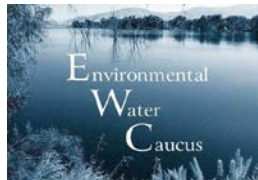




AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATERS



Save Our Streams Council



November 5, 2019

Ashley Peters,
Central Valley Regional Water Quality Control Board,
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Via Email: Ashley.Peters@waterboards.ca.gov

Re: Comments on Tentative Waste Discharge Requirements (WDRs) for Surface Water Discharges from the Grassland Bypass Project in Merced and Fresno Counties.

On behalf of the Pacific Coast Federation of Fishermen's Associations (PCFFA) and the Institute for Fisheries Resources (IFR), and the signatory organizations¹ on these comments, we

¹ Signatories Include: AquAlliance, California Water Impact Network, California Sportfishing Protection Alliance, Center for Biological Diversity, Crab Boat Owners Association, Environmental Water Caucus, Friends of the River, Planning and Conservation League, San Francisco Bay Keeper, Restore the Delta, and Sierra Club California join in this letter.

respectfully submit the following comments to the Central Valley Regional Water Quality Control Board (Regional Board) concerning the proposed Tentative WDRs (ORDER R5-2015-0094-01) for continued Surface Water Discharges from the Grasslands Bypass Project (GBP)² and implementing changes described in Notice of Availability (SCH No. 2007121110), draft Addendum to the 2009 GBP EIR/EIS and CEQA Initial Study Long-Term Storm Water Management Plan (GBP Storm Water Plan), 2020-2045.³ The Tentative WDRs would authorize continued discharges of stormwater commingled with selenium-laden agricultural drainage into the San Luis Drain and to Mud Slough (North) and the San Joaquin River from January 1, 2020 through December 31, 2045.

The GBP began in 1995 as a two-year program. Its federal use agreements have now been extended in three separate use agreements and numerous WDRs. All of the permits, environmental reviews, and findings that supported these use agreements and WDRs were predicated on zero discharge at the end of each agreement's term: first for 5 years, then 10 more years, and then 10 additional years. All that time—25 years in total—polluted discharge from the GBP was either entirely exempt from meeting protective water quality standards, or only required to meet relaxed, greatly reduced standards. Furthermore, over that 25-year-period the GBP steadily reduced both its monitoring of polluted discharges and its compliance with water quality standards.

The First Use agreement⁴ (1995) for the San Luis Drain authorized use of a 28-mile portion of the Drain by the San Luis Delta Mendota Water Authority (SLDMWA) to carry agricultural drainage water to Mud Slough. There was no stipulation to discharge stormwater. In fact, in a 1997 report titled, "A Storm Event Plan for Operating the Grassland Bypass Project"⁵, SLDMWA raised several issues regarding use of the Drain during major storm events in the GBP including:

1. *Storm water runoff carries sediment that should not be transported in the Grassland Bypass, or deposited in the San Luis Drain;*
2. *It is not possible during major storm events to separate agricultural drainage water from surface runoff and storm water flows;*

² Available at these links:

https://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/grassland/r5-2015-0094-01_tent_wdr.pdf

https://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/grassland/r5-2015-0094-01_tentwdr_noph.pdf

³ Available at these links:

http://sldmwa.org/grasslandbypass/NOA_CEQA_GBP%20Addendum%2008-14-19.pdf

<http://sldmwa.org/grasslandbypass/LTSWMP%20Initial%20Study%20080519.pdf>

<http://www.sldmwa.org/grasslandbypass/LTSWMP%20Addendum%20080519.pdf>

⁴ See <http://calsport.org/news/wp-content/uploads/GBP-First-Use-Agreement-1995.pdf>

⁵ See pages 2-3: "A Storm Event Plan for Operating the Grassland Bypass Project" by the Grassland Area Farmers and the SLDMWA, 1997.

3. *It will not be possible to divert all of the commingled surface runoff, storm water flows, and agricultural drainage water through the Grassland Bypass Channel during major storm events.*
4. *During some storm events, the instantaneous flow rate in Panoche Creek, which carries water from hills adjacent to the agricultural area can exceed 12,000 cubic feet per second, while the average daily flow rate during such events can exceed 2,000 cubic feet per second. These flows can generate more than 40,000 acre-feet of water during a two week period that includes a storm event.*

Further, both the purpose of the project and use agreement confirm the use only for agricultural drainage. For example, the Grassland drainers stated explicitly in 1997 that “[t]he Grassland Bypass Channel and the San Luis Drain were designed and constructed explicitly for the purpose of conveying agricultural drainage water. Neither facility can accommodate storm water flows nor surface runoff from major storm events.”⁶ The 1995 First Use Agreement stated clearly that “the [SLDMWA] has requested that the UNITED STATES permit it to use a portion of the San Luis Drain consisting of approximately 28 miles from the terminus (Kesterson Reservoir) to Milepost 105.72, Check 19 (near Russell Avenue) for the discharge and transportation of a maximum flow of 150 cubic feet per second (cfs) of drainage water to Mud Slough (said portion hereinafter referred to as the Drain).”⁷ Finally, NEPA documents associated with the use agreements all stated the purpose of the project was for “a field experiment designed to evaluate approaches to agricultural drainage management. There is no commitment, at this time, to approve long-term use of the Drain.”⁸

The water districts and other users of the drainage provided by the GBP under the its storm water plan are now proposing a fourth federal use agreement starting in January 2020 and extending through 2045, an additional 25 years. This fourth agreement and the continuation of discharges associated with it would be authorized by these proposed tentatively WDRs. The Regional Board must deny this brazen attempt to continue to circumvent legitimate water quality standards. Not only is this tentative WDR not sufficiently supported under CEQA—which requires a full EIR rather than a mere addendum in cases such as this one where the original report planned on zero discharge and had a different project purpose and definition—but enforcement of these standards is vital to native species on the verge of extinction. The tentative WDRs would allow the discharge of storm and agricultural drain water laced with selenium and other toxic drain water constituents such as salt, sulfates, boron, molybdenum, and mercury. Without strong action by the Regional Board, some of these species may not exist after 25 more years of business as usual, and migratory bird deformities would continue into the foreseeable future.

⁶ Ibid. page 12 (emphasis added).

⁷ Op. cit. First Use Agreement 1995 pages 1-2 (emphasis added).

⁸ USBR, SLDMWA, EPA & USFWS letter to Karl Longly, CVRWQCB 11-3-95 page 2 <http://calsport.org/news/wpcontent/uploads/USBR-SLDMWA-EPA-USFWS-11-3-95-Ltr-to-CRWQCB.pdf> and Supplemental Environmental Assessment April 1991 and the FONSI dated October 18, 1991.

If, on the other hand, the tentative WDRs are not approved, all discharges, including stormwater discharges, into the San Luis Drain from the GBP would be required to cease. This bold action would result in the cessation of pollution from selenium-laden agricultural drainage. The Regional Board must act now to stop further degradation to downstream beneficial uses and fulfill its 25-year-old promise to end of this pollution.

We, the signatory organizations on these comments, thus recommend that the proposed 25-year extension to use the San Luis Drain to discharge stormwater into Mud Slough (North) and the San Joaquin River be denied, and that no permit or use agreement be granted. At a minimum, a full Environmental Impact Report/Statement (EIR/EIS) must be prepared. Below, we detail our concerns in several areas and recommend what we believe is the only reliable and cost-effective solution—order the cessation of this polluted discharge.⁹

The CEQA Analysis in the 2009 GBP EIR/EIS and 2019 Addendum do not Support the Tentative WDRs.

Under CEQA a supplemental EIR is required if, as defined in CEQA Guidelines Section 15162(a)(1): (a) there have been substantial changes to the Project; (b) new significant environmental effects have been identified; or (c) there has been a substantial increase in the severity of previously identified significant effects. The 2009 EIR/EIS was based on the premise that all drainage discharges into the San Luis Drain would cease by the end of 2019. Thus, the GBP Stormwater Plan and associated Tentative WDRs include both a substantial change and environmental effects not included in the 2009 GBP EIR/EIS.

Under the proposed Tentative WDRs contaminated discharges would continue adding stormwater commingled with subsurface agricultural drainage into the San Luis Drain for an additional 25 years. This is a substantial change and should be analyzed in a full EIR/EIS. There are numerous impacts from this extension that are significant and need to be disclosed, including: (1) cumulative impacts to downstream beneficial uses; (2) the failure to meet protective water quality standards; (3) impacts to endangered and listed species; and (4) migratory bird impacts. All of these impacts warrant a full EIR/EIS analysis to adequately inform decision makers of the risks posed by continuing these discharges without proper permits and compliance with the Clean Water Act, including state and federal non-degradation policies.

The undersigned organizations have long-standing interests in the GBP because contaminants in agricultural drainage discharges have profound effects to the environment, including effects to

⁹ The San Joaquin Valley Drainage Program (SJVPD) *A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley*, also known as the “Rainbow Report” (September 1990); see also USGS *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 <https://pubs.er.usgs.gov/publication/ofr20081210>; USBR Final Environmental Impact Statement for *San Luis Drainage Feature Re-evaluation* (May 2006 and Record of Decision (ROD) (March 2007) (selecting the “In-Valley/ Water Needs/ Land Retirement Alternative.”).

downstream waterways, aquatic life, and migratory birds. We hereby include our previous comments on the GBP EIR/EIS and Basin Plan Amendment by reference.¹⁰

The Tentative WDRs effectively sanction continued excessive pollution, especially during stormwater events, of Mud Slough (North), the San Joaquin River, and ultimately the Sacramento-San Joaquin Delta and San Francisco Bay, by failing to enforce science-based protective water quality standards for selenium and allowing the continued contamination of these water bodies. Excess selenium in streams kills or deforms fish and other aquatic life and is a human health concern in drinking-water supplies. Under the Tentative WDRs, selenium (and other harmful drain water pollutants, such as salt, sulfates, boron, molybdenum, and mercury) will continue to be discharged from the federally owned San Luis Drain directly into the waters of California and the United States. The failure to enforce protective selenium water quality objectives transfers pollution from Grassland drainers, through the federal San Luis Drain, to the waters of the State, and thus harms beneficial uses of these waters for our members', domestic water supplies, public health, and other public trust values. In addition, climate impacts not previously considered must be disclosed in a full EIR/EIS review.

An NPDES Permit Should be Required for GBP Stormwater and Subsurface Drainage Discharges into Surface Waters.

On September 6, 2019 the Ninth Circuit Court of Appeals ruled that commingled discharges from the GBP are not exempt from NPDES permitting requirements. *Pac. Coast Fed'n. of Fishermen's Ass'ns v. Glaser*, 937 F.3d 1191, 1199 (9th Cir. 2019). In reaching its decision, the Court issued a landmark rulings under the Clean Water Act's exemption for discharges from irrigated agriculture. First, the Court held that the Defendants had the burden of establishing that their discharges were "composed entirely of return flows from irrigated agriculture." *Id.* at 1197. Second, the Court ruled that only those discharges that are composed *entirely* of return flows from irrigated agriculture were exempt. *Id.*

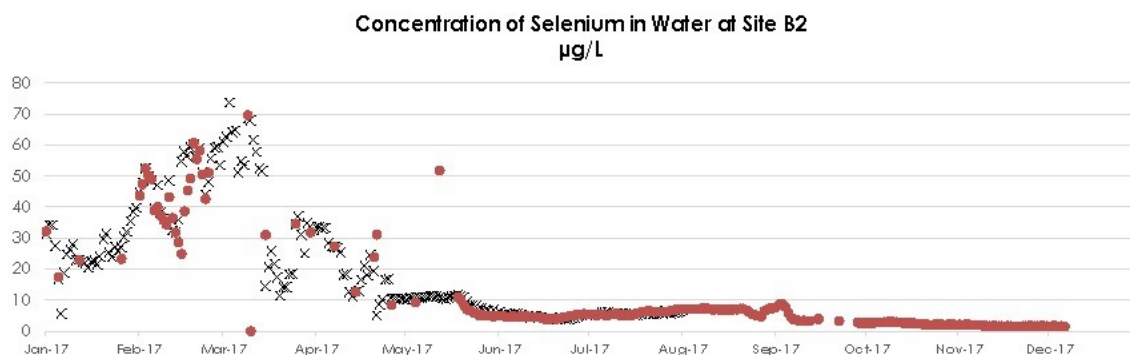
Applying these rulings to the commingled discharges of the Grasslands Bypass Project, the Court held that all of the Plaintiffs' claims should proceed. *Id.* at 1200. Because those commingled discharges were not composed entirely of return flows from irrigated agriculture, they did not fall within the exemption. In other words, the Court held that the return flow exemption from the

¹⁰ These comments are as follows: Coalition comments of environmental, fishing, and environmental justice organizations opposed U.S. EPA's proposed federal water quality criteria for selenium applicable to California. March 28, 2019. Available at <http://calsport.org/news/wp-content/uploads/PCL-et.-al-Cmt-Letter-EPA-Ca-Selenium-Criteria-Doc-No.-EPA-HQOW-2018-00....pdf>; Comments of the Pacific Coast Federation of Fishermen's Associations Requesting Denial of Proposed Waste Discharge Requirements for Surface Water Discharges from the Grassland Bypass Project, Stephan C. Volker. June 22, 2015. Available at https://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/wdrs_development_archive/2015may/2015_05_gbp_com_pcffa.pdf; Re: Land Retirement Benefits to Grasslands Bypass Project and Draft Waste Discharge Requirements, Coalition Letter to CVRWQCB Follow-up on Grasslands WDR. September 8, 2014. Available at <http://calsport.org/news/wp-content/uploads/Coalition-response-letter-to-Longley-re-gbp-land-retirement.pdf>; Coalition Comments Re Draft Waste Discharge Requirements for the Grassland Bypass Project. June 30, 2014. Available at <http://calsport.org/news/wp-content/uploads/Final-coalition-comments-on-Draft-GBP-WDR-6.30.14.pdf>.

Clean Water Act's NPDES permit requirements did not apply based on the fact that non-exempt flows were commingled with discharges from irrigated agriculture.

The US Environmental Protection Agency (USEPA), and by delegation under the Clean Water Act (CWA) and California's Porter-Cologne Water Quality Control Act, California State and Regional Water Quality Control Boards, have the authority to regulate agricultural drainage under the CWA under comprehensive federal statutory authority for regulating pollutant discharges to the nation's navigable waters. The term "pollutant" under Porter-Cologne includes "agricultural waste discharged into water," and the term "navigable waters" encompasses the San Joaquin River, its principal tributaries, and inflowing ditches and drains.¹¹ Thus, discharges of agricultural drainage water to the San Joaquin River and its tributaries are subject to regulation under the CWA (Thomas and Leighton-Schwartz, 1990). The GBP Stormwater Plan should be required to obtain a NPDES permit to discharge pollution to navigable waters or to discharge commingled groundwater, surface water and agricultural drainage containing pollutants such as selenium, boron, salt, sulfate and mercury.¹²

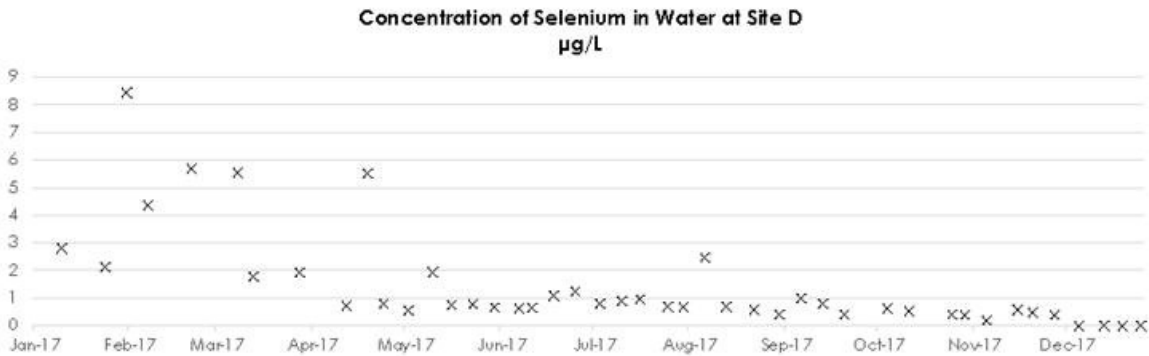
There is significant ongoing discharge of selenium-laden drainage and contaminated groundwater from the GBP. For example, during the winter/spring of 2017, water quality monitoring data show high selenium concentrations (e.g., 20-40 µg/L) associated with high flow conditions in water entering the San Luis Drain from the GBP. The figure below shows selenium concentrations at Site B2 in the San Luis Drain during 2017.



Although the San Luis Drain adds a relatively small percentage of flow to Mud Slough, it nevertheless substantially increased the selenium concentrations in Mud Slough in 2017 to

¹¹ See, e.g., Karl Phale, *Water Quality Control In California: Citizen Participation In the Administrative Process*, 1 Ecology Law Quarterly 400, 406 (1971), available at <https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1011&context=elq> ("Among the items defined as waste prior to the Porter-Cologne Act are agricultural drainage waters containing materials not present prior to use,...and materials used in agricultural operations which are not intentionally applied to waters, such as insecticides, herbicides, and other chemicals.")

¹² See, e.g., EPA's NPDES description on its website, available at <https://www.epa.gov/cwa-404/clean-water-act-section-402-national-pollutant-discharge-elimination-system>.

salmon.¹³

River from Sack Dam to Vernalis is not Protective of Downstream Beneficial Uses and Public Trust Resources.

ESA-listed species. Upon that review, the Services found that the 5 µg/L chronic criterion for selenium proposed by USEPA in the CTR would likely jeopardize 15 ESA-listed species

(https://www.epa.gov/sites/production/files/2016-06/documents/se_2016_fact_sheet_final.pdf). These information sources establish water limits for protection of fish and other aquatic life, at 1-2 ug/L (my book, <1 for organic selenium, 2 for inorganic selenium; EPA = 1.5)."

(Emphasis added).¹⁴ To avoid a final “Jeopardy Opinion” from the Services, and the associated legal ramifications, the USEPA agreed to reevaluate their CWA criteria guidance for selenium by 2002 (FWS and NMFS 2000).¹⁵

From page 30 of Attachment A for the Tentative WDRs:

Table 5.2: Selenium Numerical Objectives

| 4-day Average | Maximum | Location |
|---------------|---------|---|
| 5 µg/L | 20 µg/L | Mud Slough (north) and the San Joaquin River from the Mud Slough confluence to the Merced River |
| 5 µg/L | 12 µg/L | San Joaquin River, mouth of the Merced River to Vernalis |

The selenium objectives for Mud Slough and the San Joaquin River based on the current state of knowledge of selenium toxicology are not protective of beneficial uses. Both the Canadian government and the USEPA have established water quality criteria to protect aquatic life that are substantially lower than the 5 µg/L Basin Plan selenium objectives for Mud Slough and the San Joaquin River. Even the new EPA criteria are unlikely to be adequately protective. A recent Canadian study¹⁶ concluded “that fish exposed to aqueous selenite concentrations at levels similar to the current CCME[Canadian Council of Ministers of the Environment] water quality guideline for the protection of aquatic life (1 µg/L) can exceed tissue guidelines for the protection of fish populations established by the USEPA and that there is potential for adverse effects particularly in developing embryos.” The authors also state: “In Canada, Se bioaccumulation exceeding the toxicity threshold for fish tissues set by the USEPA and the BC MoE (there are currently no federal tissue-based guidelines in Canada) have been documented recently in areas downstream of coal, uranium, and metal mining operations, even in cases where

¹⁴ Final Biological Opinion on the effects of the U.S. Environmental Protection Agency's "Final Rule for the Promulgation of Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (March 24,2000), available at <https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OW-2018-0056-0144&contentType=pdf>.

¹⁵ *Id.*

¹⁶ <https://www.ncbi.nlm.nih.gov/pubmed/31145497> *Distribution of Experimentally Added Selenium in a Boreal Lake Ecosystem* *Environ Toxicol Chem.* 2019 Sep;38(9):1954-1966. doi: 10.1002/etc.4508. Epub 2019 Jul 26. Pg 1955 and USGS and USEPA reported on fish sampling downstream of Libby Dam in Montana, USA, where every sample of Mountain Whitefish ovaries had Se concentrations well in excess of EPA's new (2016) ovary tissue criterion even though all water samples (along 100+ river miles of sampling) were at < 1.2 ppb Se. Also, it was confirmed that the chemical form of selenium in that stretch is predominantly selenate, the same speciation as in the San Joaquin River watershed.
See: <https://www.epa.gov/newsreleases/epa-and-partners-release-data-and-findings-kootenai-river-sampling-effort>
See: <https://www.sciencebase.gov/catalog/item/5d3b6ef1e4b01d82ce8d7aef>

aqueous Se concentrations have not exceeded the current CCME guideline of 1 ug/L (Muscatello et al. 2008; Kuchapski and Rasmussen 2015; Ponton and Hare 2015)." In addition, USGS and USEPA recently reported on fish sampling downstream of Libby Dam in Montana, USA, where every sample of Mountain Whitefish ovaries had Se concentrations well in excess of EPA's new (2016) ovary tissue criterion, even though all water samples (along 100+ river miles of sampling) were at < 1.2 ppb Se. Also, it was confirmed that the chemical form of selenium in that stretch is predominantly selenate, the same speciation as in the San Joaquin River watershed.

To comply with the Service's 2000 Biological Opinion on the CTR, USEPA in July 2016 proposed selenium water quality criteria that would be protective of federally-listed species in the San Francisco Bay Delta (Establishment of Revised Numeric Criteria for Selenium for the San Francisco Bay and Delta, State of California, Docket RIN 2040-AF61, EPA-HQ-OW-2015-0392; FRL-9946-01-OW) and in November 2018 for the rest of California (Federal Selenium Criteria for Aquatic Life and Aquatic Dependent Wildlife Applicable to California Docket RIN, 2040-AF79 EPA-HQ-OW-2018-0056 FRL-9989-46-OW). These selenium criteria established lentic and lotic water values, and bird egg and fish tissue values. However, the USEPA's November 2018 proposed rule did not include waters within known selenium-contaminated geographical areas, including tributary flows into the San Francisco Bay Delta system such as the San Joaquin River from Sack Dam to Vernalis, Mud Slough, Salt Slough, the water supply channels in the Grassland watershed, and the Grasslands Ecological Area in Fresno and Merced Counties. Instead, the USEPA's 2018 proposed rule deferred to existing State-established water quality objectives for Mud Slough (North) and the San Joaquin River from Sack Dam to Vernalis of 5 µg/L over a 4-day average (as defined in the Regional Board's June 2010 Basin Plan Amendment to address Selenium Control in the San Joaquin River Basin).

Supporting documentation for this USEPA docket for Selenium in California includes two reports by USFWS: (1) Species at Risk from Selenium Exposure in California Inland Surface Waters, Enclosed Bays and Estuaries, which gives a list of species considered most at risk for selenium exposure in CA;¹⁷ and (2) Species at Risk from Selenium Exposure in the San Francisco Estuary.¹⁸ The species identified at most risk for selenium exposure in the San Joaquin Valley and San Francisco Estuary were denoted as:

| | |
|-----------|---|
| Mammals: | Buena Vista Lake Ornate Shrew; |
| Birds: | Bald Eagle, California Black Rail, California Clapper Rail, California Least Tern, Greater Scaup, Lesser Scaup, White-winged Scoter, Surf Scoter, Black Scoter; |
| Reptiles: | Giant Garter Snake; |

¹⁷ Available at <https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OW-2018-0056-0144&contentType=pdf>.

¹⁸ Available at <https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OW-2018-0056-0265&contentType=pdf>.

Fish: Chinook Salmon, Steelhead, Green Sturgeon, White Sturgeon, Delta Smelt, and Sacramento Splittail.

The Tentative WDRs require compliance with the selenium water quality objectives specified in the 2010 Basin Plan Amendment (5 µg/L, 4-day average). However, this proposal is lax, allowing for high spikes of selenium contaminants that will bio-accumulate throughout the ecosystem. The GBP Stormwater Plan and Tentative WDRs include mitigation measures that establish a Mud Slough (North) water quality “goal” of 3 µg/L Se, over a 4-day average. For every 3 months that the GBP Drainers meet this 3 µg/L performance goal, one exceedance of 5 µg/L, 4-day average is allowed. These goals and objectives will result in harm to fish and aquatic-dependent wildlife as denoted in the Service’s 2000 Biological Opinion on the CTR. We recommend that state and federal fish and wildlife agencies be consulted on the effects of implementation of the Tentative WDRs, including relaxed water quality standards that are not protective of migratory birds and endangered anadromous fish populations.

Short term spikes of selenium in a waterway can have longer lasting effects in an ecosystem. Beckon (2016) noted that when a bioaccumulative substance such as selenium is introduced into or removed from the environment, the processes by which it is assimilated into upper trophic levels of the ecosystem may be complex and prolonged. These processes include several levels of trophic transfer, each entailing the time required to consume food, assimilate the substance of interest, and the time span during which the organism continues to survive before being eaten by a member of the next higher trophic level. Beckon noted that for some species of piscivorous fish the lag time for selenium exposure to bioaccumulate in the upper trophic level of fish is over 1 year from the initial exposure. Thus, short-term exceedances of the 5 µg/L selenium objective can continue to have deleterious effects to the upper trophic level species several months to over a year after the event.

Our organizations have submitted several comment letters on protective selenium objectives in California.¹⁹ In March 2019, PCFFA and others provided comments to the USEPA on their proposed selenium criteria for California.²⁰ We recommended that a chronic, legally binding selenium objective of no greater than 2 µg/L (4-day average) be included in the Tentative WDRs for receiving waters of stormwater/drainage discharges. That comports with the recommendations of several experts that the criterion should be 2 µg/L or less (DuBow 1989; Lemly and Skorupa 2007; Peterson and Nebeker 1992; Swift 2002). Exceeding this water criterion should trigger additional biological monitoring to determine if the tissue criteria for selenium proposed by USEPA has also been exceeded. Allowing higher levels would require re-initiation of consultation under the state and federal endangered species acts.

¹⁹ See, e.g., calsport.org/news/wp-content/uploads/EPA-Selenium-Cmt-LTR-Re-Docket-No.-EPA-HQ-OW-2004-0019.pdf, and [http://calsport.org/news/wp-content/uploads/Technical-Review-2004-EPA-Draft-Tissue-BasedSelenium-Criterion.pdf](https://calsport.org/news/wp-content/uploads/Technical-Review-2004-EPA-Draft-Tissue-BasedSelenium-Criterion.pdf).

²⁰ Coalition comments of environmental, fishing and environmental justice organizations oppose U.S. EPA's proposed federal water quality criteria for selenium applicable to California. March 28, 2019. Available at [http://calsport.org/news/wp-content/uploads/PCL-et.-al-Cmt-Letter-EPA-Ca-Selenium-Criteria-Doc-No.-EPA-HQOW-2018-00....pdf](https://calsport.org/news/wp-content/uploads/PCL-et.-al-Cmt-Letter-EPA-Ca-Selenium-Criteria-Doc-No.-EPA-HQOW-2018-00....pdf).

A Comprehensive Cumulative Effects Analysis on Downstream Impacts of the GBP Stormwater Plan in an EIR/EIS is Needed Before a WDR Can Be Issued.

The GBP Stormwater Plan will allow continued discharges of a blend of stormwater, polluted groundwater, and drainage to Mud Slough (North) and the San Joaquin River. This plan should be analyzed in a full EIR/EIS and the cumulative impacts to downstream anadromous fish, wildlife, and terrestrial species should be included in that analysis. Impacts to the Delta Estuary and its species from the proposed action, as well as other actions, are profound. Continued operation of the CVP and SWP is likely to jeopardize the continued existence of endangered species in the Delta, while stormwater runoff and subsurface agricultural drainage from GBP and nearby CVP-irrigated lands contaminates the San Joaquin River and hence the Delta with selenium and other toxic constituents.²¹

Further, in a letter from National Marine Fisheries Service (NMFS) to the SWRCB regarding the San Joaquin River Selenium Control Plan Basin Plan Amendment (dated September 22, 2010), NMFS states that selenium contamination in the San Joaquin River is problematic in restoring spring and fall-run Chinook salmon to the upper reach of the San Joaquin River. The NMFS letter further noted that selenium in the San Joaquin River could negatively affect Central Valley steelhead and the Southern distinct population segment of the North American green sturgeon.²²

Studies by the US Geological Survey have documented elevated levels of selenium in the food chain and in green sturgeon. Since these impacts are potentially significant, an EIS must be prepared²³ along with a complete CEQA analysis to accurately inform decision-makers before allowing these pollutants to spread downstream.

Greater outflow from the San Joaquin River as a result of changing CVP and SWP operations in the Delta could result in even further transport of selenium and sulfate from agricultural drainage discharges into the Delta (Lucas and Stewart 2007). Also, note the Lucas and Stewart (2007) discussion on seasonal trends of bivalve selenium concentrations in the North Delta and its relationship to the San Joaquin River: *“Several explanations for the temporal trends in bivalve Se concentrations (which did not exist in the 1980’s) are possible. One possibility is that refinery inputs of selenium have been replaced by San Joaquin River inputs. Models indicate that if SJR inflows to the Bay increase, as they may have in recent years with barrier management,*

²¹ See testimony from Restore the Delta on Salinity and Selenium Science and Modeling for the Bay/Delta Estuary. Testimony on Recent Salinity and Selenium Science and Modeling for the Bay/Delta Estuary Submitted by Tim Stroshane, Senior Research Associate, California Water Impact Network (CWIN), August 17, 2012. Available at https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/RestorettheDelta/part2/RTD_161.pdf.

²² Available at https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/sjr_selenium/comments092210/howard_brown.pdf

²³ See 40 C.F.R. § 1508.27(b)(9).

particulate Se concentrations in the Bay could double, even with no increase in irrigation drainage inputs to the SJR. The fall increase in Se in C. amurensis also occurs during the time period when the ratio of SJR/Sac River inflow is highest. Further changes in water management could exacerbate these trends...”

Stormwater runoff from GBP and its upstream watershed can also contain elevated concentrations of mercury. Results from the CalFed Mercury study found elevated levels of mercury in fish from the lower San Joaquin River and Mud Slough (Davis et al. 2000; Slotton et al. 2000). A significant finding of the CalFed Mercury Study in the San Joaquin Basin was that Mud Slough contributes about 50% of the methylated mercury at Vernalis (legal boundary of the Delta), but only 10% of the water volume during the September to March non-irrigation season (Stephenson et. al., 2005).

Sulfate loading in the San Joaquin River from the GBP discharged in concert with Delta operations would likely result in downstream environmental impacts that should be considered in a full EIR/EIS. Sulfate reducing bacteria are the primary agents responsible for the methylation of mercury in aquatic ecosystems. Wood et al. (2006) found that sulfate concentrations are about seven times higher in the San Joaquin River than in the Sacramento River, and that addition of sulfate is predicted to stimulate methylmercury production when it is limiting. Two factors influencing sulfate concentrations in the Bay-Delta are electrical conductivity (EC) and the ratio of San Joaquin River to Sacramento River water.

The WDR Should Consider Effects GBP Discharges on Compliance With USEPAs Proposed Selenium Criteria for The Bay-Delta Estuary

On July 15, 2016, the USEPA proposed selenium water quality criteria applicable to the San Francisco Bay and Delta to ensure that the criteria are set at levels that protect aquatic life and aquatic-dependent wildlife, including federally listed threatened and endangered species. Establishment of Revised Numeric Criteria for Selenium for the San Francisco Bay and Delta, State of California, Docket RIN 2040–AF61, EPA–HQ–OW–2015–0392; FRL–9946–01–OW.²⁴ The USEPA proposed rule established selenium criteria based on fish tissue values, prey (clam) tissue values, and dissolved and particulate water column values. As USEPA noted in their technical support document for the proposed selenium criteria, “Since the most significant exposure pathway of selenium to species of concern in the San Francisco Bay and Delta is through diet, the currently applicable criteria for selenium from the NTR [5 µg/L] no longer adequately protect species in the estuary.”

The San Francisco Bay and Delta ecosystem is at risk due to environmental degradation, including impacts from elevated levels of selenium. Waterways in the North Bay and Delta including the Carquinez Straits, Suisun Marsh, and Sacramento San Joaquin Delta are listed as

²⁴ Available at <https://www.federalregister.gov/documents/2016/07/15/2016-16266/water-quality-standards-establishment-of-revised-numeric-criteria-for-selenium-for-the-san-francisco>

impaired for selenium on the 303(d) list (being addressed by a USEPA approved TMDL).²⁵ Sources of selenium contamination include agricultural drainage from the Central Valley and effluent discharges from oil refineries (Linares et al 2015; Presser and Luoma 2010). Several endemic species are listed under the ESA as threatened or endangered, including green sturgeon, Chinook salmon, steelhead trout, delta smelt, and the California Ridgway's rail, as well as many migratory bird species that use the estuary as a wintering ground, including greater and lesser scaup, and white-winged, surf, and black scoters. The USEPA noted on page 46036 of the Federal Register Notice 81(36) that "[t]he analyses to develop the fish tissue and the avian egg tissue benchmarks used in the modeling, and the modeling results used to derive the proposed water column criteria, indicate the health of these species would be negatively impacted from exposure to selenium water column concentrations above 0.2 µg /L, which would be allowed to occur under the existing NTR selenium criterion of 5.0 µg /L. Accordingly, EPA finds that it is necessary to propose revised and more protective criteria for selenium in order to help ensure the continued protection of these vulnerable species and associated designated uses." [The chart below presents in chart-form the USGS findings.²⁶

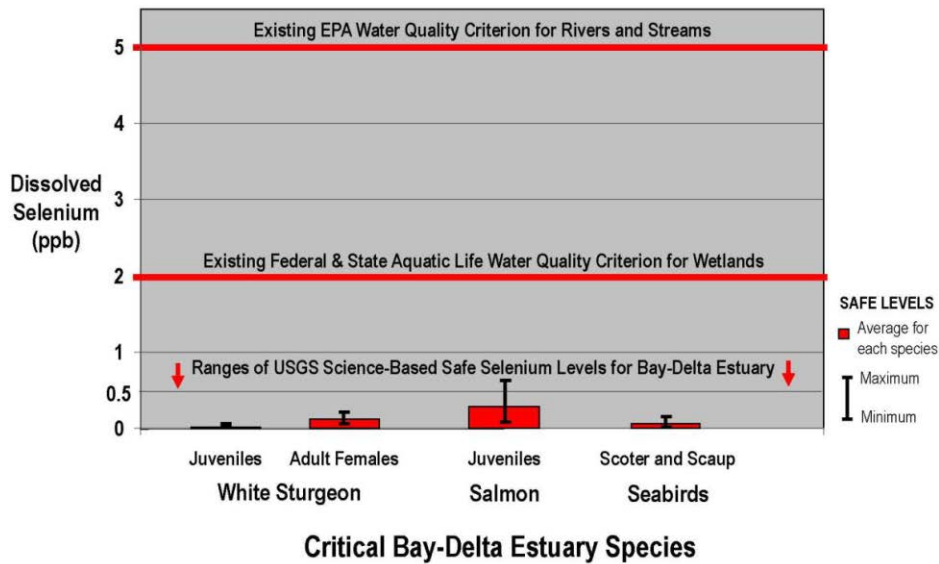
²⁵ Available at

https://www.waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/category4a_report.shtml

²⁶ The above graph prepared by CSPA & CWIN is directly based on the results from a 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, "[t]he 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): (1) 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; (2) 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; and (3) 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 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.

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.



Our organizations submitted comments to USEPA on the proposed selenium water quality and tissue criteria for the Bay Delta supporting more protective water quality criteria and hereby incorporate those comments by reference.²⁷ The Regional Board should consider how the selenium discharges allowed in the Tentative WDRs for the next 25 years from the GBP will affect the Bay-Delta ecosystem and could affect compliance with EPA's proposed water quality criteria for San Francisco Bay and Delta. The 5.0 µg /L Basin Plan selenium objective for Mud Slough and the San Joaquin River will result in non-compliance with proposed water quality criteria and cause deleterious effects to fish and wildlife in the Bay-Delta.

²⁷ Coalition comments of environmental, fishing and environmental justice organizations on EPA's Water Quality Standards for the Establishment of Revised Numeric Criteria for Selenium for the San Francisco Bay and Delta. October 28, 2016. Available at <https://www.regulations.gov/document?D=EPA-HQ-OW-2015-0392-0246>.

Table 2. Proposed Selenium Water Quality Criteria for the San Francisco Bay and Delta

| Media Type | Tissue | | Water Column ¹ | | |
|------------|---|---------------------------|-----------------------------------|---|-----------------------------------|
| | | | Dissolved | | Particulate |
| Criteria | Fish Whole Body or Muscle | Clam | Chronic | Intermittent Exposure ² | Chronic |
| Magnitude | 8.5 µg/g dw whole body or 11.3 µg/g dw muscle | 15 µg/g dw | 0.2 µg/L | $WQC_{int} = \frac{0.2 \mu\text{g/L} - C_{bkgrnd}(1 - f_{int})}{f_{int}}$ | 1 µg/g dw |
| Duration | Instantaneous measurement | Instantaneous measurement | 30 days | Number of days/month with an elevated concentration | 30 days |
| Frequency | Not to be exceeded | Not to be exceeded | Not more than once in three years | Not more than once in three years | Not more than once in three years |

¹ Dissolved and particulate water column values are based on total selenium (includes all oxidation states, i.e., selenite, selenate, organic selenium and any other forms) in water.

² Where C_{bkgrnd} is the average background selenium concentration in µg/L, and f_{int} is the fraction of any 30-day period during which elevated selenium concentrations occur, with f_{int} assigned a value ≥ 0.033 (corresponding to one day).

The WDRs Should Include Biological Monitoring Requirements, Performance Standards, and Enforcement and Mitigation Provisions for Disposal of Agricultural Drainage at the SJRIP Reuse Area and Stormwater Detention Basins.

The GBP Stormwater Plan Addendum includes a proposed expansion of the existing drainage reuse area from 6,100 acres to 7,550 acres. The addition of acreage was not analyzed in the 2009 EIR/EIS. The increase is outside the scope and project definition in the CEQA and NEPA analysis. One significant environmental impact at the SJRIP is ponding of seleniferous drainage water within the fields of the reuse area. The Stormwater Plan Addendum includes mention of a contingency plan in the event of inadvertent flooding, but only a reference to the contingency plan, not the plan itself, is included in the Addendum. Bird use, already showing impact under the current acreage, would increase in the vicinity of the SJRIP with the addition of drainwater detention basins.

The GBP SJRIP reuse area already poses exposure risks to wildlife from use and additional selenium exposure. The use of regulating ponds to help control flow as a part of the engineered reuse system and ponding during stormwater events in the GBP area also creates a potential wildlife exposure risk similar to those originally realized at Kesterson National Wildlife Refuge (Presser and Ohlendorf, 1987).²⁸

²⁸ Available at <https://pubs.usgs.gov/of/2008/1210/>. *Technical Analysis of In-Valley Drainage Management Strategies for the Western San Joaquin Valley, California* By Theresa S. Presser and Steven E. Schwarzbach U.S. Geological Survey Open-File Report 2008-1210 version 1.0.

The GBP has been monitoring and reporting annual bird use from April thru June at the SJRIP drainage reuse area since 2008. Many of those reports are posted on the SFEI website. However, no reports have been posted since the 2015 report. We note that additional reports were made available during the public comment period at a third party website.²⁹ Yet, the Tentative WDRs do not include any requirement to continue biological monitoring at the SJRIP.

The 2017 wildlife monitoring report for the GBP drainage reuse area (SJRIP) documented that 50 avian species were observed at the drainage reuse area between April 13 and June 21, 2017. Eighteen species either were observed nesting or were suspected of nesting, including Swainson's hawk, a species listed by the State of California as a threatened. Twelve of the species observed—spotted sandpiper, least sandpiper, whimbrel, western wood-peewee, willow flycatcher, American pipit, savannah sparrow, White-crowned sparrow, common yellowthroat, yellow warbler, Wilson's warbler, and western tanager—were present only as spring migrants.³⁰

Further, the 2017 SJRIP Wildlife Monitoring Report noted that the mitigation site for the SJRIP, which was supposed to provide compensation for avian exposure to pollutants at the SJRIP, documented extremely elevated selenium concentrations in some bird eggs collected there. This suggests that the mitigation site is not providing compensation benefit for the SJRIP and also highlights the breadth of selenium contamination and wildlife exposure in this area.³¹

Table 5. Selenium Concentrations in Recurvirostrid Eggs from the Mitigation Site in 2017

| ID Number | Field Number ¹ | Date | Embryo ² | | Embryo Age (days) | Selenium (ppm, dry wt) ³ | Log Base 10 | Anti-Log |
|--|---------------------------|--------|---------------------|--------|-------------------|-------------------------------------|-------------|-------------|
| | | | Condition | Status | | | | |
| Black-Necked Stilt | | | | | | | | |
| PM-01 | MS-01 | June 9 | U | U | 1 | 3.74 | 0.5729 | |
| PM-02 | MS-02 | June 9 | L | N | 13 | 4.52 | 0.6551 | |
| PM-03 | MS-03 | June 9 | U | U | 1 | 5.54 | 0.7435 | |
| American Avocet | | | | | | | | |
| PM-04 | MA-01 | June 9 | L | N | 9 | 51.1 | 1.7081 | |
| PM-05 | MA-02 | June 9 | U | U | 1 | 8.7 | 0.9395 | |
| Arithmetic/ <i>geometric mean</i> | | | | | | 14.7 | 0.9238 | 8.4 |
| Standard deviation | | | | | | 20.4 | 0.4591 | 2.9 |
| Standard error | | | | | | | 0.2053 | 1.6 |
| Lower limit of 95% confidence interval | | | | | | | 0.5214 | 3.3 |
| Upper limit of 95% confidence interval | | | | | | | 1.3263 | 21.2 |

¹ See Appendix H.

² L = live; N = normal; U = unknown.

³ ppm, dry wt = parts per million dry weight.

²⁹ Available at <http://www.summerseng.com/grasslandbypassproject.htm>

³⁰ Available at <http://www.restorethedelta.org/wp-content/uploads/PCL-et.-al-Cmt-Letter-GBP-Stormwater-Plan-CEQA-09-09-2019.pdf>

³¹ *Id.* at page 20.

The GBP Stormwater Plan Addendum includes use of an unspecified acreage of existing ponds and the addition of up to 200 acres of stormwater detention basins (regulating reservoirs) to store and regulate disposal or distribution of stormwater. Such features are practically indistinguishable from evaporation ponds. Proposed use of such “regulating ponds” to help control flow as a part of the engineered reuse system and ponding during flood events in the GBP area also creates an additional wildlife exposure risk similar to those originally realized at Kesterson National Wildlife Refuge (Presser and Ohlendorf, 1987). Ponding of stormwater and agricultural drainage will support an aquatic food chain and be an attractive hazard to birds within a very short period of time.

The GBP Addendum notes that the filling of these stormwater detention basins will begin with the first significant storm (typically December), and basins will be emptied by May. Therefore, stormwater commingled with drainage water will be stored in basins for up to 6 months. If these basins hold water longer than 30 days, a state water permit is required (CCR, Title 23, Sec. 657-658). As described in Skorupa et al (2004), low winter temperatures substantively increase the toxicity of dietary selenium to birds, fish, and mammals. And the SJRIP wildlife monitoring reports do document use of the drainage reuse area by a large number of avian species (50 distinct species in 2017), including twelve species that are spring migrants.

Selenium poses a hazard to fish and wildlife because of its toxicity at environmentally relevant concentrations and its tendency to accumulate in food chains (Skorupa, 1998). The San Joaquin Valley provides critically important habitat for wintering waterfowl on the Pacific Flyway. Eight to twelve million ducks and geese, along with hundreds of thousands of shorebirds and other marsh birds, annually winter or pass through the valley. The disastrous history of the ecological impacts of disposal of selenium at Kesterson National Wildlife Refuge within the valley is well documented (e.g., Presser and Ohlendorf, 1987; SJVDP, 1990a, b). Additionally, from 1986 to 1993, the National Irrigation Water-Quality Program (NIWQP) of the U.S. Department of the Interior (USDOI) studied whether contamination was induced by irrigation drainage in 26 areas of the western United States. This program developed guidelines to interpret effects on biota of selenium (USDOI, 1998). These guidelines, along with revisions based on more recent studies and modeling, can be used to interpret and guide management and mitigation of the risk of selenium in food chains and wildlife.³²

The Regional Board mandated monitoring requirements and mitigation for drainage evaporation ponds in the Tulare Basin as part of a lengthy process. First a Cumulative Impacts Report on drainage evaporation ponds was completed in November 1992. The Cumulative Impacts Report concluded that site-specific EIRs were needed to clarify the extent of avian impacts due to individual pond operations. Consultants hired by the evaporation pond operators began preparation of site-specific EIRs that were termed “Site-Specific Biological Impact Analysis” or “Technical Reports.” The site-specific Technical Reports, in general, indicated that pond operations place avian species at risk from four general types of impacts; avian disease, salinity, physical hazards, and selenium. Following public review of the documents, the Technical Reports, in combination with the cumulative impact report, were used by the Regional Board to

³² U.S. Geological Survey Professional Paper 1646, available at <https://pubs.usgs.gov/pp/p1646/>.

prepare tentative WDRs. In August and September of 1993, the WDRs were the subject of petitions to the State Water Board (State Board) by the United States Fish and Wildlife Service (USFWS), Patrick Porgans and Lloyd Carter, and The Bay Institute of San Francisco. In March 1996, the State Board adopted Order No. WQ 96-07, which remanded a portion of the waste discharge requirements and the EIRs, including the Tulare Lake Drainage District's, to the Central Valley Water Board for reconsideration and directed the Central Valley Water Board to "consider any relevant information in its CEQA compliance documents." The dischargers who use the San Luis Drain, in conjunction with the California DFW and the United States Fish and Wildlife Service, prepared and agreed to protocols for avoidance (hazing) procedures and for assessing mitigation for unavoidable losses to breeding and non-breeding avian species.³³

The Regional Board should include biological monitoring requirements, performance standards, and enforcement and mitigation provisions in the Tentative WDRs for disposal of agricultural drainage at the SJRIP reuse area and stormwater detention basins as was done for Tulare Basin evaporation ponds. Such requirements should include measures to ensure that the stormwater detention basins are not an attractive nuisance resulting in harm to migratory birds. We strongly recommend that the Regional Board consult with selenium experts in the US Fish and Wildlife Service and California Department of Fish and Wildlife to help develop monitoring requirements, performance criteria, and mitigation protocols to protect migratory birds.

The Tentative WDRs Should Require Resumption of Monitoring in Salt Slough and South Grasslands Wetland Channels to Ensure that the 2 Mg/L Selenium Objective and TMDLs for Selenium are Being Met.

The monitoring and reporting program that was revised by the Regional Board in 2015³⁴ is inadequate to determine the level of pollution being discharged by the GBP and adjacent agricultural lands, and the harm it is causing to the environment. We have provided comments three times on the inadequacies of the Revised Monitoring and Reporting Program for the GBP. We hereby incorporate by reference our coalition letters of August 11, 2011, April 22, 2013, November 26, 2013, and June 22, 2015. We also refer to comments submitted to the Regional Board by USFWS on the Revised Monitoring and Reporting Program for the GBP dated June 22, 2015 and June 25, 2015.³⁵ The USFWS recommended that the Regional Board reinstate weekly water quality monitoring for selenium at GBP Stations J, K, and L2 as exceedances of 2 µg/L are still occurring in those wetland channels, those channels are still listed on the State's 303(d) list

³³ Available at https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/kings/r5-2015-0134.pdf.

³⁴ Available at https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/fresno/r5-2015-0094.pdf.

³⁵ Available at https://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/wdrs_development_archive/2015may/2015_05_gbp_com_usfws.pdf See this link for a copy of the USFWS letter to Ms. Margaret Wong Regional Water Quality Control Board, Central Valley Region: USFWS Comments on the May 2015 Draft Waste Discharge Requirements for the Surface Water Discharges from the Grassland Bypass Project and the Discharges to Groundwater from the Growers in the Grassland Drainage Area. <http://calsport.org/news/wp-content/uploads/Exhibit-5.pdf>

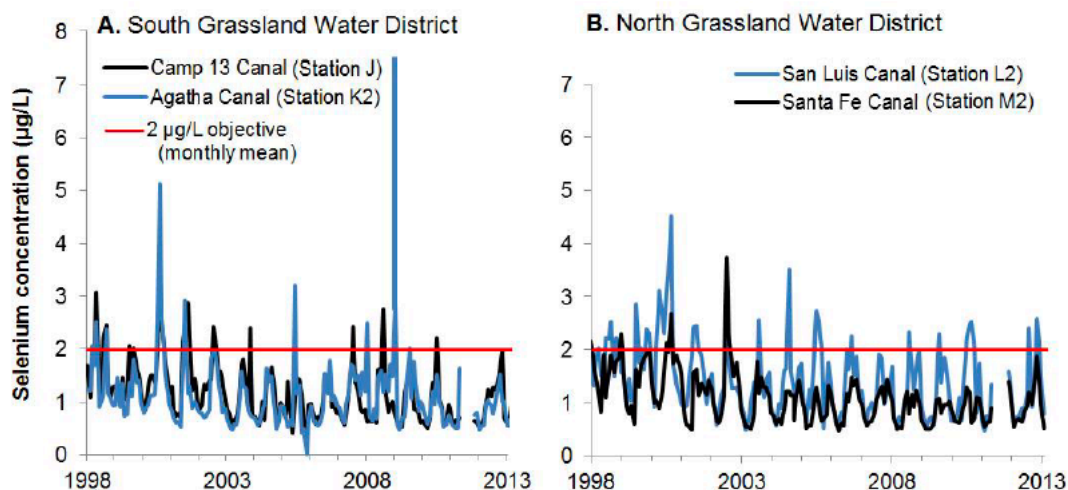
as impaired for selenium,³⁶ and elevated selenium in those channels could result in harm to aquatic-dependent fish and wildlife resources.

As part of Regional Board Order R5-2015-0094, Waste Discharge Requirements for the GBP (2015 WDR), sampling frequencies for Mud Slough, Grasslands wetland channels, and Salt Slough were reduced or completely eliminated. Stations A, B, C, I2, F, J, K, L/L2, M/M2, G and H have all been eliminated from required monitoring. 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 20 years. The Grasslands Marshes (wetland supply channels) remain on the 303(d) list as impaired for selenium, so reducing water quality monitoring in these channels to only during stormwater events is inexplicable. As denoted in Figure 12 of Attachment A to the Tentative WDRs, significant spikes of selenium above water quality objectives in the Grasslands wetland channels were still being documented up through 2013 when monitoring in those channels ended.

Attachment A to Order R5-2015-0094-01 (TENTATIVE)
Grassland Drainage Area
Information Sheet

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Figure 12: Selenium Concentrations in Wetland Supply Channels



In 2002 the Regional Board issued a report reviewing selenium concentrations in the Grasslands wetland water supply channels (Eppinger and Chilcott 2002). This report documented sources of selenium contamination in these channels that are not being addressed by the GBP:

Two areas have been identified where agricultural subsurface drainage can enter wetland water supply canals from farmland not contained in the DPA [Grasslands Drainage Area]. One area is west of the wetland water supply channels and historically drained into the Almond Drive Drain.

³⁶ Available at

https://www.waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/01657.shtml#34338.

Since Water Year 1999, these discharges have been collected in the CCID Main Drain and diverted into the CCID Main Canal downstream of internal supply channels. Data for Water Years 1999 and 2000 is not available for the Almond Drain site.

The second area where agricultural subsurface drainage can enter wetland water supply canals from outside the DPA is a triangle-shaped area of approximately 7,000 acres south of the Poso Drain (also known as the Rice Drain) and north of the DPA. This area historically drained into the Poso Drain, entering South Grassland Water District from the east. Three sites on the Poso (Rice) Drain were monitored for selenium during Water Years 1999 and 2000. Selenium concentrations at all three sites were above 2 ug/L a majority of the time, though a change in tail water management after June 1999 has apparently helped to reduce and stabilize concentrations...

During Water Year 1999, selenium concentrations in the Poso Drain were highly variable with concentrations at the upstream Russell Boulevard site ranging from <2 ug/L to 39 ug/L and concentrations at the downstream site (Mallard Road) ranging from <2 ug/L to 24 ug/L...After June 1999, more tail water was discharged through the Rice [Poso] Drain at Russell...Mean selenium concentrations continued to remain above 2 ug/L at all the Rice Drain sites."

The 2009 EIS/EIR for the GBP noted the following with respect to these lands outside of the DPA that continue to discharge drainage directly into the Grassland wetland supply channels:

The GDA does not include the lands that are described, and they are not under the jurisdiction of the Grassland Basin Drainers (GBD). Additionally, the GBD have no authority to compel these lands to become part of the GBP. However, the GBD will work with the landowners in the areas described to encourage management of drain waters that may contain selenium that is entering wetland supply channels and specifically will work with the 1,100 acres of lands that are identified as lands that ... could be annexed to the GDA.

Unfortunately, nothing has been done to bring these lands into the jurisdiction of the GBP and they are not included in the Tentative WDRs. With the exception of stormwater events, these sources of drainage-water contamination in wetland supply channels are currently not being regulated or monitored.

In addition, our organizations specifically protested the change in the Hills Ferry monitoring site (Site H) to China Island (Site R). There is a comprehensive database with documented selenium water quality violations at Hills Ferry. Site R appears closer to the mouth of the Merced River than Site H, allowing for greater dilution and consequentially Site R under represents the contaminant threat in the San Joaquin River upstream of the Merced River.

We also opposed adoption of the monitoring and reporting program in the 2015 WDR and recommended a more robust monitoring plan similar to the 2001 GBP monitoring requirements. Reductions in monitoring frequency and locations in the 2015 reporting program will prevent the collection of data necessary to protect public trust values, endangered species, and to evaluate compliance with water quality standards. Here we reference and reiterate our previous comments and recommend a vigorous monitoring program that does not hide or understate the discharge of

selenium and other toxins through stormwater discharges into Mud Slough and the San Joaquin River.

We further recommend that monitoring and reporting for total mercury and methyl-mercury concentrations in water and biotic tissue be required at all sampling locations of the GBP to establish a mass-balance of sources of mercury in this watershed.

Treatment Methods Have Not Operated Effectively.

The 2009 EIR/EIS for the GBP included treatment as a significant component of the plan to reduce selenium in discharges to the San Luis Drain. The treatment plant has yet to become operational.³⁷ The 2009 GBP EIR/EIS included a bio-treatment plant to reduce the selenium load being discharged, and to achieve the zero discharge of subsurface agricultural drainage after 2019. There is no mention of treatment in the current GBP Stormwater Plan. More than thirty million dollars has been invested in a demonstration treatment plant that still is not functioning and about which a federal audit found questionable expenditures.³⁸

Long Term Viability and Legality of GBP Drainers' Proposed Actions.

The proposed 15-year program raises significant questions regarding the long-term viability of the actions proposed in the GBP Stormwater Plan. The 2009 EIR/EIS relied on unproven treatment technologies to treat and reduce the volume of drainage from the GBP that would need to be disposed of. These treatment technologies have yet to prove reliable or cost effective. Without treatment, it is unclear how drainage volumes and selenium loads will be managed at the SJRIP. Such management is not analyzed in any current CEQA or NEPA document. There is no current monitoring data that shows that the SJRIP remains viable now. Nor will future monitoring data or performance standards show, after 15 additional years of irrigation with selenium and salt-laden drainage, such viability. Without accurate data, the reuse area remains a mystery along with how long the facility can be used before too much salt accumulation prevents future agricultural drainage use. There is no analysis of where the selenium and salt that is accumulated in the SJRIP will ultimately be disposed. All of these contamination and discharge issues need to be evaluated in a full EIR/EIS before a WDR can be considered. Dubbed a treatment area, the SJRIP is looking more and more like an unpermitted selenium and salt disposal facility.

Reuse of polluted drainage in the GBP's SJRIP drainage reuse area does not eliminate the loading of wastes. It simply stockpiles wastes on land. The continued recycling of agricultural drainage will ultimately turn vast areas of the Central Valley into salted up wastelands. The practice of drainage reuse is not sustainable and will inevitably lead to permanent fallowing of more and more land. These impacts, along with impacts to the river and estuary, have not been analyzed and comprehensive data concerning these impacts has not been disclosed. No analysis

³⁷ Federal Status Report of October 1, 2019 Case 1:88-cv-00634-LJO-SKO Document 1037 Filed 10/01/19.

³⁸ Available at <https://www.doioig.gov/reports/bureau-reclamation%E2%80%99s-cooperative-agreement-no-r16ac00087panoche-drainage-district>

is provided regarding the cumulative impacts to downstream beneficial uses of WDR that continue to sanction polluted discharges or of the potential spread of these contaminants throughout the Delta Estuary.

Land Retirement Should be Considered as a Viable Alternative.

Our organizations have previously submitted comments to the Regional Board about the success of land retirement in relation to the GBP's drainage volume load reductions.³⁹ The USBR's 2004 Broadview Water Contract Assignment Draft Environmental Assessment cites Summer's Engineering as predicting a load reduction of 17,000 tons of salt, 1,500 pounds of selenium, and 52,000 pounds of boron to the San Joaquin River each year from the cessation of irrigation on 9,200 acres of agricultural land in Broadview Water District as per Table 4-1 below (USBR 2004). This amounts to a per acre reduction of 0.28 AF of drainage, 1.85 tons of salt, 0.16 pounds of selenium and 5.65 pounds of boron.

**TABLE 4-1
DRAINAGE AND WATER QUALITY EFFECTS OF PROPOSED ACTION ON THE
SAN JOAQUIN RIVER**

| | Existing Conditions | Under Proposed Action Conditions | Estimated Reduction Attributable to Proposed Action |
|--|------------------------|--|---|
| BWD Drainage to San Joaquin River (afy) | 3,700 | 1,100 | 2,600 |
| BWD Estimated Salt Production (tons/yr) | 24,300 | 7,300 | 17,000 |
| BWD Estimated Selenium Production (lbs/yr) | 2,140 | 640 | 1,500 |
| BWD Estimated Boron Production (lbs/yr) | 74,000 | 22,000 | 52,000 |

Source: Summers Engineering, 2003

Land retirement likely accounted for most of the reductions in selenium, and the majority of reductions in drainage volume, boron, and salt claimed by the Grasslands Bypass Project in the 2009 EIR/EIS.

The USEPA, in a letter regarding the Bay Delta Conservation Plan,⁴⁰ strongly recommended the USBR's Land Retirement Program be revived to save water and prevent further selenium contamination and impacts to endangered species (page 13):

³⁹ See Coalition letter to CVRWQCB on Selenium Basin Plan Amendment, April 26, 2010, p 15-16; available at http://www.waterboards.ca.gov/centralvalley/water_issues/grassland_bypass/grasslands_bpa_coalition_ltr.pdf, and Coalition letter to Karl Longley on Land Retirement Benefits to Grasslands Bypass Project and Draft Waste Discharge Requirements: available at <http://calsport.org/news/wp-content/uploads/Coalition-response-letter-to-Longley-re-gbpland-retirement.pdf>.

⁴⁰ Available at <http://calsport.org/news/wp-content/uploads/bay-delta-conservation-plan-deis.pdf>.

Recommendations: *To mitigate for the project's impacts to selenium levels in the estuary as a result of the BDCP operations, consider reviving and funding the Bureau of Reclamation's Land Retirement Program⁴⁷ to remove from cultivation and irrigation large areas of selenium laden lands on the West side of the San Joaquin Valley. This would save irrigation water, reduce discharges of selenium into the San Joaquin River basin, and advance attainment of selenium reduction targets⁴⁸ set by EPA and the Central Valley Regional Water Quality Control Board. Evaluate the extent to which restoration of these "retired" lands to the native plant community could also contribute to the recovery of threatened and endangered plants and animals listed by FWS. Consider analyzing the cost/benefit of implementing treatment technologies vs. land retirement. Although cost/benefit analyses are not required under NEPA, such an analysis may be useful to decision makers and the public in this case."*

Further, the USBR's San Luis Drainage Feature Re-Evaluation (SLDFRE) Final EIS in 2006 found that land retirement was the most cost-effective solution to managing drainage in the San Luis Unit. Three land alternatives were evaluated in the SLDFRE EIS, 306,000 acres, 194,000 acres and 100,000 acres, respectively. The Final EIS found that the only environmentally and economically preferred alternative was to retire 306,000 acres (In-Valley/Drainage Impaired Area Land Retirement).⁴¹ It's clear from the NED findings in Table N-10 below that additional land retirement would provide increased net economic benefits.

Table N-10
Benefit/Cost Summary
Changes Relative to the No Action Alternative (\$/year in 2050)

| Subarea | In-Valley Disposal | Out-of-Valley Disposal | In-Valley/ Groundwater Quality Land Retirement | In-Valley/ Water Needs Land Retirement | In-Valley/ Drainage-Impaired Area Land Retirement |
|------------------------|----------------------|------------------------|--|--|---|
| Total NED Benefit | \$37,962,000 | \$38,430,000 | \$31,164,000 | \$20,629,000 | \$9,931,000 |
| Total NED Cost | 51,225,000 | 51,370,000 | 46,767,000 | 30,778,000 | 6,288,000 |
| Net NED Benefit | -\$13,263,000 | -\$12,940,000 | -\$15,603,000 | -\$10,149,000 | \$3,643,000 |

Notes:

Values represent net NED benefits relative to No Action.

Values rounded to nearest \$1,000. Totals may not add due to rounding.

Moreover, the US Fish and Wildlife Service, in their Fish and Wildlife Coordination Act Report (FWCAR) for SLDFRE, recommended that all of the northerly area within the San Luis Unit (GBP Drainage Area) be retired as well,⁴² though USBR did not consider that alternative. The Service concluded on page 67 of the FWCAR that, "[t]o avoid and minimize risks and effects to fish and wildlife resources in the San Joaquin Valley and Pacific Flyway, the Service recommends land retirement on all drainage impaired lands in the SLU. This approach would

⁴¹ SLDFRE Final EIS, Appendix N, Table N-10, page N-17, accessed at https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=2240

⁴² SLDFRE Final EIS, Appendix M, USFWS FWCAR, accessed at https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=2236

maximize the elimination of drainage at its source, and therefore avoidance of adverse fish and wildlife effects.”

By ignoring permanent land retirement and the associated benefits of reducing water exports to these toxic soils, the GBP Stormwater Plan Addendum and associated Tentative WDRs will continue to kick the can down the road and concentrate and store salt, selenium, boron and other toxic substances in the shallow aquifers of the Grasslands area. This creates an ongoing risk of toxic selenium discharges to wetland water supply channels, Mud Slough, the San Joaquin River, and the Bay-Delta estuary, especially in wetter years.

Conclusion

We urge that all polluted discharges of agricultural drainwater and stormwater cease as required under the current GBP WDRs. We recommend land retirement and curtailing the importation of additional water supplies that mobilize these contaminants on the west side of the Southern San Joaquin Valley. Despite repeated promises, no viable treatment has been developed in the more than two decades. Before proceeding to load even more contaminants on downstream beneficial uses, we recommend no new WDRs for the GBP authorizing further discharges of either stormwater, agricultural drainage, or contaminated groundwater be permitted until a full EIS/EIR be completed. That EIS/EIR should include:

- A National Pollutant Discharge System Permit prior to any additional use of the federal San Luis drain for discharge of contaminants from the west side into the San Joaquin River and Delta Estuary;
- A comprehensive cumulative effects analysis of stormwater and drainage disposal into Mud Slough and the San Joaquin River and Delta Estuary;
- A chronic, legally binding selenium objective of no greater than 2 µg/L (4-day average) for receiving waters of stormwater/drainage discharges;
- No exceedance of the 2 µg/L selenium water criterion should be allowed. If it is exceeded, enforcement mechanisms should trigger all discharges to cease and require additional biological monitoring to determine if there are downstream effects to meeting tissue criteria for selenium proposed by USEPA in 2016 (for the Bay Delta);
- An analysis of effects to wildlife, including factors such as winter stress, of disposal of selenium in the SJRIP and stormwater detention basins;
- Environmental commitments that include biological monitoring, performance standards, consequences if those performance standards are exceeded, and mitigation provisions for disposal of agricultural drainage at the SJRIP reuse area and stormwater detention basins;
- A description of the status and viability of drainage treatment at the SJRIP;
- A description and evaluation of the long-term viability of drainage disposal strategies at the SJRIP and a description of where salt, selenium, and other contaminants accumulate and are ultimately disposed of. This should not become an unregulated dumping ground for west side contaminants.

Finally, Congress in its authorization of the San Luis Unit in 1960 never envisioned use of the San Luis Drain for stormwater discharge. Congress provided its authorization under specified

conditions, including approval by the State of California⁴³ for “...provision for constructing the San Luis interceptor drain to the Delta designed to meet the drainage requirements of the San Luis unit....” Senate Report No 154, page 2, San Luis Unit, Central Valley Project, California, April 8, 1959.⁴⁴ This brings into question whether the “Drain” can be legally used for storm water discharge without Congressional approval.

The use of the federal San Luis Drain for stormwater also raises consistency questions with existing State Board orders. The California State Water Resources Control Board (SWRCB 1985), following the Kesterson debacle, issued its Order WQ 85-1 in February 1985. The SWRCB found that agricultural drainage and wastewater reaching Kesterson Reservoir “is creating and threatening to create conditions of pollution and nuisance” (Emphasis added). The Order then warned, “[i]f the Bureau closes Kesterson Reservoir and continues to supply irrigation water to Westlands Water District without implementing an adequate disposal option, continued irrigation in the affected area of Westlands Water District could constitute an unreasonable use of water” (Emphasis added). We urge the Regional Board to not repeat the mistakes made at Kesterson Reservoir in the 1980’s. The continued irrigation of these toxic soils constitutes an unreasonable use of water and continued and future disposal of agricultural drainage in ponds, on land, and in surface waters will cause significant harm to public trust resources and violates non-degradation policies.

Thank you for your consideration,



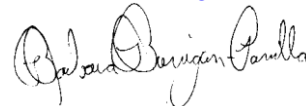
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⁴³ See PL86-488 San Luis Act June 3, 1960: Proviso: (2) received satisfactory assurance from the State of California that it will make provision for a master drainage outlet and disposal channel for the San Joaquin Valley,which will adequately serve, by connection therewith, the drainage system for the San Luis unit or has made provision for constructing the San Luis interceptor drain to the delta designed to meet the drainage requirements of the San Luis unit as generally outlined in the report of the Department of the Interior, entitled "San Luis Unit, Central Valley Project," dated December 17, 1956. The State of California has not made such a provision and Congress never consider the use of the drain for stormwater.

⁴⁴ See H. Rpt 399, available at <http://calsport.org/news/wp-content/uploads/Exhibit-3.pdf> S. Rpt 154...<http://calsport.org/news/wp-content/uploads/Exhibit-4.pdf>



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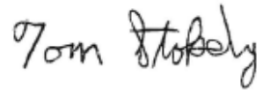
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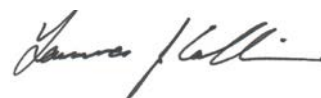
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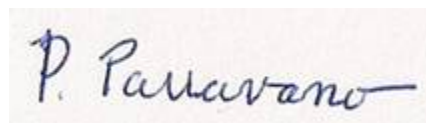
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References Cited

Beckon, W.N. 2016. A method for improving predictive modeling by taking into account lag time: Example of selenium bioaccumulation in a flowing system. *Aquatic Toxicology*, 176 (2016) 172–180.

Davis, J. A., M.D. May, G. Ichikawa, and D. Crane. 2000. Contaminant concentrations in fish from the Sacramento-San Joaquin Delta and Lower San Joaquin River, 1998. San Francisco Estuary Institute, Richmond, CA.

DuBow, P. 1989. Effects of diet on selenium bioaccumulation in marsh birds. *J Wildl Manag* 53:776–781.

Eppinger, J. and J. Chilcott. (2002). Review of Selenium Concentrations in Wetlands Water Supply Channels in the Grassland Watershed (Water Years 1999 and 2000). Staff Report of the California Environmental Protection Agency, Regional Water Quality Control Board, Central Valley Region, Sacramento, CA, 31 pp.

[FWS and NMFS] US Fish and Wildlife Service and US National Marine Fisheries Service. 2000. Final biological opinion on the effects of the U.S. Environmental Protection Agency's "Final rule for the promulgation of water quality standards: establishment of numeric criteria for priority toxic pollutants for the State of California." Washington DC: US Department of the Interior, Fish and Wildlife Service.

Lemly, A. D., & Skorupa, J. P. 2007. Technical Issues Affecting the Implementation of US Environmental Protection Agency's Proposed Fish Tissue-Based Aquatic Criterion for Selenium. *Integrated Environmental Assessment and Management*, 3(4), 552-558.

Linares-Casenave, J., R. Linville, J.P. Van Eenennaam, J.B. Muguet, and S.I. Doroshov. 2015. Selenium Tissue Burden Compartmentalization in Resident White Sturgeon (*Acipenser transmontanus*) of the San Francisco Bay Delta Estuary. *Environmental Toxicology and Chemistry*, Vol. 34(1):152–160.

Lucas, L., and Stewart, A.R. 2007. Transport, transformation, and effects of selenium and carbon in the Delta of the Sacramento-San Joaquin Rivers: Implications for ecosystem restoration: CALFED Ecosystem Restoration Program, Agreement No. 4600001955, Project No. ERP-01C07, 515 p.

Peterson J.A., Nebeker AV. 1992. Estimation of waterborne selenium concentrations that are toxicity thresholds for wildlife. *Arch Environ Contam Toxicol*. 23:154–162.

Presser, T.S., and S.N. Luoma. 2010. Ecosystem-Scale Selenium Modeling in Support of Fish and Wildlife Criteria Development for the San Francisco Bay-Delta Estuary, California. USGS Administrative Report, Menlo Park, CA, 34 pp. and appendices.

Presser, T.S., and Ohlendorf, H.M., 1987, Biogeochemical cycling of selenium in the San Joaquin Valley, California, USA: *Environmental Management*, v. 11, p. 805-821.

Presser, T.S. and S.E. Schwarzbach. 2008. Technical Analysis of In-Valley Drainage Management Strategies for the Western San Joaquin Valley, California. U.S. Geological Survey Open-File Report 2008-1210, 37 pp.

San Joaquin Valley Drainage Program, 1990a, A management plan for agricultural subsurface drainage and related problems on the westside San Joaquin Valley: San Joaquin Valley Drainage Program, Sacramento, California, 183 p.

San Joaquin Valley Drainage Program, 1990b, Fish and wildlife resources and agricultural drainage in the San Joaquin Valley, California, volumes I and II: San Joaquin Valley Drainage Program, Sacramento, California, 878 p. and 2 appendices.

Skorupa, J.P., 1998, Selenium poisoning of fish and wildlife in nature: lessons from twelve realworld examples, *in* Frankenberger, W.T., Jr., and Engberg, R.A., eds., *Environmental Chemistry of Selenium*: New York, New York, Marcel Dekker Inc., p. 315-354.

Skorupa, J.P., T.S. Presser, S.J. Hamilton, A.D. Lemly, and B.E. Sample. 2004. EPA's Draft Tissue-Based Selenium Criterion: A Technical Review. Presented to U.S. Environmental Protection Agency, June 16, 2004, 36 p.

Slotton, D. G., T.H. Suchanek, and S.M. Ayers. 2000. CALFED-UC Davis Delta Mercury Study: Year 2 Findings. In CALFED Bay-Delta Program Science Conference 2000. Data presented at the CALFED Science Conference in October 2000.

Stephenson, M., C. Foe, G.A. Gill, and K.H. Coale. 2005. Transport, Cycling, and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries: An Integrated Mass Balance Assessment Approach. Project Highlight Report, Submitted to: C. Kelly, and D. Podger, California Bay Delta Authority, Sacramento, CA. 12 pp.

Swift, M.C. 2002. Stream ecosystem response to, and recovery from, experimental exposure to selenium. *J Aquat Ecosys Stress Recov* 9:159–184.

[SWRCB] California State Water Resources Control Board. February 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. SWRCB, File No A-354, Order No. W.Q. 85-1, Sacramento, CA. 65 pp. and appendix.

Thomas, G.A. and M. Leighton-Schwartz. 1990. Legal and Institutional Structures for Managing Agricultural Drainage in the San Joaquin Valley: Designing a Future. Prepared for the San Joaquin Valley Drainage Program, Sacramento, CA. 10 chapters and 8 appendices.

[USDI] U.S. Department of the Interior, 1998. Constituents of concern: selenium, *in* Guidelines for interpretation of the biological effects of selected constituents in biota, water, and sediment, National Irrigation Water Quality Program Information Report No. 3: National Irrigation Water Quality Program, U.S. Department of the Interior, Washington, DC, p. 139-184.

[USBR] U.S. Bureau of Reclamation. 2004. Broadview Water Contract Assignment Project Environmental Assessment/Finding of No Significant Impact. USBR, Fresno CA. 7 chapters and 3 appendices.

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.