

April 2, 2014

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**Subject: Comments on the *Draft Environmental Assessment/Initial Study 2014 San Luis & Delta Mendota Water Authority Water Transfers***

Dear Mr. Hubbard and Ms. Mizuno:

AquAlliance submits the following comments and questions for the Bureau of Reclamation (“Bureau”) and the San Luis Delta Mendota Water Authority’s (“SLDMWA”) (“Agencies”) *Draft Environmental Assessment* (“EA”) and *Initial Study* (“IS”) (“EA/IS”), for the *2014 San Luis & Delta Mendota Water Authority Water Transfers* program (“Project”). We include by reference the comments and documents submitted by AquAlliance’s Executive Director for the *2009 Drought Water Bank* (“DWB”), the *2010-2011 Water Transfer Program*, and the *2013 Water Transfer Program* with other items in Appendix A that disclose the environmental impacts associated with these types of serial “temporary” transfers.

## **I. Lead Agency**

SLDMWA is not the proper Lead Agency for the Project. California Environmental Quality Act (“CEQA”) Guidelines section 15367 and Section 15051 require that the California Department of Water Resources, as the operator of the California Aqueduct and who has responsibility to protect the public health and safety and the financial security of bondholders with respect to the aqueduct, is the more appropriate lead agency. In *PCL v DWR*, the court found that DWR’s attempt to delegate lead agency authority impermissibly insulated the department from “public awareness and possible reaction to the individual members’ environmental and economic values.”<sup>1</sup> DWR clearly has approval authority for parts of the Project and is guiding the transfer process as noted on page 3-41: “Potential sellers will be required to submit well data for Reclamation and, where appropriate, DWR review, as part of the transfer approval process. Required information is detailed in the *DRAFT Technical Information for Preparing Water Transfer Proposals* (Reclamation and DWR 2013) and Addendum (Reclamation and DWR 2014) for groundwater substitution transfers.”

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<sup>1</sup> *Planning and Conservation League et al. v Department of Water Resources* (2000) 83 Cal.App.4th 892, 907, citing *Kleist v. City of Glendale* (1976) 56 Cal. App. 3d 770, 779.

Additionally, the EA/IS p 1-2 says: "Other transfers not involving the SLDMWA and its Participating Members could occur during the same time period. The Tehama-Colusa Canal Authority (TCCA) is releasing a separate EA/IS to analyze transfers from a very similar list of sellers to the TCCA Member Units. These two documents reflect different potential buyers for the same water sources; that is, the sellers have only the amounts of water listed in Section 2 available for transfer, but the water could be purchased by SLDMWA or TCCA members." This is another reason that DWR should be the lead agency: environmental review of transfers should be unified and comprehensive, and cumulative across both geography and over time.

## **II. Document Presentation**

### Document Identification

A foundational requirement under the National Environmental Policy Act ("NEPA") and CEQA is disclosure. This begins with the proper identification of the document that is circulated for public review. The title page of the environmental review document provided for the proposed Project states that it is a *Draft Environmental Assessment/Initial Study 2014 San Luis & Delta Mendota Water Authority Water Transfers*. The headers on alternate pages throughout the document and the appendices identify the document with: *2014 San Luis & Delta-Mendota Water Authority Water Transfers Draft Environmental Assessment/Initial Study*. From these titles, the Bureau appears not to be a party to the document.

The Notice of Intent that was mailed to AquAlliance, but was not available on the Bureau's web site ([http://www.usbr.gov/mp/nepa/nepa\\_projdetails.cfm?Project\\_ID=16681](http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=16681)), asserts that SLDMWA plans to adopt a Mitigated Negative Declaration and refers the reader to the Bureau's web site provided above for the EA/IS. In addition, the CEQA cover sheets that were initially attached to the EA/IS when it was first released on the Bureau's web site, but are now absent from the site, also asserted the intent to adopt a Mitigated Declaration. Included in the CEQA cover sheets are two pages signed by Frances Mizuno on March 11, 2014 entitled *MITIGATED NEGATIVE DECLARATION FOR 2014 SAN LUIS & DELTA-MENDOTA WATER AUTHORITY WATER TRANSFERS* that refers the reader to the Bureau's web site for the EA/IS, but, as stated above, these four cover pages are no longer available on the Bureau's web site ([http://www.usbr.gov/mp/nepa/nepa\\_projdetails.cfm?Project\\_ID=16681](http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=16681)). Lastly, to add to the confusion, there is no mention of a Mitigated Negative Declaration anywhere in the EA/IS.

As discussed above, there is an absence of clarity regarding 1) the intent to adopt a Mitigated Declaration under CEQA and 2) the ownership of the NEPA/CEQA document. On March 14, 2014, the day after the formal release of the EA/IS on the Bureau's web site, the cover pages that informed the reader that SLDMWA intended to adopt a Mitigated Negative Declaration vanished. What has been available for public review since that date is confusing and deficient. It must also be emphasized that the NEPA/CEQA document is only available at the Bureau's web site. Next, regarding the lead agencies for the NEPA/CEQA document, we acknowledge that page 1-1 reveals the lead agency roles of the Bureau and SLDMWA, but we find that the lack of clear, dual ownership in the document's title and page headers confusing and deficient for the public.

### Document Navigation

The Index fails to provide details for Chapter 3 with the CEQA check list headings and pages making the document less than user-friendly.

### **III. Purpose and Need**

The Bureau's *Reclamation's NEPA Handbook* (2012) states, "The need for an accurate (and adequate) purpose and need statement early in the NEPA process cannot be overstated. This statement gives direction to the entire process and ensures alternatives are designed to address project goals." (p.11-1) While "need" is disclosed in section 1.2 (p. 1-3), there is no coherent discussion of that "need" that would establish how SLDMWA members find themselves in the current situation. Merely stating that, "As a result of the significantly reduced allocation, the SLDMWA is in need of water for irrigation, primarily of permanent crops to prevent the long term impacts of allowing these crops to die," lacks context, specificity, and rigor. First, the hydrologic conditions described on page 1-3 apply to the entire state, including the region where buyers are sought, not just the areas served by SLDMWA as presented here. Second, SLDMWA has chronic water shortages due to its contractors' junior position in water rights, risks taken by growers to plant permanent crops, and serious long-term overdraft in its service area. Where is this divulged? Third, SLDMWA or its member agencies have sought to buy and actually procured water in many past water years to make up for poor planning and risky business decisions. which violates CEQA's prohibition against segmenting a project to evade proper environmental review?<sup>2</sup>

In reference to the Bureau, the EA/IS states, "Reclamation's need is to approve the transfer of Base Supply or Project Water that may require the use of CVP facilities, consistent with state and federal law, the Sacramento River Settlement Contract, and the Interim Guidelines for Implementation of the Water Transfer Provisions of the Central Valley Project Improvement Act (Title XXXIV of Public Law 102-575). This "need" statement, highlights the conflicts in the Bureau's mission, deficiencies in planning for 2014, and the inadequacy of the EA/IS that should provide, among other things, the following background.

- During Bureau meetings held in 2013<sup>3</sup>, the Bureau and DWR knew full well that 2013 was a dry year and that reservoir levels at the dams were exceedingly low<sup>4</sup>. Despite that awareness, the same federal and state agencies continued to export almost 2,400,000 AF of water to South State interests between June and December 2013. (*Id at p. 8*)
- In 2011 the Bureau gave away approximately 450,000 AF of additional storage water and DWR exported more than 826,000 AF of water above what it disclosed it could in 2013.<sup>5</sup>
- After taking the above actions, the Bureau (p. 1-3) and DWR are diminishing water allocations to senior water rights holders in and north of the Delta and yet asking some of the same water districts to actually sell water.

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<sup>2</sup> Laurel Heights Improvement Association v. Regents of the University of California, 1988, 47 Cal.3d 376

<sup>3</sup> [http://www.usbr.gov/mp/Waters\\_Supply\\_Meetings/About.html](http://www.usbr.gov/mp/Waters_Supply_Meetings/About.html)

<sup>4</sup> Bureau WY 2013 Handout (4)

<sup>5</sup> <http://calsport.org/news/wp-content/uploads/St-Bd-Drought-Wkshp.pdf>

The Proposed Action Alternative is poorly specified and needs additional clarity before decision makers and the public can understand the human and environmental consequences of the *2014 Water Transfers*. The EA describes the Proposed Action Alternative as one reflecting the Bureau's intention to approve transfers of Central Valley Project water from willing sellers who contract with the Bureau ordinarily to use surface water on their croplands. Up to 195,126 AF of CVP water are offered from these sellers, according to Table 2-1. (EA/IS p. 2-3). In contrast to the EA/FONSI for the 2009 Drought Water Bank (p. 3-88), the Project EA/IS contains no "priority criteria" to determine water deliveries and simply acknowledges that CVP river water will be transferred to San Luis & Delta Mendota Water Authority contractors. The EA/IS fails to indicate how much water has been requested by the buyers of CVP or non-CVP water, which is also in contrast to the 2009 DWB EA/FONSI and DWR's addendum for the 2009 DWB. Potential buyers of non-CVP water are also not disclosed. These significant omissions eliminate the public's ability to consider, assess, and comment on possible impacts in the receiving areas. This denial of information further obfuscates the need for the Project.

The Bureau and SLDMWA's draft environmental review of the Project does not comply with the requirements of NEPA<sup>6</sup> or CEQA<sup>7</sup> for the reasons described below.

#### **IV. An EIS/EIR is Required**

The Bureau must prepare an environmental impact statement ("EIS") and DWR, as the proper lead agency (not SLDMWA), must prepare an environmental impact report ("EIR") on this proposal. The current project is similar to the 2009 Drought Water Bank project that allowed up to 600,000 acre-feet (AF) of surface water transfers, up to 340,000 AF of groundwater substitution, and significant crop idling. At that time, DWR staff conceded that the 2009 Drought Water Bank project would have significant environmental impacts. The 2009 Drought Water Bank (2009 DWB) was a water transfer program very similar to the current proposal. Litigation of the 2009 DWB disclosed internal DWR emails showing DWR staff's view that the 2009 DWB would have significant impacts on the environment.<sup>8</sup> (See Supplemental Administrative Record ("Suppl. AR") 2007 [email from Curt Spencer stating: "Without an air override, we face a limited water supply, See Suppl. AR 2020, 203.]<sup>9</sup> DWR staff were also concerned the proposed addendum would not meet CEQA's requirements because the mitigation measures for impacts on the giant garter snake were based on an expired 2003 biological opinion. (See Suppl. AR 2010, 2014, 2022, 2044, and 2056.) Other concerns included the adequacy of the mitigation measures to protect the giant garter snake given the lack of up to date scientific information on the species (see Suppl. AR 2026, 2028, and 2034). Indeed, even after invoking the emergency exemption, DWR continued to express concerns regarding the project's potentially significant environmental impacts and whether these impacts would be mitigated. (See Suppl. AR 2064, 2066, and 2070 [emails discussing concern re air impacts]; Suppl. AR 2054 [email planning

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<sup>6</sup> 42 U.S.C. §4321 *et seq*

<sup>7</sup> Public Resources Code §21000 *et seq*

<sup>8</sup> DWR E-mail Regarding 2009 Drought Water Bank.

<sup>9</sup> Pages of the Suppl AR are attached hereto as Exhibit \_\_.

“CEQA analysis [that] will focus on the emissions impacts associated with the increased use of diesel [ground water] pumps.”.)

The proposed Project also mirrors the *2010-2011 Water Transfer Program* that sought approval for 200,000 AF of CVP related water and assumed NEPA coverage for additional non-CVP transfer water up to 195,910 AF and the *2013 Water Transfer Program* that sought approval for 37,505 AF of CVP water made available by groundwater substitution and NEPA coverage for an additional 92,806 AF of North State water from groundwater substitution and 65,000 AF from reservoir storage.

NEPA requires federal agencies to prepare a detailed EIS on all “major Federal actions significantly affecting the quality of the human environment . . . .”<sup>10</sup> and CEQA has similar requirements and criteria. NEPA regulations promulgated by the Council on Environmental Quality identify factors that the Bureau must consider in assessing whether a project may have significant environmental effects, including:

- (1) “The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.” 40 C.F.R. §1508.27(b)(5).
- (2) “The degree to which the effects on the quality of the human environment are likely to be highly controversial.” *Id.* §1508.27(b)(4).
- (3) “Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate on a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.” *Id.* §1508.27(b)(7).
- (4) “The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.” *Id.* §1508.27(b)(6).
- (5) “The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.” *Id.* §1508.27(b)(9).

Here, the Bureau and the state agency have failed to take a hard look at the environmental impacts of the Project. As elucidated below, there are substantial questions about whether the Project’s proposed water transfers will have significant effects on the region’s environment, biology, and hydrology. There are also substantial questions about whether the Project will have significant adverse environmental impacts when considered in conjunction with the other related water projects underway, planned, and proposed in the region. The Bureau and the state agency simply cannot, consistent with NEPA, allow these foreseeable environmental impacts to escape full analysis in an EIS of the proposed Project. AquAlliance’s comments below will further highlight the EA/IS deficiencies in disclosure, analysis, and justification for its conclusions.

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<sup>10</sup> 42 U.S.C. §4332(2)(C).

The EA/IS Violates NEPA and CEQA Rules Against Segmenting Environmental Review of Projects

It is noteworthy that the Bureau and the state agency assert that the Project is not part of a “Program” as it has for past water transfers (p. 1-2) and that a draft Findings of No Significant Impact (“FONSI”) has not been provided with the release of the EA/IS as is the Bureau’s custom.

The Bureau and DWR have known for over a decade that programmatic environmental review was and is necessary for water transfers from the Sacramento Valley. The following examples highlight the Bureau and DWR’s deficiencies in complying with NEPA and CEQA.

- The Sacramento Valley Water Management Agreement was signed in 2002, and the need for a programmatic EIS/EIR was clear at that time it was initiated but never completed.<sup>11</sup>
- In 2000, the Governor’s Advisory Drought Planning Panel report, *Critical Water Shortage Contingency Plan* promised a program EIR on a drought-response water transfer program, but was never undertaken.
- Twice in recent history, the state readily acknowledged that CEQA review for a major drought water banking program was appropriate.
- Last, but not least, is the attempt by the Bureau and SLDMWA to analyze the 10-Year Plan, which also has failed to materialize since the scoping period in January 2011.

The Bureau’s most recent transfer approvals include:

- In 2009, the Bureau approved a 1 year water transfer program under which a number of transfers were made. Regarding NEPA, the Bureau issued a FONSI based on an EA.
- In 2010, the Bureau approved a 2 year water transfer program (for 2010 and 2011). No actual transfers were made under this approval. Regarding NEPA, the Bureau again issued a FONSI based on an EA.
- In 2013, the Bureau approved a 1 year water transfer program, again issuing a FONSI based on an EA. The EA incorporates by reference the environmental analysis in the 2010-2011 EA.

These Water Transfer approvals are “programmatic” in the sense that they cover a large geographic area, and applicants for specific water transfers must still obtain additional approvals (from the Bureau and from the SWRCB) before executing any specific water transfer. The additional approvals include:

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<sup>11</sup> The Bureau and DWR actually began a joint Programmatic EIS/EIR to facilitate water transfers from the Sacramento Valley and the interconnected actions that are integrally related to the transfers, but never completed it. The Bureau has impermissibly broken out this current segment of the overall Program for piecemeal review in the present draft EA. See 68 Federal Register 46218 (Aug 5, 2003) (promising a Programmatic EIS on these related activities, “includ[ing] groundwater substitution in lieu of surface water supplies, conjunctive use of groundwater and surface water, refurbish existing groundwater extraction wells, install groundwater monitoring stations, install new groundwater extraction wells...” *Id.* At 46219. See also [http://www.usbr.gov/mp/nepa/nepa\\_projdetails.cfm?Project\\_ID=788](http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=788) (current Bureau website on “Short-term Sacramento Valley Water Management Program EIS/EIR”).

- A specific authorization from the Bureau, based on an application defined by a document entitled: “Draft Technical Information for Water Transfers in 2013.”
- A specific approval from the State Water Board of a petition for change in place or purpose of use under Water Code § 1725 et seq).

In sum, the Bureau and the state have approved water transfer programs (either 1-year or 2-year programs) in 5 out of the last 6 years. Therefore, it is clear that the need for such programs in the future (to the extent a need exists at all), is virtually certain. Therefore, to avoid violating the rules under both NEPA and CEQA against segmenting environmental review of projects, the Bureau and state are required to include future water transfers in the current environmental analysis, either as (1) part of the project description, as reasonably foreseeable future activities associated with the project, and/or as part of the assessment of cumulative impacts. The EA/IS fails to do so,

## V. Chapter 2, Alternatives

The most fundamental deficiency of the EA/IS is the lack of alternatives considered, which, once again, continues the Bureau’s failure to comply with NEPA and DWR’s failure to comply with CEQA. NEPA’s implementing regulations call analysis of alternatives “the heart of the environmental impact statement,” 40 C.F.R. §1502.14, and they require an analysis of alternatives within an EA. *Id.* §1408.9. The statute itself specifically requires federal agencies to: study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning available uses of resources.

42 U.S.C. §4332(2)(E). CEQA has parallel requirements for alternatives to be analyzed in an EIR. Here, because the Bureau’s EA considers only the proposed Project and a “No Action” alternative, the EA violates NEPA.

The case law makes clear that an adequate analysis of alternatives is an essential element of an EA, and is designed to allow the decision-maker and the public to compare the environmental consequences of the proposed action with the environmental effects of other options for accomplishing the agency’s purpose. The Ninth Circuit has explained that “[i]nformed and meaningful consideration of alternatives ... is ... an integral part of the statutory scheme.”<sup>12</sup> An EA must consider a reasonable range of alternatives, and courts have not hesitated to overturn EAs that omit consideration of a reasonable and feasible alternative.<sup>13</sup>

Here, there are only two alternatives presented: the No Action and the Proposed Action. The lack of *any* alternative action proposal is unreasonable and is by itself a violation of NEPA’s requirement to consider a reasonable range of alternatives. 42 U.S.C. § 4332(2)(E).

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<sup>12</sup> *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1988) (holding that EA was flawed where it failed adequately to consider alternatives).

<sup>13</sup> See *People ex rel. Van de Kamp v. Marsh*, 687 F.Supp. 495, 499 (N.D. Cal. 1988); *Sierra Club v. Watkins*, 808 F.Supp. 852, 870-75 (D.D.C. 1991).



## 2.2 Proposed Action/Proposed Project

Pages 2-3 to 2-6 present the sellers and the amounts of water that may be transferred under two different scenarios: Current Hydrologic Conditions and Improved Conditions. Table 2-1, *The Maximum Potential Transfer by Seller (Acre Feet)* indicates that the total under current hydrologic conditions may be 91,313 and under improved conditions may be 195,126. This is straight forward. However, when attempting to determine how much water may come from fallowing or groundwater substitution during two different time periods, April-June and July-September, the reader is left to guess.

The numbers in the "totals" row of Table 2-2 presumably should add up to 91,313. Instead, they add up to 110, 789. The numbers in the "totals" row of Table 2-3 presumably should add up to 195,126. Instead, they add up to 249,997. Both Tables 2-2 and 2-3 have a footnote stating: "These totals cannot be added together. Agencies could make water available through groundwater substitution, cropland idling, or a combination of the two; however, they will not make the full quantity available through both methods. Table 2-1 reflects the total upper limit for each agency."

This "explanation" is no explanation at all. As a result, the reader cannot know how much water is expected to be generated by groundwater substitution versus crop idling. This amount of uncertainty regarding potential sources of the water and the nature of the Project is confusing and impairs the public's ability to assess its environmental impacts.

The following paragraph is found on page 2-9:

An objective in planning a groundwater substitution transfer is to ensure that groundwater levels recover to their seasonal high levels under average hydrologic conditions. Because groundwater levels generally recover at the expense of stream flow, the wells used in a groundwater substitution transfer should be sited and pumped in such a manner that the stream flow losses resulting from pumping are primarily during the wet season, when losses to stream flow minimally affect other legal users of water. For the purposes of this EA/IS, the stream flow losses are assumed to be 12 percent of the amount pumped for transfer. The quantity of water available for transfer would be reduced by these estimated stream flow losses.

The EA's use of "average hydrologic conditions" as the baseline for assessing degree of impact and effectiveness of mitigation measures is unlawful for several reasons. "Average hydrologic conditions" is undefined. The EA asserts elsewhere that hydrologic conditions in 2014 are not "average." The assumption that "[s]tream flow losses are assumed to be 12 percent of the amount pumped for transfer" is unsupported for any location, including the locations where groundwater substitution transfers will occur. The suggestion that "the wells used in a groundwater substitution transfer should be sited and pumped in such a manner that the stream flow losses resulting from pumping are primarily during the wet season" is not embodied in any enforceable condition or mitigation measure. Since there is no guarantee this suggestion will be honored, it does not support a FONSI for impacts related to stream flow losses. Also, the EA/IS considers



the effects of stream flow losses on other water users, and fails to assess the effect of stream flow losses (either below or above the 12% threshold) on other environmental values and resources, such as:

Page 2-11, bullet one states that, “Historical amounts of idled land vary year-to-year by close to 20 percent, which indicates that the local economy has adjusted to similar amounts of crop idling.” What data support this assertion? Where is it presented in the EA/IS? If it is presented in the EA/IS, why is not cited with the above quotation? If GCID planned to idle about 15 percent of the district’s rice land with a 75 percent CVP allocation, it is fair to conclude that it would more than double with what is currently proposed at a 40 percent allocation. (EA/IS p. 4-5). The impacts from increased fallowing due to decreased CVP allocations, let alone in combination with the proposed transfers, are not presented here.

As the Agencies well know, the overall economy and the environment are supposed to be protected from unreasonable effects according to California Water Code Section 1810 and the CVPIA. Page 2-11, bullet two states that, “Cropland idling has not generally resulted in economic impacts outside of the historical variations.” What data support this assertion? How is “generally” defined in this context? What data are used to evaluate economic impacts from fallowing if there are unusual conditions? Where are these issues presented in the EA/IS? If they are presented in the EA/IS, why are they not cited with the above quotation? If the Agencies have data that support the quoted assertion, although it is not cited or presented in the EA/IS for public review, aren’t the current, unusually dry conditions (presented in Section 1.2, *Need for Proposal and Project Objectives*) combined with unprecedented cuts to CVP water deliveries a time when unusually significant impacts might occur? Over a decade ago David Gallo assessed the impacts on local economies from fallowing and concluded that the costs ranged from \$157 - \$170 per acre foot of water sold.<sup>14</sup> This is what should have been analyzed and evaluated in the EA/IS, or better yet, in what the Agencies know is necessary: an EIS/EIR (EA/IS p.1-4).

In Chapter 2, Alternatives, page 2-11, bullet three states that, “Water Code Section 1745.05(b) requires a public hearing under some circumstances in which the amount of water from land idling exceeds 20 percent of the water that would have been applied or stored by the water supplier absent the water transfer in any given hydrologic year. Third parties would be able to attend the hearing and could argue to limit the transfer based on its economic effects.” With water deliveries potentially cut to 50 percent for senior SWP contractors and 40% for senior CVP contractors, what is the potential to exceed the 20 percent figure, particularly when cropland idling transfers are added to the cumulative impacts? Is a public hearing scheduled? How will potentially affected and interested parties receive notice of a hearing? It is noticeable that the EA/IS bullet language fails to disclose where a public hearing might be held and before what governmental body.

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<sup>14</sup> Gallo, David. Estimating Third Party Impacts From Water Transfers Through Riceland Fallowing: A Suggested Approach.

Section 2.3, *Recent Environmental Documents*, proudly touts the production of the *2010/2011 Water Transfer Program Environmental Assessment*. Although discussion of the document's failings are not disclosed here, AquAlliance presented many of them in our comments on the EA/FONSI and filed litigation to challenge it. During the litigation the Bureau decided to initiate the 10-Year Water Transfer Program (600,000 AF per year) with scoping meetings for an EIS/EIR in concert with SLDMWA. Despite the acknowledgment that an EIS/EIR is necessary for the repetitious water transfers, the release of the EIS/EIR has been delayed year-after-year while the Bureau continues to pursue one-year, so-called "temporary" transfers.

### Mitigation and Monitoring

Where are the data that are referenced on page 2-12? "As part of the monitoring plans required by the EA/IS, the transferring parties have collected monitoring data starting pre-transfer. To date (through January 2014), the available monitoring data indicates that the groundwater aquifer is recovering to pre-transfer levels, as described in the EA. Final monitoring reports that describe the monitoring data will be available in May 2014." If the public doesn't have access to the "pre-transfer" data and the Agencies will not have final reports until May 2014, how can the public adequately comment and how can the Agencies reach a conclusion? This gaping hole in the assessment of the impacts from the 2013 water transfers indicates at a minimum that the 2014 Project EA/IS was circulated prematurely.

In light of the EA/IS's deficit in presenting groundwater conditions in the Sacramento Valley after the 2013 groundwater substitution transfers or historic trends, we attach the most current DWR maps that illustrate the serious condition of the groundwater basins in the Sacramento Valley. These DWR maps<sup>15</sup> present a very different picture than what is supplied in Appendix F's attempt at modeling. There is a clear and significant downward trend in regional groundwater levels.

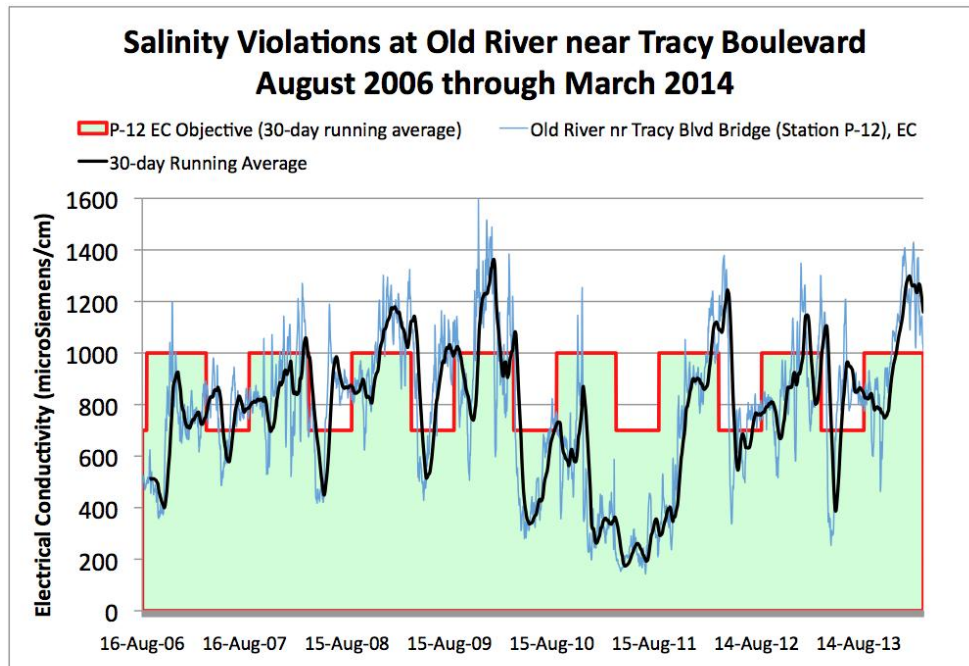
- Northern Sacramento Valley Change In Groundwater Elevation Map Change in Deep Fall 2012 to Fall 2013, Shallow Aquifer Zone
- Northern Sacramento Valley Change In Groundwater Elevation Map Change in Deep Fall 2012 to Fall 2013, Intermediate Aquifer Zone
- Northern Sacramento Valley Change In Groundwater Elevation Map Change in Deep Fall 2012 to Fall 2013, Deep Aquifer Zone
- Northern Sacramento Valley Change In Groundwater Elevation Map Change in Deep Fall 2004 to Fall 2013, Shallow Aquifer Zone
- Northern Sacramento Valley Change In Groundwater Elevation Map Change in Deep Fall 2004 to Fall 2013, Intermediate Aquifer Zone
- Northern Sacramento Valley Change In Groundwater Elevation Map Change in Deep Fall 2004 to Fall 2013, Deep Aquifer Zone

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<sup>15</sup>[http://www.water.ca.gov/groundwater/data\\_and\\_monitoring/northern\\_region/GroundwaterLevel/gw\\_level\\_monitoring.cfm#Level%20Monitoring%20Reports%20and%20Maps](http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/gw_level_monitoring.cfm#Level%20Monitoring%20Reports%20and%20Maps)

### Environmental Commitments

Page 2-12 (also p. A-1) attempts to assure the public that, “Carriage water will be used to maintain water quality standards in the Delta.” With that promise in mind, the Bureau and DWR have a record of violating these standards.<sup>16</sup>



Source: California Data Exchange Center, Station OLD.

On what basis should decision-makers or the public rely on the promises made by the Bureau and DWR, let alone the buyer, SLDMWA, which facilitates some of the most destructive practices in California: growing permanent crops in a desert, creating massive amounts of polluted water and soil,<sup>17</sup> and crying foul when the spigot is dry?

Page 2-12 continues with assurances that, “Well reviews and monitoring and mitigation plans will be implemented to minimize potential effects of groundwater substitution on nearby surface and groundwater water resources. Well reviews, monitoring and mitigation plans will be coordinated and implemented in conjunction with local ordinances, basin management objectives, and all other applicable regulations.” The Agencies are asking the public to trust that this will happen and that the mitigation and monitoring plans will be adequate. The public has no mechanism to verify how well this has or hasn’t been handled in the past and isn’t presented with an opportunity for this year. Mitigation and Monitoring Plans must be available concurrently

<sup>16</sup> Strohane chart and table 2014, Salinity Violations at Old River Near Tracy Blvd. August 2006-August 2013.

<sup>17</sup> According to the December 2000 United States Geological Survey Open File Report 00-416, even if irrigation of drainage problem areas were halted today, it would take 63 to 300 years to drain contaminated water from the Western San Joaquin Valley’s aquifer underlying contaminated soils in WWD. The USGS report reiterates the findings in the Rainbow Report [USGS, Gilliom et.al. 1989] that the drainage problem area in 1990 was 450,000 acres. If irrigation continues without a resolution, the problem area will be 950,000 acres in 2040.

with NEPA and CEQA documents, so the public, knowledgeable about the areas where transfer sales are proposed, may evaluate and provide comments on their efficacy. This has been a repeated failure by the Bureau and DWR.

#### Geology and Soils (2.5.4)

Page 2-17 states, “There are some earthquake faults in the region but earthquakes are generally associated with coastal California, west of the Central Valley.” This casual statement fails to disclose significant history and information that is easily available.<sup>18</sup> The major faults in the region should, at minimum, be disclosed.

## **VI. Chapter 3 - Environmental Impacts**

### Biological Resources (IV)

- a) Check list item “a” fails to include the National Marine Fisheries Service (“NMFS”) as a jurisdictional agency over species that may be affected by the Project (p.3-11) although they are referenced in the discussion on pages 3-12 to 3-13. This lack of clarity and consistency contributes to difficulty reviewing the EA/IS.
- b) On page 3-13, the EA/IS continues its discussion to support the finding of *Less Than Significant Impact* for, “[a]ny species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service,” with NMFS excluded as noted above (p.3-11). The EA/IS concludes that, “The incremental effects of transfers on special status fish species in the Delta from water transfers would be less than significant.” What data and analysis support this conclusion and where is the material found? Analysis conducted by Thomas Cannon contradicts the *Less Than Significant Impact* finding with disturbing results from the summer of 2013.<sup>19</sup> His research reveals that summer water transfers are devastating, especially in dry years when the low salinity zone is in the western Delta and smelt are stuck within the Delta and threatened by warm water, which has been made available for transfer by either fallowing or groundwater substitution, and predators,
- c) The Bureau and DWR, not SLDMWA, should prepare an EIR because the Project will likely have significant environmental effects on the Giant Garter Snake (*Thamnophis gigas*) (“GGs”), a listed threatened species under the federal Endangered Species Act and California Endangered Species Act. 40 C.F.R. §1508.27(b)(9).

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<sup>18</sup> “Detailed analyses of this seismicity and focal mechanisms indicate that active geologic structures include blind thrust and reverse faults and associated folds (e.g., Dunnigan Hills) within the CRSB boundary zone on the western margin of the Sacramento Valley, the Willows and Corning faults in the valley interior, and reactivated portions of the Foothill fault system. Other possibly seismogenic faults include the Chico monocline fault in the Sierran foothills and the Paskenta, Elder Creek and Cold Fork faults on the northwestern margin of the Sacramento Valley.” [http://archives.datapages.com/data/pacific/data/088/088001/5\\_ps0880005.htm](http://archives.datapages.com/data/pacific/data/088/088001/5_ps0880005.htm)

<sup>19</sup> *Summer 2013: The demise of Delta smelt under D-1641 Delta Water Quality Standards*

The draft EA/IS fails to comprehensively describe or analyze the species, its baseline condition (that should at a minimum start with the CalFed ROD's approval in 2000), movements, habitat requirements, critical habitat, or recovery plan. Is the GGS part of any draft of final HCPs or NCCPs? The Agencies' *Environmental Commitments* are described on pages 2-12 to 2-14 (repeated verbatim in Appendix A) and seem to be the extent of what the Agencies' deem to be their responsibilities under NEPA and CEQA.

We would like to remind the Agencies that flooded rice fields and irrigation canals in the Sacramento Valley can be used by the giant garter snake for foraging, cover and dispersal purposes. The snake gives birth from July to September, months that the Project would be implemented. The Agencies must explain to decision-makers and the public just how the multiple strains of past and Project fallowing and groundwater substitution transfers, cuts in CVP and SWP deliveries, and recently past and existing dry conditions in the area of origin could significantly increase the potential impact to GGS habitat and the species itself. GGS depend on more than only rice fields in the Sacramento Valley.<sup>20</sup> "The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, other waterways and agricultural wetlands such as irrigation and drainage canals and rice fields, and the adjacent uplands. Essential habitat components consist of: (1) adequate water during the snake's active period, (early spring through mid-fall) to provide a prey base and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat..." (Id at p. 3) What analysis has occurred that removes GGS from consideration for potential significant impacts? How will the Project affect streams, wetlands, and emergent, herbaceous wetland vegetation? How will it be monitored? Crafting an *Environmental Commitment* to provide Reclamation with "[a]ccess to the land to verify how the water transfer is being made available and to verify that the actions to protect the GGS are being implemented," doesn't pass the blush test (2-13). As AquAlliance has stated repeatedly in previous water transfer comments, an *independent*, third-party monitor, with no financial ties to the Agencies, DWR, or any buyers and sellers is the only acceptable and credible monitor. See AquAlliance comments for the *2010/2011 Water Transfer Program* and the Bureau's *2013 Water Transfer Program*.

### Hydrology and Water Quality (IX)

The draft EA does not provide sufficient evidence to support its conclusion that the Project will not have significant hydrological impacts.

- a) The EA/IS lacks detailed information, such as the most basic conditions in the local and regional environment in the area of origin, which has also experienced multi-year dry conditions and significantly lower precipitation. This essential background description is found neither in the *Background* section of Chapter 1 or in this section of Chapter 3, *Hydrology and Water Quality*. Without disclosing current site specific, local, and

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<sup>20</sup> **Programmatic Consultation with the U.S. Army Corps of Engineers**

404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California

regional conditions, it is impossible to evaluate the potential environmental impacts that should be made available to decision-makers and the public before the Bureau reaches a conclusion. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

- b) Item “a” considers if the Project will “Violate any water quality standards or waste discharge requirements?” and concludes that there will be a *Less than Significant Impact*.
- Proposed Action. 1) The EA/IS fails to disclose historic and ongoing degradation of water quality that has been caused by the CVP in the Delta and the SLDMWA import area.<sup>2122 23</sup> 2) It also fails to consider that groundwater extractions may mobilize PCE, TCE, and nitrate plumes under the City of Chico<sup>24</sup> (p.4) or in other Sacramento Valley communities and the potential risks to human health and the environment. The EA/IS fails to even *disclose* the existence of all the hazardous waste plumes in the area of origin where groundwater substitution may occur. These are just more examples of the issues that should be considered and evaluated in an EIS/EIR.
- c) Item “b” discussed on pages 3-27 - 3-42 is considered a *Less than Significant Impact*. There are significant faults with the finding and the material that supports it in the EA/IS.
- No Action Alternative. Why do Figures 3-1, 3-2, and all the hydrographs in Appendix F end at 2002? Extending the timeline and using actual well monitoring data, not simply modeling, would provide valuable information for the Agencies, decision-makers, and the public. Figures 3-1, and 3-2 provide “[b]aseline modeling trends,” but present only a picture of possible groundwater responses when there is genuine historical and current data<sup>25</sup> that are ignored. The exercise in modeling actually obfuscates the demonstrable responses that have occurred during all measure of hydrologic conditions.
  - No Action Alternative. “In the Sacramento Valley, reductions in supply have historically resulted in increased groundwater pumping and decreased groundwater levels; however, the water levels have rebounded quickly after the dry period.” This conclusory statement fails to provide the decision-makers and the public with important factual data. For example, a summary of conditions in the Durham area of Butte County find that while water levels may recover after dry periods with intense use, wells aren’t returning to previous levels, but moving

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<sup>21</sup> SWRCB D-1641, “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 USBR, through its activities associated with the in the San Joaquin River Basin, is responsible for significant deterioration of water quality in the Southern Delta.”

<sup>22</sup> Drainage Problem area in 1990 was 450,000 acres. If no resolution, problem area will be 950,000 acres in 2040 (Rainbow Report)

<sup>23</sup> If no more irrigation of the western San Joaquin Valley were to occur and the San Luis Drain were completed, it would still take 63-300 years to drain the accumulated Se from the aquifer at a rate of 43,500 lbs./year. (USGS Open File Report 00-416)

<sup>24</sup> 2005. California GAMA Program: Groundwater Ambient Monitoring and Assessment Results for the Sacramento Valley and Volcanic Provinces of Northern California

<sup>25</sup> <http://www.water.ca.gov/waterdatalibrary/>



steadily in a downward trajectory.<sup>26</sup> Additionally, even the Yuba River area, often touted by state and federal agencies as a successful conjunctive use program, takes 3-4 years to recover from groundwater substitution in the south sub-basin<sup>27</sup> although the Yuba County Water Agency analysis fails to determine how much river water is sacrificed to achieve the multi-year recharge rate. (pp. 21, 22). More examples of what the EA/IS fails to provide are found in the most current DWR maps listed above in our comments regarding Chapter 2 that demonstrate the serious condition of the groundwater basins in the Sacramento Valley.

- No Action Alternative “Figures 3-1 and 3-2 show baseline groundwater trends (in addition to modeling results for the Proposed Action) at the groundwater table and in the deep aquifer, respectively, in the Sacramento Valley near Sycamore Mutual Water Company.” There is a noticeable absence of information north of Chico on either side of the Sacramento River (recall that Figures 3-3 and 3-4 stop before the northern Butte County line); south and east of Chico east of the Sacramento River in general; and west of Interstate 5. There may not be planned groundwater substitution transfers in some of this area, but that is no reason not to provide tangible data for this part of the common Tuscan groundwater basin. For examples of existing conditions see Table 1 below that is based on data provided by DWR. In addition, grave concern was expressed in the minutes of a December 2013 Glenn County Water Advisory Committee: “The report emphasized that despite the small upward trend in water levels observed on an annual basis in some areas, there is a general decline observable in the long term data across the majority of the region, particularly in the Northwestern portion of Glenn County.”

**Table 1. Example of wells of concern in Butte and Tehama counties**

3 yrs data multi completion. ~1mile west of Butte Creek Country Club, declining trend <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24664">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24664</a> <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24665">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24665</a> <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24440">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24440</a>
3 yrs data multi, ~6miles SW of Chico, declining trend <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=48992">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=48992</a> <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=48990">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=48990</a> <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=48991">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=48991</a>
4yr data multi, ~6miles WSW of chico, declining <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=38214">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=38214</a> <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24975">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24975</a> <a href="http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24974">http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=24974</a>

<sup>26</sup> Buck, Christina 2014. *Groundwater Conditions in Butte County*.

<sup>27</sup> 2012. *The Yuba Accord, GW Substitutions and the Yuba Basin*. Presentation to the Accord Technical Committee.



11 yrs, irrigation, ~8miles NW of Chico, declining trend

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=25770](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=25770)

12 yrs, cana-pine creek, -10'

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=25770](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=25770)

>40 yr data Near 99 and ~6miles E of Corning, dipping below 60' shallow aquifer (valley oak depth)

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=19988](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=19988)

Near Deer Creek ~10miles NE of Corning, 14 years, declining trend, monitoring well multi

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=19993](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=19993)

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=34741](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=34741)

Multi comp monitoring well, ~10miles NE Corning, 14 years, declining below valley oak roots, near deer creek

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=19047](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=19047)

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=19046](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=19046)

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=19045](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=19045)

Multi comp monitoring, 13 yrs, ~8miles SE of Durham, Declining toward valley oak limits if trend continues

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=35608](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=35608)

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=17160](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=17160)

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=17161](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=17161)

~2.5 miles NW of Thermal to Forebay, 14 yrs, 10-20' decline

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr\\_hydro.cfm?CFGRIDKEY=16799](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=16799)

- No Action Alternative. “Appendix F, Groundwater Modeling Results, contains hydrographs at additional locations throughout the valley.” As noted above, presenting only modeling when historic records exist, conceals factual material and presents a false picture. The Agencies must produce the data from decades of well monitoring to provide a genuine look at the groundwater basins, both the Sacramento *and* Redding, More discussion was presented above.
- No Action Alternative. “The groundwater basin is likely to experience groundwater level declines similar to those that occurred during historic droughts (such as 1976- 1977 and 1987-1992), caused by increased pumping to address reduced surface water supplies. In the San Joaquin Valley, reductions in supply would also lead to increased groundwater pumping, but the groundwater historically has not recovered during subsequent dry years.” (p. 3-27). The EA/IS fails to provide any scientific research and analysis that leads to its conclusory

assertion that conditions in the Sacramento Valley groundwater basins will perform as they did during droughts between 38 and 22 years ago. As in much of California, the population has increased in the Sacramento Valley and the amount of irrigated agricultural has as well, placing greater demands on the groundwater basins. As noted above, the San Joaquin Valley groundwater basins are a casualty of very flawed state and federal policy combined with exuberance to place profit over human health, safety, and the environment.

- Proposed Action. The environmental checklist for Hydrology impacts, at section IX.b, finds that the Project impact to “Substantially deplete groundwater supplies ... such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level” is ‘less-than-significant.’
- This conclusion is, however, the result of failing to proceed in the manner required by law: (1) in assessing the significance of this impact, (2) in developing specific mitigation measures to reduce this impact; (3) in assessing the effectiveness of such mitigation measures; and (4) in adopting such mitigation measures. This conclusion is also unsupported by substantial evidence in the record. In addition, there is substantial evidence that this impact is significant. Therefore, CEQA requires preparation and certification of an EIR and NEPA requires preparation and certification of an EIS before Project approval.
- **The EA/IS fails to discharge the lead agencies' duty to find out and disclose all that they reasonably can. (14 CCR § 14144.)**

With respect to Sacramento Valley groundwater, the EA/IS states: “In the Sacramento Valley, reductions in supply have historically resulted in increased groundwater pumping and decreased groundwater levels; however, the water levels have rebounded quickly after the dry period.” (Page 3-27.) The EA/IS makes this assertion based on modeling results, while ignoring contrary empirical information. For example, a summary of conditions in the Durham area of Butte County find that while water levels may recover after dry periods with intense use, wells aren't returning to previous levels, but moving steadily in a downward trajectory.<sup>28</sup> Significantly more material is found in our comments on the *2013 Water Transfer Program*.

In another example, even the Yuba River area, often touted by state and federal agencies as a successful conjunctive use program, takes 3-4 years to recover from groundwater substitution in the south sub-basin.<sup>29</sup> The Yuba River analysis, however, fails to determine how much river water is sacrificed to achieve the groundwater recharge rate mentioned (pp. 21, 22). It is highly likely that the Yuba River becomes a losing stream due to excess use of the groundwater. More examples of what the EA/IS fails to provide are found in the most current DWR

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<sup>28</sup> Buck, Christina 2014. *Groundwater Conditions in Butte County*.

<sup>29</sup> 2012. *The Yuba Accord, GW Substitutions and the Yuba Basin*. Presentation to the Accord Technical Committee.

maps listed above in our comments regarding Chapter 2 that demonstrate the serious condition of the groundwater basins in the Sacramento Valley.

- In short, the EA/ IS fails to disclose all that it reasonably can. "If the local agency has failed to study an area of possible environmental impact, a fair argument may be based on the limited facts in the record. Deficiencies in the record may actually enlarge the scope of fair argument by lending a logical plausibility to a wider range of inferences." *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311.
- **There is substantial evidence that this impact is significant.**

The EA/IS concedes the Project may cause impacts to the groundwater basin from groundwater substitution transfers, including (1) increased groundwater pumping costs due to increased pumping depth; (2) decreased yield from groundwater wells due to reduction in the saturated thickness of the aquifer; (3) decrease of the groundwater table to a level below the vegetative root zone, which could result in environmental effects; and 4) third-party impacts to neighboring wells. (P. 3-29.) But the EA/ IS deems these impacts less-than-significant. In a confusing twist, however, the EA/ IS concedes there are uncertainties surrounding how this Project will affect specific locations, stating: "uncertainty of how groundwater levels could change, especially during a very dry year," in the Redding basin (p. 3-30) and "[t]he model results may not reflect all specific local conditions throughout the Sacramento Valley" (p. 3-37); and that, as a result, mitigation measures will be employed, stating: "Therefore, minimization measures described below would include development of monitoring and mitigation plans to monitor and address potential groundwater level changes that could affect third parties or biological resources." (P. 3-37.)
- This is confusing because the agencies cannot require mitigation measures unless impacts are deemed significant. (See e.g., 14 CCR § 15041(a).) This gives rise to an inference that the Project may cause these impacts to be significant, thus requiring an EIS/EIR.
- Further, the EA/IS unlawfully defers the development of specific mitigation measures until after project approval because there is no basis for assuming they will be effective, there are no objective criteria to judge whether they are successful in avoiding significant impacts, and nothing about them is definitive enough to be enforceable. In short, there is no reason to assume the "minimization measures" and the mitigation and monitoring plans that the EA/IS references will reduce these impacts to "less-than-significant"
- Proposed Action. The Redding Groundwater Basin discussed on pages 3-29 to 3-30 is not included in Figures 3-3 and 3-4. SacFEM modeling may not have been done for the Redding Groundwater Basin, but it would have been beneficial for readers to have the entire area of origin depicted in the only maps provided for the Project.

- Proposed Action. In addition, the Anderson Cottonwood Irrigation District (“ACID”) that is located in the Redding Groundwater Basin is going at the groundwater substitution transfers somewhat blind. It has not benefited from any modeling, but has instead, “[t]ested operation of these wells in the past at similar production rates and has observed no substantial impacts on groundwater levels or groundwater supplies (Anderson-Cottonwood ID 2013).” In attempting to review the reference from p. 5-1 for the: *Initial Study and Proposed Negative Declaration for Anderson-Cottonwood Irrigation District’s 2013 Water Transfer Program*. Available at: <http://www.andersoncottonwoodirrigationdistrict.org/library.html> or at: [http://www.usbr.gov/mp/nepa/nepa\\_projdetails.cfm?Project\\_ID=13310](http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=13310), we found that the only environmental documents at the ACID web site relate to a 2011 Bureau EA/FONSI for the *Anderson-Cottonwood Irrigation District Integrated Regional Water Management Program – Groundwater Production Element Project* and the Bureau’s web site is for the EA/FONSI for the 2013 Water Transfer Program. The public has been obstructed from reviewing the referenced material to evaluate the efficacy of the findings in the Bureau/SLDMWA EA/IS that, “[g]roundwater substitution transfers are unlikely to have significant effects on groundwater levels.” (p. 3-30).
- Proposed Action. Table 3-8 fails to include ACID and Tule Basin Farms in the table. The last three listed *Potential Sellers* are not listed in alphabetical order with the other possible sellers.
- Proposed Action. Groundwater/Surface Water Interaction. The EA/IS acknowledges the potential for impacts and assumes a “[1]2 percent depletion factor to prevent any adverse impacts associated with surface water-groundwater interaction...” (p.3-39) This number is not supported with any documentation or analysis and runs counter to modeling done by CH2M HILL in a memo to DWR in 2010. “The effect of groundwater substitution transfer pumping on stream flow, when considered as a percent of the groundwater pumped for the program, is significant. The impacts were shown to vary as the hydrology of the periods following the transfer program varied. The three scenarios presented here estimated effects of transfer pumping on stream flow when dry, normal, and wet conditions followed transfer pumping. Estimated stream flow losses in the five-year period following each scenario were 44, 39, and 19 percent of the amount of groundwater pumped during the four month transfer period.”<sup>30</sup> Even with this modeling information in hand since 2010, the Agencies and DWR continue to use a 12 percent deduction for stream flow. The results of the model run are the best predictions available to date and suggests caution above all else, even though they are preliminary and the model subject to modification.<sup>31</sup> By adhering to a 12 percent loss for stream flow, it is clear that the Bureau, SLDMWA, and DWR are

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<sup>30</sup> Lawson 2010. *Groundwater Substitution Transfer Impact Analysis, Sacramento Valley*.

<sup>31</sup> WRIME 2011. *Peer review of Sacramento valley Finite Element Groundwater Model (SacFEM)*

not erring on the side of caution and may be causing considerable legal injury to other users and the environment.

- The base map for Figures 3-3 and 3-4 lacks clarity. It is difficult to discern the approximate locations of wells # 1 through 6, 9, 15, 16, 19, 20, 21, 22, 28, and 30.
- This Project is part of serial, so-called “temporary” water transfers<sup>32</sup> and is also part of a much larger Program that was introduced by the Agencies on page 1-4, *Long Term Water Transfers*. As noted above, the Project and the *Long Term Water Transfers* reach back much further and are components of the following programs, plans, and studies:
  - i. CalFed Bay-Delta Program, Record of Decision (August 2000)
  - ii. Sacramento Valley Water Management Agreement (Phase 8), (October 2001)
  - iii. Sacramento Valley Integrated Regional Water Management Plan (2006)
  - iv. Sacramento Valley Regional Water Management Plan (January 2006)
  - v. Stony Creek Fan Conjunctive Water Management Program
  - vi. Draft Initial Study for 2008-2009 Glenn-Colusa Irrigation District Landowner Groundwater Well Program
  - vii. Regional Integration of the Lower Tuscan Groundwater Formation into the Sacramento Valley Surface Water System Through Conjunctive Water Management (June 2005) (funded by the Bureau)
  - viii. Stony Creek Fan Aquifer Performance Testing Plan for 2008-09
  - ix. Annual forbearance agreements (2008 had an estimated 160,000 acre feet proposed).
  - x. The Delta Stewardship Council’s Plan and EIR approved in 2013.
  - xi. The Bay Delta Conservation Plan and EIS/EIR currently out for public review and comment.
- **Proposed Action. Land Subsidence.** The first paragraph on subsidence on page 3-39 is actually a useful summary of the hazards presented by the Project. The subsequent material also highlights the potential significant, adverse impacts, such as:
  - i. “Land subsidence has not been monitored in the Redding Groundwater Basin. However, there would be potential for subsidence in some areas of the basin if groundwater levels were substantially lowered. The groundwater basin west of the Sacramento River is composed of the Tehama Formation; this formation has exhibited subsidence in Yolo County and the similar hydrogeologic characteristics in the Redding Groundwater Basin could allow subsidence.”

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<sup>32</sup> AquAlliance 2014. *Past Water Transfers from the Sacramento Valley Through the Delta*.

- ii. Most areas of the Sacramento Valley Groundwater Basin have not experienced land subsidence that has caused impacts to the overlying land. However, portions of Colusa and Yolo counties have experienced subsidence; historically land subsidence occurred in the eastern portion of Yolo County and the southern portion of Colusa County, owing to groundwater extraction and geology. As much as four feet of land subsidence due to groundwater withdrawal has occurred east of Zamora over the last several decades.

The EA/IS then concludes that there will be a *Less Than Significant Impact* by using the “guidance” set forth in the *DRAFT Technical Information for Preparing Water Transfer Proposals* (Bureau and DWR 2013) and Addendum (Bureau and DWR 2014) to, “[m]inimize potential effects to other legal users of water; to provide a process for review and response to reported third party effects; and to assure that a local mitigation strategy is in place prior to the groundwater transfer.” In addition, “Reclamation’s transfer approval process and groundwater minimization measures set forth a framework that is designed to avoid and minimize adverse groundwater effects. Reclamation will verify that sellers adopt these minimization measures to minimize the potential for adverse effects related to groundwater extraction.”

Even if minimizing subsidence is possible in the Sacramento Valley where groundwater substitution is planned, which we will argue it is not (see below), minimizing an impact is not *avoiding* an impact. The mere acknowledgment that minimizing will be necessary to avoid potentially adverse impacts, points once again to the need for an EIS/EIR. The EA/IS, the *Draft Technical Information for Water Transfers* in 2013, and the 2014 Addendum don’t appear to weigh the significance of avoidance of impacts, pre-Project mitigation, during-Project mitigation, or post-Project mitigation. This fails to create objective standards and merely defers responsibility to the “willing sellers,” a broadly unsuspecting public, and a voiceless environment.

**There is substantial evidence that this impact is significant.**

As noted above, the EA/IS concedes the Project may cause land subsidence impacts in both the Redding Groundwater Basin, where it says previous subsidence has not been a problem (p. 3-39), and the Sacramento Groundwater Basin (p. 3-40), where it says previous subsidence from groundwater pumping has been a problem.

Regardless of these different histories, both are purportedly required to develop so-called mitigation and monitoring plans to deal with the assessment of whether pumping will cause significant subsidence and to develop mitigation measures to reduce this impact.

Again, because agencies cannot require mitigation measures unless impacts are deemed significant, this requirement indicates the Project may cause significant subsidence impacts, thereby requiring an EIS/EIR.

Further, the EA/IS unlawfully defers the assessment of whether pumping will cause significant subsidence. The EA/IS unlawfully defers the development of mitigation measures to reduce this impact until after project approval, but there is no basis for assuming they will be effective, there are no objective criteria to judge whether they are successful in avoiding significant impacts, and nothing about them is definitive enough to be enforceable. In short, there is no reason to assume the “minimization measures” and the mitigation and monitoring plans that the EA/IS references will reduce this impact to "less-than-significant"

The following evidence, however, demonstrates that the Project's subsidence impacts may be significant. AquAlliance has provided expert opinion on the issue of subsidence monitoring repeatedly during past water transfer environmental review. Despite its credibility, the findings of Dr. Kyran Mish, Presidential Professor, School of Civil Engineering and Environmental Science at the University of Oklahoma, have been ignored. Dr. Mish relates: “It is important to understand that *all* pumping operations have the potential to produce such settlement, and when it occurs with a settlement magnitude sufficient enough for us to notice at the surface, we call it *subsidence*, and we recognize that it is a serious problem (since such settlements can wreak havoc on roads, rivers, canals, pipelines, and other critical infrastructure).”<sup>33</sup> Dr. Mish further explains that “[b]ecause the clay soils that tend to contribute the most to ground settlement are highly impermeable, their subsidence behavior can continue well into the future, as the rate at which they settle is governed by their low permeability.” *Id.* “Thus simple real-time monitoring of ground settlement can be viewed as an *unconservative* measure of the potential for subsidence, as it will generally tend to underestimate the long-term settlement of the ground surface.” *Id.* (emphasis added).

- Proposed Action. The environmental checklist for Hydrology impacts, at section IX.d, finds "No Impact" with respect to, “Substantially alter the existing drainage pattern of the site or area” is "Not Significant." But the text of the EA/IS contradicts this check box, and finds that Project could have land subsidence impacts that could "alter drainage patterns" (pp. 3-39-3-40.). By sowing confusion rather than clarity, the EA/IS fails to inform.

This conclusion is, however, the result of failing to proceed in the manner required by law: (1) in assessing the significance of this impact, (2) in developing specific mitigation measures to reduce this impact; (3) in assessing the effectiveness of such mitigation measures; and (4) in adopting such mitigation measures. This conclusion is also unsupported by substantial evidence in the record. In addition, there is substantial evidence that this impact is significant.

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<sup>33</sup> Mish, Kyran 2008. *Commentary on Ken Loy GCID Memorandum*. White Paper. University of Oklahoma.



Therefore, CEQA requires preparation and certification of an EIR and NEPA requires preparation and certification of an EIS before Project approval.

Minimization Measures (pp. 3-40, 3-41)

The *Draft Technical Information for Water Transfers* in 2013 and the 2014 Addendum contain *minimal* objectives and requirements elements of the monitoring and mitigation component of the Project. “Water transfer proponents transferring water via groundwater substitution transfers must establish a monitoring program capable of identifying any adverse transfer related effects before they become significant.” However, the reader (and possibly the sellers) are left wondering what exactly is “a monitoring program capable of identifying any adverse transfer related effects before they become significant,” since there are no standards or particular guidance to manage and analyze the very complex hydrologic relationships internal to groundwater and the connection to surface waters.

Certainly the public has no idea or ability to comment, which fails the full-disclosure mandate in NEPA and CEQA. Page 38 of the *Draft Technical Information for Water Transfers* in 2013 briefly lists “Potentially significant impacts identified in a water transfer proposals [that] must be avoided or mitigated for a proposed water transfer to continue, including:

- Contribution to long-term conditions of overdraft;
- Dewatering or substantially reducing water levels in nonparticipating wells;
- Degradation of groundwater quality that substantially impairs beneficial uses or violates water quality standards; and
- Affecting the hydrologic regime of wetlands and/or streams to the extent that ecological integrity is impaired.

The *Draft Technical Information for Water Transfers* in 2013 continues with suggestions to curtail pumping from lower bowls and pay higher energy costs to ease the impacts to owners of third-party wells (p. 38-39). While this bone thrown at mitigation is appreciated, the glaring omissions are notable. The *Draft Technical Information for Water Transfers* in 2013 completely fails to mention, even at a very general level, how individual well owners who may be harmed by the Project, will determine and prove where the impacts to their wells are coming from and that water quality and health could become a significant impact for impacted wells, users, and streams. The onus for coping with and disclosing potential impacts is deflected onto the nonparticipating public, species, and environment. How does this meet the requirements of NEPA and CEQA? Since wetlands and streams would require human observation or adequate monitoring to report an impact, how will, “Affecting the hydrologic regime of wetlands or streams to the extent that ecological health is impaired,” be avoided or mitigated without standards and requirements from the Bureau and DWR? (*Draft Technical Information for Water Transfers* p. 38) There also appears to be no consideration for species monitoring, just “practices” or “conservation measures” to “minimize impacts to terrestrial wildlife and waterfowl,” (*Id* pp. 16, 20, 22-24).

Another example of the inadequacy of the proposed monitoring is that the draft EA/IS fails to include any coordinated, programmatic plan to monitor stream flow of creeks and rivers located in proximity to the “willing sellers” that will evacuate more groundwater than has been used

historically. The potential for immediate impacts would be very close to water sellers' wells, but the long term impacts could be more subtle and geographically diverse. What precautions has the Bureau and DWR made for the cumulative impacts that come not only from this one-year Project, but in combination with the water sales from the last dozen years and those that are planned by the Bureau into the future (see list in g, iv below)? Bureau and DWR water transfers are not just one- or two-year transfers, but many serial actions in multiple years by the agencies, sellers, and buyers without the benefit of comprehensive environmental analysis under NEPA and CEQA.

As discussed above, adequate monitoring is vital to limit the significant risks posed by the Project to the health of the region's groundwater, streams, and fisheries (more discussion below). Moreover, to the extent this Project is conceived as an ongoing hardship program that will provide knowledge for future groundwater extraction and fallowing, its failure to include adequate monitoring protocols is even more disturbing and creates the risk of significant long-term, perhaps irreversible impacts from the Project.

One glaring omission in the EA/IS is the failure to disclose that the Project, when implemented under the State Water Resources Control Board's ("SWRCB") Temporary Urgency Change Petition Order(s), will exacerbate impacts in the area of origin, which is already suffering from dry conditions. Mismanaging storage in Shasta and Oroville dams, either intentionally or incompetently in the past three years (see above), created a scenario where the federal and state agencies plead hardship to some of the most senior water rights holders in California. Potentially cutting senior SWP contractors to 50 percent and senior CVP contractors to 40 percent allocations (EA/IS p. 2-2), portends dire consequences for local and regional groundwater that would not have been necessary without failures by the federal agency circulating this EA/IS and the 'hidden' state agency that should be the lead agency for the Project: DWR.<sup>34</sup>

#### Mandatory Findings of Significance (XVIII)

The EA/IS fails to disclose that the Project is likely to have a cumulatively significant impact on the environment (p. 3-53). In assessing the significance of a project's impact, the Bureau must consider "[c]umulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." 40 C.F.R. §1508.25(a)(2). A "cumulative impact" includes "the impact on the environment which results from the incremental impact of the action when added to *other past, present and reasonably foreseeable future actions* regardless of what agency (Federal or non-Federal) or person undertakes such other actions." *Id.* §1508.7. The regulations warn that "[s]ignificance cannot be avoided by terming an action temporary or by breaking it down into small component parts." *Id.* §1508.27(b)(7).

An environmental impact statement should also consider "[c]onnected actions." *Id.* §1508.25(a)(1). Actions are connected where they "[a]re interdependent parts of a larger action and depend on the larger action for their justification." *Id.* §1508.25(a)(1)(iii). Further, an

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<sup>34</sup> <http://calsport.org/news/wp-content/uploads/St-Bd-Drought-Wkshp.pdf>

environmental impact statement should consider “[s]imilar actions, which when viewed together with other *reasonably foreseeable or proposed agency actions*, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography.” *Id.* §1508.25(a)(3).

Here, as detailed below, instead of assessing the cumulative impacts of the proposed action as part of the larger program that even the Bureau has at least twice recognized should be subject to a programmatic EIS (but for which no programmatic EIS has been completed), the Bureau again attempts to break this program into component parts and approve it through an inadequate EA and has joined with the improper CEQA lead agency to play lip service to CEQA. Further, the Bureau has failed to take into account the cumulative effects of other groundwater and surface water projects in the region, the development of “conjunctive” water systems, and the planned integration of Sacramento Valley groundwater into the state water system.<sup>35</sup>

The draft EA/IS briefly mentions that the Project is part of the *Long-Term Water Transfers* (p. 1-4). However, it fails to adequately describe that Program and how the Project relates to the Program, and further fails to describe the numerous other programs of which this Project is a small component part (see list of programs, plans, and studies above in section VI). It is clear that that this Project is an “interdependent part of a larger action,” and that it “depend[s] on the larger action for [its] justification.” 40 C.F.R. §1508.25(a)(1)(iii). This is exactly the sort of segmentation that NEPA prohibits. Instead, NEPA requires that “[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.” 40 C.F.R. §1502.4.

- Item “a” asserts that the proposed Project would have a *Less Than Significant* impact to all species within the region and local areas of water transfer is without any apparent scientific basis. (EA/IS p. 3-54). This conclusory assertion certainly does not constitute sufficient analysis of the potential impact of the Project on endangered, threatened, or special status species as described above. At a minimum, such conclusions rely on an improperly segmented and overly narrow view of the proposed action, which does not consider the larger project (p. 1-4) as described above or the cumulative impacts as also described above.

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<sup>35</sup> *U.S. Bureau of Reclamation September 2006. Grant Assistance Agreement with Glenn Colusa Irrigation District.* "GCID shall define three hypothetical water delivery systems from the State Water Project (Oroville), the Central Valley Project (Shasta) and the Orland Project reservoirs sufficient to provide full and reliable surface water delivery to parties now pumping from the Lower Tuscan Formation. The purpose of this activity is to describe and compare the performance of three alternative ways of furnishing a substitute surface water supply to the current Lower Tuscan Formation groundwater users to eliminate the risks to them of more aggressive pumping from the Formation and to optimize conjunctive management of the Sacramento Valley water resources."

## VII Conclusion

The 2014 water transfer Project clearly has the potential to affect the human and natural environments, both within the Sacramento Valley as well as in the areas of conveyance and delivery. It is entirely likely that injuries to other legal users of water will occur, including those entirely dependent on groundwater in the Sacramento Valley, if this project is approved. Groundwater, groundwater basins, and aquatic and terrestrial habitat that are essential for fishery and wildlife resources are also likely to suffer great harm. And the economic effects of the proposed Project are at best poorly disclosed and will reverberate through the communities in the Sacramento Valley.

Taken together, the Bureau, SLDMWA, and DWR treat these serious issues carelessly in the EA/IS, the *Draft Technical Information for Water Transfers in 2013*, the 2014 Addendum, and in DWR's specious avoidance of acting as the CEQA lead agency. In so doing, the Agencies and DWR deprive decision makers and the public of their ability to evaluate the potential environmental effects of this Project and violate the full-disclosure purposes and methods of both the National Environmental Policy Act and the California Environmental Quality Act.

Sincerely,



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## References

- Anderson Cottonwood Irrigation District 2014. Web page copy from April 1, 2014.
- Anderson, Michael. 2009. *Future California Droughts in a Climate Change World*.
- AquAlliance 2014. Table of impacted wells in Butte and Tehama counties.
- AquAlliance 2014. Past Water Transfers from the Sacramento Valley Through the Delta, 2001-2013.
- AquAlliance, California Sportfishing Protection Alliance, and California Water Impact Network *Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay--Delta Estuary*. 2012.
- AquAlliance 2011. Comments on the *Draft Environmental Assessment/Initial Study and Finding of No Significant Impact/Mitigated Negative Declaration for the Anderson-Cottonwood Irrigation District Integrated Regional Water Management Program – Groundwater Production Element Project*.
- AquAlliance 2011. Scoping comments for the 10-Year Water Transfer Plan.
- AquAlliance et. al 2010. Comments on the *2010/2011 Water Transfer Program*.
- Bacher, Dan. 2013. *Bay-Delta salmon population just one fifth of mandated goal*.  
<http://www.indybay.org/newsitems/2013/05/15/18736849.php>
- Buck, Christina 2014. *Groundwater Conditions in Butte County*.
- Bureau of Reclamation. 1993. *Interim Guidelines for Implementation of the Water Transfer Provisions of the Central Valley Project Improvement Act (Title XXXIV of Public Law 102-575)*.
- Bureau of Reclamation, et al. 2003. *Environmental Water Account*, Draft EIS/EIR.
- Bureau of Reclamation 2006. Sacramento Valley Regional Water Management Plan. p. 5-8 to 5-10.
- Bureau of Reclamation 2009. Drought Water Bank Environmental Assessment.
- Bureau of Reclamation 2013. Water Year Handout.
- Butte Basin Water Users Association 2007. *2007 Butte Basin Groundwater Status Report* p. 23 and 30.

Brad Hubbard, US Bureau of Reclamation  
Comments on 2014 Water Transfer Program Environmental Review  
April 2, 2014  
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Butte Basin Water Users Association 2008. *2008 Butte Basin Groundwater Status Report*

Butte County 2007. Summary of Spring 07 Levels.

Butte County Department of Water and Resource Conservation 2003. *Urban Water Demand Forecast*.

Butte County DWRC June 2007. *Tuscan Aquifer Monitoring, Recharge, and Data Management Project*, Draft.

Butte County DWRC 2013. *Groundwater Status Report, 2012 Water Year*.

- a) Esquon Subinventory Unit report
- b) Pentz Subinventory Unit report
- c) Vina Subinventory Unit

California State Water Resources Control Board 2009. *GAMA Domestic Well Project, Tehama County Focus Area*.

California Water Impact Network, et al 2011. Complaint for Declaratory and Injunctive Relief.

Cannon, Thomas 2013. *SUMMER 2013: The demise of Delta smelt under D-1641 Delta Water Quality Standards*.

CH2Mhill 2006, *Sacramento Valley Regional Water Management Plan*, Figure 1-4.

Dudley, Toccoy et al. 2005. *Seeking an Understanding of the Groundwater Aquifer Systems in the Northern Sacramento Valley: An Update*.

Dudley, Toccoy 2007. Letter to Lester Snow as presented to the Butte County Board of Supervisors as part of agenda item 4.05.

DWR 2008. Addendum to the Environmental Water Account Environmental Impact Statement/Environmental Impact Report

DWR 2009. Addendum to the Environmental Water Account Environmental Impact Statement/Environmental Impact Report.

DWR 2009. E-mail correspondence regarding the 2009 *Drought Water Bank*.

Fleckenstein, Jan; Anderson, Michael; Fogg, Graham; and Mount, Jeffrey 2004. *Managing Surface Water-Groundwater to Restore Fall Flows in the Cosumnes River*, Journal of Water Resources Planning and management, opening page of article.

Friend, Scott 2008. *City of Chico General Plan Update Existing Conditions Report*; Pacific Munciple Consulting.

Gallo, David circa 2000. *Estimating Third Party Impacts From Water Transfers Through Riceland Fallowing: A Suggested Approach*.

Glenn County. Board of Supervisors. 2001. California Ordinance No. 1115, Ordinance Amending the County Code, Adding Chapter 20.03, Groundwater Management.

Glenn County. Management Plan: Development of a Locally Driven Groundwater Management Plan Ordinance #1115 amended by ordinance 1237 (2912). Accessed May 15, 2013 at: [http://www.glenncountywater.org/management\\_plan.aspx](http://www.glenncountywater.org/management_plan.aspx).

Glenn County Water Advisory Committee 2013. Minutes from December 2013.

Glenn-Colusa Irrigation District 2008-2009. *Initial Study And Proposed Negative Declaration Landowner Groundwater Well Program*.

Governor's Advisory Drought Planning Panel 2000. *Critical Water Shortage Contingency Plan*.

Hennigan, Barbara 2007. Testimony, Monterey Agreement hearing in Quincy, California. ([http://www.water.ca.gov/environmentalservices/docs/mntry\\_plus/comments/Quincy.txt](http://www.water.ca.gov/environmentalservices/docs/mntry_plus/comments/Quincy.txt)).  
Hennigan, Robert 2010. Personal communication with Barbara Vlamis on January 17, 2010.

Hoover, Karin A. 2008. *Concerns Regarding the Plan for Aquifer Performance Testing of Geologic Formations Underlying Glenn-Colusa Irrigation District, Orland Artois Water District, and Orland Unit Water Users Association Service Areas, Glenn County, California*. White Paper. California State University, Chico.

Lawson, Peter 2010. *Groundwater Substitution Transfer Impact Analysis, Sacramento ValleyI*.

Lippe, Gaffney, Wagner LLP. 2009. Letter to DWR regarding the Drought Water Bank Addendum.

Maslin, Paul E., et. al, 1996. *Intermittent Streams as Rearing Habitat for Sacramento River Chinook Salmon: 1996 Update*.

Mish, Kyran 2008. *Commentary on Ken Loy GCID Memorandum*. White Paper. University of Oklahoma.

Msangi, Siwa and Howit, Richard E. 2006. *Third Party Effects and Asymmetric Externalities in Groundwater Extraction: The Case of Cherokee Strip in Butte County, California*. International Association of Agricultural Economists Conference, Gold Coast, Australia.



Natural Resources Defense Council and Golden Gate Salmon Association. 2012. *Salmon Doubling Index: Natural Production of Sacramento-San Joaquin Basin Chinook Salmon, Expressed as Percentage of the CVPIA Salmon Doubling Goal, from 1992 to 2011*.  
<http://goldengatesalmonassociation.com/wp-content/uploads/2012/06/Salmon-Graph-11-12-12.jpg>

Sacramento County Water Agency. 2011. *Ground Water Management Plan*.

Scalmanini, Joseph C. 1995. *VWPA Substitution of Damages*. Memo. Luhdorff and Scalmanini Consulting Engineers.

Shasta County Water Agency. 2007. *Redding Basin Water Resources Management Plan Environmental Impact Report*.

Shutes, Chris et al. 2009. *Draft Environmental Assessment DeSabra – Centerville Project (FERC No. 803)*. Comments. California Sportfishing Protection Alliance.

Spangler, Deborah L. 2002. *The Characterization of the Butte Basin Aquifer System, Butte County, California*. Thesis submitted to California State University, Chico.

State Water Resources Control Board. 2005. *California GAMA Program: Groundwater Ambient Monitoring and Assessment Results for the Sacramento Valley and Volcanic Provinces of Northern California*.

State Water Resources Control Board. 2008. *Hydrogeologically Vulnerable Areas*.  
[http://www.waterboards.ca.gov/gama/docs/hva\\_map\\_table.pdf](http://www.waterboards.ca.gov/gama/docs/hva_map_table.pdf)

Staton, Kelly 2007. *Glenn-Colusa Irrigation District Aquifer Performance Testing Glenn County, California*. California Department of Water Resources.

The Bay Institute. 2012. *Fresh Water Flows in the Central Valley A primer on their importance, status, and projected changes under the BDCP*.

The Natural Heritage Institute, et al. 2012 *Feasibility Investigation of Re-Operation of Shasta and Oroville Reservoirs in Conjunction with Sacramento Valley Groundwater Systems to Augment Water Supply and Environmental Flows in the Sacramento and Feather Rivers*.

USFWS 1999. Draft Recovery Plan for the Giant Garter Snake.

USFWS 2006. Giant Garter Snake Five Year Review: Summary and Evaluation.

USFWS 2008 Biological Opinion for Conway Ranch.

USFWS 2009 Biological Opinion for the Drought Water Bank.

Vlams, Barbara 2006. Comments on the Supplemental Environmental Water Account EIR/EIR.

Vlams, Barbara 2009. Letter to DWR regarding the Drought Water Bank Addendum from Lippe Gaffney Wagner LLP, 2009.

Vlams, Barbara 2009. Letter to DWR regarding the 2009 Drought Water Bank Addendum.

Vlams, Barbara, et al 2008. Letter to DWR regarding the 2009 Drought Water Bank Addendum.

WRIME 2011. *Peer review of Sacramento Valley Finite Element Groundwater Model (SacFEM)*.