Leah Renwick
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January 12, 2016

Jeanine Townsend, Clerk of the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814-0100

Re: Comment Letter – 2016 Bay-Delta Plan Amendment & SED

Dear Members of the State Water Resources Control Board:

As both a lifelong resident of Tuolumne County and member of California's agricultural community, I am compelled to comment on the 2016 Bay-Delta Plan Amendment & Substitute Environmental Document (SED). I was born and raised in Soulsbyville, graduated with a B.A. from the University of California, Berkeley (2014), worked in the Waterford area for almond growers on questions of climate change and California almond production, organic almond production, and hazelnut production, and am currently a graduate student in the Department of Plant Sciences at the University of California, Davis where I investigate the impact of crop rotation and no-till soil management on resilience to drought in corn cropping systems. I provide this information for context but would like to explicitly state that this letter is submitted in my capacity as a citizen of California, a Tuolumne County voter, and an individual with scientific training in agronomy, not as an employee of the University of California, Davis.

Flow levels in the San Joaquin River watershed are important to me from both agricultural and environmental perspectives. Increasing flow levels could simultaneously stimulate environmentally friendly and economically efficient agricultural innovation in California while protecting our natural resources and biodiversity to conserve the ecosystem services they provide to humans and the environment.

The recent California drought has driven conversations, innovation, and investment from the public and private sectors in research, technology, and policy incentives to manage snowmelt, improve the water use efficiency of irrigation systems, and increase soil health to enhance water infiltration and retention (e.g. Healthy Soils Initiative (August 2016), California Department of Food and Agriculture (CDFA) Office of Environment Farming and Innovation; Soil Health Summit (January 2017), CDFA and United States Department of Agriculture Natural Resources Conservation Services; Almond Board of California-funded research (previous and ongoing)). This positive reaction to declining irrigation water availability and use suggests that increasing flow levels in the Stanislaus, Tuolumne, and Merced rivers would, rather than signaling the end of California agriculture as opponents have suggested, continue to nurture these advances in technology and management practices, similarly to those observed in Australia during its 10-year drought in the 2000s or those for which Israel is renowned due to its naturally semi-arid and arid climates. In other words, increasing flow levels in the San Joaquin River watershed would incentivize current and future investment in more efficient water, soil, and crop management, cultivars, and technologies.

In addition to stimulating green innovation in California agriculture, increasing flow levels in the San Joaquin River watershed would reflect California's leadership in environmental sustainability and commitment to treating water as the public trust resource that it is. California's water belongs to the people and environment of California, in addition to water agencies and agricultural users. Beneficial uses of the California water by citizens include boating, fishing, swimming, backpacking, birdwatching, science education, and others, many of which are important drivers of California's rural economies via tourism. Importantly, entire

ecosystems depend on flows that have been too low for too long: current flow averages are 40%, 21%, and 26% of unimpaired flow for the Stanislaus, Tuolumne, and Merced Rivers, respectively. Between 1975 and 2014, the natural fluctuations in unimpaired flows should have resulted in only one “supercritically dry” year in the San Francisco Bay, but due to upstream diversions of runoff the Bay experienced such conditions in approximately *half* (19 out of 40) of all years instead of only once. Historically, population estimates of spawning salmon in the San Joaquin River Basin may have exceeded 400,000 fish, but have been as low as a few thousand in several recent years. Salmon are a keystone species, which means that they are not the only animal or plant species dependent on increased flow levels. Salmon migration from the ocean to spawning grounds and their subsequent death represents a critical nutrient input into foothill ecosystems (for both animals and eventually plants), and the many eggs and young salmon that do not ultimately reach the ocean are an important food source in river and Delta food webs. Increasing flow levels would improve fish passage, dilute pollutants, lower water temperature, increase dissolved oxygen, and enhance migratory cues for fish returning to spawn. Flow increases should be high enough to inundate floodplains, which provide important habitat for juvenile salmon and other fish.

Within the agricultural and environmental sciences globally, there is growing recognition of the need to reconcile agricultural production and conservation goals; we can no longer continue to promote agricultural production at the expense of the environment and natural resources on which we, and agriculture, depend. The issue of flow levels in the San Joaquin River watershed encapsulates these global debates at our local level. According to the State Water Board’s 2010 report, *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem*, approximately 60% of unimpaired flow between February and June is needed to fully protect fish and wildlife in the lower San Joaquin River and the Stanislaus, Tuolumne, Merced Rivers. I urge the Board to respect these findings. Please act to raise flow levels, drive agricultural innovation in California, and conserve our river ecosystems.

Sincerely,

Leah Renwick
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Department of Plant Sciences, University of California, Davis*

Cc: Assembly Member Frank Bigelow (R), State Assembly (District 5); Senator Tom Berryhill (R), State Senate (District 8)

*Title included for informational purposes only. This letter is submitted in my capacity as a citizen of California, a Tuolumne County voter, and individual with scientific training in agronomy but not as an employee of the University of California.