



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

Re: Comments on Bay-Delta Water Quality Control Plan Amendment Phase 1 and SED

Dear Ms. Townsend,

I would like to start off by thanking you for the opportunity to submit my comments on the most recent Bay-Delta Water Quality Control Plan Amendment Phase 1. It is tremendously appreciated that my opinion and my comments are considered.

California water policy is extremely relevant now more than ever, and the next steps taken by the State Water Resources Control Board will have a lasting impact on generations to come. I find myself connected to the issues of the Delta, first as an average water user, but also as a student at the University of California, Santa Cruz who studies law and California water policy. Your decisions will impact myself, my fellow students, and many water users alike all around California. It is because your decision will have such an impact on California's inhabitants, that I respectfully urge you to reconsider several of the plan's components. I believe that my comments suggest improvements more favorably aligned with protection of public trust resources, respect for economic interests, and enhancement of aesthetic values.

**1. The State Water Resources Control Board is legally obligated and lawfully authorized to set flow objectives that meet the needs of Delta fish and wildlife.**

Fish and wildlife within the Sacramento-San Joaquin Delta Estuary (the Delta) need to be accounted for and protected. The State Water Resources Control Board (SWRCB or the Board) is legally obligated to meet the needs of these fish and wildlife species in the Delta when proposing San Joaquin River flow objectives. In essence, it is up to *this* Board to set water quality objectives that will properly protect and preserve the priceless economic and aesthetic values of our Delta.

The Bay Delta and its tributaries are home to “more than 750 wildlife species and more than 120 species of fish”<sup>1</sup> some of which are listed under the Endangered Species Act. The U.S. Fish and Wildlife Service lists Delta fish species including the Delta Smelt, the Green Sturgeon, and of course the Spring-run and Winter-run Chinook Salmon, which appear to be the spotlight species of this phase of the plan.<sup>2</sup> These endangered creatures require protection by all Federal Departments and agencies, including the SWRCB, under the Endangered Species Act of 1973.<sup>3</sup> The Board must also take into consideration the Public Trust Doctrine, which requires the Board to consider public interest and to “protect public trust uses whenever feasible”.<sup>4</sup> This means “the

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<sup>1</sup>Reclamation, Bureau Of. "News & Multimedia." Fact Sheet - California Water. Accessed March 13, 2017. <https://www.usbr.gov/newsroom/presskit/factsheet/detail.cfm?recordid=3001>.

<sup>2</sup>Service, U.S. Fish and Wildlife. "Listed species believed to or known to occur in California." Listed species believed to or known to occur in California. Accessed March 13, 2017. <https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=CA&status=listed>.

<sup>3</sup> “It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.” U.S. Government, Department of the Interior, U.S. Fish and Wildlife Service, Endangered Species Act of 1973, Washington, D.C. 20240, 1-2.

<sup>4</sup> “The state has an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible” J.L. Sax, R.H. Abrams, B.H. Thompson, Jr. J. Leshy (2000). 548.

State Water Board is responsible for the protection of resources, such as fisheries, wildlife, aesthetics, and navigation, which are held in trust for the public”.<sup>5</sup> Lastly, the Board is responsible for protecting beneficial uses under the California Constitution, Article X, Section 2.<sup>6</sup> The purpose of Article X is to protect the beneficial uses of water. Protecting endangered species should be considered a beneficial use of California’s water resources. In light of these legal protections and the SWRCB’s authority to create and implement water quality control plans (WQCP) under the Porter-Cologne Water Quality Control Act<sup>7</sup> and the 2009 Delta Reform Act<sup>8</sup>, it is this Board’s responsibility to protect and conserve all the species of the Delta and to meet those species’ needs when formulating flow objectives.

Moreover, Delta fish and wildlife are an essential economic treasure for California. The California Salmon industry is critically reliant on the Delta as “salmon fishing accounts for 20-30,000 jobs and an annual \$2-3 billion in state revenues”.<sup>9</sup> Bass fishing also occurs in the Delta, adding to a multi-million dollar industry “which supports many in the Delta in a wide

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<sup>5</sup>California, State Of. "Water Rights: Public Trust Resources." State Water Resources Control Board. Accessed March 13, 2017. [http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/public\\_trust\\_resources/](http://www.swrcb.ca.gov/waterrights/water_issues/programs/public_trust_resources/).

<sup>6</sup> “It is hereby declared that [...] the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.” "ARTICLE 10 :: WATER." Justia Law. Accessed March 13, 2017. [http://law.justia.com/constitution/california/article\\_10.html](http://law.justia.com/constitution/california/article_10.html).

<sup>7</sup>“Each regional board shall establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses.” Porter-Cologne Water Quality Control Act. Water Code Division 7 and Related Sections (As amended, including Statutes 2016). 30.

<sup>8</sup>*Recirculated Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay–Sacramento San Joaquin Delta Estuary San Joaquin River Flows and Southern Delta Water Quality Executive Summary*, September 2016, State Clearinghouse #2012122071, Sacramento, CA 95812-0100. ES 8.

<sup>9</sup>“The Delta.” Save the California Delta Alliance (STCDA). August 05, 2013. Accessed March 13, 2017. <https://nodeltagates.com/the-delta/>.

variety of careers”.<sup>10</sup> As for the Delta’s unquantifiable aesthetic value, “many people live in the Delta area to be close to boating, fishing and water-based recreation. They are brought together by their common bond and love for the scenic Delta”.<sup>11</sup>

Because of the beneficial use, public trust protections, and the previously stated authorities, actions to protect fish and wildlife within the Delta, especially endangered species, should be implemented. The specific needs at all stages of the life-cycle for each species should be identified and fully addressed in setting flow objectives for the San Joaquin River.

**2. The proposed Lower San Joaquin River (LSJR) flow objectives of 30-50% of unimpaired flow is not enough flow to protect fish and wildlife species and therefore fails to protect public trust resources.**

The Substitute Environmental Document (SED) in support of potential changes to the Water Quality Control Plan of The San Francisco Bay- Sacramento San Joaquin Delta Estuary, which proposes to change San Joaquin River Flow Objectives and Southern Delta Salinity Objectives, offers only one step for the protections of fish and wildlife. It suggests an unacceptably low flow proposal. The flow proposal includes a numeric objective of a range from 30-50% of unimpaired flow (UF).<sup>12</sup>

San Joaquin River flows are a determining life factor for in-Delta fish species. According to the SED, “nearly every feature of habitat that affects native fish and wildlife is, to some

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<sup>10</sup> Ibid

<sup>11</sup> Ibid

<sup>12</sup> *Recirculated Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay–Sacramento San Joaquin Delta Estuary San Joaquin River Flows and Southern Delta Water Quality Executive Summary*, September 2016, State Clearinghouse #2012122071, Sacramento, CA 95812-0100. ES 4.

extent, determined by flow (e.g., temperature, water chemistry, physical habitat complexity). These habitat features, in turn, affect risk of disease, risk of predation, reproductive success, growth, smoltification, migration, feeding behavior, and other physiological, behavioral, and ecological factors that determine the viability of native fish”.<sup>13</sup> For Chinook Salmon, “inflows are needed to provide appropriate conditions to cue upstream adult migration to the San Joaquin River [...], adult holding, egg incubation, juvenile rearing, emigration from the San Joaquin River [...], and other functions”.<sup>14</sup> A flow proposal of 30-50% of unimpaired flow is simply not enough flow to protect fish species in the Delta and is certainly not enough flow to facilitate a habitat that would increase populations at all, let alone doubling it.

A science-based flow criteria report released by the SWRCB in 2010 stated that “60 percent of unimpaired SJR inflow from February–June would preserve the attributes of a natural variable system to which native fish species are adapted”.<sup>15</sup> The California Department of Fish and Wildlife strengthened evidence supporting this percentage of unimpaired flow when it determined that 50-60% of natural flow should remain to preserve and protect salmon and the health of the river.<sup>16</sup> Evidence shows that *at least* 50% of unimpaired flow is necessary to

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<sup>13</sup>*Recirculated Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay–Sacramento San Joaquin Delta Estuary San Joaquin River Flows and Southern Delta Water Quality Executive Summary*, September 2016, State Clearinghouse #2012122071, Sacramento, CA 95812-0100. ES 9.

<sup>14</sup>California State Government, State Water Resources Control Board, California Environmental Protection Agency, *DRAFT Development of Flow Criteria for the Sacramento–San Joaquin Delta Ecosystem Prepared Pursuant to the Sacramento–San Joaquin Delta Reform Act of 2009*, July 20, 2010, Sacramento, CA 95812-0100. 60.

<sup>15</sup>*Recirculated Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay–Sacramento San Joaquin Delta Estuary San Joaquin River Flows and Southern Delta Water Quality Executive Summary*, September 2016, State Clearinghouse #2012122071, Sacramento, CA 95812-0100. ES 8.

<sup>16</sup> California State Government, State Water Resources Control Board, California Environmental Protection Agency, *DRAFT Development of Flow Criteria for the Sacramento–San Joaquin Delta Ecosystem Prepared Pursuant to the Sacramento–San Joaquin Delta Reform Act of 2009*, July 20, 2010, Sacramento, CA 95812-0100.

achieve healthy fish populations but 50% is *the cap* of the Board's currently favored alternative, Alternative 3.

If this Alternative 3 is approved, it is very likely that the San Joaquin River will only rarely, if ever, reach 50% of unimpaired flow, and will likely spend a majority of time barely meeting the 30% of unimpaired flow objective. For these reasons, I urge the Board reject Alternative 3 (30-50% of unimpaired flow) and instead to adopt Alternative 4 (50-60% of unimpaired flow), which would be the *absolute minimum* that could be effective in protecting Delta fish species.

**3. Alternative 4 (50-60% of unimpaired flow) should be approved despite possible impacts to water diverters. The agricultural industry should take accountability for meeting unimpaired flow requirements by cutting back on water usage.**

Although the 2010 Flow Criteria released by the SWRCB does not consider other public trust or beneficial uses, it is still extremely relevant information and by statute must be seriously considered when allocating water resources. Several highly established scientists studied rivers around North America and the European Union and they recommend 90% of unimpaired flow to ensure a high-level of ecological protections and 80% UF to ensure moderate levels of protection.<sup>17</sup> By lowering the proposed range of unimpaired flow objectives down to 50-60%, which is 30-40% less than what scientists recommend for *moderate* ecological protection, we are making compromises that will inhibit raising salmon populations in the Delta and diminish public trust resources.

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<sup>17</sup> Richter, B. D., Davis, M., Apse, C., and Konrad, C. P. 2011. A presumptive standard for environmental flow protection. River Research and Applications. DOI: 10.1002/rra.1511.  
<http://eflownet.org/downloads/documents/Richter&al2011.pdf>

Conflicts are likely to arise when asserting that 60% of unimpaired flow should remain in the SJR, leaving less than 40% for water diverters; however, these conflicts should be resolved in favor of fish and wildlife and environmental interest. There are no qualified justifications to deny these species' needs because it is certainly in the Board's authority to propose objectives that protect public trust resources. As stated in the 2010 Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem, "under the public trust doctrine, the State Water Board *must* take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible. (National Audubon Society v. Superior Court (1983) 33 Cal.3d 419, 446.)".<sup>18</sup> An unimpaired flow of 50-60%, *significantly* lower than what is *actually* needed "to achieve a high level of ecological protection"<sup>19</sup> and to protect public trust resources, is absolutely feasible if water diverters take reasonable steps to cooperate.

The agricultural and dairy industries would absolutely continue to thrive if compromises are made in the favor of public trust resources such as fish and wildlife. According to the USDA, California almonds use about 1.1 trillion gallons of water each year, or 10% of California's agricultural water supply each year.<sup>20</sup> A single almond takes about 1.1 gallons of water<sup>21</sup> and the average almond yield per acre was 2,670 pounds of shelled almonds in 2013.<sup>22</sup> At 276 almonds

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<sup>18</sup>California State Government, State Water Resources Control Board, California Environmental Protection Agency, *DRAFT Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem Prepared Pursuant to the Sacramento-San Joaquin Delta Reform Act of 2009*, July 20, 2010, Sacramento, CA 95812-0100.

<sup>19</sup> Richter, B. D., Davis, M., Apse, C., and Konrad, C. P. 2011. A presumptive standard for environmental flow protection. River Research and Applications. DOI: 10.1002/rra.1511.  
<http://eflownet.org/downloads/documents/Richter&al20!!..pdf>

<sup>20</sup>Holthaus, Eric. "10 Percent of California's Water Goes to Almond Farming. That's Nuts." Slate Magazine. May 14, 2014. Accessed March 15, 2017.  
[http://www.slate.com/articles/technology/future\\_tense/2014/05/10\\_percent\\_of\\_california\\_s\\_water\\_goes\\_to\\_almond\\_farming.html](http://www.slate.com/articles/technology/future_tense/2014/05/10_percent_of_california_s_water_goes_to_almond_farming.html).

<sup>21</sup>Julia Lurie. "It takes how much water to grow an almond?!" Mother Jones. Accessed March 15, 2017.  
<http://www.motherjones.com/environment/2014/02/wheres-californias-water-going>.

<sup>22</sup>"Almonds become California's second-most valuable commodity." ANR Blogs. Accessed March 15, 2017.  
<http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=8539>.

per pound<sup>23</sup>, these almond farmers could save 761,760 gallons of water for every acre of almond farm they removed. Considering these numbers and that the average Californian uses 181 gallons of water a day,<sup>24</sup> cutting out just one acre of almond farms could save enough water for more than 4,200 people in one day. And almonds are just the tip of the iceberg of water intensive crops. While almonds require 3.8 million acre-feet of water a year, alfalfa requires 5.2 MAF.<sup>25</sup> For wealthy industries like these, it would absolutely be feasible to save public trust resources such as the fish and wildlife in the Delta by limiting water use or growing fewer acres of almonds or alfalfa. Frankly, the almond and dairy industries have continuously, exponentially, and unsustainably expanded without any accountability and it is about time these water users make a cutback.

Other alternatives, besides cutting back agricultural water use in order to preserve public trust resources, are also just as feasible. The Board should be pushing for the investment of money and research into finding new sources of water to replace flows which should be allocated to fish and wildlife uses. "A joint study [...] by the Natural Resources Defense Council and the Oakland-based Pacific Institute found that by instituting basic modern-era water-saving technologies, like wastewater recycling, stormwater capture, drip irrigation and replacement of urban lawns with native landscaping, the state could save enough water to reverse its dramatic

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<sup>23</sup>"Guess How Many Gallons of Water It Takes to Produce a Single Almond." MRCTV. Accessed March 15, 2017. <http://www.mrcvtv.org/blog/guess-how-many-gallons-water-it-takes-produce-single-almond>.

<sup>24</sup>California Water Science Center, U.S. Geological Survey. "California Water Use." California Water Use | USGS. Accessed March 15, 2017. [https://ca.water.usgs.gov/water\\_use/](https://ca.water.usgs.gov/water_use/).

<sup>25</sup>Woody, Todd. "Holy Cow! Crops That Use Even More Water Than Almonds." TakePart. May 11, 2015. Accessed March 15, 2017. <http://www.takepart.com/article/2015/05/11/cows-not-almonds-are-biggest-water-users/>.



groundwater decline with loads of water left over.<sup>26</sup> Any action that saves water or seeks new water resources to protect Delta species and therefore the Delta's ecology, can be argued as feasible and in the interest of the public.

It is time to truly analyze how the Board's decision could impact the existence of Delta species and the Delta as a whole. It is our turn to make a *feasible* compromise of limiting water use, eliminating acres of water intensive crops, and researching new sources of water. For the sake of the future of the Delta, the people who enjoy its recreational and aesthetic value, and the endangered species who suffer because of our inconsiderate farming practices, the Board should instill a logical flow objective, of at least 50-60% UF, that will facilitate preservation of river habitat.

#### **4. The proposal to add three compliance stations at Stanislaus, Tuolumne, and Merced**

##### **Rivers is supported but needs adjustment.**

The flow proposal in the SED in support of potential changes to the Water Quality Control Plan includes language describing the addition of three compliance locations at Stanislaus, Tuolumne, and Merced Rivers.<sup>27</sup> This action is supported and should be approved.

Lack of compliance stations allows for error in use and makes it impossible to hold users and diverters accountable for not meeting flow requirements. This new WQCP proposes adding

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<sup>26</sup>Holthaus, Eric. "Yes, Almonds Use a Lot of California's Water. They're Also a Convenient Scapegoat." Slate Magazine. April 17, 2015. Accessed March 15, 2017. [http://www.slate.com/articles/business/moneybox/2015/04/almonds\\_in\\_california\\_they\\_use\\_up\\_a\\_lot\\_of\\_water\\_but\\_they\\_deserve\\_a\\_place.html](http://www.slate.com/articles/business/moneybox/2015/04/almonds_in_california_they_use_up_a_lot_of_water_but_they_deserve_a_place.html).

<sup>27</sup>Recirculated Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay–Sacramento San Joaquin Delta Estuary San Joaquin River Flows and Southern Delta Water Quality Executive Summary, September 2016, State Clearinghouse #2012122071, Sacramento, CA 95812-0100. ES 12.

three more compliance locations which would inevitably assist tracking the compliance of Delta water users in meeting specific requirements at all times.

In keeping with the goals of protecting fish species in the Delta, actions to create more compliance locations are supported; however, more compliance stations should be established, they should be more evenly distributed around the Delta, and they should check for *all* essential factors at all times affecting healthy fish populations. Furthermore, there should be incentives to meet requirements as well as punishments for inability to meet requirements.

#### **5. Measures to lower salinity concentrations are supported and should be strengthened.**

For the protection of Delta waters, which farmers as well as in- Delta fish and wildlife species rely on, optimal and scientifically supported salinity objectives should be established and consistently met. One goal, stated in this SED, in implementing salinity objectives in the Southern Delta is to “establish salinity objectives, supported by existing scientific information, that are not lower than necessary to reasonably protect [...] crops [...] in the southern Delta”.<sup>28</sup> In essence, this Board must implement a salinity objective that will *reasonably* protect water for agricultural uses in the Delta.

As you know, salinization can be detrimental to crops. Higher concentrations of salt in Delta waters not only harms water quality, but it adversely impacts the approximately 230,000 hectares of some of the world’s most fertile land which is irrigated by Delta waters.<sup>29</sup> The Food and Agriculture Organization of the United Nations (FAO) conducted several studies around the US and other countries concluding, through a variety of methods and subjects, that higher

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<sup>28</sup>Ibid. 11.

<sup>29</sup>"8. EXPERIENCES USING WATER OF VARIOUS QUALITIES." Water quality for agriculture. Accessed March 13, 2017. <http://www.fao.org/docrep/003/t0234e/T0234E09.htm>.

salinity concentrated water used to irrigate crops will decrease the maximum crop yield.<sup>30</sup>

Another report, *Salt Tolerance of Crops in the Southern Sacramento-San Joaquin Delta*, found that “salinity adversely affects the quality of some crops [...]. By decreasing the size and/or quality of fruits, tubers, or other edible organs, salinity reduces the market value of many vegetable crops, e.g., carrot, celery, cucumber, pepper, potato, cabbage, lettuce, and yam. [...]

Generally [...] beneficial effects of salinity are offset by decreases in yield.<sup>31</sup> It is in agreement among credible scientific researchers that higher salinity will lead to problems, problems we can easily avoid if we take measures now to control and monitor current salinity concentrations.

If we continue to allow salinity concentrations to increase, we will be drastically harming a source of economic value. “Between 1998-2004, the average gross agricultural output from the six Delta counties was calculated by the Department of Water Resources to be \$654,766,017 (2004 dollars)”.<sup>32</sup> This is 2% of the state’s total production value which may seem small, but “if the Delta were a country, it would rank 15th out of the state’s 58 counties in agricultural production value”.<sup>33</sup>

Allowing salinity concentrations to increase by relaxing current concentration objectives will be detrimental to current and future generations of in-Delta farmers. It will directly impact the entirety of California agriculture and consumers, and it will set a precedent ideology that encourages ill treatment of valuable resources. The proposal to lower salinity objects in the

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<sup>30</sup> Ibid.

<sup>31</sup> Glenn J. Hoffman, *Salt Tolerance of Crops in the Southern Sacramento- San Joaquin Delta Final Report*, for the State Water Resources Control Board, January 5, 2010. 4.

<sup>32</sup> Ken Trott, *Memorandum: Agriculture in the Delta*, August 10, 2007. 4.

[http://deltavision.ca.gov/Context\\_Memos/Agriculture/Agriculture\\_Iteration2.pdf](http://deltavision.ca.gov/Context_Memos/Agriculture/Agriculture_Iteration2.pdf)

<sup>33</sup> Ibid.

Southern Delta is vastly opposed by substantial scientific evidence and therefore must be rejected.

To protect Delta waters, salinity objects for the south and central Delta should remain at .7 EC.

Thank you for your time and consideration of my opinion and these comments. Your consideration of my stance on the SED for San Joaquin River Flows and Southern Delta Water Quality is tremendously appreciated. I look forward to the approval of a plan that benefits and protects public trust resources such as the fish and wildlife, which are so essential to our ecosystem and economy as well as as plan that preserves the natural and the unequivocal beauty of California.

Sincerely,

Liane Bauer  
Concerned Environmentalist  
& Student of CA Water Policy