



March 27, 2013

State Water Resources Control Board Members  
c/o Jeanine Townsend, Clerk to the Board State Water Resources Control  
Board 1001 I Street, 24th Floor  
Sacramento, CA 95812-2000

RE: ECOLOGISTS SUPPORT RESTORING HEALTHY FLOWS TO THE LOWER SAN  
JOAQUIN RIVER

Dear Mr. Hoppin:

As a water resources and ecology researcher from California I am deeply concerned about the State Water Resources Control Board draft decision about flows on the San Joaquin River. Based on the best available scientific evidence, I believe the State Board must increase flows on the San Joaquin River beyond levels identified in the current preferred alternative if it hopes to protect imperiled native fish species and restore health to the San Joaquin river and Bay-Delta ecosystems.

State, Federal, and local water district water project operations severely impact the San Joaquin River's aquatic biota. The State Board should act decisively and urgently to protect the public trust, given that 83% of California's fishes (78% of salmonids) are extinct or at-risk of extinction in the century (Moyle et al. 2011). Within the San Joaquin River basin, 8 of the 21 native fish species historically present are now "uncommon, rare, or extinct" (Moyle 2002). Current efforts to balance beneficial uses for water allocations continue to disproportionately place the greatest burden on already imperiled aquatic resources. Errors in estimating the resilience of San Joaquin species could have irreversible consequences, such as species extinction, and violate the Board's mandate to protect the public trust.

The State Board's proposal to allocate 35% unimpaired river flow will not maintain natural salmon production at current levels, which are already severely depleted. The best scientific information available suggests that 35% will only maintain salmon populations in wet and above normal water years. 51-97% unimpaired flows are necessary to maintain healthy ecosystems and double salmon populations in the San Joaquin River and its tributaries (51- 97% from AFRP 2005 report for doubling salmon populations, 60% from Board's 2010 report).

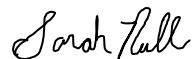
Additionally, a major review of diverse river restoration programs suggested that 80% unimpaired river flows were necessary to maintain a healthy and productive river ecosystem (Richter et al. 2011). Arthington et al. (2006) and Richter et al. (2011) concluded that diverting large amounts of water in 'arid-zone regions with highly variable flow regimes... would almost certainly cause **profound environmental degradation**, based on current scientific knowledge' (emphasis added). Conclusions made by Arthington et al. (2006) were derived from studies of

river systems throughout the world (such as, Poff et al. 1997, Pusey et al. 2000, Bunn and Arthington 2002, Nilsson and Svedmark 2002, Petr et al. 2004). Richter et al. (2011) conclude that, "Alterations greater than 20% will likely result in moderate to major changes in natural structure and ecosystem functions, with greater risk associated with greater levels of alteration in daily flows." Both scientific reviews assessed the current available science for multiple rivers worldwide. Based on current scientific understanding mentioned above, the Board's 35% unimpaired flow plan is woefully inadequate to maintain a healthy river ecosystem in the San Joaquin River and will likely cause increased degradation.

Although there are many factors contributing to anadromous fish population declines in the San Joaquin River (USFWS 2001), FLOW is the master variable that regulates many of the stressors identified in the AFRP working paper. Increasing flows will have beneficial impacts on many stressors such as temperature, dissolved oxygen, predation, floodplain habitat, redd dewatering, and migration to name a few.

I urge the State Water Resources Control Board to mandate increasing flows to at minimum of 60% unimpaired flows and save this river ecosystem and its fisheries from collapse.

Sincerely,



Sarah Null

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## Literature Cited

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