slough (north) and the San Joaquin River by December 31, 2019.

The Environmental Advocates' comments both before the Board and the Regional Board were not addressed. Specifically in adopting Resolution 2010-0046 the Board failed to enforce the Clean Water Act and Porter-Cologne (Water Code § 13000 *et seq.*) The Board approved the selenium BPA to allow nearly another decade in search of technology and funding that does not exist. Specifically the action fails to:

1. Regulate the point source discharge of selenium and other pollutants in accordance with the Clean Water Act through repeated waivers and basin plan amendments for over fifteen years, and extending this failure to enforce pollution control standards for almost another decade resulting in harm to the waters of the state and nation and the beneficial uses and public trust values.
2. Remedy the environmental impacts associated with deferring compliance of water quality objectives in Mud Slough (north) and the San Joaquin River; and
3. Regulate or remedy inputs of selenium contamination within the Grasslands Watershed and the Grassland Basin Project wetland supply channels that result in continued violations of water quality objectives in those channels and environmental harm to endangered species, migratory birds, fish, wildlife and human health.²

² "Review of Selenium Concentrations in Wetland Water Supply Channels in the Grassland Watershed" California Environmental Protection Agency Regional Water Quality Control Board Central Valley Region May 2000, Figure 4 page 11. See also Delta-Mendota Canal Water Quality Monitoring Program reports April-June 2010 documenting elevated levels of Mercury and Selenium.

A. The Board Failed to Enforce the Clean Water Act and Porter-Cologne (Water Code § 13000 *et seq.*) in Adopting Resolution 2010-0046--A State Cannot Issue Temporary Waiver from NPDES Permit.

The Grassland drainers entered into a joint powers agreement with the San Luis Delta Mendota Water Authority ("Authority").³ Under the project's agreement, groundwater is pumped to the surface and is discharged into the San Joaquin River via the federal San Luis Drain and Mud Slough. The discharged water contains a number of chemical constituents identified by the Environmental Protection Agency ("EPA") as pollutants. One such pollutant discharged is selenium, occurring at levels that are toxic to fish, wildlife, and humans who rely on the San Joaquin River for a domestic water supply.

By adopting Resolution 2010-0046 and the Basin Plan Amendment, which delays enforcement of pollution control standards and fails to regulate the discharge of pollutants, the Board violates the Clean Water Act (CWA). Likewise, the Project's operation without a National Pollutant Discharge Elimination System (NPDES) Permit constitutes an unlawful discharge of pollutants into navigable waters of the United States. State law cannot exempt the Authority from obtaining an NPDES and other necessary permits under the CWA.

In 1995 the Authority first entered into a use agreement with the Bureau of Reclamation to dump shallow untreated polluted groundwater from a four-mile long earthen ditch, through the San Luis Drain, and into Mud Slough. Though the agreement's original terms allowed this arrangement for "two years," and no more than "five years," a series of use agreement extensions have made promised pollution treatment appear as a "treatment mirage."

The technical and economic feasibility of drainage treatment is questioned in the water board's staff report. More recently the US BOR, in contract negotiation sessions with Westlands, has indicated the cost is greater than \$12,000 to treat an acre of drainage impaired land. Such estimates also make the promised treatment unlikely.⁴ Treatment of this polluted ground water is further complicated by salt and the presence of constituents like selenium, arsenic, and boron.⁵ Yet the full range of source controls, including land retirement to

³ The Project is operated by the Bureau of Reclamation and the San Luis & Delta-Mendota Water Authority (Authority). Previous NPDES Permits to control pollution were rescinded when this "interim" project was announced. See United States Department of the Interior, Bureau of Reclamation, San Luis Drain, Merced and Fresno Counties, NPDES Permit No. CA0082368, Order No. 90-027. Also see NPDES permit to the Authority for discharge of sumps into the San Luis Drain On March 22, 1996, the Regional Board issued a NPDES Permit (Order No. 96-092, NPDES NO. CA0093917) to the Authority for the discharge of groundwater accumulated in the Drain to Mud Slough (North)

⁴ US BOR Reclamation cost estimates for drainage treatment and collection costs for the Northerly portion of Westlands Water District. 9-28-2010 Repayment Negotiations & 9 (d) Contract Negotiations.

⁵ Technical Analysis of In-Valley Drainage Management Strategies for the Western San Joaquin Valley, California, Open File Report 2008—1210 , By Theresa S. Presser and Steven E. Schwarzbach

regulate this discharge and the adoption of NPDES permit requirements by Environmental Advocates was ignored.

B. The Board Action Fails to Regulate Pollutants Entering Into Wetland Supply Channels at National and State Wildlife Refuges and to Enforce Federal and State Anti-degradation Policies Allowing Unreasonable Affects on the Beneficial Uses of Water in Adopting Resolution 2010-0046.⁶

The Regional Board Staff report (p. 25) acknowledges that the adoption of the Basin Plan Amendment will result in "temporary continuation of the potential impairment to warm freshwater habitat, spawning and wildlife habitat." In fact, the Regional Board acknowledges that "with the amendments, water quality in Mud Slough (north) will remain vulnerable to degradation for up to an additional nine years, three months beyond 1 October 2010." (*Ibid.*)

The Board Adopting Resolution 2010-0046 seemingly sides with the Regional Board Staff Report that argues this degradation will only occur in Mud Slough and therefore it is acceptable:

"The existing beneficial uses of Mud Slough (north) are irrigation (limited by naturally occurring salt and boron); stock watering; contact and non-contact recreation; warm freshwater habitat; spawning and wildlife habitat. Adopting the amendment will not change attainability of these uses relative to current conditions, but will result in temporary continuation of the potential impairment to warm freshwater habitat, spawning and wildlife habitat now occurring relative to no project." [Regional Staff Report at p. 25]

This argument suggests that after over a decade of sanctioning the pollution of Mud Slough and the San Joaquin River, such degradation necessarily sanctions further degradation by these irrigation drains. Furthermore, this circular argument ignores the spread of selenium pollution throughout the lower San Joaquin and the Sacramento-San Joaquin Delta.

In addition, the Board Adoption of Resolution 2010-0046, does not control and violates the 2 µ/L standard for wetland supply channels and Salt Sough whenever there is sustained rainfall. The 1997 Storm Event Plan⁷ acknowledges uncontrolled storm water pollution from Panoche Creek and Silver Creek, with its terminus in and at the project boundary. During storm events, the wetland supply channels at Camp 13 Ditch and Agatha Canal gates are opened, allowing uncontrolled and polluted storm water, road runoff, and groundwater to flood into wetland channels, Mud Slough, and the San Joaquin River. Testimony and comments by the Environmental Advocates, the United States Fish and Wildlife Service and others document the

⁶ SWRCB Order No. WQ 2005-0010; SWRCB Order No. WQ 92-09, SWRCB Resolution No. 68-16 and 40 CFR § 131.12.

⁷ "A Storm Event Plan For Operating the Grassland Bypass Project", Grassland Area Farmers and San Luis & Delta Mendota Water Authority, August 25, 1997.

pollution impacts to the beneficial uses of both public and private wetlands. The Board failed to consider regulation of this pollution in its action.

Specifically, Resolution 68-16 requires that high quality waters shall be maintained until it is demonstrated that degradation is in the best interest of the people of California; that beneficial uses will not unreasonably be affected and that water quality objectives and standards will be met. Further, waiving and failing to enforce water quality standards protective of fish and wildlife fails to comply with the Federal Anti-degradation Policy (40 Code of Federal Regulations 131.12).⁸

Beneficial uses, including domestic, agriculture, along with public health, aquatic life, migratory birds, rare fish and wildlife, and recreation, are threatened by the Board's action to waive protective selenium standards for almost another decade. USFWS documented the vast public trust resources that are threatened and we incorporate those comments by reference.⁹ These public trust resources and beneficial uses include the Grasslands Ecological Area with over 160,000 acres of Federal, State, and privately managed marsh, native pasture and riparian zones, including the largest contiguous block of wetlands remaining within the Central Valley (Sacramento and San Joaquin Valleys). Prior to the early 1900's, this area was part of a vast network of some 4,000,000 acres of wetlands spread throughout the Central Valley. Today that valley-wide network is down to 300,000 acres, of which the Grasslands area is a critical component. As much as thirty percent of the migratory birds that utilize the Central Valley frequent the watershed each winter. The area annually hosts hundreds of thousands of ducks, geese and waterbirds, and is recognized by the Western Hemisphere Shorebird Reserve Network as a place of international importance to wintering and migrant shorebirds.

The Grasslands Ecological Area has also been designated a Wetlands of International Importance under the Ramsar Convention, the only international agreement dedicated to the worldwide protection of wetlands. The Grasslands Ecological Area and vicinity also provides habitat to two known populations of the giant garter snake (*Thamnophis gigas*) (in Mendota and North and South Grasslands) as identified in the final rule listing this species as threatened (USFWS 1993) (56 FR 54053). The San Joaquin River provides habitat to the federally listed delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley spring run Chinook salmon (*Oncorhynchus tshawytscha*) and green sturgeon (*Acipenser medirostris*).

These beneficial uses are threatened by pollutant levels of selenium exceeding the 2 µg/L monthly mean selenium objective in water in the Grassland wetland supply channels and 5

⁸ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4826 The U.S. Fish and Wildlife Service's Biological Opinion indicates that the Poso/Rice/Almond drain areas adjacent to the Grasslands area are discharging uncontrolled drainage water into areas such as the Agatha Canal, which periodically has extremely high selenium levels that could cause reproductive failure, death and other impacts to waterfowl, fish and wildlife.

⁹ Susan K. Moore, Forest Supervisor, USFWS, May 8, 2010. Comment letter to CVRWQCB with attachments, see http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/

µg/L in the San Joaquin River upstream of the Merced River and Mud Slough North. Sources of ongoing selenium contamination in Grassland wetland channels and the San Luis National Wildlife Refuge include:

- (1) Continued contamination of the water supply in the Delta Mendota Canal from 6 sumps and groundwater pumping exchange programs;
- (2) Unregulated and unmonitored discharges of subsurface groundwater from nearby farmland into local ditches and canals that feed into the Grassland wetland supply channels; (3) and large storm events that can overwhelm the GBP channel, requiring that uncontrollable storm runoff be diverted into wetland supply channels (Beckon et al. 2007; Paveglio and Kilbride 2007; Eppinger and Chilcott 2002). The adoption of the BPA and failure to enforce Basin Plan objectives for selenium will continue to degrade aquatic life beneficial use.

In addition the Board and Regional Board failed to address damages to downstream beneficial uses presented in testimony provided on May 27, 2010, by Tom Stokely [California Water Impact Network], Bill Jennings [California Sportfishing Protection Alliance], Osha Meserve [representing Reclamation District 999, which is within the Clarksburg Agricultural District of the Delta], and Delta landowners, and incorporated here by reference.¹⁰

Further compliance with Basin Plan objectives and their implementation program is mandatory. (*See State Water Res. Control Bd. v. Office of Admin. Law* (1993) 12 Cal. App. 4th 697, 701-02.) The proposed nearly decade-long compliance extension comes in direct conflict with crucial Basin Plan Objectives, and the proposed amendment fundamentally alters the basin plan selenium pollution controls out of meaningful existence. Waiving enforcement or "implementation" for almost a decade has the effect of sanctioning pollution that will bioaccumulate in plant material, enter the food chain, and gather in groundwater and surface water supplies so as to significantly impact beneficial uses for decades.

Finally, the Board and the Regional Board failed to show that allowing degradation is in the best interest of the people of California.

C. The Board Failed to Enforce the Clean Water Act § 404 and the Rivers and Harbors Act of 1899 § 10 When it Adopted Resolution 2010-0046.

Under the CWA Section 404 and the Rivers and Harbors Act of 1899 Section 10, alteration of waterways, including wetlands, that affect navigable waters requires a permit from the Federal government and assurance that impacts will be avoided or mitigated. This

¹⁰ Comment letters, and May 27, 2010, testimony from Bill Jennings, Tom Stokely, Patricia Schifferle, Osha Meserve, and written comments; California Water Impact Network et. al. [Coalition] April 26, 2010; Janet Hashimoto, USEPA letter dated April 26, 2010; Susan K Moore, USFWS, May 8, 2010 plus attachments; Osha Meserve representing Reclamation District 999 letter dated May 26, 2010 plus attachments. For all written comments to the CVRWQCB, See http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/

project has not been issued a 404 permit despite the acknowledged release of pollutants from groundwater sumps and canals directly into wetland channels. Further the project acknowledges unavoidable impacts on wetlands and fisheries. Yet the required compensatory mitigation in the form of replacing the lost aquatic functions is not included in this project.

Despite the Basin Plan's prohibition against the discharge of selenium without a permit, there are numerous discharges within the project and into the project that are not regulated.¹¹ The Delta Mendota Canal (DMC) sumps are located in a reach of the DMC between Milepost 100.86 and 109.5. These sumps have been identified as discharging selenium, salt, boron and other constituents to the DMC which in turn delivers water to the Grassland wetland areas¹². The Central Valley Regional Quality Control Board staff confirmed elevated levels in the DMC: "Monitoring of the DMC has shown elevated selenium levels (1-10 µ/L) in its lower reach; similarly monitoring of the Mendota Pool has shown elevated selenium levels (1-4 µ/L). In consideration of the uses of the water from the DMC and Mendota Pool, these levels of selenium are cause for concern."¹³

The USBR has identified average discharges from the BPA of 1,300 acre-feet, 732 pounds selenium and 8,268 tons of salt per year for the period July 2002 through June 2009.¹⁴ The Grassland Basin Drainers have suggested that USBR pay for the benefits of "participating in an established, ongoing drainage management project.... existing infrastructure, and permits in place" in order to address the issue of the DMC sump discharges of polluted groundwater (emphasis added).¹⁵

The Board Adopted Resolution 2010-0046, whereby the implementation schedule effectively delays enforcement of pollution control standards and an approved TMDL for almost

¹¹ Rudy Schnagl, Senior Scientist for the Central Valley Regional Board explained that subsurface polluted groundwater discharges from Westlands Water District (WWD) flow northeast toward Mud Slough, to other tributaries and to the San Joaquin River. Because of this flow pattern, some of the water that Grassland Basin Drainers manage originates from the unregulated discharge in WWD. Transcript of Proceeding, Central Valley Regional Water Quality Control Board, Agenda Item No. 10, (May 27th, 2010) pp. 89-91. This subsurface polluted groundwater flow has also been documented in United States Geological Reports. See "*Simulation of Water-Table Response to Management Alternatives*", *Central Part of the Western San Joaquin Valley, California*, US Geological Survey Water-resources Investigations Report 91-4193.

¹² Selenium in the Delta Mendota Canal 1987-2001 U.S. Bureau of Reclamation Staff Report April 2002.

¹³ "Investigation of Check Drains Discharging into the Delta-Mendota Canal, by F.W. Pierson, Thomasson and Chilcott et. al. Agricultural Unit, Central Valley Regional Water Quality Control Board. October 1987 pg 1.

¹⁴ USBR, June 2009 DMC Water Quality Monitoring Report, Tables 8a and 8b

¹⁵ San Luis Delta Mendota Water Authority, Joseph McGahan, Drainage Coordinator, Grassland Basin Drainers March 22,2010 Letter to Michael Jackson USBOR Area Manager, South Central Area Office.

another decade and the resulting state permit, sanctions the degradation of Mud Slough, the San Joaquin River and Delta Bay estuary, and violates the Clean Water Act [CWA].

This delay in enforcement and failure to issue the required National Pollution Discharge Elimination System Permit (NPDES) constitutes an unlawful discharge of pollutants into navigable waters of the United States. It is clear this ground water discharge is a "pollutant" within the meaning of the CWA, and we contend state law cannot exempt the Authority, from obtaining (NPDES) permits and other necessary permits under the CWA. The Board dismissed testimony regarding the benefits to fish and wildlife and wetland areas if such compliance is achieved. No consideration was given to the benefits of issuing the required NPDES permit controls, strict mitigation offsets or extending permit conditions to unregulated discharges.

D. NPDES Regulatory Jurisdiction Discussion and Points of Law: The Discharge of Polluted Groundwater from Sumps Constitutes a Point Source Subject to Regulation under the NPDES Permit Program.

The first question when determining whether the Clean Water Act has jurisdiction over sumps that pump polluted groundwater into canals should be whether those sump discharge pollutants from a point source.¹⁶ There are several features of the selenium-laden and polluted groundwater sumps that create de facto point sources. For example, the sumps, pumps and discharges from various groundwater locations surrounding the lands of the Grassland drainers are identifiable point sources, as are the pesticide and fertilizer application equipment. The next question is whether Congress and EPA excluded the Grassland Basin Drainers' sumps and canal collection systems from the NPDES permit program through the "irrigation return flow" exemption. It should be noted no federal court case has stated that subsurface drainage systems – which are end of the pipe discharges – are exempted from the Clean Water Act. If Grassland drainer's sump discharges, canal collection system discharges or seepage discharges either 1) do not fit within the broad "point source" definition, or 2) are excluded as irrigation return flow, they are not covered by the Act.¹⁷

1. Ditches, Sumps, Seepage and Canals as Point Sources

There can be little doubt that many features of the typical Grassland drainer, including the collector drains, sumps, pumps canals and earthen or lined ditches through which

¹⁶ 33 U.S.C. § 1362(6) (2000).

¹⁷ The Ninth Circuit in *League of Wilderness Defenders v. Forsgren*, 309 F.3d 1181 (9th Cir. 2002), reaffirmed that although EPA has reasonable discretion to interpret the term "point source," it does not have the discretion to exempt classes of activities where those activities meet the parameters of the statutory definition. *Id.* at 1190; see also *Natural Resources Defense Council v. Costle*, 568 F.2d 1369, 1377 (D.C. Cir. 1977) (same). As a result, it is doubtful that EPA or states have the authority to specifically exclude polluted groundwater sump discharges and polluted seepage into canals for discharge into the San Luis Drain and the San Joaquin River, categorically, from the definition of point source.

pollutants are discharged seasonally throughout the year into the "four mile Grassland Bypass canal"¹⁸ which combines discharges from these sumps and pipes and then into the San Luis drain for discharge into Mud Slough and the San Joaquin River could at least theoretically fall within the definition of "point source." In fact, the plain language definition of "point source" specifically includes "ditches," and "discrete conveyances"¹⁹ that are common in the Grasslands Bypass Project. And, precedent has established that gullies, rills, check dams, sediment traps, and other natural or manmade conveyances or systems designed to catch runoff can also be point sources under the Clean Water Act.²⁰ After all, it is well established that Congress intended the "broadest possible definition" of the term point source.²¹

Some might argue this polluted groundwater discharged from sumps, pumps, seepage and canals is exempt citing it as agricultural return flows. We argue this is not the case.

2. The "Irrigation Return Flow" Exemption from the Definition of Point Source

The irrigation return flow exemption is a largely undefined area of law.²² However, a review of the legislative and regulatory history of, as well as case law on, the irrigation return flow exemption indicates that the Grassland Basin Drainers fall within the definition of point source, and are not exempt from the NPDES permit program.

¹⁸ Central Valley Regional Water Quality Control Board Order No. 98-171.

¹⁹ 33 U.S.C. § 1362(14) (2000).

²⁰ See, e.g., *N.C. Shellfish Growers' Ass'n v. Holly Ridge Assocs.*, 278 F. Supp. 2d 654, 679–80 (E.D.N.C. 2003) (check dams, sediment traps, gullies and rills as part of a home development site on a wetland are point sources); *Froebel v. Meyer*, 217 F.3d 928, 938–39 (7th Cir. 2000) (recognizing that a partially destroyed dam can be a point source); *Comm. to Save Mokelumne River v. E. Bay Mun. Util. Dist.*, 13 F.3d 305, 308 & n.1 (9th Cir. 1993) (dam that discharged mine tailings in pond-water to clean water downstream was a point source); *Catskill Mountains Chapter of Trout Unlimited v. City of N.Y.*, 273 F.3d 481, 493 (2d Cir. 2001) (tunnel was a point source that transferred water from one basin to another); *Sierra Club v. Abston Constr. Co.*, 620 F.2d 41, 45 (5th Cir. 1980) (manmade sediment basin was a point source); *United States v. Earth Scis, Inc.*, 599 F.2d 368, 374 (10th Cir. 1979) (mining operation's sump pit was a point source); *Northwest Environmental Defense Center v Marvin Brown, Oregon State Forester*, No. 07-35266 D.C. No. CV-06-01270-GMK Opinion (9th Cir. 2010) (logging road run-off that is channeled by a system of ditches and culverts into navigable waters is a point-source regulated under the NPDES, which requires a permit to limit the amount of pollution discharged to meet water quality standards.)

²¹ See, e.g., *Earth Sciences*, 599 F.2d at 373 (concluding that the broadest possible definition of point source must be adopted in order to further the congressional intent to regulate pollution emitting sources to the fullest extent possible); *United States v. W. Indies Transp. Inc.*, 127 F.3d 299, 309 (3d Cir. 1993); *Dague v. City of Burlington*, 935 F.2d 1343, 1354–55 (2d Cir. 1991).

²² 33 U.S.C. § 1342 (l)(1) (2000) ("The Administrator shall not require a permit under this section for discharges composed entirely of return flows from irrigated agriculture, nor shall the Administrator directly or indirectly, require any State to require such a permit.").

a. Legislative History

On July 12, 1976, EPA amended the permit exemption for irrigation return flows and required a permit for "agricultural point sources."²³ EPA defined an "agricultural point source" as "any discernible, confined and discrete conveyance from which any irrigation return flow is discharged into navigable waters."²⁴ "Irrigation return flow" was defined as "surface water, other than navigable waters, containing pollutants which result from the controlled application of water by any person to land used primarily for crops, forage growth, or nursery operations."²⁵

However, shortly after its promulgation, Congress obliterated EPA's rule promulgation by creating the irrigation return flow exemption in sections 502(14) and 402(l) of the 1977 Clean Water Act Amendments.²⁶

Significantly, Congress never defined an "irrigation return flow." Instead, a Senate Report on the 1977 Clean Water Act Amendments creating the irrigation return flow exemption reflects an affirmation of EPA's definition of irrigation return flows as "conveyances carrying surface irrigation return as a result of the controlled application of water by any person to land used primarily for crops."²⁷ This means that Congress likely only excluded tail water discharges from the NPDES requirements of the CWA, not subsurface groundwater drainage.

The legislative and regulatory history of the CWA suggests Congress did not exclude subsurface drainage when it excluded irrigation return flows from the NPDES program.

²³ 396 F. Supp. 1393 (D.D.C. 1975), *aff'd sub nom. Natural Res. Def. Council v. Costle*, 568 F.2d 1369 (D.C. Cir. 1977). See Agricultural Activities, National Pollutant Discharge Elimination System, 41 Fed. Reg. 7963, 7963 (Feb. 23, 1976) ("Although EPA is proceeding with the appeal of the decision; the Agency is still required to comply with the court order. Thus under the terms of the order . . . regulations applying the NPDES permit program to point source discharges in the agriculture and silviculture categories are required to be proposed by February 10, 1976 and promulgated by June 10, 1976.")

²⁴ 40 C.F.R. § 125.4(i) (3) (2006); see 41 Fed. Reg. 28,493–28,496 (July 12, 1976). See also Radosevich and Skogerboe, Achieving Irrigation Return Flow Quality Control through Improved Legal System United State EPA document number EPA-600/2-78-184 (December, 1978) at 32. Though published by EPA in 1978, the report analyzes data only through September 30, 1977.

²⁵ *Id.* § 125.53(a) (2).

²⁶ Federal Water Pollution Control Act, Pub. L. No. 95-217, 91 Stat. 1566, 1577 (1977) (codified at 33 U.S.C. §§ 1362(14), 1342(l) (1) (2000)).

²⁷ S. REP. NO. 95-370, at 35 (1977), as reprinted in 1977 U.S.C.C.A.N. 4326, 4360 (emphasis added). The Senate Committee Report, adopted by the Joint House-Senate Conference Committee, explains the exclusion of irrigation return flows. It indicates that Congress intended to exclude surface irrigation return from the Act's permit program: "Permit requirements under section 402 of the act have been constructed to apply to discharges of return flows from irrigated agriculture. These flows have been defined by the Environmental Protection Agency as conveyances carrying surface irrigation return as a result of the controlled application of water by any person to land used primarily for crops."

Subsurface irrigation drainage that is confined in man-made conduits is no longer “unchanneled runoff” and is amenable to federal regulation as point source pollution. Further the definition of “discharge of a pollutant” includes “discharge into waters of the United States from: surface runoff which is collected and channelized by man.”²⁸

b. Failure of the State to Enforce Selenium Pollution Standards Through Implementation Delays and Rescission of NPDES Permits to Regulate the Discharge Is Arbitrary and Capricious.

First, NPDES permits employ enforceable numeric limits and best management practices as effluent limitations. Compliance with the numeric limits and best management practices means compliance with the NPDES permit, and in turn, the Clean Water Act. Assuming the permit limits and practices are established to protect water quality standards, compliance also means protection of water quality. Second, NPDES permit liability is strict.²⁹ The failure of the Board and Regional Board to regulate this discharge of pollutants by an NPDES permit is arbitrary. There is no scientific or regulatory basis for the rescission of previous NPDES permits to regulate portions of this discharge.³⁰

c. An NPDES Permit Can Prevent Pollution, Rather Than Relying on Untested Treatment Methods to Abate Pollution after it Happens

The relative ease of implementation and enforcement of the Clean Water Act’s NPDES permit scheme should operate to save the public money spent on cleaning up waterways after they are already degraded. Testimony provided by Environmental Advocates documenting the lack of treatment methods and high cost of this pollution was largely ignored by the Board. Further the Board ignored testimony that the cost of providing drainage is higher than the agricultural benefits of irrigating these lands and that no sources of funds for these expensive treatment methods have been identified or secured.

E. The Board Failed to Consider Article X, Section 2 of the California Constitution and Water Code Section 275 in the Adoption of Resolution 2010-0046

The Board is required by law to take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in this state. Water Code § 275.

²⁸ 40 CFR 112.3(k)

²⁹ 33 U.S.C. § 1311(a) (2000) (discharge of a pollutant to navigable waters prohibited except in compliance with a NPDES permit); *United States v. Pozsgai*, 999 F.2d 719, 725 (3d Cir. 1993); *United States v. Amoco Oil Co.*, 580 F. Supp. 1042, 1050 (W.D. Mo. 1984); *Stoddard v. W. Carolina Reg'l Sewer Auth.*, 784 F.2d 1200, 1208 (4th Cir. 1986).

³⁰ See footnote 2.

This statute has been clearly interpreted to mean that "[n]o one can have a protectable interest in the unreasonable use of water." *City of Barstow v. Mojave Water Agency* (2000) 23 Cal.4th 1224, 1242. Section 275 also gives substantial authority to determine whether a particular use, method of use, or method of diversion of water is unreasonable. But what constitutes a reasonable use of water is a question of fact that must be decided in each case. *Joslin v. Marin Mun. Water Dist.* (1967) 67 Cal.2d 132,140.

It is also true that "[w]hat is a beneficial use at one time may, because of changed conditions, become a waste of water at a later time." *Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist.*, (1935) 3 Cal.2d 489, 567. In other words, what was once considered reasonable may be considered unreasonable at present, and what is reasonable in times of abundance may be unreasonable in times of shortage. Both the SWRCB and the courts have concurrent jurisdiction to limit a water rights holder who is wasting water, using water unreasonably, or using an unreasonable method of use or an unreasonable method of diversion. *Environmental Defense Fund v. East Bay Municipal District* (1980) 26 Cal.3d 183,200; *People ex rel. State Water Resources Control Bd. v. Forni* (1976) 54 Cal.App.3d 743,753; *Imperial Irrigation District v. State Water Resources Control Board* (1990) 225 Cal.App.3d 548, 557-561.

The court in *Environmental Defense Fund*, 26 Cal.3d at 200, held that the courts have concurrent jurisdiction with the SWRCB over claims of unreasonable use under article X, section 2 of the California Constitution. Article X, section 2 provides "that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." In *Environmental Defense Fund*, Plaintiffs alleged that diversion of water for a single use in East Bay Municipal District's service area was unreasonable in light of a lower diversion point of diversion that would protect both in stream uses and the consumptive uses of the East Bay Municipal District service customers. The court noted that, in determining whether methods of use or diversion are unreasonable, "the board must consider the relative benefit to be derived from all beneficial uses of the water concerned, including domestic, irrigation, municipal, and industrial use, as well as use for preservation and enhancement of fish, wildlife, and recreational uses." *Environmental Defense Fund, supra*, 26 Cal.3d at 196 (Water Code § 1257.)

In adopting Adoption of Resolution 2010-0046, the Board failed to adequately consider both article X, Section 2 and Water Code § 275. The Board failed to consider whether the Grassland Drainers and other west side irrigators' use of water which causes groundwater pollution and discharges that pollute wetlands and the waters of the State and Nation in violation of the CWA standards is unreasonable in light of the substantial deterioration of Delta fisheries, waterfowl, and endangered species during the period in which the standards have been ignored. The Board largely dismisses the Environmental Advocates' testimony regarding the benefit to fish and wildlife if compliance is achieved for Mud Slough, the San Joaquin River, National Wildlife Refuges and the Delta. The connection between the enforcement of strict enforcement of the selenium standards and controlling other pollutants such as salt, mercury

and boron and the health of fish and wildlife cannot be so easily dismissed without real consideration by the Board.

Conclusion

Discharges from the Grassland drainers cause serious water pollution.³¹ Despite deficiencies in biological monitoring where biological effects of selenium are monitored either too early or too late to consistently measure impacts, data show a reproductive failure and death of migratory waterfowl with the selenium content of the egg with the deformed embryo greater than 70 parts per million--A clear violation of the Migratory Bird Treaty Act.³²

Unlike other agricultural sources, Grassland Basin Drainer discharges are not diffuse sources of runoff, nor do the discharges merely consist of "irrigation return flow" as Congress apparently meant when it used that phrase. Water is pumped from underground where polluted water is discharged to canals and the federal San Luis Drain and then to the San Joaquin River.

During the growing season, pesticides and fertilizers are applied. When water is applied to these fields it flows through soils mobilizes selenium, salts, mercury, boron and other nutrient contaminants these pollutants are discharged through discrete point sources back into the navigable waters, damaging aquatic life and water quality in the process.

Board Resolution 2010-0046 effectively sanctions pollution of Mud Slough, the San Joaquin River, and ultimately the Sacramento-San Joaquin Delta, by failing to enforce science-based protective water quality standards for selenium and allowing the continued contamination of these water bodies. Too much selenium in streams kills or deforms fish and other aquatic life, including waterfowl, and is a human-health concern in drinking-water supplies. Selenium is one of a number of contaminants that are discharged from the federally-owned San Luis Drain directly into the waters of the state. This failure to enforce protective selenium water quality objectives transfers pollution from these Grassland Basin Drainers through this federal drain to the waters of the state, harming beneficial uses of these waters for recreational use, domestic water supply, public health and public trust values.

³¹ USFWS criticized the Regional Board's Staff report for failing to consider new water quality information which showed that selenium levels exceeded 20 µg/L on the San Joaquin River during at least 4 months in 2009, failing to address selenium water quality impairments and provide remedies, and failing to address cumulative impacts. In particular, the USFWS requested that the Regional Board consider the protection of Chinook salmon and steelhead in the San Joaquin River, including the reach between Sack Dam and the Merced River, in this Basin Plan Amendment. The Service believes that as written, the revised compliance schedule and lack of an enforceable water quality objective for selenium in the San Joaquin River upstream of the Merced River until December 31, 2019, is not protective of salmonids and could result in the loss of or harm to out migrating young salmon in the San Joaquin River. (USFWS Comment Letter, p. 6.)

³² Panoche Drainage District, "San Joaquin River Water Quality Improvement Project, 2008 Wildlife Monitoring Report" 9-15-2009 Jeff Seay at HT Harvey, Page 22 and Table 4. Abnormal Black Necked Silt classic selenium caused deformities with selenium measured at 74.6.

Resolution 2010-0046 substantially weakens the Basin Plan's existing program by delaying the selenium objective in these water bodies by another nine years, three months. This open-ended extension would needlessly facilitate additional discharge of selenium-contaminated water, vitiating compliance with key provisions of the Basin Plan and the Clean Water Act.³³

Both USEPA (40 CFR §131.12) and the State of California (State Water Board Resolution 68-16) have adopted Antidegradation policies as part of their approach to regulating water quality. Basin Plan amendments must ensure that the federal or State Antidegradation policies are not violated. And yet the State and Regional Water Board readily admit waiving the selenium pollution control standards for another 9 years and 3 months will degrade the waters of the state.³⁴

The justification for this enforcement delay suggests that after over a decade of sanctioning the pollution Mud Slough and the San Joaquin River, such degradation necessarily sanctions further degradation by these drainers. Furthermore, this circular argument ignores the spread of selenium pollution throughout the lower San Joaquin and the Sacramento-San Joaquin Delta.

The Clean Water Act's NPDES permit program is appropriate for addressing the problems associated with these polluted discharges. The pollutant discharges are discrete, identifiable, well-documented, and arguably, not subject to the irrigation return flow exemption.

Further, applying the NPDES permit program reduces the need for expensive litigation that may have only isolated environmental benefits that fail to address a more common and widespread problem. As a result, the Board and if necessary EPA should broadly apply the NPDES permit program to eliminate the transfer of these pollutants to the San Joaquin River and the Bay-Delta estuary.

³³ See Comments From Environmental Coalition: Sierra Club et.al. Comment letter- San Joaquin River Selenium Control Plan Basin Plan Amendment. September 22, 2010. California Sportfishing Protection Alliance et. al. Comment letter- San Joaquin River Selenium Control Plan Basin Plan Amendment. September 22,2010

³⁴ See CVRWQCB Staff Report: "With the amendments, water quality in Mud Slough (north) will remain vulnerable to degradation for up to an additional nine years, three months beyond 1 October 2010." (Staff Report, at p. 25)
"Continued discharge constitutes an increase in waste volume over conditions without the amendments." (Staff Report, p. 26.)

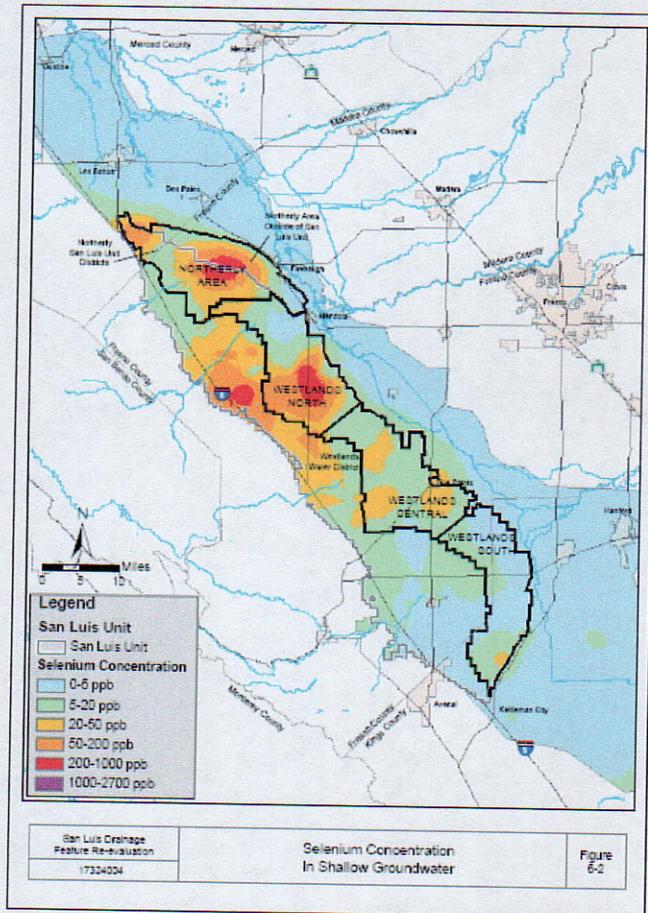


Groundwater Pumped into the DMC near Los Banos, California
U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region August 21, 2008

CVRWQCB Measured 1480 ppb Selenium in 2003 in Ponded Shallow Groundwater



http://wwwrcamnl.wr.usgs.gov/Selenium/Library_articles/joepond.pdf Westlands Water District Groundwater Discharge near Five Points, Ca.



SLDR Final EIS

F_6.2

USBOR and USGS Documented levels of selenium polluted groundwater.

August 11, 2011



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Re: Opposition to the Proposal to Curtail Monitoring at the Grassland Bypass Project

Dear Grassland Bypass Project Data Collection & Review Team and Oversight Committee:

The undersigned groups oppose reductions in the monitoring program for the Grassland Bypass Project and, furthermore, recommend a comprehensive reassessment of the need for enhanced monitoring and scientific evaluation. We can see no technical justification or rationale for this reduction in monitoring for a project that has exceeded water-quality objectives and standards for more than fifteen years. We urge the Oversight Committee to reject this unjustified reduction in monitoring and require a reassessment of monitoring and study needs in view of the historical experience with the Grasslands Bypass Project and the long-ignored scientific recommendations of the United States Geologic Survey (USGS) and others to take a systematic, mass-balance approach to understanding the impacts of selenium and other contaminants from the Project. The discharge of selenium and other contaminants in excess of Federal and State water-quality standards threaten populations of Salmon, Steelhead, and Sacramento Splittail, as well as the waterfowl and wildlife resources of the State and Federal National Wildlife Refuges in the area. At the proposed concentrations, mortality of Chinook salmon, steelhead, Sacramento Splittail, waterfowl, and other wildlife are predicted in or adjacent to Mud Slough, the San Joaquin River, and the Delta Estuary. (See Figure 6)

We appreciate the opportunity to comment upon the United States Bureau of Reclamation (USBR) and San Luis Delta Mendota Water Authority (SLDMWA) draft monitoring proposal pending before the Data Technical Committee. The draft proposal would curtail the monitoring program for the discharge of selenium, salt, boron and other contaminants being drained into Mud Slough and the San Joaquin River, using the Federal San Luis Drain as the wastewater collection and discharge conduit. The monitoring proposal would reduce the frequency of monitoring for critical contaminants and supporting parameters at various sites, with no technical justification or analysis of increased bias and uncertainty in tracking water-quality compliance and Project effectiveness. These reductions will mask the pollution spikes in the watershed, river and estuary and provide insufficient data needed to model impacts to the San Joaquin River and the Delta Estuary. These deficiencies have been previously outlined by the scientific community, but continue to be ignored.

In a declaration before the United States District Court for the Eastern District of California filed by Mr. Glaser, Mid-Pacific Region Director, USBR, on April 1, 2011¹, Mr. Glaser and USBR reported, "On February 16, 2010, the Regional Board staff announced that it would no longer conduct water quality monitoring at twelve sites for the GBP, because of funding and staffing shortage. In addition, staff for the California Department of Fish and Game expressed doubts that they could continue biological monitoring for the project due to staff losses. Reclamation is working with other agencies to revise the Project's monitoring program, and will assign staff and seek funding to assure that the water quality and biological monitoring requirements are met."²

Operating under State of California Waste Discharge Requirements (WDRs), USBR and SLDMWA (Dischargers) have transported selenium and other contaminants from the San Luis Drain to the San Joaquin River starting in 1995 as a "temporary" two year project that was next extended to 2000, and then again extended to 2009, and recently extended again to 2019.(See Figure 1) USBR data document that, from 1996 to 2008, the dischargers have dumped 85,954 lbs of selenium, 25,251,000 lbs of Boron and 9,772,610 tons of salt to Mud Slough, the San Joaquin River, and the Delta Estuary.³

Even before 1995, these Dischargers drained selenium and other contaminants from the San Luis Drain, via Mud Slough to the San Joaquin River actually began under two Clean Water Act National Pollutant Elimination System (NPDES) permits.⁴ (See Figure 1) Under those permits the selenium pollution controls and monitoring frequencies were much stronger. The compliance monitoring took place at the point of discharge not some 30 miles downstream. And concentrations at the point of discharge were much lower for Mud Slough (north) along with concentrations measured in the San Joaquin River monitoring sites. First, in November of 1987, USBR was allowed to drain the Kesterson ponds via Mud Slough into the San Joaquin River. A second NPDES permit to discharge selenium contaminated groundwater was issued to the Dischargers, USBR and SLDMWA, in March of 1996, where toxic drainage and ground water discharged also had similar monitoring and water quality compliance requirements.⁵

Under the previous and present permits Dischargers use sumps and pumps to move groundwater collected from subsurface drainage systems, which collect contaminated groundwater from as deep as 100 feet drawing from contaminated water from basically horizontal groundwater wells some 50- 100 feet in depth⁶ to collect pollution from over 97,000 acres and discharge toxic contaminants that exceed federal and state water quality standards, violate the Sacramento-San Joaquin Valley Basin plan, degrade beneficial uses, and create a nuisance and burden for downstream users to clean up, thus passing these environmental hazards and treatment costs to downstream users.

What is the rationale for curtailing monitoring?

Repeated requests to develop a comprehensive and effective monitoring program for the Grasslands Bypass Project have not been acted upon.⁷ There has been a consistent failure to develop monitoring to determine the fate and transport of selenium and other contaminants in the food chain where it's magnified effects result in a narrow window of exposure before mortality. Despite the lack of monitoring, selenium concentrations in avocet and stilt eggs at the Grasslands Drainers' reuse area have been found to exceed those found at Kesterson National Wildlife Refuge!⁸ Further the project has failed to track the selenium loading from the Grassland Drainage Area into the San Joaquin River, the Sacramento-San Joaquin Delta and the North Bay (e.g. Suisun Bay), as required in the 2001 Record of Decision for the GBP.⁹ Biological monitoring and impacts especially to coldwater fish have not been monitored.¹⁰ For example a Lemly index was not determined for San Joaquin River sites due to lack of sufficient sample of invertebrates and because bird eggs, one component of the index, are not sampled there. Selenium is being exported to southern California's water supplies through the California Aqueduct threatening drinking water quality and likely is accumulating in fish and reservoirs in Southern California as a result.¹¹

Also the GBP has failed to monitor and consider the long term impacts of discharging selenium through wetland and slough areas adjacent to federal and state wildlife refuges, the San Joaquin River and Delta Estuary.¹² This history of inadequate monitoring and insufficient scientific assessment will be made far worse if the proposed reductions in monitoring are allowed. We find absolutely no evidence that the proposed reductions are based on documented scientific analysis.

Models Accurately Document an Ongoing Failure to Meet Water Quality Standards in the San Joaquin River and Mud Slough and Continue to Impair the Bay-Delta.

Since 1994, models used to establish the amount of selenium loads to be discharged to the San Joaquin River and Delta Estuary have accurately documented that these loads of pollution do not meet Federal and State standards for minimal protection of water quality.¹³ [See Figures 3-5] Moreover, since 2000 the load models used have even been modified to permit greater discharges of pollution without triggering a violation. These modifications include relaxing criteria for violation rates, choosing a monthly mean instead of a 4 day average, and changing the water years.¹⁴ Environmental Defense Fund estimates the change from the four-day flow averaging period to a one month averaging period resulted in a 21 percent to 44 percent increase in allowable loads.¹⁵ "If implemented as an interim compliance, this change in the averaging period would be expected to cause numerous violations of the water quality standards. Similarly, relaxing the once-in-three year excursion rate to a once-in five-month per year rate resulted in a significantly higher allowable load."¹⁶ These predicted violations have proven accurate.¹⁷ Using similar calculation assumptions, USBR figures for 2009-2019 predict violations also for the continued loads of pollution allowed.¹⁸ The dischargers use these generous load targets and the ability to meet them as a sign of success. The fact remains, however, that they fail to meet safe concentrations in the Mud Slough (north) wetland channels through State and Federal Wildlife Refuges and concentrations remain extremely high in Mud Slough (north) and in the San Joaquin River above the compliance point measured some 30 miles away. Along with the violations of the federal and state water quality standards, concentrations of selenium in fish and wildlife also remain high. Scientists predict a high mortality for coldwater fish such as salmon and green sturgeon from these concentrations.¹⁹

The San Joaquin River downstream of the Merced River has been delisted as water quality impaired because of dilution water from the Merced River, weak standards and inadequate monitoring mentioned above. The selenium contamination, however, continues to drain into the Bay-Delta with predictable results. The Clean Water Act Section 303(d) list of water quality limited stream segments lists 41,736 acres in the Delta, 5,657 acres in the Carquinez Straights, 70,992 acres in San Francisco Bay Central, 9,024 acres in San Francisco Bay south and 68,349 acres in San Pablo Bay as impaired by selenium.²⁰ The west side discharges are a major source of those water quality impairments.²¹ Health advisories are in effect for scaup, scoter and benthic feeding ducks in many of those areas.

A study by the U.S. Fish and Wildlife Service²² for USEPA identified that several bird species protected under the Migratory Bird Treaty Act (MBTA) are considered "species most at risk" from selenium contamination in the San Francisco Bay. Greater scaup, lesser scaup, black scoter, white-winged scoter, surf scoter and bald eagle are listed as "species most at risk" from selenium contamination and all are covered by the Migratory Bird Treaty Act (MBTA). By allowing continued discharges of selenium in excess of Basin Plan objectives from the Grasslands Bypass Project, there is downstream contamination and selenium bioaccumulation in the Bay-Delta, and increasing likelihood of MBTA and ESA violations by the United States.

Government Scientists Have Criticized the Existing Monitoring Program and Proposed Reductions Further Erode Protection of Public Resources

EPA has urged the development of a comprehensive monitoring program if the project is extended.²³ USFWS comments have identified numerous monitoring deficiencies with regard the fate and transport of selenium and the long term effects on especially on coldwater fish, wildlife and endangered species.²⁴

In 1996 USGS scientists provided the Oversight Committee with a comprehensive critique of the proposed monitoring plan, developed in cooperation with USBR.²⁵ Many of USGS comments still apply. They include recommendations for assessing the fate and transport of selenium in the project area; evaluation of selenium in sediment and its transport; evaluation of suspended particulate forms of selenium from the discharges; and for better biological and water quality monitoring. One of the main findings of the USGS review is that a monitoring program and study is needed to evaluate the mass balance of SE that includes the dissolved and suspended particulate forms of selenium. This continuing lack of comprehensive monitoring for the management of selenium contamination is also echoed in a recent scientific article, by Luoma & Presser 2009:²⁶

“Uncertainties in protective criteria for Se derive from a failure to systematically link biogeochemistry to trophic transfer and toxicity (Figure 1). In nature, adverse effects from Se are determined by a sequence of processes (12). Dilution and redistribution in a water body determine the concentrations that result from mass inputs. Speciation affects transformation from dissolved forms to living organisms (e.g., algae, microbes) and nonliving particulate material at the base of the food webs. The concentration at the base of the food web determines how much of the contaminant is taken up by animals at the lower trophic levels. Transfer through food webs determines exposure of higher trophic level animals such as fish and birds. The degree of internal exposure in these organisms determines whether toxicity is manifested in individuals. Se is first and foremost a reproductive toxicant (both a gonadotoxicant and a teratogen): the degree of reproductive damage determines whether populations are adversely affected. Adverse effects on reproduction usually occur at lower levels of exposure than acute mortality, but such effects can extirpate a population just as effectively as mortality in adults.”

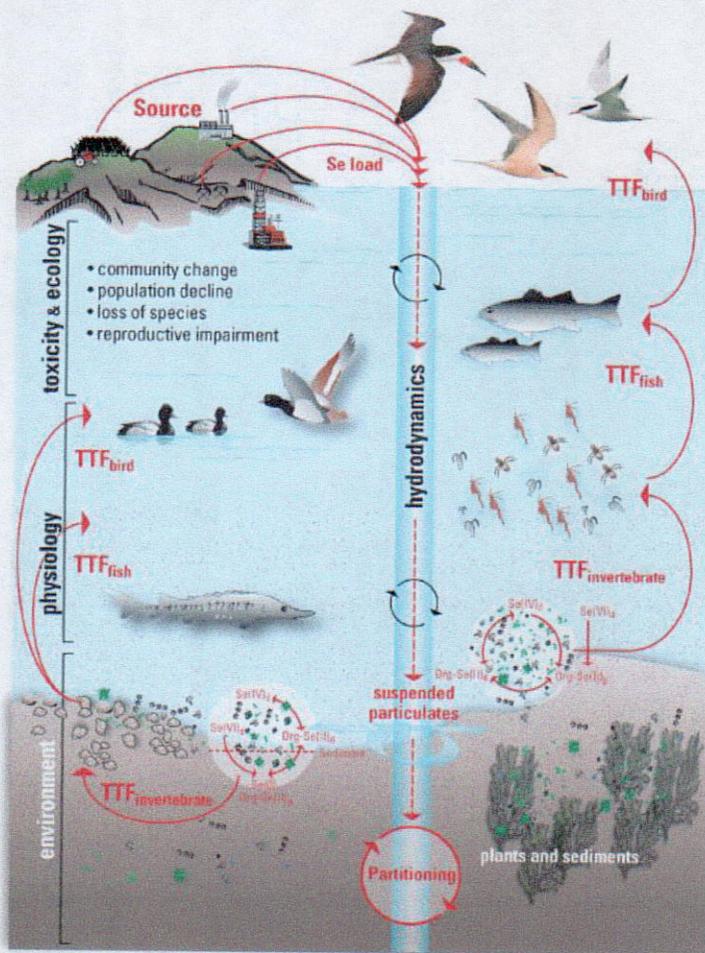


FIGURE 1. Conceptual model of Se fate and effects emphasizing the roles of speciation, biogeochemical transformation, and trophic transfer factors in modeling two aquatic food webs: a water column food web and a benthic food web. TTF – trophic transfer factor. Subscript d means dissolved, subscript p means particulate.

As of 2007 an estimated 222,025 cubic yards of sediment has accumulated in the San Luis Drain.²⁷ This is nearly a four-fold increase over the original 55,788 cubic yards of sediment that were recommended for removal at the beginning of the project but never carried out.²⁸ Also contained in the USGS report on the Review of the Grassland Bypass Channel Project Monitoring Program is the following assessment of the entire monitoring program: "The original Monitoring Plan is not adequate because it does not account for all appropriate sources and sinks of selenium, salt, and boron within the GBCP area and because the sampling design does not adequately address temporal, width, and depth variability in chemical concentrations and loads."²⁹ These contaminated sediments and suspended particulates in the water pose a toxic danger in the Drain, as well as, in Mud Slough and the San Joaquin River, that continue to grow and the proposed reductions in monitoring do not remedy these problems and shortcomings.

Conclusion: Continued Monitoring and a More Rigorous Approach are Necessary to Protect the Public Interest and Water Quality.

Rather than reduce monitoring, as proposed, we urge a substantial increase in the current 2001 monitoring plan to ensure compliance with state and federal law, while at the same time immediately initiating a comprehensive, peer-reviewed reevaluation of the monitoring program and the amounts of selenium being discharged under the current Total Maximum Daily Load (TMDL) and WDRs implementing the TMDLs. As noted in the November 3, 1995 agency letter, "There is no commitment, at this time, to approve long-term use of the Drain."³⁰ Further in 2001 the Regional Board staff reported, "If monitoring demonstrates that the water quality objectives are not being met then additional load reductions or amendments to the TMDL will be required."³¹ As noted previously and documented in figures 3-5, discharges exceed federal and state water quality standards. The Waste Discharge Requirements and compliance monitoring need to be strengthened not relaxed.

Based on current science, the continued extension of discharges from the Grasslands Bypass Project make it more important than ever to ensure that a long-term monitoring and scientific assessment finally address the impacts of the Project and the realistic chances of future reductions in contamination.

Sincerely,

Cc: Marcia McNutt, Director & Theresa S. Presser U.S. Geological Survey
Susan Moore, Field Supervisor, US Fish and Wildlife Service
Tom Maurer and William Beckon, US Fish and Wildlife Service
Karen Schwinn & Eugenia McNaughton, US Environmental Protection Agency

Interested Parties

Permit History for Selenium Discharges From Grasslands Basin Watershed to Mud Slough and San Joaquin River: A Case History in the Failure to Enforce Water Quality Standards

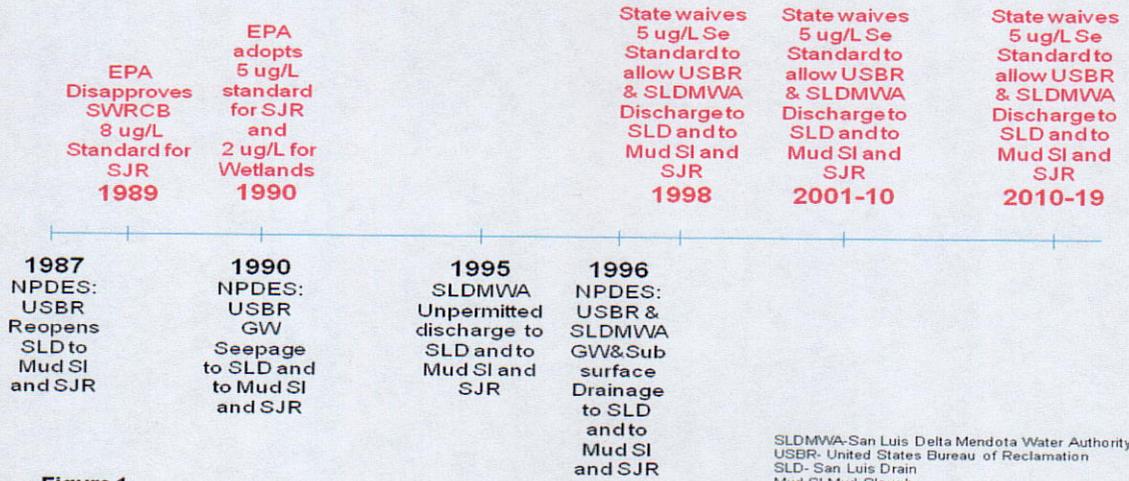


Figure 1

SLDMWA-San Luis Delta Mendota Water Authority
 USBR- United States Bureau of Reclamation
 SLD- San Luis Drain
 Mud SI-Mud Slough
 SJR-San Joaquin River

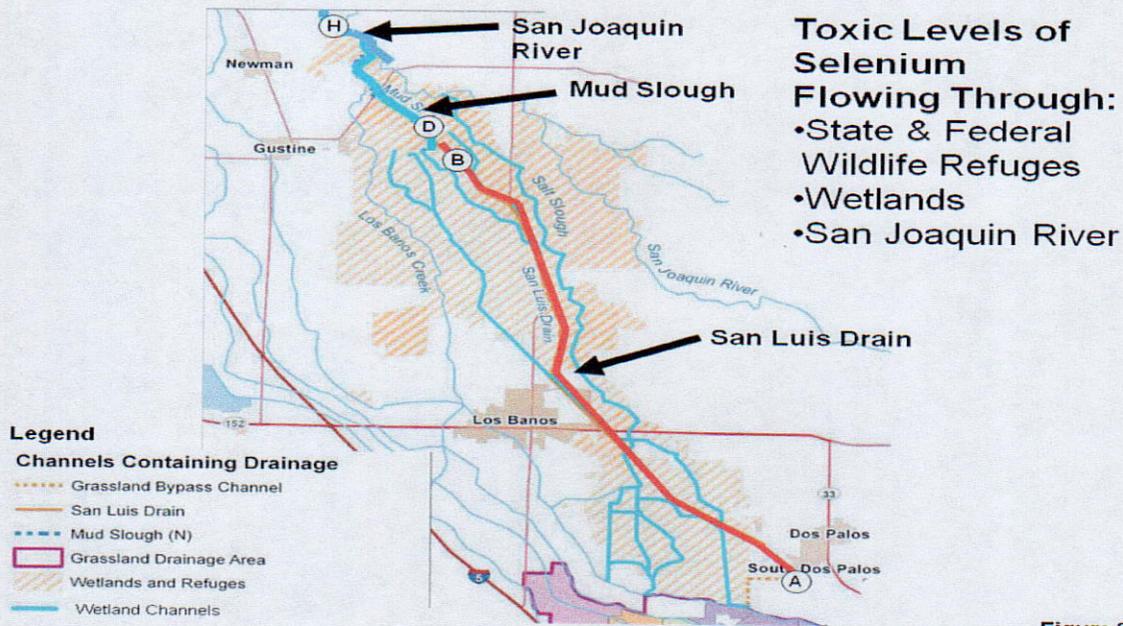


Figure 2

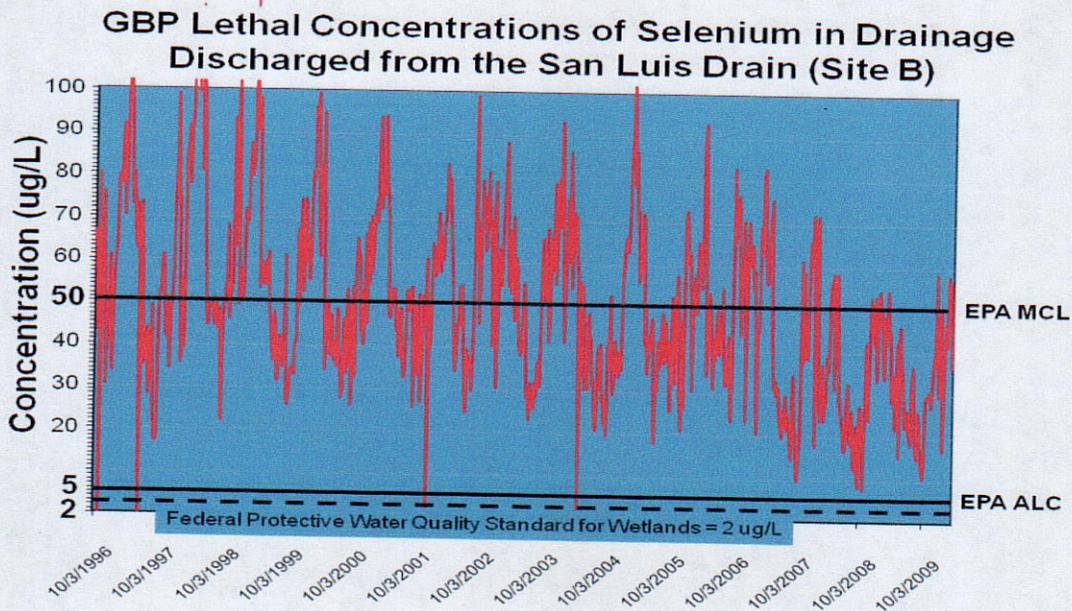


Figure 3

Data from USBR-Eacock MCL=Maximum Contaminant Level for Drinking Water ALC=Aquatic Life Criterion

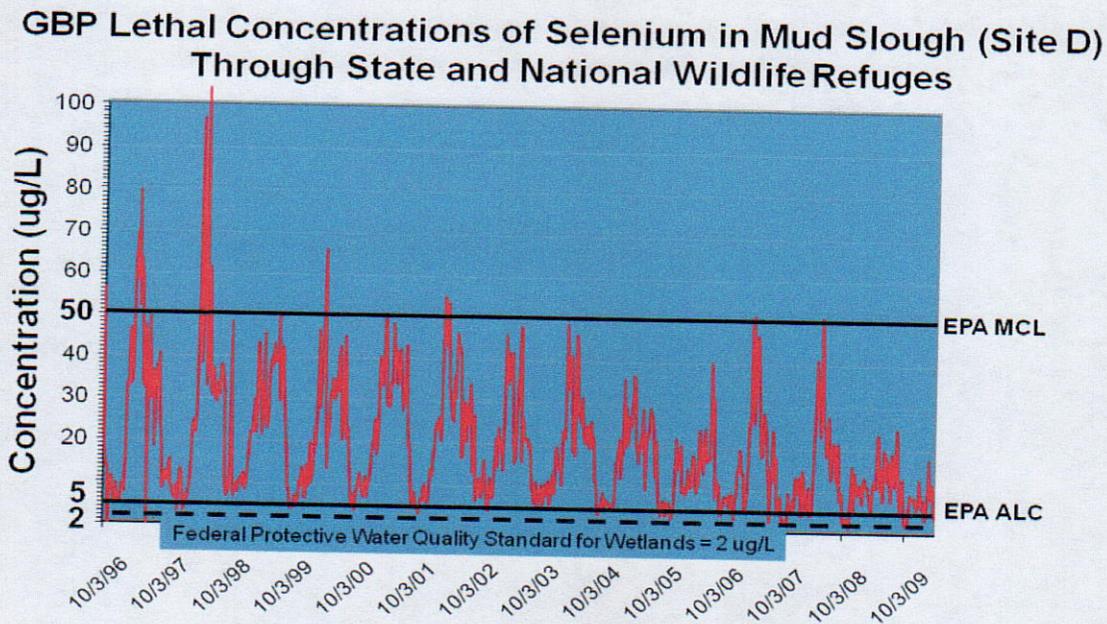


Figure 4

Data from USBR=Eacock MCL=Maximum Contaminant Level for Drinking Water ALC=Aquatic Life Criterion

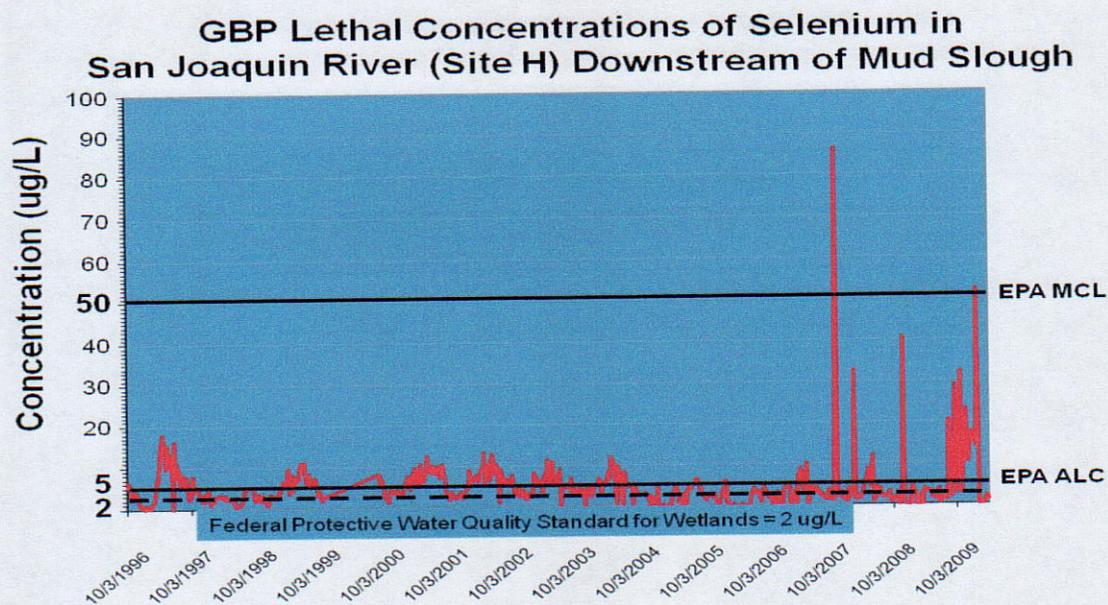
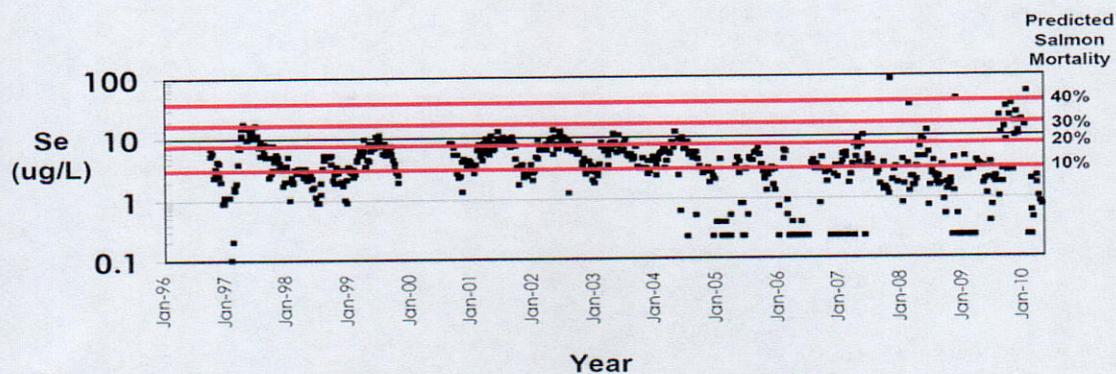


Figure 5

Data from USBR Eacock MCL=Maximum Contaminant Level for Drinking Water ALC=Aquatic Life Criterion

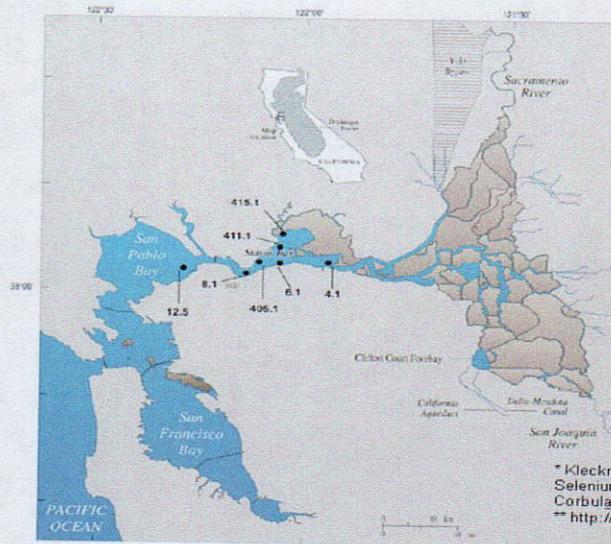
Selenium Levels in the San Joaquin River are not Safe for Salmon



Selenium concentrations measured in the San Joaquin River at Hills Ferry (data from USBR [Eacock] and USFWS [Maurer & Beckon])

Figure 6

Selenium Impacts in Bay-Delta



Unsafe levels of Selenium concentrations found in Suisun Bay and Northern San Francisco Bay 2 to 22 ppb.*

Selenium loads per day from Westside irrigators contribute approximately 10 to 30 times daily selenium load compared to the Sacramento and Oil refineries combined.**

Figure 7

ENDNOTES

¹ Federal Defendants' Status Report of April 1, 2011. Case 1:88-cv-00634-OWW-DLB Document 864 Filed 04/01/11 page 6 & Glaser Third Declaration pg 6-7

² Ibid.

³ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4418 pg 26 of 66 FEIR/EIS [Final EIS/EIR](#), Private/individual comments Part 2, Grassland Bypass 2010-2019

⁴ Order No. 87-201 NPDES No. CA 0082171 Waste Discharge Requirements for United States Department of the Interior Bureau of Reclamation & Order No 90-027 NPDES NO CA 0082368 WDRs for USBR.

⁵ Order No 96-0922 NPDES No. CA 0083917 Waste Discharge Requirements for USBR and San Luis Delta Mendota Water Authority adopted March 22, 1996.

⁶ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4413 "Tile drainage systems affect groundwater-flow in upper parts of the semi-confined aquifer. Seasonal changes in groundwater levels and drain flow indicate field conditions are affected by upslope irrigation activities. Furthermore, observation well data show that groundwater movement is upward towards the drainage systems from depths as great as 100 feet below land surface (Deverel and Fio, 1991; Fio, 1994)." Pg 236 of the PDF

⁷ <http://www.epa.gov/region9/nepa/letters/Grassland-Bypass-FEIS.pdf> EPA March 30, 2009 Detailed EIS/EIR Comments RE Grassland Bypass Project Continued Use of San Luis Drain: "Develop a comprehensive monitoring program that includes multiple contaminants and follow-up for detected biological effects...this program should cover biological as well as water quality and sediment components."

http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4415 pg 15 -52 of PDF USFWS March 22, 2009 Comments RE Continuation of GBP 2009 to 2019 USFWS recommends... "An evaluation of the environmental effects of continued acute spikes of selenium to the biota in the vicinity of the Grasslands wetland supply channels...Selenium bioaccumulates rapidly in aquatic organisms and a single pulse of selenium (>10 µg/L) into aquatic ecosystems could have lasting ramifications....Maier et al. found that the invertebrate food web was still contaminated at >4 µg/L 12 months after selenium treatment when the monitoring ended even though water concentrations were <1 µg/L."

<http://pubs.usgs.gov/pp/p1646/pdf/pp1646.pdf> pg 26. ... "monitoring was not sufficiently frequent to accurately characterize loads during variable flows." ...annual data are not available from individual farm-field sumps to help qualify source-area shallow groundwater conditions and determine long-term variability in selenium concentrations...compliance monitoring sites are 50 and 130 miles downstream from the agricultural discharge. Pg 118-119.

Grassland Bypass Project 1999-2000 Annual Report at page 4, "The Oversight Committee recommended that additional studies be undertaken to establish the sources of selenium."

http://openlibrary.org/books/OL23302134M/Grassland_bypass_project

Grassland Bypass Project 2001-2002 Annual Report at page 4, "The Oversight Committee recommended that additional studies be undertaken to establish the sources of selenium."

http://openlibrary.org/books/OL23302136M/Grassland_bypass_project

"A Review of the Grassland Bypass Channel Project Monitoring Program" Presser, Sylvester, Dubrovsky and Hoffman, December 1996

http://www.rcamnl.wr.usgs.gov/Selenium/Library_articles/Presser_et_al_GBP_monitoring_plan_1996.pdf

http://www.swrcb.ca.gov/rwqcb5/water_issues/grassland_bypass/usfws_att_e.pdf Email From Tomas Mauer, Chief, Investigations and Prevention Branch Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service to Shauna McDonald [USBR], 11-18-09: "Site H is not as problematic a sampling site as it is described for monitoring selenium levels in this stretch of the San Joaquin River. Although the site is inappropriate to use for selenium load calculations, the historic data clearly shows that selenium concentrations here can reach high levels throughout much of the year regardless of Merced River influences. The highest selenium levels occur in the summer when Merced River flows through the side channel would not be influencing site H. Currently, sampling at site H is less frequent, and thus potential spikes of selenium may not be observed. A more detailed analysis of the data at this site may assess how well the current sampling regime would detect the highest selenium levels. Even the current reduced sampling effort shows concentrations over 9 µg/L. This is above the 20 percent mortality level and three times higher than the 10 percent mortality level for salmonids (attached chart includes more recent data for 2007)."

⁸ USFWS 2009 Biological Opinion for the Grasslands Bypass Project page 90.

http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4826 "It is notable that the geometric mean, egg-

selenium concentration in recurvirostrid eggs collected at the SJRIP Phase I area in 2008 (50.9 µg/g) exceeded all geometric mean selenium concentrations in recurvirostrid eggs collected at Kesterson Reservoir from 1983 to 1985 (Ohlendorf and Hothem 1994)."

⁹ USBR 2001 Record of Decision page 6. http://www.usbr.gov/mp/grassland/documents/rod_final_09-28-01.pdf

¹⁰ http://www.swrcb.ca.gov/rwqcb5/water_issues/grassland_bypass/usfws_com.pdf "Selenium concentrations in the food-chain of these impacted waters have often reached levels that could impact or even kill a substantial proportion of young salmon (Beckon et al. 2008) if the salmon, on their downstream migration, are exposed to those selenium-laden food items for long enough for the salmon themselves to bioaccumulate selenium to toxic levels. Based on existing water quality data for selenium in specific reaches of the San Joaquin River, Beckon and Maurer (2008) concluded that there remains a substantial ongoing risk to migrating juvenile Chinook salmon and steelhead in the San Joaquin River as noted in Attachment E. The Service asks that the Regional Board consider the protection of Chinook salmon and steelhead in the San Joaquin River, including the reach between Sack Dam and the Merced River, in this Basin Plan Amendment." [page 6 of pdf]

¹¹ <http://calitics.com/tag/Selenium> Napolitano, Garamendi, et al., November 26, 2010.

Personal Communication Rudy Schnagl to Ms Schifferle, 8-8-11 'Flow models document most of the San Joaquin River is diverted to the California Aqueduct, thus contaminants are likely captured and sent south.'

¹² Suisun Bay in the Delta is selenium impaired and agriculture is listed as a source in the 303(d) listing of this water body. Further, EPA is in the process of developing a site specific selenium objective for the Delta, so reduced monitoring of the GBP could further hinder compliance with this future objective.

¹³ http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_se/se_tmdl_rpt.pdf "There would be effectively no allocation of selenium load in the absence of Merced River dilution flows. The source analysis has shown that subsurface agricultural return flows from the DPA are the primary source of selenium load in the lower SJR Basin." [page 14] Also see 1994 Regional Board staff report, Total Maximum Monthly Load Model for the San Joaquin River (Karkoski, 1994),

¹⁴ November 3, 1995, Letter to Karl Longley Central Valley Regional Water Quality Control Board from Dan Nelson, SLDMWA, Roger Patterson, USBR; Felicia Marcus, USEPA; Joel Medlin USFWS.

"A commitment to specific monthly and annual selenium load values which assure that within 2 years, the Water Authority will implement actions sufficient to reduce selenium loads to the River by at least 5 percent per year up through the end of the 5th year. ...the parties agree that for the purpose of establishing selenium load reductions, the following water quality objectives are now applicable: (a) 5 ppb selenium, measured as a 4-day average, in the San Joaquin River and Mud Slough and (b) 2 ppb selenium, measured as a monthly mean, in Salt Slough and the wetland channels.

¹⁵ 1994 Environmental Defense Fund, Terry Young and Chelsea Congdon "Plowing New Ground" pg 35.

¹⁶ Ibid.

¹⁷http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_se/se_tmdl_rpt.pdf pg 20 of the PDF

“Load allocations in this TMDL [for the SJR] are established for meeting the selenium water quality objective in the SJR downstream of the Merced River confluence. There would be effectively no allocation of selenium load in the absence of Merced River dilution flows. The source analysis has shown that subsurface agricultural return flows from the DPA are the primary source of selenium load in the lower SJR Basin..... Attainment of the selenium water quality objective upstream of the Merced River confluence may require significant changes to the DPA discharge, including the relocation of the discharge point.”

http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/sjr_selenium/comments092210/susan_moor_e.pdf pg 2 of the PDF

¹⁸ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4418 pg 26 of 66 FEIR/EIS [Final EIS/EIR, Private/individual comments Part 2, Grassland Bypass 2010-2019](#)
http://www.usbr.gov/mp/nepa/nepa_proidetails.cfm?Project_ID=3513

Also see Appendix C of the December 17, 2009 [Agreement for the Continued Use of the San Luis Drain Agreement No. 10-WC-20-3975](#). Predicted violations of CWA standards will continue with proposed loads approximately until years 9 and 10. They will be violated for those years unless “highly speculative treatment” is achieved. See http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4415 pg 4 of 40 of the PDF. EPA comments on the DEIS/EIR for Continued Use of the San Luis Drain for Discharge into Mud Slough and the San Joaquin River.

¹⁹ http://www.usbr.gov/mp/nepa/nepa_proidetails.cfm?Project_ID=3513

²⁰ http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/state_usepa_combined.pdf

²¹ http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/sjr_selenium/comments092210/susan_moor_e.pdf see page 2 of the PDF

²² http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/TMDLs/northsfbay/selenium/Species_at_risk_FINAL.pdf, accessed 4/20/11.

²³ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4415 see EPA comments pg 5 of 40 of the PDF.

²⁴ http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/

http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/sjr_selenium/comments092210/susan_moor_e.pdf

²⁵ http://www.camnl.wr.usgs.gov/Selenium/Library_articles/Presser_etal_GBP_monitoring_plan_1996.pdf and see USFWS comments and EPA comments RE USBR NEPA Document at http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4415

²⁶ <http://pubs.acs.org/doi/abs/10.1021/es900828h>

²⁷ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4415 see USFWS comment pg 33 of 40 of the PDF.

²⁸ http://wwwrcamnl.wr.usgs.gov/Selenium/Library_articles/Presser_etal_GBP_monitoring_plan_1996.pdf @ pg 81 of the pdf.

²⁹ http://wwwrcamnl.wr.usgs.gov/Selenium/Library_articles/Presser_etal_GBP_monitoring_plan_1996.pdf @ pg 15 of the pdf

³⁰ November 3, 1995 Letter From USBOR, USFWS, US EPA and San Luis Delta Mendota Water Authority to Karl Longley, Chair of the Regional Water Quality Control Board: Re Basin Plan Amendment for the San Joaquin River. *"The Selenium load reductions proposed will not necessarily achieve these water quality objectives by the end of the 5th year, and thus a long-term implementation schedule will be required.....It is understood that load reductions of this sort are only a first step and do not fully protect against the environmental impacts which may result from selenium discharges during months when water levels are low in the San Joaquin River"* at pages 3-4.

³¹ http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_se/se_tmdl_rpt.pdf *"Load allocations in this TMDL are established for meeting the selenium water quality objective in the San Joaquin River (SJR) downstream of the Merced River confluence. There would be effectively no allocation of selenium load in the absence of Merced River dilution flows. The source analysis has shown that subsurface agricultural return flows from the Drainage Project Area (DPA) are the primary source of selenium load in the lower SJR Basin..... Attainment of the selenium water quality objective upstream of the Merced River confluence may require significant changes to the DPA discharge, including the relocation of the discharge point."*



AQUALLIANCE

DEFENDING NORTHERN CALIFORNIA WATERS

October 13, 2010

Ms. Kate Hart
Chairperson Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670

Subject: Follow up Investigation Request on Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins Addressing Selenium Control in the San Joaquin River Basin Adopted on May 27, 2010

Dear Ms. Hart:

The California Water Impact Network (C-WIN), the California Sportfishing Protection Alliance (CSPA) and AquAlliance write to express additional concerns with the adoption of Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins Addressing Selenium Control in the San Joaquin River Basin (BPA) by the Central Valley Regional Water Quality Control Board.

At the Regional Board's May 27, 2010 hearing, the need for an investigation of other sources of selenium pollution, specifically from Westlands Water District (WWD), was discussed. Rudy Schnagl, Senior Scientist for the Central Valley Regional Board explained that surface and subsurface drainage discharges from WWD flow northeast toward Mud Slough, to other tributaries and to the San Joaquin River. Because of this flow pattern, some of the water that Grassland Area Farmers manage actually originates in WWD. (Partial Transcript of Proceeding, Central Valley Regional Water Quality Control Board, Agenda Item No. 10, (May 27th, 2010) pp. 89-91, excerpt attached as Exhibit A.)

The meeting also included discussion of the potential for a selenium-related Water Code section 13267 investigation on WWD discharges because of continuing concerns regarding the dangerous amount of selenium pollution that may originate from lands within WWD, despite the progress of Grassland Area Farmers in controlling their discharges. (See Exhibit A.)

The Regional Board has the authority and obligation, in accordance with California Water Code sections 13267 and 13304, to locate and abate the impacts of waste

discharges that cause or threaten to cause a condition of pollution. Specifically, under Water Code section 13267:

"(a) A regional board, in establishing or reviewing any water quality control plan or waste discharge requirements, or in connection with any action relating to any plan or requirement authorized by this division, may investigate the quality of any waters of the state within its region.

(b) (1) In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

The public record, consisting of both written and oral testimony, indicates that discharges and/or seepage from WWD threaten to cause a condition of pollution to surface waters and groundwater. Former Commissioner of Reclamation John Keyes testified that the 379,000 acres of drainage impaired lands in the San Luis Unit creates 97,000 acre-feet/year of contaminated drainage water.¹ In some cases selenium levels exceed drinking water standards (50 µg/l) and even reaching hazardous waste levels (1,000 µg/l). Where is all that toxic pollution going?

The above-cited sections of the Water Code, in combination with Water Code section 13243, which states that the Board may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted, indicates the Regional Board's authority and responsibility to investigate and stop the discharge or threatened discharge.

An investigation is needed to identify all of the sources of selenium that continue to contaminate the San Joaquin River, the receiving waters of the Sacramento San Joaquin Delta, as well as the confined and semi-confined aquifers of the western San Joaquin Valley. The fact that RWQCB may be working to eventually issue a "voluntary" Waste Discharge Requirement (WDR) to WWD does not obviate the need to conduct an investigation, and an investigation would inform the WDR process. Likewise, the Irrigated Lands Regulatory Program does not adequately address selenium contamination from WWD and other lands. We therefore request that the Regional

¹ Statement of John Keys, Commissioner, Bureau of Reclamation, U.S. Department of the Interior Before the Subcommittee on Water and Power, U.S. House of Representatives, July 28, 2005. <http://www.doi.gov/oc/2005/SanJoaquinDrainage.htm>, accessed 8/26/2010.

Board immediately commence an investigation for the southern, central and northern regions of Westlands Water District pursuant to its authority under the Water Code.

Please Tom Stokely of C-WIN at (530) 926-9727 for further information and documentation. Thank you for your attention to this matter.

Sincerely,



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(805) 969-0824
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Bill Jennings, Chairman
California Sportfishing Protection
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Barbara Vlamis, Executive Director
AquAlliance
P.O. Box 95
Chico, CA
(530) 895-9420

Attachment: Exhibit A- Partial Transcript of Proceeding, Central Valley Regional Water Quality Control Board, Agenda Item No. 10, (May 27th, 2010) pp. 89-91

cc: Congresswoman Grace Napolitano
Congressman George Miller
Congressman John Garamendi
Senator Wes Chesbro
Assemblyman Jared Huffman
Tom Howard, Executive Director State Water Resources Control Board
Jared Blumenfield, Regional Administrator, EPA Region 9
Alexis Strauss, EPA Region 9, Director Water Division
Janet Hashimoto, EPA Region 9, Standards and TMDL Office

1 MS. CREEDON: Ms. Hart, if I could ask Rudy
2 to address a couple of issues?

3 MS. HART: Rudy?

4 MS. CREEDON: There was a lot of discussion
5 about upslope and offsite discharges onto the grasslands
6 project or contributing -- can you elaborate for the
7 board so that they understand what other programs may be
8 in place or will be in place to take care of those
9 issues that are not related to this project, so they
10 know we're just not ignoring it?

11 MR. SCHNAGL: Of course. There were
12 mentions of two types of inflows to the grasslands area
13 that are related to this project. First, the
14 groundwater from the Westlands Water District is moving
15 from that area to the northeast, as I mentioned earlier,
16 and that would flow under the project area. And so that
17 is of concern and -- to the commenters and from our
18 standpoint, any of that water that's captured by the
19 Grassland Bypass Project farmers has to be managed by
20 them and be discharged within their load limits.

21 So they're responsible if they collect it in
22 their subsurface drainage systems and discharge it. So
23 that puts the responsibility on this project for any
24 groundwater that enters their area.

25 There's also surface water impacts in some

1 of the grassland waterfowl areas, the wetland areas.
2 From tile drainage to the east and west of the bypass
3 project area, and I'm thinking that a map might help
4 here.

5 MS. CREEDON: While he's setting that up, I
6 wanted to bring up to the board, we also did have a
7 request for report of discharge from the grasslands
8 water district. It's been difficult to get that
9 document because it's been difficult for them to define
10 their project in order for us to do the CVCWA
11 requirements. And so we've been working with them on a
12 parallel basis.

13 We have a long-term irrigated land program,
14 which is now moving into regulating groundwater. So
15 regardless of if we have an individual report of
16 discharge or not, grasslands -- or the Westlands Water
17 District area would be regulate -- is regulated and will
18 continue to be regulated under the irrigated lands
19 program, which we will then address both surface water
20 and groundwater and that will be captured under that
21 program. So it's not being ignored by the board, and
22 the selenium issues offsite are not being ignored by the
23 board as well.

24 MR. SCHNAGL: Now that I have a map to help
25 explain things, the red area is the Grassland Bypass

1 Project service area. The Westlands Water District is
2 to the south. It's not marked, but it's to the south of
3 that red area. Groundwater is moving to the northeast,
4 and so some of the water that's collected by the
5 Grassland Area Farmers may originate in the Westlands
6 Water District, but they're entirely responsible for
7 anything they collect and discharge through the bypass
8 project.

9 The other dischargers that have been
10 referred to in some of the comments from agricultural
11 subsurface drainage systems within this grassland
12 watershed, and it's mostly along the west side, where my
13 arrow is or along the east side. And that drains toward
14 the center of the watershed where the wetland areas are,
15 and Fish and Wildlife Service has repeatedly pointed out
16 their concerns about those drains and their impacts on
17 the wetlands.

18 Those areas, both farmers and the wetlands,
19 are participating in the irrigated lands regulatory
20 program, and we will be working with that group, in the
21 irrigation districts in the area, to address the fish
22 and wildlife concerns.

23 MS. CREEDON: So, Rudy, since you have this
24 up, let me ask you a couple more question to address the
25 board. There are a couple issues especially with the



food&waterwatch



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SIERRA CLUB
CALIFORNIA

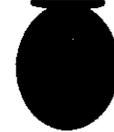


FRIENDS
OF THE
RIVER

NORTH
COAST
RIVERS
ALLIANCE



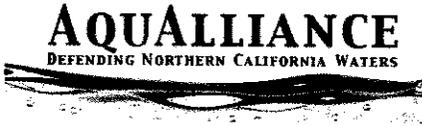
NORTHERN
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FEDERATION OF
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CENTER for
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Be. Here. Not. Just.

November 15, 2011

Donald R. Glaser, Regional Director
Mid Pacific Regional Office
Federal Office Building
2800 Cottage Way
Sacramento CA 95825-1898

Subject: **Full Environmental Impact Statement Needed for San Luis Drainage Feature
Reevaluation Demonstration Treatment Facility at Panoche Drainage District [FONSI-10-030]**

Dear Mr. Glaser:

We submit these comments as a follow-up to the comments provided on October 17, 2011 on the above-referenced project. After the close of the public comment period we received the

schematic for the project from Rain Healer, USBR on October 24, 2011. The schematic of the project was requested October 14th, before the end of the public comment period, and is essential for understanding the nature and scope of the project.

There are significant and heretofore unknown discrepancies between the proposed project in the Draft Environmental Assessment (DEA) and the schematic that was provided. (See Figure 1) These discrepancies and the undisclosed impacts from the project add further evidence that the current EA/FONSI for the project is legally inadequate, and a full Environmental Impact Statement (EIS) is needed. We seek your assistance in obtaining answers from USBR regarding the definition and scope of this project. We recommend that the Draft EA/FONSI be withdrawn and a full EIS be issued with additional issues analyzed and corresponding information provided:

1. The description of the project, which is at the heart of a NEPA review, needs to be accurate. The schematic provided reveals major inaccuracies in the DEA presented to the public for review. Predicted contaminant concentrations contained in Table 2-1 of the DEA along with the DEA text for the post-biotreatment are not consistent with the schematic. We calculated the predicted mass balances for salt and selenium using USBR load calculations and the figures presented in the DEA. We have highlighted in yellow on the schematic some of the discrepancies using these mass balance calculations for selenium. The salt (TDS) concentrations also are inconsistent with the project DEA. In Table 2-1 of the DEA, the TDS concentration of the reverse osmosis (RO) concentrate is projected to be 29,318 but the post-biotreatment is projected to be 340 mg/L. The schematic has totally different TDS concentrations. In addition, the FONSI states, "However, no salts will be removed from the concentrated waste stream during biotreatment."¹ We have highlighted these inconsistencies in Table 1. Accurate information on the quality of the effluent to be treated and the resulting effluent to be discharged is essential to determine the impacts and cumulative effects from the project. These errors and omissions suggest far greater environmental impacts than those described in the EA/FONSI, and need to be corrected and submitted to the public for review. Moreover, they call into question whether the accuracy of any of the information about the project can be relied upon.
2. This project is illegally segmented and piecemealed to avoid disclosure of the full impacts.² Many essential components of this demonstration treatment project were

¹ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=8298 pg 3

² Glaser Declaration 4-2011Case 1:88-cv-00634-OWW-DLB Document 865 Filed 04/01/11 Pages3-5
"Reclamation has determined that an easement issued by the Panoche Drainage District to the United States is the appropriate instrument on which to proceed with the construction of the demonstration

recently given a sole source contract on September 22, 2011 to the Panoche Drainage District. These expenditures include almost a \$1 Million (\$953,300) to plant 1,259 acres of grasses and pistachio trees; over \$1 Million to construct a new Grassland Bypass Channel Inlet Facility, sumps and lateral drains to remove salt from the reuse area.³ All of these elements will be used by the proposed demonstration project and yet the construction, expenditures, and impacts are not disclosed in the DEA. "Reclamation proposes to construct, operate, and maintain for 18 months a Facility for drainage treatment within the geographical boundaries of the existing SJRIP reuse area. Subsequently, Reclamation may elect to continue operating the Facility indefinitely or delegate it to their designated operating partner for treating reuse drainage." (FONSI-1-030 at page 1-2) In January 2011, the proposed demonstration treatment site was added to the Panoche Drainage District. The LAFCO boundary changes expanding into Merced County were done under a negative CEQA declaration to acquire the land for this proposed hazardous waste generation, storage and transfer project. The project is described merely as planting salt tolerant plants. This proposed treatment facility, which may operate in perpetuity, extracts and stores hazardous wastes, but this was not described as a project purpose.⁴

3. Biological impacts have not been adequately considered. The effluent selenium concentrations and the assumptions about effluent treatment provided to USFWS by USBR and used in the 2009 Grassland Bypass Project Biological Opinion (BO) are different from the numbers presented in Appendix B of the Draft EA and now this schematic. Re-Consultation with USFWS is needed because there are numerous inconsistencies and changed assumptions regarding the concentrations, amounts and contaminants in the effluent to be discharged.⁵ Further reliance on the SLDFR Biological Opinion is insufficient because that document rested upon the assumption all discharges from the GBP would cease by 2010.⁶ The effluent selenium concentrations and the resulting impacts of discharging this effluent to the reuse area are not disclosed.

plant on lands owned by that District. A draft easement has been prepared and Reclamation expects to commence negotiations on the terms and conditions of that easement with that District this spring."

³ <http://apply07.grants.gov/apply/opportunities/instructions/oppR11AS20026-cfda15.507-instructions.pdf> Signed September 22, 2011.

⁴ <http://www.fresnoflco.org/documents/staff-reports/January%202011/Panoche%20DD%20MSR.pdf> January 12, 2011

⁵ USFWS 2009 Biological Opinion for the Grasslands Bypass Project
http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4826

[http://www.camnl.wr.usgs.gov/Selenium/Library articles/san luis articles/USFWS Comments DEIS Continuation Grassland Bypass Project 2010-2019 3-23-2009.pdf](http://www.camnl.wr.usgs.gov/Selenium/Library%20articles/san%20luis%20articles/USFWS%20Comments%20DEIS%20Continuation%20Grassland%20Bypass%20Project%202010-2019%203-23-2009.pdf)

⁶ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=2238

The Project area is home to over 42 species of birds. A compilation of data from 2003 through 2006 shows ranges and geometric mean selenium concentrations in bird eggs collected from the Panoche Drainage District reuse area were consistently at levels toxic to embryos during those four years.⁷ Selenium concentrations in avocets and stilts in 2006 exceeded 90 µ/g dry weight which is 9 times above the high risk level of 10 µ/g dry weight. The attached photos of a deformed embryo found in 2008 had selenium levels of 74.6 µ/g dry weight. Levels exceeding Kesterson concentrations. The project does not propose any monitoring to determine the success of the project nor the impacts the project will have on the reuse area if that is the ultimate destination for the effluent.

4. Essential elements of the project are omitted from the EA/FONSI. For example, the oxidation step to convert selenium in the bio- treated effluent into inorganic forms is not presented. What chemicals will be used and the impacts to achieve this oxidation process are not described or presented. In fact the oxidation step in the schematics presented in Appendix B of the DEA denotes the oxidation step as "optional." Without this step, however, the release selenium could be extremely toxic at the levels proposed. In fact, the USFWS Biological Opinion and consultation for the referenced San Luis Drainage Feature RE-evaluation (SLDFR) was issued dependent upon this important step, which changes the selenium to selenate.⁸
5. Use of accurate up-to-date water quality data on the effluent to be treated is essential. The DEA instead relies on old water data that is referenced in the previous SLDFR environmental documents.⁹ The schematic indicates the effluent to be treated will

⁷ <http://pubs.usgs.gov/of/2008/1210/> pg 24 Also see http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=4826 pg 90 USFWS 2009 BO "It is notable that the geometric mean, egg-selenium concentration in recurvirostrid eggs collected at the SJRIP Phase I area in 2008 (50.9 µg/g) exceeded all geometric mean selenium concentrations in recurvirostrid eggs collected at Kesterson Reservoir from 1983 to 1985 (Ohlendorf and Hothem 1994)..."

⁸ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=2238 "Final selenium concentrations in the treated effluent...would include a post treatment oxidation step to convert residual selenium in the effluent to selenate." Pg 7 of 147 USFWS Biological Opinion SLDFRE.

⁹See Appendix C Drainwater Quantity and Quality SLDFR Draft EIS Appendix C C-6

http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=2260

"Estimates of TDS, Se, and B concentrations from reuse area discharges were calculated based on an estimated 73 percent water usage volume by reuse facility crops. It was assumed that all constituents are conserved. These calculations and current groundwater concentration under the potential locations for the reuse facilities were then averaged to account for dilution of drainage from the facility with shallow groundwater before discharge into reuse facility drains. This average resulted in calculated estimated discharge concentrations for Westlands (and its subareas) and the Northerly Area. Current data for all other constituents were then scaled by the ratio of calculated estimated TDS concentration to

come from the reuse area. Whereas, the DEA states the effluent will come directly from the drainage sumps. The DEA indicates the treated effluent will be discharged to the Panoche reuse area and yet, the schematic indicates the effluent will be discharged to the reuse area and the Grasslands Bypass. This is a significant inconsistency in the definition of the project. Impacts on downstream uses need to be considered. Selenium demonstration treatment projects over the years have used different drainage water to design the systems, other drainage water to test the treatment systems, and now different drainage water quality will be used to test the success or failure in an area outside of the San Luis Unit and miles from the chosen application in the central sub-area of Westlands. This project is a significant departure from the SLDFR ROD and EIS. (See Figure 2 for the 2007 ROD and SLDFR EIS Schematic) Without accurate water-quality information regarding the effluent to be treated, the public and decision makers reading the EA/FONSI are impermissibly denied a full and accurate picture under what conditions this treated drainage leaves the reuse area and goes into to the reuse area. Also unknown are the amounts and water quality of this treated drainage that leaves the reuse area and goes into the Grasslands Bypass Project, where it eventually travels through state and federal wildlife refuge areas, Mud Slough North and the San Joaquin River. Consultation should be requested with National Marine and Fishery Service regarding these downstream impacts.

6. The DEA states, "Drainage service is needed to achieve a long-term, sustainable salt and water balance in the root zone of irrigated lands in the San Luis Unit...." However, no salts will be removed from the concentrated waste stream during biotreatment. Consequently, salt concentrations in the water discharged back into the SJRIP will be similar to that of the feed water sent into the Facility..[FONSI at page 4]. In the DEA at Table 2-1 indicates the TDS concentration of the reserves osmosis [RO] concentration will be 29,318 mg/L. The schematic provided by USBR on Oct 24 (Figure 1, at end of letter) indicates the RO will be 220mg/L TDS. This inconsistency is further compounded by the DEA statement that no salts will be removed from the concentrated waste stream during biotreatment. This aspect calls into question the stated purpose of the

current TDS concentration. Table C2-8 summarizes the estimated post-reuse concentrations for the San Luis Unit." C-2 pgs 47-51 Assumptions regarding what the future irrigated agriculture might become are very important to the estimated return flows from the on-farm drains. Issues as simple as 'What crops are going to be grown?' have a significant effect on drainage return flow quantity and quality..... The crop mix has been developed to reflect a mix of alfalfa, cotton, sugar beets, small grains, tomatoes, and vegetables. Various planting and harvesting dates that are common to Westlands have been used. The computation of various water delivery times to replenish the soil moisture depletion from the actively growing crops is also involved." Pg C2-8

project which is to “achieve a long-term, sustainable salt and water balance in the root zone of irrigated lands in the San Luis Unit...” (FONSI pg.1).

7. It is unclear whether Congress has authorized this project or whether the incremental obligation of taxpayer dollars, absent direct authorization, complies with the Anti Deficiency Act.¹⁰ The demonstration project and some of the lands served are not included in the authorization under Public Law Public 86-488.¹¹
8. Incremental expenditures spread out over numerous programs and grants call into question how this project in conjunction with other Reclamation expenditures proposed for the San Luis Unit and Westlands drainage collection systems meet congressionally authorized expenditure ceiling limits.¹² The recent USBR declarations before the court indicate a decision had already been made regarding this demonstration project prior to the opening of the public comment period.¹³

¹⁰ http://www.whitehouse.gov/sites/default/files/omb/assets/a11_current_year/s145.pdf

¹¹ The demonstration treatment project is located on lands outside the service area of the San Luis Unit and owned by the Panoche Drainage District and Firebaugh Canal District. Panoche Drainage District does not receive or deliver federal water. Many of the districts to be served by this project are outside of the San Luis Unit service area.

¹² Case 1:88-cv-00634-OWW-DLB Document 814 Supp Declaration Michael Connor Filed 10/01/10. “The Department....prepared and submitted to Congress a feasibility report. This report documents the estimated total costs ...of implementing the selected alternative will be approximately \$2.7 billion. That amount far exceeds the remaining appropriations authorized for construction of the Unit.”
<http://www.usbr.gov/budget/2011/2011Budget.pdf> Mid Pacific pg 75 “*The Feasibility Report presented to the Congress the relative economic benefits of the drainage plan selected Reclamation in the ROD and confirmed the need for new authorizing legislation to increase the appropriations ceiling for funding beyond what was authorized by the San Luis Act (Act of June 3, 1960, 74 Stat. 156) and to waive or defer repayment obligations of the project beneficiaries..... Under this plan, Reclamation will, using its existing legal authorities, commence implementation of the 2007 Record of Decision, San Luis Drainage Feature Re-Evaluation. Pilot treatment technologies will be tested as part of the process of constructing fully functional, self sustaining drainage service facilities in the Westlands Water District Area. This effort will fit within existing appropriations ceilings under the 1960 San Luis Act.*”

¹³ Case 1:88-cv-00634-OWW-DLB Document 865 Filed 04/01/11 Pages3-5. Much of the information described in the Glaser 4-1-11 Declaration was not included in the FONSI/DEA including the Value Engineering Investigations and water quality information.

“Final designs for the demonstration treatment plant were initiated in October 2010. Final designs are 30%complete for drainage conveyance pumps and pipelines, site layout, site security, storage tanks, structural foundations for tanks, power supply, and the treatment plant building; final designs are scheduled for completion in August, 2011. The 30% designs include quantity estimates, cost estimates, and preliminary drawings for pipelines, building plan and sections, and architectural features.... Reclamation awarded a design services contract in February 2011, to HDR Engineering, Folsom, CA, to

9. Monitoring is not provided to establish the effects of the proposed demonstration project to ensure that selenium in the effluent to be discharged is not in a more toxic form and other contaminants such as mercury also are not rendered more toxic after the biological treatment process. Monitoring needs to be included in the EIS.
10. These inconsistencies in the schematic provided and the information contained in the DEA and the previous poor performance of the tested treatment system for the 2006 SLDFR EIS (Appendix B) underscores the need for peer review of the proposal to ensure its integrity, assumptions, and outcomes are scientifically valid.¹⁴
11. According to the new schematic (figure 1) and the DEA, the project proposes to discharge contaminated effluent to both the Grassland Bypass ditch and the reuse area. The impacts are brushed aside and monitoring is not disclosed or included. Creating a disposal site where migratory birds are at risk of death and deformities poses a risk to Bureau officials and thus the public and tax payers. In the past, DOI Solicitors determined the continued operation of the Kesterson National Wildlife refuge fed by selenium contaminated water would constitute a violation of the Migratory Bird Treaty Act. Under the act, federal officials are responsible for preventing conditions that could lead to the death of waterfowl that migrate through the United States from or to other countries. Violations of the act constitute a criminal offense. The Kesterson refuge and this newly created reuse area is part of the Pacific Flyway path used by migrating birds. Canada and Mexico are the other partners of the treaty.
12. As mentioned, we applaud USBR for seeking the necessary National Pollutant Discharge Elimination System Permit (NPDES). Please put us on your mailing list for all filings related to this permit and any documents provided such as the report of waste discharge and proposed monitoring.
13. Please assist us in providing the documents and answering the attached six questions. Please use our email addresses to provide the answers and the documents if possible.

prepare the final designs, specifications, and cost estimates for the water treatment equipment to be installed at the demonstration treatment plant; designs are in progress and are scheduled for completion in August, 2011."

¹⁴ Data from the previous pilot test demonstrated twice the selenium bio-concentration that was predicted by the bio-concentration model (SLDFR EIS Appendix B, page 18). The previous pilot did not perform to performance objectives, and USBR needs to fully explain and document how they will be able to meet performance objectives, especially with respect to organo-selenium (e.g., biotreatment effluent will be < 10 µg/L primarily as inorganic selenium).

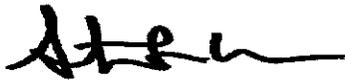
Conclusion

USBR has been party to discharges from this project since 1987, when it first built the connector from the San Luis Drain to Mud Slough to allow discharge of selenium and other contaminants to be discharged to the San Joaquin River. To date well over \$40 million in state funds and another \$38.5 million in federal taxpayer dollars¹⁵ have been spent on this portion of the drainage system project, much of which is serves districts outside of the San Luis Unit covered by Public Law Public 86-488. No cost benefit analysis for this demonstration selenium treatment project is provided. Without justification by a credible economic analysis, we can only conclude that such justification does not exist, and that this project will throw more taxpayer funds at the wrong solution. For the foregoing reasons, the undersigned groups repeat the Bureau's obligation to prepare a new EIS for the proposed treatment facility in order to comply with the National Environmental Policy Act.

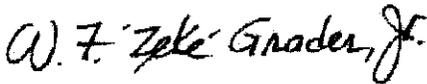
Sincerely,



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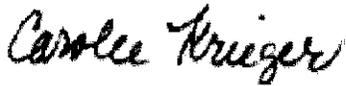


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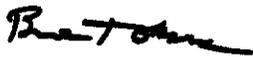
¹⁵ http://www.waterrights.ca.gov/baydelta/docs/southerndeltasalinity/dwr010807_dwr18a_attach1.pdf
USBR email communication 11-8-11 does not include salaries.



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 Susan Moore, Field Supervisor, US Fish and Wildlife Service
 Tom Maurer and William Beckon, US Fish and Wildlife Service
 Alexis Strauss, Karen Schwinn & Eugenia McNaughton, US Environmental Protection Agency
 Julie Vance and John Shelton, California Department of Fish and Game
 Kim Forrest, USFWS Wildlife Refuge Manager
 San Luis National Wildlife Refuge Complex U. S. Fish and Wildlife Service

Interested Parties

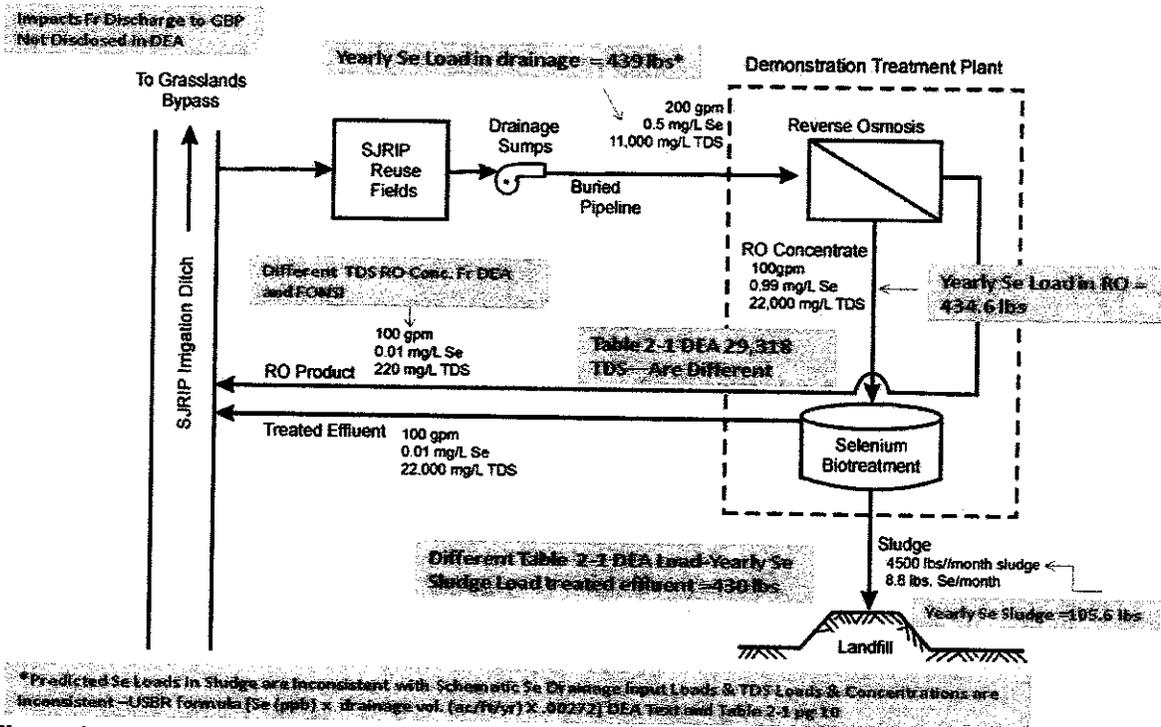


Figure 1

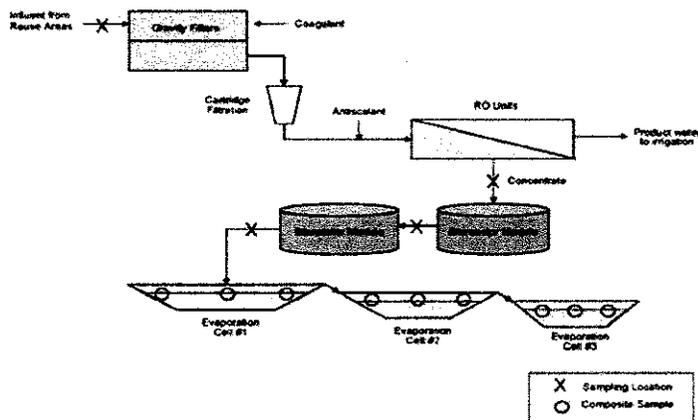


Figure B-1 Pilot Selenium Treatment, Reverse Osmosis, and Evaporation Basin System

http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=2260 SLDFRE EIS Appendix B

Figure 2

Please assist us in answering the following questions and providing the following documents:

1. A copy of the easement, terms and conditions of the easement between the United States and Panoche Drainage District for this demonstration project.
2. In the Fed Status Report of 4-1-11 it was reported to the court that monitoring and measurement of drainage water flows, groundwater levels, and water quality constituents are ongoing and will continue through construction. Please provide us with copies of these monitoring reports and measurements of drainage water flows, ground water levels and water quality constituents.
3. In the Fed Status Report of 4-1-11 it was reported to the court that Reclamation performed a Value Engineering Study to investigate design options which might reduce the cost of the demonstration treatment plant. The Value Engineering Team published a report in March 2011, which contains 12 separate proposals for changes to the 30% design. Reclamation is currently evaluating those proposals to determine which of the design options will be incorporated as the design proceeds forward. Please provide us with a copy of the March 2011 report and subsequent design options or changes.
4. In the Fed Status Report of 4-1-11 it was reported to the court that a contract had been awarded to prepare the final designs, specifications and cost estimates for the

water treatment equipment to be installed at the demonstration treatment plant and that designs would be completed by August 2011. Please provide us with a copy of the contract and the work product.

- 5. In the Fed Status Report of 4-1-11 it was reported to the court that Reclamation and the Panoche Drainage District are preparing a Report of Waste Discharge (ROWD) for the demonstration treatment plant. We understand this will provide the basis for the issuance of an NPDES permit. Please provide us a copy of the ROWD prepared by USBR.**

- 6. Reclamation recently announced that the Data Collection and Review Team will allow the public to attend approximately 4 hours of an 8 hour meeting on November 17, 2011. The closed meeting will include "private contractors." Could you please provide us with a list of those private contractors and the amounts of money paid by year to each of those contractors. Several of the "private" contractors also appear to be employed by the drainage and/or water districts that benefit from discharging pollution downstream. How does USBR ensure that this conflict of interest does not taint or bias the information provided at public expense.**



Pacific Fishery Management Council

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David W. Ortmann, Chairman Donald O. McIsaac, Executive Director

May 19, 2010

Donald R. Glaser, Regional Director
Mid-Pacific Region
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Dear Mr. Glaser:

As you are aware, the Sacramento River fall-run Chinook salmon resource, the backbone of salmon fisheries off the coasts of California and Oregon south of Cape Falcon, has failed despite severe fishing restrictions in recent years. The collapse of this stock, and the resulting curtailment of offshore salmon fishing, has put unprecedented stress on fishing communities up and down the West Coast, resulting in a declaration of economic disaster and subsequent disaster relief funding for West Coast fishing communities. The Pacific Fishery Management Council (Council) is charged with reviewing the status of the essential fish habitat affecting this stock and, as appropriate, providing recommendations for restoration and enhancement measures¹.

Title 34 of Public Law 102-575, the Central Valley Project Improvement Act (CVPIA) of 1992, at Section 3406(b)(2), directs the Secretary of the Interior to dedicate 800,000 acre-feet of Central Valley Project (CVP) water yield to the implementation of the fish and wildlife purposes and measures authorized by the CVPIA. Paramount among the purposes and measures is the rebuilding of Central Valley salmon stocks through a CVPIA Anadromous Fisheries Restoration Program.

In March, the Council received a report from our Habitat Committee that raised the question of whether Reclamation is meeting the intent of Congress concerning the use of Federal Central Valley Project water intended for the rebuilding of California's Central Valley

¹ The Magnuson-Stevens Fishery Conservation and Management Act (MSA) (as amended by the Sustainable Fisheries Act) requires fishery management plans to "describe and identify essential fish habitat..., minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat" (§303(a)(7)). The MSA defines essential fish habitat as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

salmon stocks. Because of the depressed condition of Central Valley salmon stocks and their dependent fisheries, we consider this a matter of utmost urgency.

The CVPIA specifically envisioned that this program should double the Valley's salmon runs by 2002, largely by applying the 800,000 acre-feet of CVP water budget yield provided by Section 3406(b)(2) as an aid to juvenile salmon passage on their migration from point of origin through the San Francisco Bay-Delta estuary to the sea. Optimizing downstream passage conditions is key to rebuilding Sacramento fall Chinook, and wise use of dedicated CVPIA storage for this purpose is one of few tools available to managers to provide immediate improvements in survival and rebuilding of this important stock.

In 2006, the White House Office of Management and Budget (OMB) noted the disparity between Congress' Central Valley salmon doubling objective and the actual condition of the Valley's salmon resource. OMB recommended that a comprehensive review of the salmon doubling program be undertaken by the responsible agencies, the Bureau of Reclamation (Reclamation) and the U.S. Fish and Wildlife Service. That review, using a panel of independent scientists, was performed in 2008. One of several troubling aspects of the resulting report, *Listen to the River: an Independent Review of the CVPIA Fisheries Program* (December 2008), is that Reclamation has apparently used up to 400,000 acre-feet of CVP storage for upstream Central Valley salmon restoration measures, but, in each case, withdrew all of that water at the CVP's Delta pumps, rather than using it to assure safe passage for juvenile salmon through the Delta to the sea.

We are concerned Reclamation is not meeting its obligations as directed by Congress. While we understand Reclamation has conducted fish habitat restoration projects, it is unclear whether 800,000 acre-feet of water storage has been actively managed to improve the production of anadromous salmonids. We believe that the lack of a concrete, auditable program to manage this water for the benefit of anadromous fish is contributing to the decline of the Sacramento River fall-run Chinook, with its devastating effects on West Coast fishing communities. In times of conflicting obligations, it is not apparent that Reclamation believes that fish and wildlife protection, restoration, enhancement, and mitigation have equal priority with power generation, irrigation, and domestic water uses. Further, we are uncertain that Reclamation is sufficiently evaluating adult salmon production when determining the success of fish and wildlife programs, despite the fact that this is consistent with the goals of the CVPIA.

The Council would appreciate hearing from Reclamation on the concerns and questions expressed above, towards the goal of working together to address this critical issue in a positive manner. In particular, we would like to know more about the planned and actual use of 800,000 acre-feet of storage water towards the improvement in adult salmonid run sizes since 1992, especially during the past few years. We invite you to send a representative to speak to our Habitat Committee at its next meeting in Foster City, California (San Francisco) in June, or in Boise, Idaho in September. To coordinate, please contact Council staff Jennifer Gilden at Jennifer.Gilden@noaa.gov.

Page 3

In closing, the Council urges you to review the use of the CVPIA Section 3406(b)(2) water budget with regards to its success in improving the status of Central Valley salmon stocks, and inform us of that review. This action can be a significant step forward in restoring salmon resources in the Central Valley and helping fishing communities move toward economic recovery.

Sincerely,

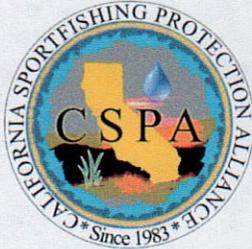
A handwritten signature in black ink, appearing to read "David W. Ortmann". The signature is fluid and cursive, with a long horizontal stroke at the end.

David Ortmann
Chair

JDG:rdd

c: Council Members
Habitat Committee
Dr. Donald McIsaac
Ms. Jennifer Gilden

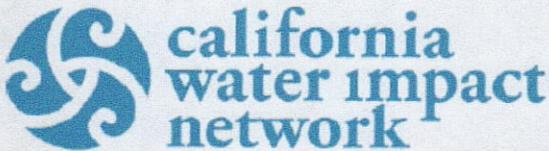
EWC COALITION LETTER REGARDING THE BAY DELTA
CONSERVATION PLAN MEMORANDUM OF AGREEMENT
November 16, 2011



NORTHERN CALIFORNIA COUNCIL



FEDERATION OF FLY FISHERS

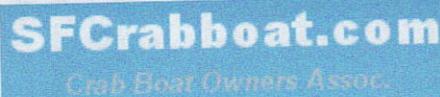
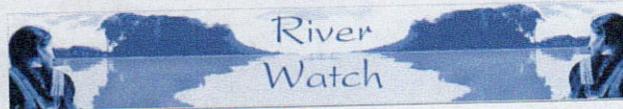
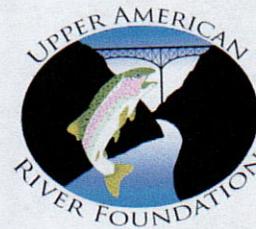
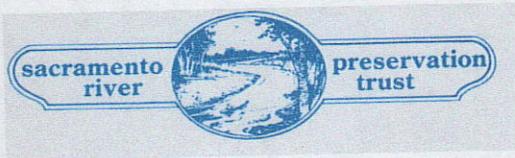


SIERRA NEVADA ALLIANCE





Tuolumne River Trust





TURTLE ISLAND RESTORATION NETWORK



Government of the Modoc People of Southern Oregon and Northern California

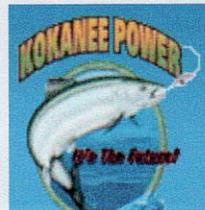
Shasta Mayflies

West Marine

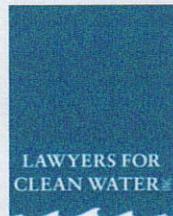


California Striped Bass Association

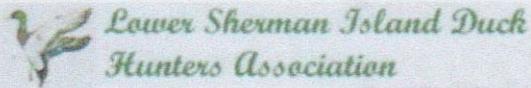
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CA Save Our Streams Council



Battle Creek Alliance
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(510) 474-6601
trccr@thebattlecreekalliance.org



Public Trust Alliance



Merced River Conservation Committee



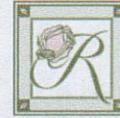
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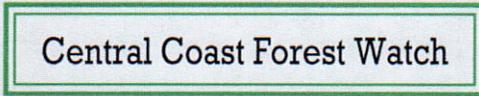
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California Striped Bass Association
SOUTH DELTA CHAPTER
12450 GRIMES ROAD #10
TRACY, CA 95304



SANTA LUCIA Fly Fishers



**LAS VEGAS
FLY FISHING CLUB**



**BLACK BASS
ACTION COMMITTEE**



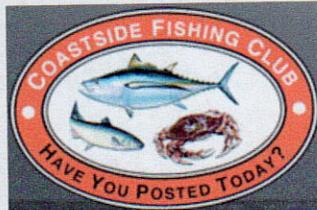
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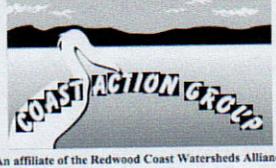


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Tuolumne River Conservancy, Inc.
An affiliate of the Redwood Coast Watersheds Alliance

MCCLOUD WATERSHED COUNCIL
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WALDO HOLT CONSERVANCY
PRESERVING SENSITIVE HABITAT IN SAN JOAQUIN COUNTY



Hon. Kenneth Salazar, Secretary
Department of the Interior
1849 C Street, N.W.
Washington DC 20240

John Laird, Secretary
California Resources Agency
1416 Ninth Street, 13th Floor
Sacramento, CA 95814

November 16, 2011, via email to BDO@usbr.gov

Re: Notice Inviting Public Comment on BDCP MOA

Dear Secretary Salazar and Secretary Laird:

Our coalition of more than 240 environmental, environmental justice, recreational and commercial fishing organizations, outdoor businesses, and Native American Tribes writes to urge that you rescind the First Amendment to the Memorandum of Agreement (MOA) of the Bay Delta Conservation Plan (BDCP). The MOA was negotiated behind closed doors and only serves to reinforce the growing awareness that the BDCP is biased in favor of the export water contractor's agenda to increase exports from the Delta and its connected rivers, despite the documented negative impacts those exports have had on endangered fish species, Delta habitats, water quality and public trust values. Our concerns are similar to the October 24 letter you received from Congressmen Miller, Thompson, Matsui, McNerney, and Garamendi on the same subject.

We understand that MOAs are a regular aspect of the HCP and NCCP process. Nevertheless, this MOA makes unacceptable concessions to the exporters' substantive agenda to influence the analytic process, extends no surprises guarantees to contractors in clear conflict with current law, and elevates the contractors to the status of permit holders for public works projects owned and operated by state and federal agencies.

Among myriad flaws in this poorly conceived MOA, it:

- Memorializes the water exporters' unprecedented influence over the BDCP process, to the exclusion of the many other constituencies who have justified interests in the Bay Delta and its fisheries.
- Provides the exporters with unacceptable influence over the science and technical analyses fundamental to the HCP/NCCP process in a way that undermines the credibility and independence of the analytic process.
- Allows the contractors to be contract administrators of consultants who are performing the necessary and critical analyses of BDCP alternatives.
- Dictates an unrealistic schedule that will rush many of the important decisions on Delta conveyance and precludes a full analysis of the numerous other alternatives that are available to satisfy the environmental and water supply reliability goals of the BDCP.
- Characterizes long-term guarantees for the federal water contractors as an "essential element of success" for BDCP while failing to include equally, if not more essential, ecological performance goals necessary for the success of the BDCP.
- Gives the water contractors internal drafts of the planning phase documents, preliminary

engineering results, and the EIS/EIR for review and comment, and allows them an unacceptable role in responding to public comments in the NEPA/CEQA process.

- Allows export contractors to join the Bureau of Reclamation and California Department of Water Resources as both permittees and decision makers on water operations, restoration, and adaptive management actions under the plan. Putting exporters in the shoes of federal and state agencies for water projects that are owned, operated and primarily paid for by state and federal taxpayers creates multiple problems.

The cumulative effect of these provisions adds up to a “stacked” agreement that is written for the expressed benefit of the water exporters. An agreement this flawed and one-sided cannot serve as the basis for a successful BDCP and cannot begin to achieve the “coequal goals” and “reduced reliance on the Delta” in the Delta Plan, as the state legislature mandated.

We are deeply disappointed that the Obama and Brown Administrations have acquiesced to the export contractors’ efforts to twist what should have been a straightforward financing agreement for planning into a negotiation vehicle to successfully secure unprecedented influence over the HCP/NCCP process. Contrary to your misleading press release that claims, “The MOA would not alter any of the fundamental roles and responsibilities of Reclamation, other federal agencies, or DWR...,” it significantly tilts the field in favor of the contractors. Indeed, the MOA makes a mockery of the 2006 BDCP Planning Agreement signed in good faith by state and federal agencies, export contractors, and participating NGOs.

BDCP is an unprecedented experiment combining one of the largest multi-species Habitat Conservation Plans in history with a massive hydrologic modification to the largest estuary on the West Coast of the Americas. It is essential that this HCP/NCCP serve its fundamental purpose as a conservation plan for the critical fish and wildlife resources of the estuary, and not merely or primarily serve the interests of contractors who have made clear their intent to increase exports from an already severely degraded estuary.

To reiterate, we request that you rescind this biased and unjustified MOA and prepare a new agreement that fairly includes the interests of all parties, including NGO’s, Delta residents, farming and business organizations, environmental justice groups, recreational and commercial fishing organizations, and Native American Tribes. In the absence of such a fundamental rewrite, the undersigned organizations have little alternative but to oppose continuance of the BDCP process.

David Nesmith

Co-Facilitator
Environmental Water Caucus

Nick DeCree

Co-Facilitator
Environmental Water Caucus

The following 242 organizations are signatories to this comment letter:

Bill Jennings
Executive Director
California Sportfishing Protection Alliance

Zeke Grader
President
Pacific Coast Federation of Fisherman’s
Associations

Carolee Krieger
Executive Director
California Water Impact Network

Jonas Minton
Senior Water Policy Advisor
Planning and Conservation League

Ron Stork
Senior Policy Advocate
Friends of the River

Jennifer Clary
Water Policy Analyst
Clean Water Action

David Lewis
Executive Director
Save the Bay

Joan Clayburg
Executive Director
Sierra Nevada Alliance

Deb Self
Executive Director
San Francisco Baykeeper

Jim Metropulos
Senior Advocate
Sierra Club California

Chris Wright
Executive Director
Foothills Conservancy

John Merz
President
Sacramento River Preservation Trust

Conner Everts
Executive Director
Southern California Watershed Alliance

Barbara Barrigan-Parrilla
Executive Director
Restore the Delta

Dave Steindorf
California Stewardship Director
American Whitewater

Barbara Vlamis
Executive Director
AquAlliance

Caleen Sisk-Franco
Spiritual Leader & Traditional Chief
Winnemen Wintu Tribe

Victor Gonella
President
Golden Gate Salmon Association

Stephanie Taylor
Interim Executive Director
Green LA Coalition

Jim Cox
President
West Delta Chapter, CSBA

Huey D. Johnson
President
Resource Renewal Institute

Adam Scow
California Campaign Director
Food and Water Watch

Leda Huta
Executive Director
Endangered Species Coalition

Roger Mammon
President
Lower Sherman Island Duck Club

Warren Truitt
President
Save the American River

Capt. Roger Thomas
President
Golden Gate Fishermen's Association

Mondy Lariz
Director
Santa Clara County Creeks Coalition

Heal the Bay
Meredith McCarthy
Director of Programs

Larry Collins
President
San Francisco Crab Boat Owners
Association

Leaf G. Hillman
Director, Karuk Department of Natural
Resources
Karuk Tribe

Lloyd Carter
President
California Save Our Streams Council

Patty Clary
Executive Director
Californians for Alternatives to Toxics

Eric Wesselman
Executive Director
Tuolumne River Trust

Todd Steiner
Executive Director
Salmon Protection and Watershed Network

Don Rivenes
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California Rural Legal Assistance
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Citizens Committee to Complete the Refuge

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Friends of the Eel River

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Turtle Island Restoration Network

Karen Schamback
California Field Director
California Public Employees for
Environmental Responsibility

Rich Cimino
President
Alameda Creek Alliance

Jack Ellwanger
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Pelican Network

Jeff Miller
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Lorna Elness
President
San Joaquin Audubon

Michael Warburton
Executive Director
The Public Trust Alliance

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Chairperson
Concerned Citizens Coalition of Stockton

Frank Egger
President
North Coast Rivers Alliance

Luke Breit
Legislative Advocate
Forests Forever

Cascade Action Now
Sue Lynn
Secretary

Marily Woodhouse
Director
Battle Creek Alliance

Jodi Frediani
Director
Central Coast Forest Watch

Jeremy Terhune
Coordinator
Friends of the Calaveras

Don McEnhill
Riverkeeper
Russian Riverkeeper

Drea Traeumer
Secretary
Upper American River Foundation

Tim Little
Co-Director
Rose Foundation

Caryn Mandelbaum
Freshwater Program Director
Environment Now

Greywolf, Jeff Kelly
Chief
Modoc Nation

Layne Friedrich
Founding Partner
Lawyers for Clean Water

Ricky Scannell
Vice-Commodore
Sportsman's Yacht Club

Linda Sheehan
Executive Director
Earth Law Center

Alan Harthorn
Executive Director
Friends of Butte Creek

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Jane Humes
Chair

Larry Hanson
Manager
Northern California River Watch

Steve Pedery
Conservation Director
Oregon Wild

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President
Safe Alternatives for our Forest
Environment

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Executive Director
Santa Clarita for Planning and the
Environment

Karen Schambach
President
Center for Sierra Nevada Conservation

Rain Ananacel
Executive Director
Northcoast Environmental Center

Michael Schweit
President
Southwest Council Federation of Fly Fishers

Chris Poehlmann
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Friends of the Gualala River

Nate Rangel
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California Outdoors

Peter Brucker
Klamath Forest Alliance

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Endangered Habitats League

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Fisherman's Association

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Campaign for Common Ground

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Protect Our Water

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Cliff Rich
President
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Bart Hall
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Fred Hall Shows

Brian J. Layng
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International Sportsman's Exposition

Bruce Tokars
President
Salmon Water Now

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Northern Calif. Editor
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Owner
F/V Lady C

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Owner
F/V Gusto, Terra Fisheries

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F/V Machael Too

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Salty Lady

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Danny Layne
Hawkeye Marketing

Gary Coe
Kokanee Power

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Capt. Bill Smith
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Capt Bob Ingles
Queen of Hearts Charters

Capt Brian Cutty
Chubasco Charters

Capt Brian Guiles
Flying Fish Charters

Capt Chris Acacelo
Chris's Fishing Charters

Capt Chris Chan
Ankeny St. Sportfishing

Capt Chris Duba
Silver Fox Charters

Capt Craig Shimokosu
New Salmon Queen Charters

Capt Dale Walters
Que Sera Sera Charters

Danny Layne
Fish'n Dan's Guide Service

Capt David Ryan
Caroline Charters

Capt Dennis Baxter
New Captain Pete Charters

Capt Don Franklin
Soleman Sportfishing Charters

Capt Ed Gallia
New Easy Rider Charters

Capt Frank Rescino
Lovely Martha Charters

Capt Harry Necees
Checkmate Charters

Capt Jack Chapman
Lovely Linda Sportfishing

Capt Jacky Douglas
Wacky Jacky Charters

Capt Jay Yokomozo
Huck Finn Charters

Jimmy Robertson
Outer Limits Charters

Capt Joe Gallia
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Vance Staplin
Vance's Tackle

Capt John Atkinson
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Capt Ken Stagnaro
Stagnaro's Charters

Capt Nick Lemons
Star of Monterey Charters

Capt Peter Bruno
Randy's Fishing Trips

Capt Randy Thornton
Telstar Charters

Capt Richard Thornton
Trek II

Rick Kennedy
Tight Lines Guide Service

Capt Rick Powers
Bodega Bay Sportfishing

Capt Robert Gallia
El Dorado Charters

Capt Sean Hodges
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FLY FISHERS



RESTORE THE DELTA



SALMON



AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATER

March 14, 2012

Michael L. Connor
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

RE: Westlands' & Reclamation's Final Negotiation of a New Repayment Contract for San Luis Drainage Collection Facilities—Strategy Designed to Fleece Taxpayers

Dear Commissioner Connor:

At the most recent and apparently final drainage contract negotiation session with Westlands Water District [Westlands], Westlands announced that they were "not likely to sign" the negotiated repayment contract and instead are pursuing a federal suit against the United

States for a breach of contract, seeking over \$1 billion in damages.¹ We understand that the Denver law firm Westlands hired for the federal suit, Brownstein, Hyatt, Farber, & Schreck, was hired, in part, due to its close relationship with the Secretary of Interior.² We hope this access and influence will not undermine your responsibility to the United States taxpayers to choose the most cost effective and efficacious project needed to protect tens of billions of gallons of water from selenium poisoning. Selenium toxicity has not gone away and there has been recent documentation of migratory bird deformities – again - on the west side of the San Joaquin Valley.³

Westlands has effectively negotiated a drain to nowhere that exceeds existing federal appropriation ceilings.⁴ As mentioned in the public comment period at the recent negotiations, we believe Westlands' negotiation strategy is clear—negotiate a repayment contract that ensures no drainage system is built and then sue to gain permanent water contracts to resell cheap federal water delivered at taxpayer expense.

During the past two years Westlands has demanded and received virtually every concession requested regarding *Negotiation of a New Repayment Contract for San Luis Drainage Collection Facilities* provisions to secure repayment for their collection system, conveyance system and treatment facility for selenium, boron, salt and other water pollution contaminants caused by the importation of water to the district. During some ten negotiation sessions Reclamation caved in to each Westland demand, including, but not limited to:

1. A 40-year interest free repayment contract in accordance with 1965 provisions that will benefit landowners with lands in excess of 960 acres;
2. A repayment schedule that does not commence until one year after the entire system is built and functional;
3. A move of the proposed collection and treatment project to the more costly central Westlands area where pollution levels are lower and the costs greater than the northern unit. In the northern area, pollution levels are higher but the costs are less because more land has been retired;

¹ Case 1 :12-cv-00012-ECH Document 1 Filed 01/06/12 IN THE UNITED STATES COURT OF FEDERAL CLAIMS WESTLANDS WATER DISTRICT v UNITED STATES.

² <http://therealcolorado.blogspot.com/2010/10/kenny-boy-unwrapped-part-i.html>
<http://soprweb.senate.gov/index.cfm?event=getFilingDetails&filingID=410CAF0F-EE93-4187-B518-FB4B1D5EEC1E>
<http://soprweb.senate.gov/index.cfm?event=getFilingDetails&filingID=EBE6A313-FCC8-4634-851B-6C238AAE101A>

³ http://www.swrwb.ca.gov/rwqcb5/water_issues/grassland_bypass/usfws_att_e.pdf

⁴ USBR estimates "as determined by the latest (July, 2010) authorized ceiling computation for the non-indexable portion of the San Luis Act authorized ceiling is approximately \$67.1 million dollars" Contract No. 11-WC-20-0051 RO Draft released 3-2-12. Pg 3. Insufficient funds are available to construct and complete even the 'central' Westlands collection, conveyance and treatment costs. The full project costs especially under the new provisions have not been computed but estimated costs in 2007 were over \$2.7 Billion.

4. Separate contracts for each phase of a five-phase collection, conveyance and treatment project designed to circumvent federal appropriation ceilings. Each has a separate contract that necessarily needs completion before repayment commences, and for which there is insufficient federal authorization. The proposed treatment system will not address the most polluted groundwater areas first.

As we have previously, noted during various negotiation sessions and in letters to Reclamation:

1. No effective treatment process for removing selenium, salt, boron and other contaminants has been shown to be practical or cost effective;
2. The present "Demonstration Treatment Plant", for which costs have gone from \$10 million to \$30 million in a period of less than a year to treat the volume of approximately three garden hoses, will only remove selenium and not salt.⁵
3. Drainage in the Central Area, as identified by Westlands, has high salt pollution loads along with other contaminants that the present demonstration plant is not likely to remove.⁶
4. Selecting the "Central" area of Westlands to commence the collection, conveyance and treatment project effectively selects an area where costs are known to exceed federal appropriation limits and brings into question compliance with the federal Antideficiency Act of 1870 specifically where an *"An officer or employee of the United States Government or of the District of Columbia government may not (A) make or authorize an expenditure or obligation exceeding an amount available in an appropriation or fund for the expenditure or obligation . . ."* [emphasis added]
5. In 2007, Reclamation determined the cost of treatment methods and evaporation ponds to remove salt and selenium would be more than \$2.7 billion.⁷ As mentioned at previous negotiation sessions, these documents are based on a biological opinion that assumed all discharge of selenium, salt and other contaminants from the northerly Westlands area retired lands and the Grassland Bypass Project would cease by 2010, along with significantly different assumptions than those presented in this proposed drainage contract. The discharge of these pollutants continues.⁸ The present proposed repayment

⁵ Comments on Draft EA/FONSI (DEA) for the San Luis Drainage Feature Reevaluation Demonstration Treatment Facility at Panoche Drainage District's San Joaquin River Improvement Project (SJRIP) FONSI-10-030 -10-17-2011 http://www.c-win.org/webfm_send/194

⁶ <http://www.c-win.org/poisoned-lands-and-grasslands-bypass-project.html> For example, the proposed treatment does not propose to remove salt, boron, or mercury and will continue to discharge lethal levels of selenium. See specific Panoche Demonstration Comments on the EA at the bottom of the page at http://www.c-win.org/webfm_send/193, Follow up letter to Don Glaser at http://www.c-win.org/webfm_send/233

⁷ *San Luis Drainage Feature Re-evaluation: Final Environmental Impact Statement*, U.S. Department of the Interior, Bureau of Reclamation, May 2006, and *San Luis Drainage Feature Re-evaluation: Record of Decision*, U.S. Department of the Interior, Bureau of Reclamation, March 2007.

⁸ Central Valley Regional Water Quality Control Board hearing record transcript May 27, 2010 pg 89. Rudy Schnagl Senior Engineer of the Central Valley Regional Water Quality Control Board testified at a May 27,

- contract, if signed, would not comply with the National Environmental Policy Act, Federal Anti-degradation Policies, the Clean Water Act or the Endangered Species Act.
6. Records show it is likely Westlands will not meet the financial reserves necessary to meet the 1965 contract requirements.⁹ It appears the proposed contract provisions do not meet the required financial reserves required under 9(d) 1965 contracts, especially when existing debt and newly-issued debt by Westlands is considered.
 7. After demanding the decades old 1965 provisions as a template, with forty year interest free contract repayment provisions, Westlands also succeeded in removing water quality protection provisions.¹⁰ These water quality protection provisions are routinely ignored in the existing water service contracts and should be enforced.

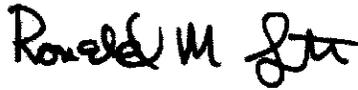
We urge you to implement the more cost effective land retirement program already partially funded by taxpayer dollars by which approximately 100,000 acres has been fallowed or retired. Any renewed interim or long term water service contracts should deny irrigation water to the identified toxic soils in the attached map and precious water supplies redirected to meet other purposes of the Central Valley project, including mitigation damages to endangered salmon, other fish and wildlife and Delta water supply needs.

2010, hearing that contaminated groundwater from the northerly area of Westlands does enter the Grasslands Bypass Project and ultimately the San Joaquin River. *"The groundwater from the Westlands Water District is moving from that area to the northeast, as I mentioned earlier, and that would flow under the project area. And so that is of concern and -- to the commenters and from our standpoint, any of that water that's captured by the Grassland Bypass Project has to be managed by them and be discharged within their load limits. So they're responsible if they collect it in their subsurface drainage systems and discharge it. So that puts the responsibility on this project for any groundwater that enters their area. There are also surface water impacts in some of the grassland waterfowl areas, the wetland areas. From tile drainage to the east and west of the bypass project area..."* see: http://www.lloydgcarter.com/files_lgc/Drainage%20letter.pdf Exhibit A

⁹ Over \$4 million to \$6 million in loans owed the federal and state taxpayers have been subordinated according to debt instruments filed in a recent \$50 million debt obligations taken on by Westlands. Pg D-16. See <http://emma.msrb.org/SecurityView/SecurityDetails.aspx?cusip=798544AM4> (Official Statement). <http://emma.msrb.org/MS279708-MS278527-MD564986.pdf> pgs D-7 to D-16. Garamendi Seeks SEC Investigation 11-23-2010 http://www.lloydgcarter.com/files_lgc/LTR%20to%20Garamendi%20Seeking%20SEC%20Investigation%20Final.pdf

¹⁰ See June 24, 2011 proposed contract language that included the following provisions now removed: *PROTECTION OF WATER AND AIR QUALITY.....(b) The Contractor shall comply with all applicable water and air pollution laws and regulations of the United States and the State of California; and shall obtain all required permits or licenses from the appropriate Federal, State, or local authorities necessary for the delivery of water by the Contractor; and shall be responsible for compliance with all Federal, State, and local water quality standards applicable to surface and subsurface drainage and/or discharges generated through the use of Federal or Contractor facilities or project water provided by the Contractor within the Contractor's Project Water Service Area. [Contract No. 11-WC-20-0051 R.O. Draft 06/24/2011 pg. 16]*

Thank you for your consideration.



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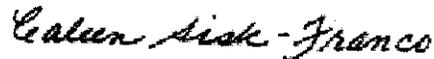
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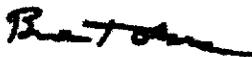
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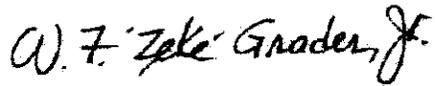
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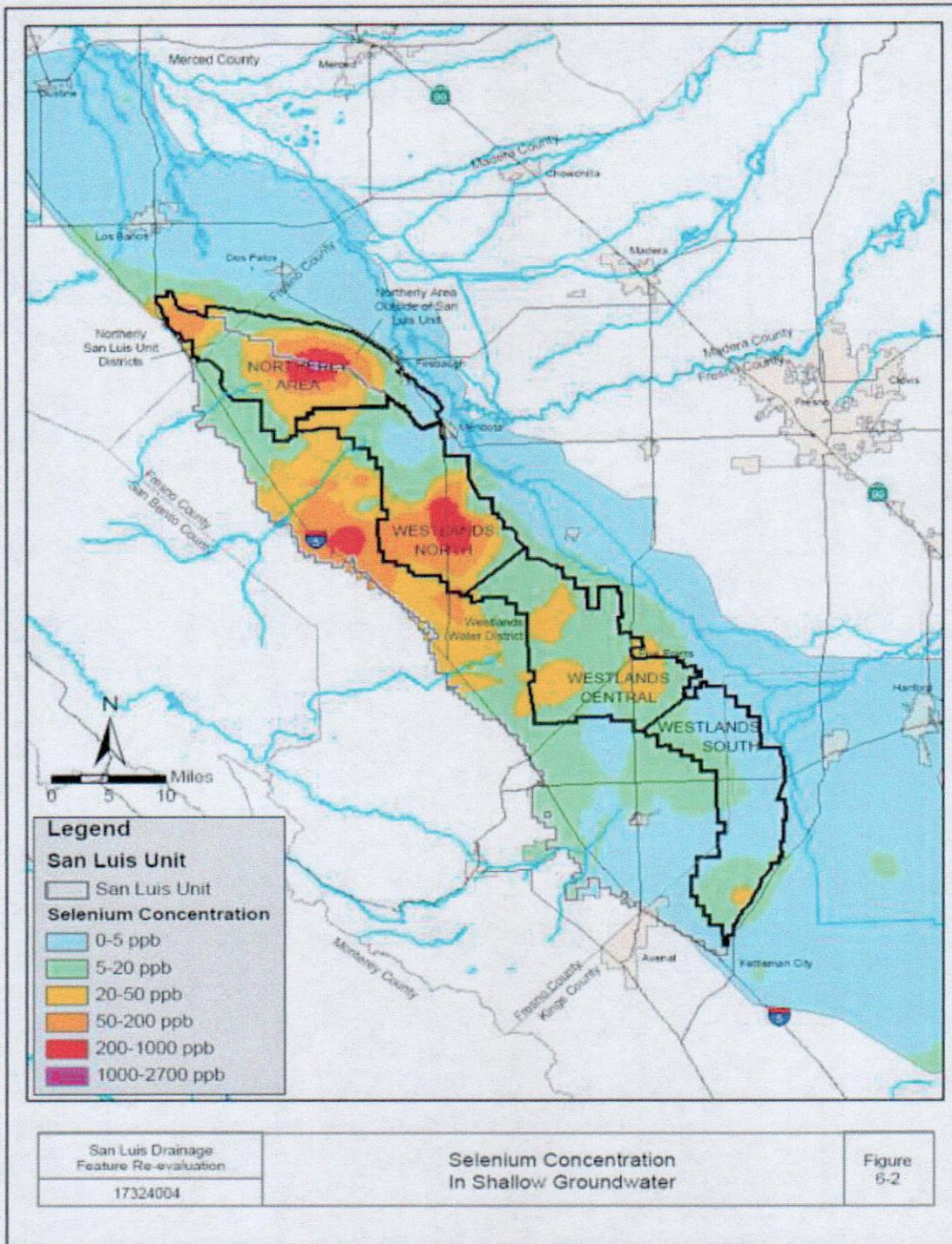
Larry Collins
President
Crab Boat Owners

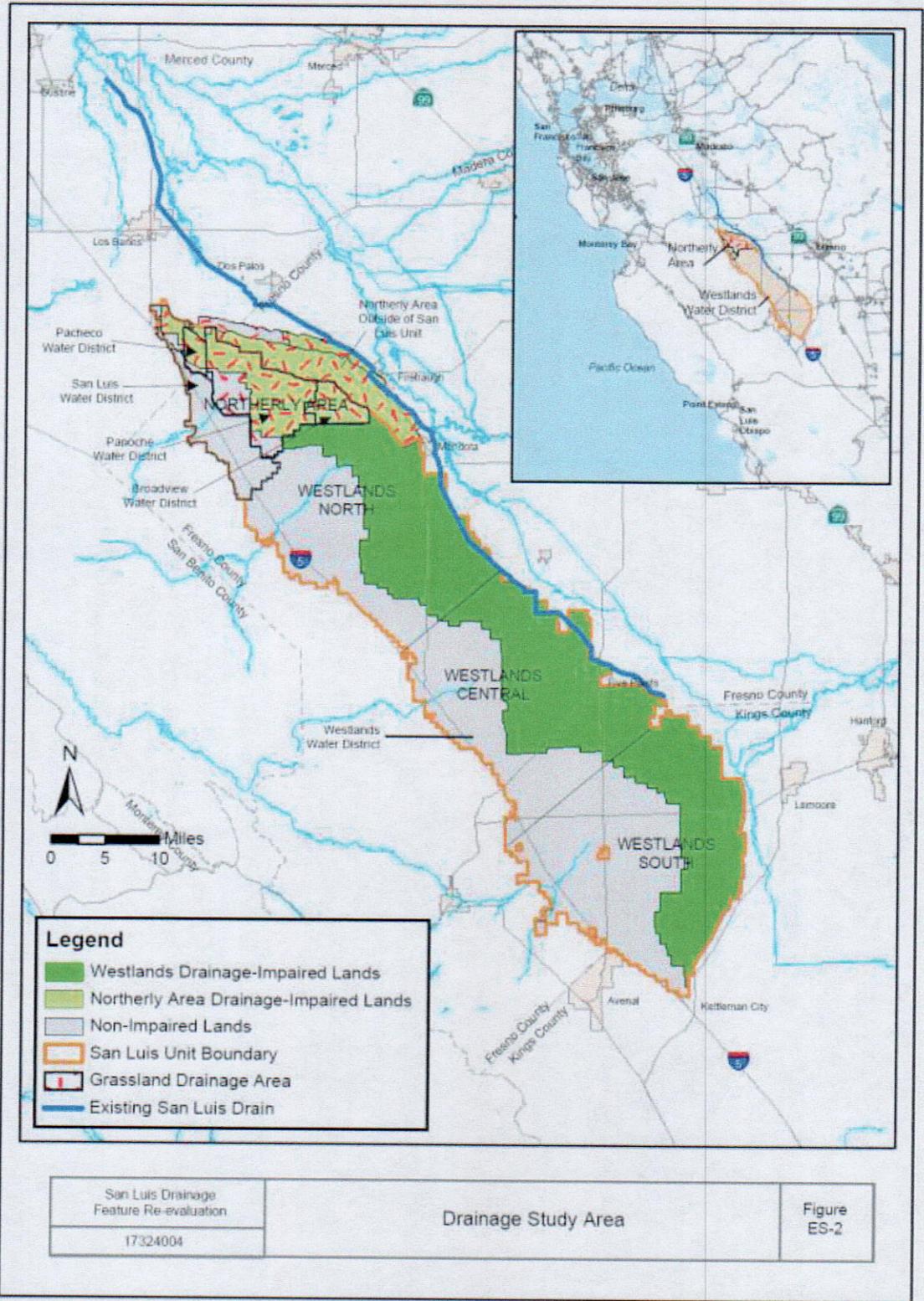
Frank Egger, President
North Coast Rivers Alliance
fegger@pachell.net

Attachments:

1. San Luis SLDFR Final EIS: Selenium Concentrations in Shallow Groundwater:
2. Westlands' Owned Retired Lands Exhibit
3. Impaired Lands San Luis Drainage SLDFR Final EIS

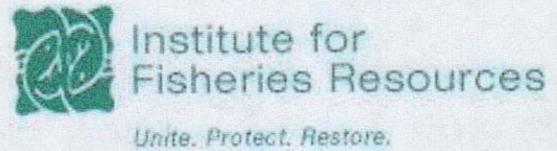
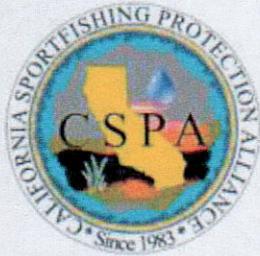
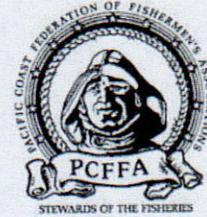
CC: Senator Feinstein
Senator Boxer
Interested Parties







NORTH
COAST
RIVERS
ALLIANCE



February 13, 2012

Ms. Rain Healer
South Central California Area Office
U.S. Bureau of Reclamation
1243 N. St.
Fresno, CA 93721

Re: Comments on FONSI-070-103 Long-term Warren Act Contract and License for Delta Lands
Reclamation District No. 770 EA-07-103

Dear Ms. Healer:

The undersigned groups respectfully submit the following comments on the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the J.G. Boswell Kings River operation [Delta Lands Reclamation District No. 770] proposal to deliver up to 250,000 acre feet of water to Friant Kern Canal and Kern River along with up to another 50,000 acre feet via the San Luis Canal to Westlands [Westlands Water District FONSI-11-002]¹ and other identified non-CVP contractors. The EA and FONSI are deficient and an Environmental Impact Statement (EIS) must be prepared, as required by the National Environmental Policy Act (NEPA).

This is a water supply project masquerading as a flood control project. Under this 25 year contract up to 300,000 acre feet of additional water supply in some years all will be given to agriculture and municipal water users. Posing as an "emergency flood control" project it proposes to pump into the Friant Kern Canal and Kern River up to 250,000 acre feet of water and another 50,000 AF to Westlands via the San Luis Canal. Without data and analysis the public is told the project will have no environmental impact and that the pristine water of the Kern River and other navigable waters of the state and nation are protected due to a yet to be defined monitoring program.

Specific Comments

1. **Stated Purpose and Need** is based on "emergency flood control." This project and the additional 50,000 acre feet to dedicated to Westlands² is claimed not be "a major Federal action that will significantly affect the quality of the human environment and an Environmental Impact Statement is not required." This amount of water is not small. The development of up to 250,000 acre feet of additional water supply in some years for Friant farmers, Kern County bankers, and Southern California water importers, makes this a major water supply project. The 25 year impacts of this project along with the additional 50,000 acre feet to be supplied to the toxic soils of Westlands for five years needs to be analyzed and needed water for fish and wildlife purposes identified to offset these flow diversions and water quality impacts.

2. **Failure to Consider Other Project Alternatives:** The draft EA fails to consider any other alternatives except for the diversion of these flows to CVP and non-CVP contractors. Other alternatives including releasing water to meet downstream water quality objectives and specified deliveries to wildlife refuges are not considered. Such alternatives would assist in meeting the Bureau's current refuge water obligations, water quality, fish doubling requirements and mitigation for damage to threatened and endangered species.

3. **Failure to Address Water Rights and Permits:** The draft EA describes the diversion and export of up to 250,000 acre feet to the Friant Kern Canal and Kern Rivers. This amount of water diverted for new uses and in places as far away as southern California along with the

¹ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=8806

² ibid.

50,000 acre feet of water diverted from these three rivers and to Westlands via the San Luis Canal are significant changes in these water rights. And yet the EA is virtually silent on these changes assuring the public that 'uses of this water will be limited to lands that have previously been developed and/or cultivated ...' Despite the lofty promises on use, there is little or no analysis to support these conclusions or to ensure water banked will not later be re-characterized and sold for different or new 'development' purposes. The FONSI and DEA merely declare: "Introduction of this Non-CVP water into the FKC will not alter water rights held by the United States to pump water from the San Joaquin River nor will it alter the water rights of water right holders on the Kings, St. John's (Kaweah), or Tule rivers as water diverted will only be done during flood flows and under the permission of the respective Watermasters."³

4. Failure to Address Water Quality Impacts and Compliance with the Clean Water Act:

Admittedly the previous operation of 'temporary diversions' have resulted in water quality impacts. Relying on approximately 100 pages of quality assurance boiler plate language and a water monitoring program where sites and frequencies are yet to be announced, the public is suppose to accept the project will have no water quality impacts. In fact the Bureau asserts: "The Proposed Action will not impact water quality in the Kings, St. John's and Tule rivers as water quality is not affected by diversion of a portion of the river's flow."⁴ This cannot be scientifically justified. Diverting flows indeed does change water quality by altering its composition, flow and temperature. Without detailed analysis or monitoring data, the DEA admits that in 2006, "Previous RD770 introductions of Non-CVP water into the FKC resulted in water quality impacts due to slight increases in concentrations of turbidity, total dissolved solids, alkalinity, bicarbonate conductivity and coliform."⁵ The project suggests relies on a yet to be determined water quality monitoring program to protect water quality. Further the project relies on maximum contaminant levels as the compliance action point instead of aquatic life standards or objectives. Except for a handful of out of date pesticides, there are no MCL's for most of the pesticides in use and fish and wildlife impacts will occur long before most MCL's are reached. According to the Draft EA RD770 is required to comply with the water quality monitoring program either described in or incorporated by reference within the Warren Act contract (see Appendix A for the water quality monitoring requirements and sampling locations) ."⁶ The problem is there are virtually no monitoring requirements listed in Appendix A⁷:

³ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=8923 pg 4

⁴ Ibid. pg 4

⁵ Ibid. pg 4: Data is only provided for 2006 not the previous discharge years of the project. So the public is left in the dark regarding the water quality impacts.

⁶ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=8923 pg 2

⁷ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=8923 pg 136 of the pdf

**2011 Policy to Accept Non-Project Water
 Friant Division
 Water Quality Monitoring Program
 Quality Assurance Project Plan**

Table 1. Sampling Locations

Friant-Kern Canal Mile Post	Location
(1)	Below Friant Dam
TBD	Upstream sampling site
TBD	Non-project water discharge pipe
TBD	Downstream sampling site
~152.0	near Terminus

(1) San Joaquin River below Friant Dam (Lost Lake Park)

TBD - To be determined by the Contracting Officer

**2011 Policy to Accept Non-Project Water
 Friant Division
 Water Quality Monitoring Program
 Quality Assurance Project Plan**

Table 2. Water Quality Sampling Schedule

Friant-Kern Canal Mile Post	Location	Complete Laboratory Analyses (2)	Bacterial	Field Measurements
(1)	Below Friant Dam	Monthly	Monthly	Monthly
TBD	Upstream sampling site			TBD
TBD	Non-project water discharge pipe	Annual	Annual	TBD
TBD	Downstream sampling site			TBD
~152.0	near terminus at Kern River	Quarterly	Quarterly	None

Notes:

(1) San Joaquin River below Friant Dam (Lost Lake Park)

(2) Title 22 - California Code of Regulations, Domestic Water Quality Standards

(3) Bacterial - Cryptosporidium, Fecal Coliform, Giardia, Total Coliform

TBD - To be determined by the Contracting Officer

Revised: 4/8/2011

Diversions and "pump in" of polluted water into the "pristine Kern River" and other waters of the state and nation need to comply with the Clean Water Act and obtain necessary NPDES permits. The Draft EA ignores this federal and state law requirement. Both federal and state law

require adherence to a non-degradation standard. This standard includes fish and wildlife beneficial uses. Relying on drinking water standards is not sufficient to ensure beneficial uses of these state and national water ways will not be degraded. Monitoring frequencies of once a year or even once a month may miss pollution spikes that can impact aquatic life, fish and wildlife. Aquatic life standards should be monitored and enforced the ensure beneficial uses are protected.

5. Failure to Address Endangered Species: Without analysis or review or data from the previous operations of these “temporary Warren Contracts since 1978”, the Bureau surmises there will be no impact on fish and wildlife, migratory birds or endangered species. In fact all of this analysis is left for the next decade: *“Reclamation will prepare a report evaluating the effects to listed species and designated critical habitat protected under the Endangered Species Act (16 U.S. Code §1531 et. seq.) which result from the Proposed Action. The report will utilize data from monthly and annual water delivery reporting requirements required as part of the Proposed Action, as well as any other information appropriate for this purpose, and will be provided to the U.S. Fish and Wildlife Service (Service) by the 1st of May at least every 10 years, and also at the end of the period of the Proposed Action, or the termination of the Warren Act contract covering the Proposed Action, whichever is earlier.”*⁸ Further the document suggests that reference to the Bureau’s existing “ESA compliance strategy” will somehow ensure that this 25 year project will not cause jeopardy to any endangered or threatened species. The existing Bureau biological opinions for the CVP contract renewals are fatally flawed and have been challenged in court. In the last FONSI and EA, Reclamation noted the presence of endangered species at several of the pump in locations.⁹ And yet no surveys, information or analysis of monitoring impacts are provided in the Draft EA to support the FONSI and biological impact conclusions. Additionally no information is provided regarding impacts to critical habitat from the diversion despite previous analysis indicating potential impacts.¹⁰

⁸ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=8923 pg 3

⁹ The CNDDDB query revealed records for California tiger salamander in the vicinity of the Kings and St. John’s River pumping facilities; for VELB and Greene’s orcutt grass in the vicinity of the St. Johns River pumping facilities; records for the San Joaquin kit fox in the vicinity of the St. John’s and Tule River pumping facilities; records for the vernal pool fairy shrimp and the San Joaquin adobe sunburst in the vicinity of the Kings, St. John’s, and Tule River pumping facilities; records for the Tipton kangaroo rat in the vicinity of the St. John’s and Tule River pumping facilities; and records for the California jewel flower in the vicinity of the Tule River pumping facilities (Table 3-8 and 3-9 in EA-09-177). http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=7603

¹⁰ *“Critical habitat for the vernal pool fairy shrimp and the vernal pool tadpole shrimp within the Cross Creek Unit are connected to flows in the St. John’s River; however, the majority of the critical habitat is upstream of the confluence of Cottonwood Creek and the St. John’s River. Critical habitat upstream of this confluence would not be directly affected by changes in flood flows within the St. John’s River. Critical habitat for Hoover’s spurge and San Joaquin Orcutt grass occurs upstream of the confluence of Cottonwood Creek and the St. John’s River, and would not be directly impacted by Non-CVP floodwater introduced into the FKC. Any backwater flooding would be minimal and not be expected to meaningfully affect the extent or duration of inundation. Critical habitat for vernal pool fairy shrimp*

6. Failure to Address Integration of Army Corps of Engineers and Bureau Operations: The analysis fails to address and evaluate the implications of this arrangement upon Boswell's and the ACOE source water supplies previously controlled by the ACOE now utilizing Reclamation facilities under Reclamation Law, including the mandates of the Reclamation Reform Act and the Central Valley Project Improvement Act (CVPIA). Under the proposed water transfer pump in project and delivery contract, water conservation requirements are waived. Water and Conveyance rates are set at \$12.06.¹¹ Delta Lands Reclamation District No. 770, which is owned by the J G Boswell Co. They received taxpayer crop subsidies totaling \$10,914,605 from 1995 through 2010.¹² J.G. Boswell Co. receives water through the Pine Flat Dam, a federal storage project, but has circumvented the excess lands provisions of Reclamation law. The Delta Lands Reclamation District is 26,800 acres.¹³

7. Failure to Accurately Describe the Existing Environmental Setting and Properly Evaluate Impacts. The Draft EA describes the environmental setting under the only other alternative considered—the No Action Alternative as consisting primarily of farmlands in RD 770 and the Tulare Lake Basin and potential impacts to levees. However, the flood flows at issue regularly spill into the James Bypass/Fresno Slough and from there into the San Joaquin River at Mendota Pool, where they continue downstream, in some instances actually reaching the lower San Joaquin River and the Delta. These flood flows are typically of better water quality than water discharged into Mendota Pool by the Bureau by way of the Delta Mendota Canal. Further, these flood flows provide floodplain and riparian habitat value in Fresno Slough and continuing downstream to the Delta in some instances. The EA merely asserts that diverting 250,000 acre feet will have no impact. The existing environmental setting is not clearly defined and thus, considered in the Draft EA, FONSI or project. The Contracting Officer is required to review this contract for consistency with the project description within the EA and all applicable permits, laws and regulations. This project is not temporary. It will last for 25 years. The environmental baseline and impacts have not been reviewed as required by NEPA. This project envisions permanent assignment of this water to non CVP contractors and bankers along with the assignment for up to five years to Westlands Water District. The associated impacts of

within the Pixley Unit occurs in two subunits: one southeast of Corcoran within the floodplain of the Tule River and another subunit that includes portions of the Pixley National Wildlife Refuge. The northern subunit could experience a minor level of flood protection. Portions of the critical habitat for the California tiger salamander within the final Cross Creek Unit are connected to flows in the St. John's River. Critical habitat in the basin upstream of the confluence with the St. John's River would not be directly affected by changes in flood flows within the St. John's River."

http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=7603

¹¹ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=5598 pg 28 of 80 pdf

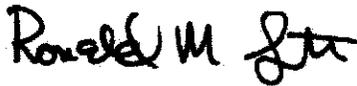
¹² <http://farm.ewg.org/persondetail.php?custnumber=009439118>

¹³ http://www.countyofkings.com/planning/genplan/community%20plans/CompleteDoc_KCMJMHMP.pdf

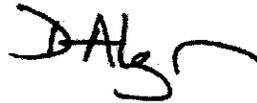
irrigating toxic soils have not been analyzed nor the long term cumulative effects of these combined projects analyzed, as required by NEPA.

8. Failure to Detail How Diversions are to be used: Despite the 'temporary' operation of portions of the project since 1978, the Draft EA is silent on past uses or proposed uses of the diverted water. For example will it be included in surface deliveries, banked to offset groundwater overdraft, and/or reduce diversions from the Delta? How much water has been used to offset surface water sales to southern California? What cumulative impacts will occur from the additional 50,000 acre foot diversion to Westlands and the resulting toxic pollution caused by irrigating selenium and other contaminated soils on the Westside? The Contracting Officer is required to review this contract for consistency with the project description within the EA and all applicable permits, laws and regulations. This project is not temporary. It will last for 25 years. The environmental baseline and impacts have not been reviewed as required by NEPA. The virtual permanent assignment of this water to non CVP contractors and the additional 50,000 acre feet diverted to Westlands for up to five years along with the associated impacts of irrigating toxic soils has not been analyzed nor the long term cumulative effects as required by NEPA.¹⁴ These projects have been treated under separate FONSI's and separate EAs and yet, the source water and supplies in the past have been considered under the same NEPA documents leading to the conclusion that the projects are being artificially split and piece mealed.¹⁵

Thank you for the opportunity to comment.



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Senior Policy Advocate
Friends of the River



Adam Lazar
Staff Attorney
Center for Biological Diversity



Zeke Grader
Executive Director
Pacific Coast Federation of Fisherman's

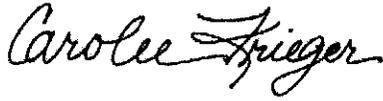


Jonas Minton
Senior Water Policy Advisor
Planning and Conservation League

¹⁴ http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=8806

¹⁵ <http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=547> March 2004 Draft Environmental Assessment Available For Emergency Flood Control Operations Contract For Delta Lands Reclamation District 770 Pump-In Project. "Up to 300,000 acre-feet of floodwaters may be collectively diverted from these rivers within a single water year. RD 770 has pumped varying amounts of floodwater on eight occasions under separate Warren Act Contracts. Future diversions would likely occur, on average, every three to four years based on historical frequency."

Federation Association Inc.



Carolee Krieger
Board President and Executive Director
California Water Impact Network



Bruce Tokars
Salmon Water Now

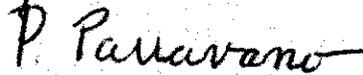


Jim Metropulos
Senior Advocate
Northern California Council
Federation of Fly Fishers

Frank Egger, President
North Coast Rivers Alliance



Bill Jennings
Chairman Executive Director
California Sportfishing Protection Alliance



Pietro Paravano
Chairman of the Board
Institute for Fishery Resources



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Executive Director
Desal Response Group
Southern California Watershed Alliance



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NORTH
COAST
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ALLIANCE



California Sportfishing
Protection Alliance



Save the American
River Association

February 18, 2010

Ms. Karen Hall,
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

RE: Comments Re Two Year Interim Renewal Central Valley Project Water Service Contracts: Westlands Water District [WWD] Contracts 14-06-200-8237A-IR13; 14-06-200-8238A-IR13; WWD DD1-Broadview 14-06-200-8092-IR12; WWD DD1 Centinella 7-07-20-W0055-IR12-B; WWD1 Widren 14-06-200-8018-IR12-B; WWD DD2 Mercy Springs 14-06-200-3365A-IR12-C.

Dear Ms Hall:

The organizations whose names appear on this letterhead submit the following comments on the Westlands Water District Interim Renewal Central Valley Project Water Service Contracts referenced above.

Much has changed since the last interim supplemental water contract renewals for Westlands Water District. In fact much has changed over the years of "interim contract" renewals. The interim contracts, however, have not changed to reflect reality:

1. The interim contracts do not reflect the amount of available water resources. Exaggerated contract water quantities do not accurately reflect the delivery capability of the CVP, especially after legal regulatory actions under the Clean Water Act, the CVPIA, Endangered Species Act, Tribal Trust, Area of Origin and Public Trust Doctrine needs are considered. If Westlands gets its way under these proposed contracts the approximately 350 common ownerships¹ will control more water than the households of Los Angeles, San Francisco, San Diego, Riverside and San Bernardino, combined, use in a year. This over-commitment of scarce water resources will become even more acute in the future, as senior water rights holders upstream develop their water supplies and the federal government fulfills its obligations to meet reserved fishing rights of Native American Tribes on the Trinity River – the Hoopa Valley and the Yurok Tribes.
2. The Water Needs Analysis is at least a decade old and does not reflect irrigation changes or land base changes that have occurred in WWD. In 2002, taxpayers paid a few growers in the Westlands Water District some \$100 million to retire nearly 40,000 acres of drainage-impaired land because applying imported water polluted the groundwater and surrounding land with salt, boron, and toxic selenium. The San Luis Drainage Feature Re-evaluation FEIS (2006) identified 44,106 acres of land that had been permanently retired from irrigation in Westlands. This acreage is comprised of Sumner Peck, Britz Settlements with the Federal Government and CVPIA land retirement demonstration program. An additional 66,000 has also been retired by Westlands due to pollution concerns.² Ultimately 194,000 acres will be retired under the San Luis Drainage Feature Re-evaluation Record of Decision [2006]. Some of these lands, nearly 40,000 acres contain an irrigation covenant forbidding the application of CVP water. The water needs analysis assumes all 600,000 acres³ of WWD are still irrigated and receiving full contract quantities and yet approximately 1/3 of the district is restricted from irrigation or soon will be.
3. The contract promises Westlands up to 1.15 million acre-feet (plus water from water assignments from Broadview, Mercy Springs, Widren and Centinella WD's) and yet the crops have changed dramatically. According to WWD crop reports from 2005 to 2008, there has been a 68% increase almond acreage. Between 2007 and 2008 alone, 4,042 acres of almonds were planted. In fact in 2008 WWD had excess supply and exported through the State Water Project Canal south to Kern County.⁴ The original contract for Westlands was only 900,000 AF.⁵ This amount is closer to the average actual delivery of 701,500 AF over the last decade. The new contract renewal calls for about a 50% increase in deliveries over the average for the last decade while the area of land in the district eligible to receive CVP supply has declined.
4. Changes in Westlands' supply and application since the last interim contract are not included. Specifically missing are water transfers and CVP Contract Assignments into, and groundwater exports out of, WWD. For example contract water from Broadview, Widren, Centinella and Mercy Springs Districts, all with land not suitable for farming due to pollution, assigned their water to WWD. The interim contract maps do not accurately reflect this increase in water supplies and boundary changes. Further, the contracts do not reflect the potential cost increase from the application of this water to upslope selenium lands. The location and impacts of these new imported CVP contract supplies is missing from the proposed interim contracts.

5. The increased pollution costs from transfers are not disclosed. For example, Westlands is proposing to pay for the development of new groundwater pumps for the San Joaquin River Exchange Contractors Water Authority in exchange for 20,000 acre feet a year of surface water for 25 years. As a result of the water transfer project Fish and Wildlife Service has identified increased pollution costs and ground water degradation from selenium and mercury contamination to refuge water, groundwater and surface water supplies in the Delta Mendota Canal.⁶ The result of this transfer may be to export pollution costs from Westlands to other water districts or to drinking supply users, the latter a direct public health risk.
6. Legally required accountability to taxpayers is given short shrift. Westlands has also periodically exported ground water out of the district and into the California Aqueduct. It is unclear whether Westlands harms the public by selling tainted groundwater at exorbitant prices and buying cheap, clean replacement surface water. The interim contracts do not reflect how this buying, selling and exchange of ground and surface water ensures taxpayers are reimbursed for their capital investments in the delivery systems and power as required by law. Typically once water is transferred out of the district and stored underground it is re-characterized as private property and not considered part of the CVP or subject to federal contract rules. The interim contracts need to protect the taxpayer investment before these transfers take place. Aside from Westlands' possible water manipulation, the government's failure to account for taxpayer spending would be especially egregious.
7. Importing water and irrigating selenium lands in Westland Water District has long been identified as a major source of selenium and contaminants migrating to downslope agricultural lands and, ultimately, to the San Joaquin River and Delta.⁷ Firebaugh Canal Water District and Central California Irrigation District currently contend in a federal lawsuit that the application of surface water to Westlands Water District lands creates the downslope migration of polluted drainage water into their districts where it accumulates and flows in the Firebaugh and CCID drains, and from there to the San Joaquin River and its tributaries. They have brought suit contending Westlands WD is rendering their lands unsuitable for irrigation and causing them increased regulatory costs because of contaminated ground and surface waters.⁸ The water renewal contracts currently being negotiated with WWD provide for increased water deliveries to selenium soils despite the fact that much of the land is no longer suitable for farming and additional land will become similarly useless if irrigation continues.

Recovering the cost to the government and taxpayer from the pollution caused by this irrigation of selenium lands is also not considered in the contract renewals.

8. The Central Valley Project Improvement Act [CVPIA] requires, in section 3404, subdivision (c), that all renewal contracts, including these interim contracts, must fully incorporate all the requirements of federal reclamation law applicable to the CVP, including the purposes and provisions of the CVPIA. These contracts do not meet these basic requirements. These are not permanent entitlements and the right to renew is subject to review at the Secretary's discretion.

As a result of years of interim renewals the Congressional goals of full cost pricing and tiered pricing have been, in effect, disregarded and, therefore, undermined.

Bearing in mind, again, liabilities to the taxpayer, the contract renewals do not meet the goal of repaying taxpayer investment in the project. According to a 2007 GAO study as of September 30, 2005, the combined total CVP capital construction costs remaining to be repaid by San Luis Unit irrigation water districts under water service contracts and repayment contracts amounted to about \$497 million.⁹ Further adding to this debt to the taxpayers, the interim contracts do not reflect the huge pollution and drainage costs from applying large amounts of water to these lands, resulting in accumulating toxic concentrations of selenium, salts, and boron. The BOR Record of Decision for San Luis Drainage Feature Re-evaluation (2006) estimates drainage service cost to the San Luis Unit would be \$2.7 billion and approximately \$11 million per year in perpetuity to operate—if the untested treatment systems work. The full construction, treatment and disposal costs would be more than \$4.251 billion.¹⁰

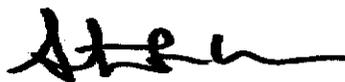
The interim contract charges for water delivered do not reflect the "full cost" of the water as required¹¹. In 2005 dollars the full capital, maintenance and operation costs would be \$55.20; Add the full cost of power and the rate goes to \$150 an acre foot. The new interim contracts do not disclose the water rates. In 2005, the Environmental Working Group estimated 15 corporate irrigation operations in Westlands received water subsidies worth at least \$1 million per farm in 2002 dollars.¹² There is scant recognition of obligations to the taxpayer in the interim contracts, showing a business-as-usual process in the midst of government's recognition of broad-based taxpayer distress.

In summary the contracts and their supporting environmental documentation have significant legal deficiencies. Specifically the proposed contracts and their supporting Environmental Assessments and other environmental documents violate the Administrative Procedure Act (APA), the Central Valley Project Improvement Act (CVPIA), the Reclamation Reform Act (RRA), the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA) and the California Environmental Quality Act (CEQA). We urge the Bureau to withdraw the proposed renewal contracts and reinstate negotiations after adequate environmental review and consultation have been completed.

Respectfully submitted,



Jim Metropulos
Senior Advocate
Sierra Club California



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Conservation Director
Friends of the River

Barbara Barrigan-Parrilla
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WINNEMEM WINTU TRIBE

Charlotte Hodde
Water Program Manager
Planning and Conservation League

Conner Everts
Executive Director
Southern California Watershed Alliance

Frank Egger, President
North Coast Rivers Alliance

Bruce Tokar
Co-Founder
Salmon Water Now

ENDNOTES

¹ Nicholas Brozovic et. al. "Trading Activity In An Informal Agricultural Water Market: An Example From California," Department Of Agricultural and Resource Economics University of California 2001. Pg 1.

² See attached Westlands Land Retirement Map. See: Agreement Among The United States, Westlands Water District, And The Peck Plaintiffs For Settlement Of The Sumner Peck Lawsuit Dated: December 11, 2002

³ In addition, the map depicting the contract service area boundary for Westlands (Exhibit A of the Contract) has not been updated to reflect the retired lands no longer being eligible to receive CVP water. See map at:

http://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2006_foc/index.html and in the DEA for 2010 Westlands Interim Contract Renewal at: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=4817.

⁴ Jul 2, 2008, "DWR announces up to 50,000 acre-feet of groundwater will be pumped from wells within Westlands Water District into the California Aqueduct for transfer to Semitropic WD."

www.acwa.com/enNewletter/index.asp?issue+7/2/2008

⁵ ibid. Nicholas Brozovic et. al. Department Of Agricultural and Resource Economics University of California 2001. pg 2.

⁶ See USBOR Draft EA/IS for 25-Year Groundwater Pumping-Water Transfer Project for the San Joaquin River Exchange Contractors Water Authority. August 27, 2007 USFWS Comments—proposed action would degrade groundwater, increase selenium concentrations in DMC sumps, lessened water quality in the Main Canal and add selenium and mercury loads into refuges and pump mercury and selenium into the Delta Mendota Canal upstream of the Mendota Pool where Mercury levels in fish are already at unsafe levels and the San Joaquin River is listed on the 2006 Clean Water Act Section 303 [d] list. Pp 1-20

⁷ The U.S. Geological Survey, in cooperation with the SJVDP and as part of the Regional Aquifer System Analysis Program completed a report on the sources, distribution, and mobility of selenium in the San Joaquin Valley, California (Gilliom and others, 1989). This report noted the following with respect to groundwater pumping in the drainage impacted area: *"The large quantity of high-selenium ground water (50 to 1000 pg/L) in the general range of 20 to 150, feet below the water table makes it desirable to use management practices that leave this water where it is, rather than bring it to the land surface or allow it to move into parts of the aquifer that may be used for water supply. Water-table control strategies based on increasing groundwater discharge need to be carefully evaluated with respect to their potential to affect the movement of water with high selenium concentrations movement of water with high selenium concentrations."*

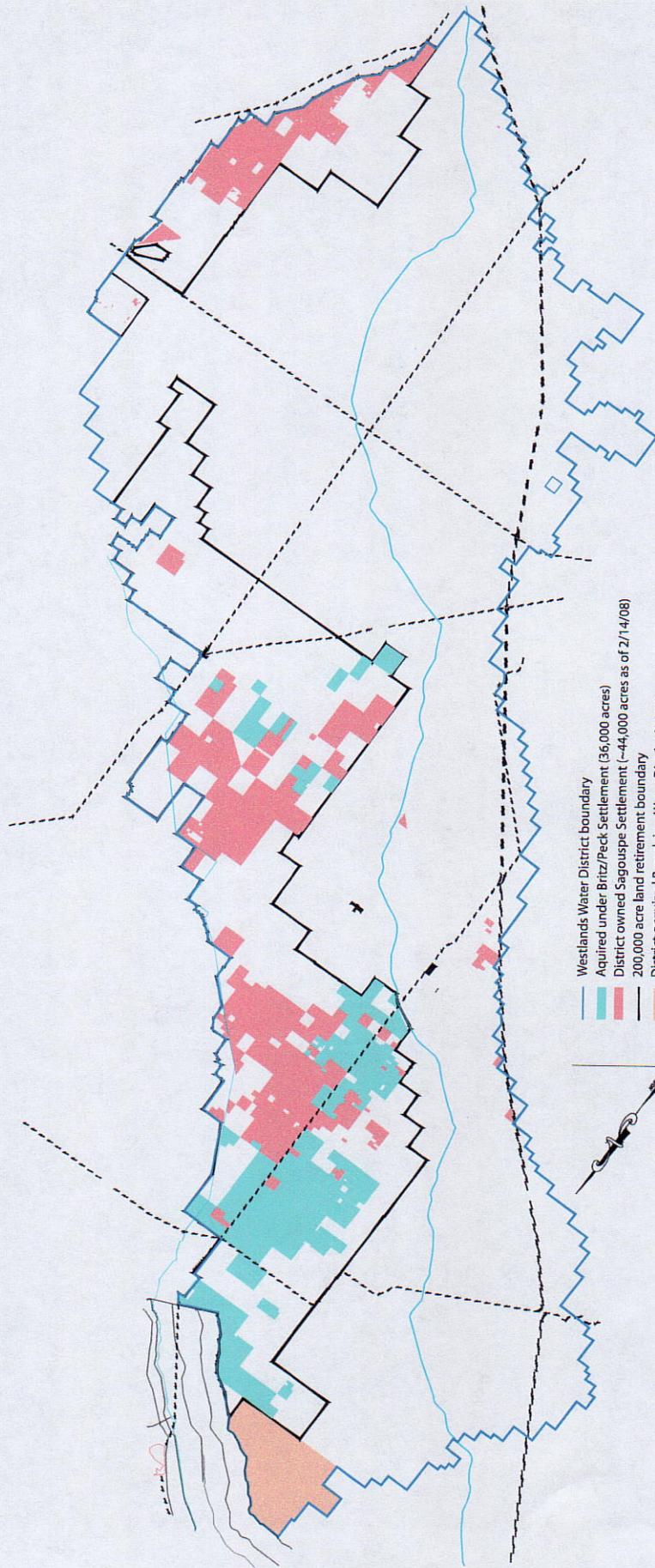
⁸ Firebaugh Canal Water District and Central California Irrigation District v U.S., Westlands Water District, Panoche Water District, Panoche Drainage District, Broadview Water District and San Luis Water District. Fifth Amended Complaint for Declaratory and Injunctive Relief and Injunctive Relief for Damages. pp 5.

⁹ Bureau of Reclamation: Reimbursement of California's Central Valley Project Capital Construction Costs by San Luis Unit Irrigation Water Districts GAO-08-307R December 18, 2007 Full Report (PDF, 23 pages)

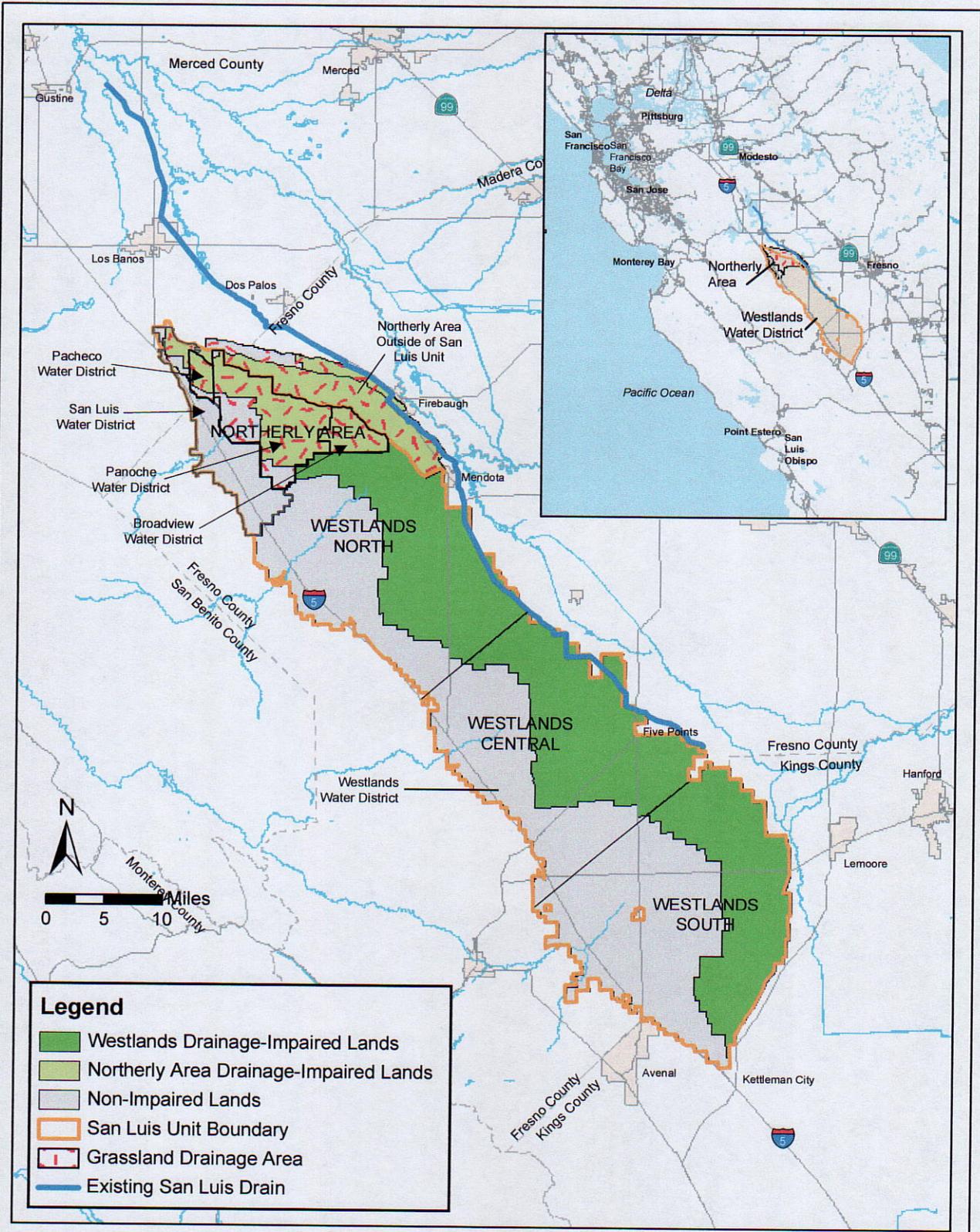
¹⁰ See the San Luis Drainage Feature Re-evaluation Record of Decision [2006] Bureau of Reclamation pg. 105. http://www.usbr.gov/mp/sccaosld/docs/sldfr_report/slfr_3-08_v02.pdf

¹¹ See Reclamation Reform Act of 1982, Public Law 97-293, 96 Stat. 1263.

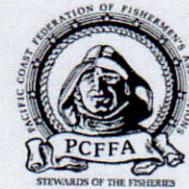
¹² Environmental Working Group "Soaking Uncle Sam." Why Westlands Water District Contract is All Wet." September 14, 2005. Farm operations receiving between \$2 M to \$1.7 M in subsidies: Woolf Enterprises; Dresick Farms Inc; Vaquero Farms; S&S Ranch; Harris Farms; Burford Ranch; Murrieta Westland Trust. EWG found that 37 percent of the farms in Westlands double dipped getting both water, power and crop subsidies.



- Westlands Water District boundary
- Acquired under Britz/Peck Settlement (36,000 acres)
- District owned Sagoupe Settlement (~44,000 acres as of 2/14/08)
- 200,000 acre land retirement boundary
- District-acquired BroadView Water District (9,300 acres)



San Luis Drainage Feature Re-evaluation	Drainage Study Area	Figure ES-2
17324004		



December 13, 2010

Rain Healer
South Central California Area Office
U.S. Bureau of Reclamation
1243 N St
Fresno, CA 93721

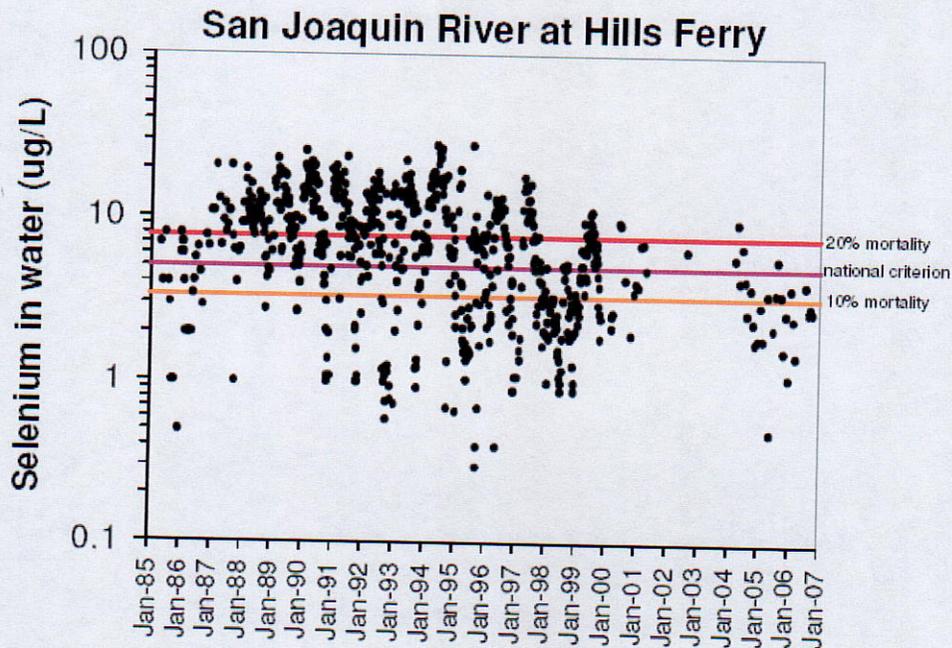
Subject: Comments on the Draft Finding of No Significant Impact [FONSI] San Luis Water District's [SLD] and Panoche Water District's [PWD] Water Service Interim Renewal Contracts 2011-2013 FONSI-10-070.

Dear Ms. Healer:

We oppose the adoption of the above referenced FONSI. The proposed contracts and Draft FONSI supported by the Draft Environmental Assessment Number EA-10-070, San Luis Water District's Panoche Water District's Water Service Interim Renewal Contracts 2011-2013 ignore the increased environmental impacts caused by two more years of diversions under these contracts. Comments by the above groups and others were basically ignored.¹

The draft documents are legally inadequate and must be withdrawn. These water contracts whereby provisions of the 1963 water contracts are simply renewed do not reflect the realities of water quality impacts, endangered species impacts, and water supply impacts. Nor do these contracts reflect the water quality permit obligations and mitigation to the areas of diversion that supply this diverted water from the Delta including the Trinity River, Sacramento River and American River. This water is diverted to irrigate toxic selenium soils resulting in return flow pollution to the Delta and Bay estuary. This polluted groundwater and discharge to the San Joaquin River and surrounding wetland areas impacts endangered species along with the environmental and economic well being of the estuary.² As you can see from the concentration data below, discharges from these districts and others into the San Joaquin River increase the mortality of federally listed endangered Chinook salmon, Central Valley Steelhead and North American green sturgeon and impact their critical habitat.

Figure 1. Selenium concentrations measured in the San Joaquin River at Hills Ferry (data from the Central Valley Regional Water Quality Control Board).



Continuing to divert water to these toxic lands and discharging pollution to the San Joaquin River will only increase the impacts to these endangered species and the garter snake, endangered San Joaquin Kit fox and threatened Delta smelt along with critical habitats. Further, the contract renewals also do not reflect the legal obligations of the Bureau of Reclamation to the areas of origin under their water rights permits.

The Bureau continues to ignore its legal obligations under the Central Valley Project Improvement Act and other state and federal laws to incorporate meaningful reforms in these new contracts and accurate analysis of their impacts in the environmental reviews. For the past decade environmental and federal agencies have raised these concerns that have been ignored. Despite repeated requests to accurately reflect the law the Bureau also continues in this document to suggest that it is an **obligation of the Secretary to** "renew water contracts." This failure to accurately reflect the Secretary's discretion has been repeatedly brought to the Bureau's attention and yet this inaccurate recital is repeated again in this FONSI.

PWD and SLWD have uncontrolled groundwater pollution, polluted drainage and runoff that are not under required water discharge permits from the State Water Resources Control Board, violate Clean Water Act Standards and violate both the Federal and State Water Quality Antidegradation policies. Further we request a full Environmental Impact Statement be completed so the decision makers and the public can:

1. Make an informed decision regarding the impact of approving specific water contract quantities that exceed available supplies;
2. Assess the Bureau of Reclamation's compliance with duties under Federal and State law including the goals and provisions of the 1982 Reclamation Reform Act [RRA] and the 1992 Central Valley Project Improvement Act [CVPIA]. Federal and State law require water delivered is beneficially used, encourages conservation, and will not cause further environmental harm, pollution, or degradation to the waters of the state and other beneficial uses of the land or Public Trust Values.
3. Assess compliance with regulatory actions under the Clean Water Act, the CVPIA, the Migratory Bird Treaty Act, Indian Trust Assets and the Endangered Species Act from renewing contract quantities that do not accurately reflect the delivery capability and water availability of the CVP.

Analysis of the environmental documentation is insufficient to support a finding of no significant impact for the renewal of the San Luis Water District's [SLD] and Panoche Water District's [PWD] Water Service Interim Renewal Contracts 2011-2013 and it does not meet the legal requirements of the National Environmental Policy Act [NEPA].

Further we find the exclusion from the analysis of the environmental impacts of changes to the contractor's service areas, water transfers and exchanges, contract assignments, Warren Act Contracts and drainage to be arbitrary because it fails to provide any analysis or information so there can be an informed decision regarding the environmental impacts from these actions. Nor does this meet the standard of providing sufficient information for public review and comment. The reliance on individual environmental assessments or other programmatic decision making documents segments the information and fails to fully disclose the cumulative and the compounding nature of the environmental impacts

from these proposed actions and the exaggerated quantities of water in these contract renewals.

Finally this document is tiered to a variety of environmental documents including the CVPIA Programmatic EIS (PEIS). Some of the documents are not complete, some of the documents rely on different baselines than this project, and some documents rely on untested or unproven promises of environmental mitigation or benefit. Use of an environmental assessment instead of an environmental impact statement limits full public disclosure and full public comment provisions that are necessary given the complicated nature of the issues raised in contract renewals including impacts to other water users in the state, pollution, water transfers and use of public wheeling facilities.

The environmental analysis provided does not fully disclose the site-specific circumstances of the SLWD and PWD contracts and the specific impacts environmental impacts caused by diverting water to irrigate these agricultural lands. Further the baseline in the various documents is different rendering the analysis of impacts incomplete. Actions taken under this FONSI are not consistent with the project description in the various ESA consultations could render the analysis of impacts on the survival and recovery of proposed and listed species invalid for the proposed action. The baseline used for the consultations is different than the baseline under the proposed project. The public is denied the opportunity to fully evaluate the impacts to endangered species because the biological assessments were not included in the document.

The Draft FONSI supported by the Draft Environmental Assessment Number EA-10-070 does not meet the legal requirements of the National Environmental Policy Act (NEPA). Specifically the document is deficient for the following reasons:

- Insufficient information is provided to make an informed decision of no significant impact.
- Impacts from federal actions associated with the interim contract water delivery were arbitrarily excluded from the analysis, including but not limited to, the impacts from water transfers and exchanges, contract reassignments, water delivery from the California Aqueduct and changes to the contract service areas or places of use.
- The full range of alternatives was not analyzed in the supporting environmental documents including reduced contract deliveries.
- The analysis of the impacts from the implicit promise of unsustainable water contract quantities promised for delivery do not accurately reflect the delivery capability of the CVP, especially after regulatory actions under the Clean Water Act, the CVPIA and Endangered Species Act are considered. This "over commitment" of CVP supplies has adverse impacts that were not fully disclosed.
- Selection of a narrow study area precluded analysis and information needed to assess the impacts of the proposed action on other CVP contractors, surrounding agricultural lands and impacts to the sources of water such as the Delta, the Sacramento, Trinity and American rivers.

- There is little or no information on the direct, indirect and cumulative impacts of the proposed actions including among other impacts, mobilization of pollutants from applying imported water to toxic soils and movement from the irrigation of upslope toxic lands. Subsurface polluted ground water can contain extremely elevated levels of selenium, salt, boron, mercury and other toxic constituents that can migrate and/or adversely affect surrounding domestic wells, downslope agricultural farmlands, and surface waters and associated wetlands receiving drainage inputs, the San Joaquin River and Delta. Selenium is a potent reproductive toxicant to vertebrate species and can readily bioaccumulate to toxic concentrations in the food chain. We are particularly concerned with adverse selenium impacts to salmonids associated with discharges of polluted groundwater, sump water and drainage to the San Joaquin River.

Thank you for your consideration of our comments. We urge you to reject the proposed Finding of No Significant Impact and instead prepare an Environmental Impact Statement.

Respectfully submitted,



Jim Metropulos
Senior Advocate
Sierra Club California



Zeke Grader, Executive Director
Pacific Coast Federation of
Fishermen's Associations



Conner Everts
Executive Director
Southern California Watershed Alliance



Larry Collins
President
Crab Boat Owners Association Inc



Carolee Krieger
Board President and Executive Director
California Water Impact Network



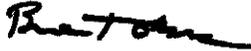
Bill Jennings
Chairman Executive Director
California Sportfishing Protection Alliance



Byron Leydecker, Chair
Friends of Trinity River



Jonas Minton
Senior Water Policy Advisor
Planning and Conservation League



Bruce Tokars, Co-Founder
Salmon Water Now

Attachment: Detailed comments

cc: Interested parties

DETAILED COMMENTS

1. The draft FONSI and supporting environmental document fail to analyze the ongoing impacts and continued impacts of water deliveries on water quality, soils or other natural resources from water to applied to contaminated soils. Insufficient information is provided to support the conclusion there will be “no effect on surface water supplies or quality” or the conclusion that there will be “no significant effect on groundwater supplies or quality.”[Pg.2 FONSI-10-070]

The area affected by the delivery of water under these interim contracts includes waters of the United States (the San Joaquin River and many of the west tributaries, such as Mud and Salt Sloughs and the Grasslands wetland channels) that are listed as impaired pursuant to the Clean Water Act. The 2005 Bureau of Reclamation's DEIS and Supplemental Information for Renewal of Long Term Contracts for San Luis Unit acknowledges that deliveries under these contracts have adversely altered both groundwater flow and quality (pp.3.8-4 and 3.8-6) and that all of the alternatives evaluated in the DEIS, including the no-action alternative (i.e. renewal of the contracts with current terms and conditions) would result in the continuing degradation of water quality in the area.

The draft FONSI and environmental documents do not analyze the irrigation of upslope lands as sources of selenium mobilization into drainage, ground or surface water. Studies since the early 1990's have established that irrigation and associated drainage from the San Luis Unit contribute significantly to the movement of pollutants,

particularly selenium, which affect surface and ground water within the region³. Selenium in soils from the San Luis Unit are mobilized by irrigation and storm water run-off [see 1990 Drainage Management Plan for the West San Joaquin Valley, California, Figure 6, p.28] with the highest concentrations of salts and selenium located down slope [Figure 2.5 San Luis Drainage Feature Re-evaluation Preliminary Alternatives Report, Dec. 2001]

According to EPA water deliveries from these contracts where selenium concentrations exceed water quality standards affect important resources such as the Grassland Ecological Area.⁴ Concentrations in some canals have reached levels 20 times the standard protective of aquatic health.⁵ EPA goes on to note, "*There is potential for the water deliveries to exacerbate mobilization of pollutants and movement (through shallow groundwater) into areas where there could be fish and wildlife exposure.*"⁶ Clearly the draft FONSI should have provided information on the San Luis Water District and Panoche Water Districts' role in groundwater accretions and discharges of pollutants into wetland channels and the San Joaquin River and identified the impacts to these wetlands and wildlife.

There is no information or analysis to support the draft FONSI and environmental documents finding that the proposed action "would have no effect on birds protected by the Migratory Bird Treaty Act (16 USC Section 703 et seq.)" In fact the assertion is not supported by existing data. Monitoring data in 2009 shows there has been harm to migratory bird eggs and increased mortality from irrigating these selenium lands

In addition, the draft FONSI's contention that the language in the Section 3404(c) of the CVPIA precludes the Secretary from considering reduced contract quantities as a project alternative is not accurate. The carte blanche elimination of this alternative is not consistent with Secretarial discretion contained in Section 3404 (c) and fails to consider the requirement that Secretary is required to ensure water is put to beneficial use.

The Draft FONSI and environmental documents should include both information on the relationships between irrigation in the San Luis Unit [Westlands and northern districts] and ground water movement downslope, in terms of flow and water quality. It should provide information on how the delivery of water to the San Luis Unit is adversely altering both groundwater flow and quality and the potential for movement (through shallow groundwater of pollutants (e.g. selenium) to the waters of the San Joaquin River and its tributaries, such as Mud and Salt Sloughs and the Grasslands Channels that are listed as impaired pursuant to the Clean Water Act.

Based on this information a full EIS should include mitigation measures, such as monitoring and adaptive tools, farm edge groundwater monitoring, water contract provisions, or changes in water contract amounts and location of water applied, which will reduce groundwater pollution and selenium mobilization.

Such alternatives and mitigation measures would not, however, address the need for environmental water to mitigate the impacts from the creation of such a nuisance or pollution. These additional mitigation measures are needed to meet state and federal law obligations under the Bureau's water right permits.

2. The FONSI for this water contract renewal narrowly defines the project and assumes the impacts of importing water and exporting pollution does not extend to the San Francisco Bay Estuary and Sacramento-San Joaquin Delta.

Exporting water supply from the Delta, which affects key habitat variables such as channel configuration, delta hydraulics, delta inflows and water quality are identified as one of the contributors in the decline of key fish species. The FONSI and supporting environmental documents exclude any analysis of these impacts from the proposed action. Further the FONSI and environmental documents exclude any analysis of Warren Act contracts, water transfers and exchanges, all of which could increase the diversions from the Delta under the proposed action to renew these contracts at quantities which exceed available supplies.⁷

Additionally the California Regional Water Quality Control Board, September 10, 2005, identified potential Delta impacts from constituents that originate in the San Luis Unit project area. In particular, analyses related to implementation of the salinity/boron TMDL have pollutant loads coming from sub-watersheds such as the Grasslands area, which includes the Northern contract area. Also the proposed action does not provide sufficient information or analysis from the combination of impacts that could result from this action and the recent federal action under the USBOR Grasslands Bypass ROD December 22, 2009 where selenium discharges that do not meet protective aquatic objectives will be discharged into tributaries of the San Joaquin until January 1, 2020.

3. The proposed action does not reflect legal and environmental constraints on water deliveries. The impact of this package of false promises to the financial markets and other CVP contractors is not disclosed.

Financial Assurances based on exaggerated water supplies are false and lead to increase risks to bondholders. The quantity of the interim contract renewals should be based on existing, developed project supplies. The needs assessment contained in the draft FONSI and environmental documents do not accurately reflect environmental needs, Indian Trust obligations, and Public Trust obligations. The environmental documents readily admit relying on a 2007 needs assessment that is faulty. In the environmental documents "the analysis for the Water Needs Assessment did not consider that the CVP's ability to deliver CVP water has been constrained in recent years and may be constrained in the future because of many factors including hydrologic conditions and implementation of federal and state laws".

The proposed action should accurately reflect realistic contract quantities with existing developed water supplies and reasonably foreseeable water availability. Failure to

truthfully reflect actual contract amounts can potentially lead to financial market speculation based on unrealistic water contract deliveries. The San Luis Delta Mendota Water Authority and its member districts, including the San Luis Water District and Panoche Water District, have already leveraged these federal water contracts to borrow from the financial markets in 2009 over \$50 million dollars.⁸ Even the environmental documents suggest retaining these inaccurate water quantities in the contracts provides assurances for investments. These are false assurances and could lead to substantial financial dislocations to bond holders and financial markets. These impacts have not been analyzed or disclosed.

All contracts should include an honest and full disclosure that water service contracts are not permanent entitlements. The rationale that these false representations provide assurance is misleading. Further the FONSI and supporting draft environmental assessment suggest that the Bureau is bound to this charade because of the PEIS for the CVPIA. NEPA compliance and the law require an accurate analysis of the impacts of a proposed project action. The cumulative effects of this exaggeration of water delivery quantities will only become more acute as senior water rights holders upstream develop their water supplies [See PEIS, Figures IV-79 and IV-80 and accompanying text.] These exaggerated contract amounts lead to false assurances to financial institutions and bond holders.⁹ These false assurances by the San Luis Water District and Panoche Water District use exaggerated water contract amounts as collateral claiming the water can be marketed outside of the district boundaries to buyers in Southern California and San Francisco.¹⁰ No analysis or information regarding the environmental impacts of water sales, transfers or exchanges is provided despite the fact numerous transfers are taking place within, outside and into the Westlands.

Environmental Impacts from Exaggerated Water Contract Amounts Are Not Disclosed. The draft FONSI and environmental documents allow for the continued obligation of contract water quantities above the amounts that are currently delivered. No detailed evaluation of the environmental effects caused by the delivery of water above currently delivered amounts is provided. Failure to provide this information leaves out critical impacts of the proposed action and understates the cumulative impacts. For example, the American River Division plays a key role in the operation of the CVP to meet Endangered Species Act [ESA] requirements, water quality regulations, and water supply demands within, and south of the San Francisco Bay-Delta.¹¹ A detailed analysis of these environmental effects is important because increased diversions from the American and Sacramento Rivers to meet these contract renewal amounts can adversely affect beneficial uses, such as water quality and habitat for threatened and endangered anadromous fishery.

4. The water contract quantities are arbitrarily fixed and renewed without regard to updated site specific situations and impacts.

5. Despite completion of the Programmatic EIS for the Central Valley Project Improvement Act (CVPIA PEIS), the Draft FONSI and environmental documents do not adequately address site specific impacts of the Proposed Action. These proposed environmental documents do not fill in the gaps contained in the CVPIA PEIS.

6. Given the changes in the CVP operation and specifically the potential increase of water deliveries to selenium soils within the San Luis Water District and Panoche Water District from exchanges, water transfers, Warren Act contracts or contract assignments along with the proposed changes to the Grasslands Bypass project and the proposed actions contained in this draft FONSI and environmental documents, consultation should be reinitiated with USFWS and National Marine Fisheries Service (NMFS) for the proposed action. The baseline of the original consultations has changed. These consultations need to analyze the cumulative effects of this proposed project along with new information regarding the impact of selenium and other contaminants upon the anadromous fishery in the San Joaquin River¹² and wildlife within the Study Area described in the Programmatic Environmental Impact Statement for the CVPIA.

7. Contract terms to include repayment of costs for the Trinity River Restoration Program as Operation and Maintenance costs pursuant to CVPIA Section 3406(b)(23) should have been included in the Proposed Action.

¹ We incorporate by reference: Comments of the Bay Institute and NRDC on Draft EA and Draft FONSI for the San Luis Unit interim renewal contracts (Central Valley Project, California); Sierra Club California, Friends of the River and the Planning and Conservation League January 29, 2010; and California Water Impact Network and California Sportfishing Protection Alliance January 29, 2010.

² Oppenheimer and Groeber 2004 noted, *The Grassland Subarea contains some of most salt-affected lands in the LSJR watershed. This subarea is also the largest contributor of salt to the LSJR (approximately 37% of the LSJR's mean annual salt load). Previous studies indicate that shallow groundwater in the LSJR watershed is of the poorest quality (highest salinity) in the Grassland Subarea (SJVDP, 1990).* The authors further found that, *The Grassland Subarea contributes approximately 400 thousand tons of salt and 490 tons of boron per year to the LSJR, which accounts for approximately 36 percent of the rivers total salt load and 50% of the rivers total boron load at Vernalis... Subsurface agricultural drainage from the DPA in the Grassland Subarea represents the most concentrated source of salt and boron in the LSJR Watershed."*

References: **Oppenheimer, E.I. and L.F. Groeber. 2004a. Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Salt and Boron Discharges into the Lower San Joaquin River. Draft Final Staff Report of the Central Valley Regional Water Quality Control Board, San Joaquin River TMDL Unit, Sacramento, CA, 121 pp.**

Available at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/vernalissaltboro

[n/index.shtml](#)

and

Oppenheimer, E.I. and L.F. Groeber. 2004b. Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Salt and Boron Discharges into the the impacts associated with this drainage discharge allowance for the GBP go beyond selenium Lower San Joaquin River. Draft Final Staff Report Appendix 1: Technical TMDL Report. Central Valley Regional Water Quality Control Board, San Joaquin River TMDL Unit, Sacramento, CA, 109 pp. Available at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/vernal盐_boron/index.shtml

Also see: G Fred Lee at the Bay Delta Science Conference in September 2010 suggested that discharges from the Grasslands Bypass Project to Mud and Salt slough were a significant source of nutrients contributing to the low dissolved oxygen (DO) and fish die-offs at the Stockton deepwater ship channel.

He stated that high phosphorus and algal "seeding" from the drainage resulted in algal blooms further downstream that strips the San Joaquin River of DO in Stockton. He also noted that the low DO at Stockton could impair fall run salmon migration. A copy of Dr. Lee's presentation is available at:

<http://www.gfredlee.com/psjriv2.htm>

With respect to mercury pollution of the San Joaquin River and Delta from Westside irrigation practices see **Reference: Wood, M.L., C. Foe, and J. Cooke. 2006. Sacramento – San Joaquin Delta Estuary TMDL for Methylmercury. Draft Staff Report for Scientific Peer Review. Central Valley Regional Water Quality Control Board, Rancho Cordova, CA, 177 pp.** Available at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/scientific_peer_review/delta_hg_rpt.pdf

³ "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley," September 1990 [Bureau of Reclamation, Fish and Wildlife Service, US Geological Survey, Ca Dept. of Fish and Game and California Department of Water Resources.]

⁴ EPA Detailed comments for the DEIS and Supplemental Information for Renewal of Long-Term Contracts for San Luis Unit Contractors, CA, April 17, 2006.

⁵ Ibid.

⁶ Ibid. Attachment A. See also EPA comments re The Notice of Intent for Long-term Contract Renewal, Central Valley Project, California, January 8, 1999. And EPA comments re Proposed Long Term Contracts and Associated Environmental Assessments. December 8, 2000.

⁷ See Public Hearing 1998 Bay-Delta Water Rights Hearing, Wednesday, April 7, 1999 pp 13231-32
"Mr. Sagouspe [President of San Luis Water District]: ..Or another alternative was to transfer water from other districts or purchase other supplies that landowners individually could do or the district could do....A lot of farmers in all the west side districts farm in more than one district. So, they will transfer water between districts... There has been water available on certain occasions from some of the state contracting districts. There has been various means of and ways to get certain amounts of water..."

⁸ Fitch Rates \$50MM San Luis & Delta Mendota Water Auth., California Revs 'A'; Outlook Stable © Business Wire 2009-03-05. The Fitch Bonding Agency states, "The inherent value in the district's extensive water entitlements through its role as the contractor with the federally owned CVP is a credit strength."

⁹ See Public Hearing 1998 Bay-Delta Water Rights Hearing, Wednesday, April 7, 1999 pp 13208-09

“Mr. Sagouspe [President of San Luis Water District]: In the years since 1977, the district has borrowed money a number of times. In each case, but one, the bonds were certificates of participation, were sold to the public at large and the debts were secured by the district's ability to bill these lands for water deliveries into successive lands based on the value of irrigated farmland.”

¹⁰ *Ibid.* Business Wire 3-5-09. “There is concentration amongst WWD water purchasers. But offsetting this risk somewhat is the value of the cash crops farmed in the district (about \$1.3 billion in fiscal 2008) and the absence of alternative/equivalent supplies or infrastructure to deliver water. In addition, WWD potentially has the ability to sell and transfer water rights outside the district should agriculture cease to be economic, as the demand for water in southern California and the San Francisco Bay area by users with connectivity to the CVP is very high.”

¹¹ FEIS for Renewal of Long-Term Municipal and Industrial Service Contracts for the American River Division, Central Valley Project [CVP] (pgs. 4-4 and 4-6)

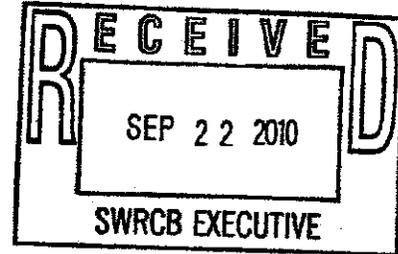
¹² C-WIN Letter to Hayes regarding the Dr. Lemly Memo 12-9-09



Public Comment
SJR Selenium Control BPA
Deadline: 9/22/10 by 12 noon

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Sacramento Area Office
650 Capitol Mall, Suite 6-300
Sacramento, California 95814-4706

SEP 22 2010



Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, California 95814

Re: Comment Letter – San Joaquin River Selenium Control Plan Basin Plan Amendment

Dear Ms. Townsend:

NOAA's National Marine Fisheries Service (NMFS) provides this comment letter in response to your September 1, 2010. Notice of Opportunity to Comment on the Proposed Approval of Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) to Address Selenium Control in the San Joaquin River Basin.

On November 9, 2009, NMFS provided a concurrence letter (2009/04097) stating that the third Use Agreement of the Grasslands Bypass Project is not likely to adversely affect anadromous fish species and their designated critical habitat. Since this concurrence letter was written, the following new information has become available.

Water quality data in the San Joaquin River at Hills Ferry beginning in the fall of 2009 through January 2010 indicate prolonged, elevated selenium levels. These levels were measured as high as 52.0 parts-per-billion on January 20, 2010. The San Joaquin River Restoration Program (SJRRP) Water Year (WY) 2010 Interim Flows Project was in effect at that time; however, the flows had not reached the confluence of the Merced River until the spring of 2010. This means that the elevated levels of selenium were not from the Interim Flows project but from nonpoint sources closer to Hills Ferry. Selenium concentrations this high will be problematic in restoring spring- and fall-run Chinook salmon (*Oncorhynchus tshawytscha*) to the upper reach of the San Joaquin River. In addition, the regular reoccurrence of high selenium levels for prolonged periods could negatively affect Central Valley (CV) steelhead (*O. mykiss*) and the Southern distinct population segment (DPS) of North American green sturgeon (*Acipenser medirostris*), both of which are listed as threatened under the Endangered Species Act (ESA).

On June 2, 2010, NMFS published the final rule, in 75 FR 30714, to establish take prohibitions for the threatened Southern DPS of North American green sturgeon. The rule states, "Furthermore, the national standards for use of pesticides and toxic substances may not be conservative enough to adequately protect the Southern DPS as was found for listed salmonids in recent draft and final jeopardy biological opinions issued by NMFS to the EPA (NMFS 1998, NMFS 2000, NMFS 2008). Thus, programs to aid agricultural producers in meeting NMFS-imposed water quality standards may be required to minimize adverse impacts on the Southern DPS." The USEPA Region IX is currently in the process of updating selenium water quality standards as required by the California Toxics Rule to meet a protective level.



Newly published studies have also become available regarding selenium toxicity and effects to green sturgeon. For example, larval green sturgeon experienced higher mortality than larval white sturgeon when exposed to selenium stress (Silvestre *et al.* 2010). Elevated loading into the Bay Delta system over an extended period of time could contribute to these effects.

In the concurrence letter for the SJRRP WY 2010 Interim Flows Project, NMFS supported the need for water quality monitoring as part of the project description to evaluate potential changes in water quality (including selenium) that could adversely affect anadromous fish. The potential effects of the WY 2010 Interim Flows on selenium levels at Hills Ferry and downstream are currently under review. The high levels observed in the San Joaquin River at Hills Ferry from August 2009 to January 2010 are a cause for concern. Table IV-4 in the Proposed Amendments to the Basin Plan summarizes the proposed changes in timeline and selenium water quality objectives for non-point sources in the San Joaquin River between Mud Slough (north) and the confluence with the Merced River. Changing the water quality objective from a 5 ug/L 4-day average to a 15 ug/L monthly mean could allow significant elevation(s) in selenium levels that could cause take of listed anadromous species in the lower San Joaquin River Basin and Delta. NMFS is concerned that increasing the selenium water quality objective for non-point sources on the San Joaquin River between Mud Slough and the confluence with the Merced River (i.e., outside the scope of the Grasslands Bypass Project) would encourage outside parties to discharge selenium laden agricultural tailwaters. NMFS supports water quality criteria extending upstream to Mud Slough as well as the overall Grasslands Bypass Project objectives of continuously improving water quality in the San Joaquin River and maintaining viability of agriculture in the Grasslands Bypass Project area. NMFS, therefore, supports extending the Basin Plan Amendment compliance date for meeting selenium objectives in Mud Slough and the San Joaquin River from the confluence with the Merced to Mud Slough for an interim period of two years, in concurrence with the US Fish and Wildlife Service's September 22, 2010, comment letter. This would provide additional time to study, monitor, and reduce selenium levels prior to the introduction of spring- and/or fall-run Chinook salmon, which is to occur no later than December 31, 2012, as required in the Stipulation of Settlement in *NRDC, et al. v. Kirk Rodgers, et al.*, as well as explore the downstream effects to green sturgeon and salmonids present in the San Joaquin River basin and Delta. A longer compliance date extension may result in risks to the ESA listed species mentioned previously as well as the required reintroduction.

Please contact Ms. Leslie Mirise at (916) 930-3638, or via email at Leslie.Mirise@NOAA.gov, if you have any questions regarding this project or require additional information.

Sincerely,



For
Howard Brown
Acting Supervisor, Central Valley Office

cc: Copy to file -- ARN 151422SWR2001SA5967
NOAA Fisheries-PRD, Long Beach, CA
Joe Dillon, NOAA Fisheries, Santa Rosa, CA

NMFS 2010, 75 FR 30714, June 2, 2010, Endangered and Threatened Wildlife and Plants: Final Rule Making to Establish Take Prohibitions for the Threatened Southern Distinct Population Segment of North American Green Sturgeon. Final Rule.

Silvestre, F., J. Linares-Casenave, S.I. Doroshov, D. Kultz. 2010. A proteomic analysis of green and white sturgeon larvae exposed to heat stress and selenium. *Science of the Total Environment*, Vol. 408, pp. 3176-3188.



NORTH

COAST

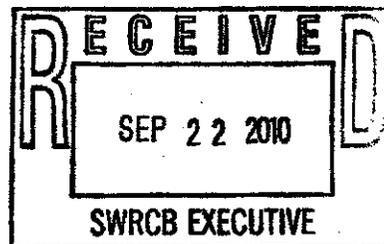
RIVERS

ALLIANCE



September 22, 2010

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
I Street,
Sacramento, CA 95814
E-mail <commentletters@waterboards.ca.gov>



Subject: Comment letter- San Joaquin River Selenium Control Plan Basin Plan Amendment

Dear Ms. Townsend:

Thank you for the opportunity to provide input concerning the proposed San Joaquin River Selenium Basin Plan Amendment which, will allow continued selenium discharges to Mud Slough and the San Joaquin River in excess of Basin Plan Water Quality Objectives. As we understand it, the proposed action is to delay implementation of the protective selenium standard of 5 $\mu\text{g/l}$ (4 day average) Basin Plan Objective in Mud Slough (north) and the San Joaquin River from Mud Slough to the Merced River from October 1, 2010, until December 31, 2019. The amendment also proposes a **new relaxed pollution control objective of 15 $\mu\text{g/l}$ (30 day average) interim "Performance Goal"** for the same water bodies effective December 31, 2015.

Sierra Club California, Friends of the River, Friends of Trinity River, Pacific Coast Federation of Fisherman's Associations, Planning and Conservation League, North Coast Rivers Alliance, Southern California Watershed Alliance, other environmental groups and some of our members (Environmental Coalition) submitted extensive written and oral comments to the Central Valley Regional Water Quality Control Board for the

hearing on May 27, 2010. We incorporate those comments by reference. Most of the comments were either ignored completely, or insufficient responses were given by Regional Board staff.

We recommend that the proposed Basin Plan Amendment NOT be granted. The proposed Basin Plan Amendments effectively sanction pollution of Mud Slough, the San Joaquin River, and ultimately the Sacramento-San Joaquin Delta, by failing to enforce science-based protective water quality standards for selenium and allowing the continued contamination of these water bodies. Too much selenium in streams kills or deforms fish and other aquatic life, including waterfowl, and is a human-health concern in drinking-water supplies. Selenium is one of a number of contaminants that are discharged from the federally owned San Luis Drain directly into the waters of the state. This failure to enforce protective selenium water quality objectives transfers pollution from these Grassland drainers through this federal drain to the waters of the state, harming beneficial uses of these waters for our members' recreational use, domestic water supply, public health and public trust values.

The Central Valley Regional Water Quality Control Board believes that controlling this selenium pollution at its source—the export of Delta water to irrigate toxic selenium soils and then sending the drainage selenium pollution back—is not within its regulatory authority. Such control of pollution and unreasonable uses of water, however, certainly is within the State Board's authority.¹

BACKGROUND

Fourteen years ago, the Regional Board implemented the existing selenium control program, which requires compliance with a protective standard (5 µg/L) by October 1, 2010 for Mud Slough (north) and the San Joaquin River above the Merced River. The proposed amendment, if finalized, would substantially weaken the Basin Plan's existing program by delaying the selenium objective in these waterbodies by another nine years, three months. This open-ended extension would needlessly facilitate additional discharge of selenium-contaminated water, vitiating compliance with key provisions of

¹ See Racanelli Decision (*United States v. State Water Resources Control Board*, 182 Cal.App.3d 82, 130 (1986)):

We perceive no legal obstacle to the State Board's determination that particular methods of use have become unreasonable by their deleterious effects upon water quality. Obviously, some accommodation must be reached concerning the major public interests at stake: the quality of valuable water resources and transport of adequate supplies for needs southward. The decision is essentially a policy judgment requiring a balancing of the competing public interests, one the Board is uniquely qualified to make in view of its special knowledge and expertise and its combined statewide responsibility to allocate the rights to, and to control the quality of, state water resources. ([Water Code] § 174.) . . . We conclude, finally, that the Board's power to prevent unreasonable methods of use should be broadly interpreted to enable the Board to strike the proper balance between the interests in water quality and project activities in order to objectively determine whether a reasonable method of use is manifested.

the Basin Plan and the Clean Water Act, as well as state policy for water quality control. (See Wat. Code section 13146.)

Despite significant concerns of the United States Environmental Protection Agency ("EPA") and United States Fish and Wildlife Service ("USFWS") regarding the harmful impacts of amending the waste discharge requirements to allow increased selenium discharges for such a prolonged period and the potential for violations of federal environmental standards, the Regional Board rejected a feasible and less risky alternative put forth by a coalition of environmental groups to limit the amendment for a period of two years. For the following reasons, this Environmental Coalition believes the Regional Board's decision is unsupportable due to its conflict with federal and state laws and policies. We request that the State Board instead issue a cease and desist order to stop this pollution and use its authority to regulate this contamination.

APPROVAL OF THE OPEN-ENDED EXTENSION WOULD NEEDLESSLY PRECIPITATE CONFLICT WITH FEDERAL AGENCIES AND FRUSTRATE CLEAN WATER ACT COMPLIANCE.

As the Regional Board's Staff Report acknowledged, "[a]ny proposed changes to the Regional Water Board Basin Plans must be consistent with existing Federal and State laws and regulations..." (Staff Report, p. 23.) Both the EPA and USFWS raised concerns regarding the adequacy of the Staff Report's analysis and the proposed amendments themselves. The points raised by the federal agencies with responsibilities over the water quality and wildlife affected by the proposed amendments underscored those raised by the Environmental Coalition in their own comments to the Regional Board. None of the Regional Board's responses adequately addressed these concerns.

1. Environmental Protection Agency (EPA)

The EPA's concerns, which went substantially unanswered, are of particular importance. EPA confirmed that extending the Basin Plan's compliance timetable is an "Amendment," reviewable by the EPA under section 303(c) of the Clean Water Act. Section 303(c)(2) requires the EPA Administrator to review the proposed revisions, which must among other things "protect the public health or welfare, enhance the quality of the water and serve the purposes of the Act." Where the revised standard does not meet the Clean Water Act's requirements, sections 303(c)(3) and 303(c)(4) empower the EPA Administrator to specify changes, and if needed, to adopt a new standard.

When enacted in 1972, the Federal Water Pollution Control Act Amendments intended to *eliminate* by the year 1985 the discharge of pollutants into the nation's navigable waters. (*City of Burbank v. State Water Resources Control Bd.*, 35 Cal. 4th 613, 628 (2005) [emphasis in original].) The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins ("Basin Plan") was implemented in furtherance of that goal. The Staff Report asserts that it is in compliance with the Clean Water Act because "[t]he proposed amendments will not change the water quality objectives that

now protect [Salt Slough, wetland water supply channels, and the San Joaquin River]. The amendments simply allow additional time for the objective to be met in Mud Slough [north] and the San Joaquin River above the Merced in a manner the dischargers find feasible." (Staff Report, p. 27.) This contention is untenable. The proposed amendments, if approved, would remove the protective water quality standard of 5 µg/L set to be in effect on October 1, 2010, and would authorize proceeding without a protective selenium water quality standard in place until December 31, 2019. Further, the amendment will continue the practice of merely shifting the pollutants from Salt Slough to Mud Slough and continue discharge of these highly toxic pollutants into the San Joaquin River, Sacramento-San Joaquin Delta, estuaries and bay.

Indeed, the EPA even doubts that this December 31, 2019 deadline would be met. In its comment letter, the EPA questioned the attainability of the Regional Board's basis for the extension of the compliance timeline, namely, that it would give the dischargers' time to "seek additional funding, investigate and implement appropriate drainage treatment technologies." (Staff Report, p. 7.) The EPA expressed "concerns regarding the feasibility of the Grassland Bypass Project (GBP) operators being able to implement appropriate drainage treatment technologies by December 31, 2019" and instead, "believe[d] it would be prudent for the [Regional] Board to consider other approaches to drainage management that could provide alternative means of meeting the proposed performance goal by 2015 and the final water quality objective by 2019," such as a targeted removal of lands that contribute high selenium inputs and rotational land fallowing. (EPA Comment Letter, April 26, 2010.) The Regional Board's responses to these comments—that the dischargers would have to submit a report to the Regional Board, and that the Board cannot mandate that land be retired to comply with the water quality objectives—were inadequate. (See Responses R1a-C, R1c-C, and R2-USEPA.)

Moreover, the Regional Board's statement that "[d]ischargers must comply with the Basin Plan and their Waste Discharge Requirements, but the Board does not dictate how compliance is achieved" (R2-USEPA) does little to allay concerns about actual compliance when, after having 14 years to meet the standard, the dischargers receive a nine year, three month extension.

The EPA also called into question the Regional Board's "No Project Alternative" scenario. Under the Staff Report's No Project alternative, "the multi-agency agreements and drainage management organizational structure could dissolve since there would no longer be any need for a Use Agreement." (Staff Report, p. 20.) Only by assuming that there would be a collapse in the cooperative work in the grasslands could the Regional Board conclude that "[o]verall, long-term and cumulative impacts of the proposed alternative are anticipated to be more environmentally favorable than the No Project Alternative due to the continuation of the current framework for multiple agency coordination." (Staff Report, p. 20.) The EPA comment letter notes that because "there are other programs and commitments that could step in if necessary [such as Westside Drainage Plan and/or Irrigated Lands Regulatory Program, or "ILRP"]," the No Project scenario and the serious environmental impacts that would result from such a "collapse" in cooperative work may be "overstated." (EPA Comment Letter, April 26, 2010.)

In response to similar concerns raised by the Environmental Coalition (several of whom are signatories to this letter) the Regional Board responded:

"[The] draft GBP EIS/DEIR authors informed staff that continuation of coordinated regional efforts is uncertain if the Use Agreement is not extended. The possibility that regional cooperation may disappear without the Amendments does not change the Board's authority or responsibility to regulate, but it does raise logistical and policy issues that would take time to fully work out, and environmental impacts that are minimized or avoided now through regional monitoring and management could occur during the transition to issuance and enforcement of individual orders. There would be a very real possibility of increased impacts to drainage-area wildlife while the selenium control program is transitioned from regulating a single discharge to regulating multiple discharges; as well as the anticipated impacts to agriculture from lack of adequate drainage as described in the GBP EIS/EIR." (Response to Comments, R1d-C.)

In response to the EPA's concerns, the Regional Board stated: "The Westside Regional Drainage Plan is not a regulatory document. If the cooperative regional drainage management effort dissolves, staff will consider all regulatory options, including issuance of individual WDRs or inclusion of the Grassland drainers in the ILRP." (Response to Comments, R3-USEPA.)

These responses fail to adequately address the EPA's suggestion that the ILRP could be an adequate substitute for the current cooperative agreement. And they fail to show how even with the speculated collapse of the cooperative agreement that the No Project Alternative is more environmentally damaging than having no protective selenium standards for the nine year, three month extension when admittedly the Regional Board would have other regulatory options and duties to implement.

Further, the staff report's description of what could occur under the No Project alternative indicates that regulation of these toxic contaminants could be done, but staff considers it more convenient to delay enforcement of the regulation until some unknown treatment can be developed. Both federal and state water quality statutes demand the waters of the state not be degraded, even if regulation is difficult. Discharge of pollution is not a right of drainers' use of imported water.

The EPA also outlined the potential for the Basin Plan Amendment to conflict with upcoming federal regulations. EPA indicated that it will soon publish revised CWA 304(a) aquatic life criteria for selenium. These standards will be *more stringent than even the 5 µg/L standard that would be implemented on October 1, 2010 if the more polluting amendment is not adopted*. EPA is also developing statewide wildlife criteria for selenium, pursuant to Endangered Species Act consultation with US FWS and National Marine Fisheries Service, for the California Toxics Rule. These criteria will most likely be more stringent than the revised draft national CWA 304(a) criteria, since they will be designed to protect threatened and endangered species in California.

2. The United States Fish and Wildlife Service (USFWS)

The USFWS issued nine pages of comments on the proposed Basin Plan Amendment, emphasizing its "longstanding interest in ensuring water quality in the Grasslands Ecological Area and the San Joaquin River," and its preparation of the December 18, 2009, Grasslands Bypass Project Biological opinion. (USFWS Comment Letter, received May 8, 2010.) Among other things, USFWS criticized the Regional Board's Staff report for failing to consider new water quality information which showed that selenium levels exceeded 20 µg/L on the San Joaquin River during at least 4 months in 2009, failing to address selenium water quality impairments and provide remedies, and failing to address cumulative impacts. In particular, the USFWS requested that the Regional Board consider the protection of Chinook salmon and steelhead in the San Joaquin River, including the reach between Sack Dam and the Merced River, in this Basin Plan Amendment. The Service believes that as written, the revised compliance schedule and lack of an enforceable water quality objective for selenium in the San Joaquin River upstream of the Merced River until December 31, 2019, is not protective of salmonids and could result in the loss of or harm to out migrating young salmon in the San Joaquin River. (USFWS Comment Letter, p. 6.)

The Regional Board responded that the "[one of the reports cited by USFWS] was considered in drafting the staff report; however modifications to the national criterion for selenium on which the San Joaquin River objective is based are outside the scope of the proposed Amendments." (Response to Comments, R3-USFWS.)

This response fails to address the USFWS' concern regarding the impacts of the proposed amendment on the protected species in the area directly affected by the proposed Basin Plan Amendment. The USFWS' concerns are squarely within the Regional Board's purview. As the USFWS remarked, the proposed 9 year extension and the contamination it would allow compounds the reasonable and beneficial use problem that has eluded effective resolution. Namely: *"Exceedences of the State-adopted, federally approved chronic water quality objective for selenium in the Grassland wetland water supplies are a continuing problem and are resulting in failure to protect designated beneficial uses, including use by wildlife species."* (USFWS Comment Letter, p. 3 [emphasis in original].)

The EPA and USFWS letters corroborate key problems with the proposed open-ended extension identified, and further detailed, in the Environmental Coalition comments. The proposed alternative of a two-year extension would better protect water quality and further federal laws and policies. The failure to adopt that alternative cannot be avoided simply via speculation about the failure of continued cooperation of regional stakeholders. We urge the State Board to take over the control and regulation of the selenium discharge from the San Joaquin Valley using the federal San Luis Drain to transfer this pollution to the San Joaquin River and Sacramento-San Joaquin Delta.

THE REGIONAL WATER BOARD'S APPROVAL CONFLICTS WITH STATE AND FEDERAL ANTI-DEGRADATION POLICY

Both USEPA (40 CFR §131.12) and the State of California (State Water Board Resolution 68-16) have adopted antidegradation policies as part of their approach to regulating water quality. The Regional Water Board must ensure that its actions do not violate the federal or state antidegradation policies. And yet they readily admit waiving the selenium pollution control standards for another 9 years and 3 months will degrade the waters of the state:

"With the amendments, water quality in Mud Slough (north) will remain vulnerable to degradation for up to an additional nine years, three months beyond 1 October 2010." (Staff Report, at p. 25)

"Continued discharge constitutes an increase in waste volume over conditions without the amendments." (Staff Report, p. 26.)

The Staff Report seemingly argues this degradation will only occur in Mud Slough and therefore it is acceptable:

The existing beneficial uses of Mud Slough (north) are irrigation (limited by naturally occurring salt and boron); stock watering; contact and non-contact recreation; warm freshwater habitat; spawning and wildlife habitat. Adopting the amendment will not change attainability of these uses relative to current conditions, but will result in temporary continuation of the potential impairment to warm freshwater habitat, spawning and wildlife habitat now occurring relative to no project. [Staff Report at p. 25]

This argument suggests that after over a decade of sanctioning the pollution Mud Slough and the San Joaquin River, such degradation necessarily sanctions further degradation by these drainers. Furthermore, this circular argument ignores the spread of selenium pollution throughout the lower San Joaquin and the Sacramento-San Joaquin Delta.

APPROVAL OF THE OPEN-ENDED EXTENSION WOULD FRUSTRATE IMPLEMENTATION OF KEY BASIN PLAN OBJECTIVES

Compliance with Basin Plan objectives and their implementation program is mandatory. (See *State Water Res. Control Bd. v. Office of Admin. Law* (1993) 12 Cal. App. 4th 697, 701-02.) The proposed nearly decade-long compliance extension comes in direct conflict with crucial Basin Plan Objectives, and the proposed amendment fundamentally alters the basin plan selenium pollution controls out of meaningful existence. Waiving enforcement or "implementation" for almost a decade has the effect of sanctioning pollution that will bioaccumulate in plant material, enter the food chain, and gather in groundwater and surface water supplies so as to significantly impact beneficial uses for decades.

The Regional Board admits that the "proposed time extension will . . . potentially result in violation of the selenium water quality objective in Mud Slough (north) and the San Joaquin River above the Merced River." (Staff Report Environmental Checklist, Section 9 "HYDROLOGY and WATER QUALITY.") The Basin Plan prohibits "[a]ctivities that increase the discharge of poor quality agricultural subsurface drainage." (Basin Plan, Resolution No. 96-147, p.16.) The record shows the Regional Board's action will allow discharge of selenium contaminated water into Mud Slough, a tributary of the San Joaquin River, in excess of Basin Plan water quality objectives. The Regional Board amendment fails to take action to stop selenium discharges to Mud Slough and the San Joaquin River in excess of Basin Plan Water Quality Objectives. The failure to stop this discharge of pollution will further deteriorate the waters of the state and the Sacramento-San Joaquin Delta and its tributaries.

Furthermore, the Basin Plan requires that "[w]here the Regional Water Board determines it is infeasible for a discharger to comply immediately with such objectives or criteria, compliance shall be achieved in the shortest practicable period of time (determined by the Regional Water Board), not to exceed ten years after the adoption of applicable objectives or criteria." (See Basin Plan, at III-2.00.) The ten years has not only already been exhausted, it has been exceeded, as the objectives were promulgated in 1996. (Resolution 96-147.) Allowing additional time for compliance is a violation of the Basin Plan. (See Basin Plan, at III-2.00.)

Under the Basin Plan disposal of drainage wastewater and dilution of salt is not a beneficial use and "cannot be satisfied to the detriment of beneficial uses." (Resolution No 96-146; Basin Plan, p. II-1.00, Para. 2.) As the USFWS outlined, the extension of the compliance timeline for almost ten years will harm the other beneficial uses recognized in the Basin Plan.

The regional board staff response is woefully inadequate, as it essentially asserts the best way to achieve "compliance" is to change the Basin Plan rules or not enforce them: "It should be noted that the proposed change in the compliance schedule conforms to the time frame in the Grassland Bypass Project Use Agreement. The proposed Amendments merely allow the Use Agreement to be implemented while remaining in compliance with our Basin Plan." (R2-USFWS at p.32.)

APPROVAL OF THE SELENIUM POLLUTION WAIVER IS NOT IN COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

The Regional Board invoked the regulatory exemption from the California Environmental Quality Act ("CEQA") for the Basin Planning process, arguing that its Staff Report and checklist were adequate to meet the further documentation required under Title 23, section 2377 of the California Code of Regulations. Instead of doing its own complete environmental analysis, the Regional Board relied almost exclusively on the EIS/EIR for the Grasslands Bypass Project (2010-2019), prepared by Bureau of Reclamation and San Luis & Delta-Mendota Water Authority, to satisfy CEQA. Delta-

Mendota certified the EIR on February 8, 2009, and filed its Notice of Determination with the State Clearinghouse on October 8, 2009. The Bureau's Record of Decision issued December 18, 2009.

However, the exemption for the certified state regulatory programs is not a blanket exemption from CEQA, as the agency must still comply with CEQA's policies, evaluation criteria and standards. The required environmental review must address all activities and impacts associated with a project. (*Laupheimer v. California* (1988) 200 Cal. App. 3d 440; *Environmental Protection Information Center, Inc. v. Johnson* (1985) 170 Cal. App. 3d 604.) The Regional Board must still provide responses to significant environmental objections, and must still properly analyze alternatives (including the No Project Alternative). (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal. 4th 105, 123.)

The Regional Board failed to satisfy even these basic requirements. The Regional Board improperly discounted crucial new evidence, postdating the 2009 EIS/EIR and directed specifically at the Regional Board's review and action on the Basin Plan amendment. For example, the Regional Board failed to consider the information contained in the 2010 EPA and USFWS letters, research biologist Dennis Lemly's findings in December 2009 regarding salmonid mortality rates caused by selenium discharges in the San Joaquin River, and Thomas Maurer's 2010 assessment of salmonids. These sources, as well as other comment letters, demonstrate that in its 2010 review, the Regional Board misidentified the No Project Alternative, evaded genuine assessment of the two-year extension alternative, and understated the project's significant environmental impacts. In addition to water quality and others, those impacts include impacts on the use of floodwaters, and on the protection of aquatic life and fisheries.

APPROVAL OF THE AMENDMENT – BASICALLY AN ENFORCEMENT WAIVER FOR SELENIUM POLLUTION – VIOLATES LAWS PROTECTING ENDANGERED SPECIES

The Regional Board failed to conduct adequate analysis under either federal or state endangered species laws. The Regional Board's citing of federal consultation letters with the Bureau of Reclamation – the NOAA NMFS Concurrence letter dated November 19, 2009 or the USFWS Biological Opinion dated December 18, 2009 – is insufficient for California Endangered Species Act ("CESA") compliance. Reliance on the NOAA NMFS Consultation dated November 19, 2009 is insufficient as the letter does not analyze a waiver of the 5 µ/L selenium standard that extends until January 1, 2020. Nor does the letter take into account new evidence of additional impacts from December 2009 and early 2010 provided by USFWS and Dennis Lemly. In addition, the Water Board failed to consider the cumulative impacts of the discharge allowed under the proposed Basin Plan Amendment on the San Joaquin River and Delta ecosystem, inhabited by several federally and state listed species. The Regional Board's entire statement regarding compliance with CESA in the Draft Staff Report is as follows:

"[California Department of Fish and Game ("CDFG")] has been working closely with the Bureau and Authority to craft the 2010-2019 Use Agreement's wildlife monitoring and protection and impact mitigation requirements." (Staff Report, p. 28.) This falls far short of CESA's requirement that either the CDFG issue concurrence statements for the NMFS and USFWS Biological Opinions, or issue separate CESA clearance for Delta Smelt, San Joaquin Kit Fox, Giant Garter Snake, Swainson Hawk Sacramento River winter-run Chinook, spring run Chinook, and other state-listed species affected by the Proposed Action.

We further recommend the State Board consider taking over the regulation and control of selenium discharges so that this selenium drainage pollution is not merely exported from the San Joaquin Valley to the Sacramento-San Joaquin Delta. We urge the State Board to exercise both its water quality, water rights and public trust authority to ensure this pollution does not further degrade the waters of the state and nation. The Central Valley Regional Water Quality Control Board believes controlling this selenium pollution at its source—the export of Delta water to irrigate toxic selenium soils and then sending the drainage selenium pollution back—is not within its regulatory authority. Such pollution control and unreasonable use is within the State Board's authority.

Finally, the Regional Board refuses to effectively address and regulate Westside upslope selenium contamination. State Board action should be undertaken to complete a watershed sediment/selenium reduction program to reduce upslope selenium inputs from Westlands and surrounding irrigated areas or to control upslope selenium contaminants during storm events.² This program should include the unregulated Delta Mendota Canal sumps that are within the project area and lands to the north of the project area that still discharge into the wetland channels with impacts to endangered species and aquatic ecosystems. Further, extensions of any Selenium waiver should be contingent on compliance with protective water quality objectives for salmon in the San Joaquin River upstream of the Merced, and contingent on compliance with compliance with the 2 ppb SE objective in the Grasslands wetland channels. The interim 2 year extension recommended to the Regional Board was ignored. Such an approach would provide the opportunity to see if treatment methods actually exist that are effective. It would also provide time to investigate control measures to reduce Se pollution in the San Joaquin River at Hills Ferry that exceed drinking water standards. We include the September 22, 2010 comments of C-Win, CSPA and AquAlliance by reference.

Thank you for the opportunity to comment.



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² See pages 89-91 of the May 27, 2010 transcript.

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