



July 31, 2019

VIA electronic mail to
Brian.Heiland@water.ca.gov

To: California Department of Water Resources

Re: Comments on First Negotiation Session on Delta Conveyance Amendment

The First Offer by the Public Water Agencies seeks to dictate the configuration of the Delta conveyance, including the alignment. But the Public Water Agencies do not have sufficient information for reasoned consideration of whether the previously proposed locations of the North Delta intakes would adequately mitigate impacts of sea level rise on water supply. The location of the intakes influences feasible conveyance alignments.

The Governor's Executive Order N-10-19 directed that the Natural Resources Agency and the California Environmental Protection Agency "inventory and assess" efforts to modernize Delta Conveyance as well as "anticipated impacts of climate change to our water systems." As part of that process, California Water Research is recommending that the agencies assess whether there is adequate information on the impacts of sea level rise on the previously proposed Delta conveyance.

The last evaluation of the impacts of sea level rise on the previously proposed Delta conveyance was done in 2010 by Resources Management Associates ("RMA.") The RMA analysis assumed that there could be up to 55 inches of sea level rise by 2100. The analysis evaluated the impacts of 55 inches of sea level rise on the North Delta intakes and concluded that there would be no impacts from salinity intrusion at the proposed intake locations. But there have been major advances in our understanding of climate change since 2010. Estimates of maximum potential sea level rise have more than doubled.

In 2017, the Ocean Protection Council's Science Advisory Team Working Group estimated that there is a 1 in 200 chance of seeing 5.7-6.9 feet of sea level rise by 2100, depending on greenhouse gas emissions.¹ (0.5% chance.) A 2018 estimate by Pierce,

¹ Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA (California Ocean Protection Council Science Advisory Team Working Group). *Rising Seas in*

Kalansky, and Cayan at the Scripps Institute gave a 1 in 20 probability of seeing 4.6 to 7.9 feet of sea level rise by 2100.² (5% chance.)

For the 4th National Climate Assessment, NOAA estimated that there could be up to 10 feet of sea level rise at the Golden Gate by 2100. This scenario was referred to as the H++ scenario in the Ocean Protection Council’s 2018 sea level rise guidance. This is the current maximum estimate.

The 2018 Delta Stewardship Council Draft Staff Determination on WaterFix Consistency Appeal found that the assumption of 55 inches of sea level rise is not consistent with “best available science,” stating:

... the Department stated its assumptions still reflect the use of best available science because they are consistent with the recommended estimates for the sea-level rise under the “likely range” reported for years 2030 and 2060 in the latest guidance from the California Ocean Protection Council for sea-level rise planning. The California Ocean Protection Council, however, recommends the “likely range” for use in low risk aversion decisions, such as a coastal unpaved trail. (Ocean Protection Council, 2018 Update, p. 25.) Whereas, it recommends use of the H++ scenario, which is extreme risk aversion, for projects with a lifespan beyond 2050. (Ibid.)

The failure to do adequate modeling of the impacts of sea level rise on the Delta conveyance project has been an issue for five years. The Delta Independent Science Board’s May 15, 2014 comments on the project stated:

The potential effects of climate change and sea-level rise are underestimated.— Future climate change and sea-level rise are perhaps the greatest sources of uncertainty affecting BDCP. [...] The potential direct effects of climate change and sea-level rise on the effectiveness of actions, including operations involving new water conveyance facilities, are not adequately considered. [...] In their response to our preliminary draft review, the Department of Water Resources noted that “the scope of an EIR/EIS is to consider the effects of the project on the environment, and not the environment on the project”.³ If the

California: An Update on Sea-Level Rise Science. California Ocean Science Trust, April 2017. Available at <http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf>

² Pierce, D., Kalansky, J., Cayan, D. Climate, Drought, and Sea Level Rise Scenarios for California’s Fourth Climate Change Assessment, a report for the California Energy Commission’s Fourth Climate Change Assessment, 2018. Available at http://www.climateassessment.ca.gov/techreports/docs/20180827-Projections_CCCA4-CEC-2018-006.pdf

effects of major environmental disruptions such as climate change, sea-level rise, levee breaches, floods, and the like are not considered, however, one must assume that the actions will have the stated outcomes. We believe this is dangerously unrealistic. CEQA requires impacts to be assessed “in order to provide decision makers enough information to make a reasoned choice about the project and its alternatives”.

There are also problems with the RMA analysis of the impacts of levee failure in the Delta. The analysis of operations with sea level rise and large scale levee failure was a modification of RMA’s simulation of the Hayward scenario earthquake for the Delta Risk Management Strategy. The simulation used a grid³ which only includes levees as far north as Bouldin Island. (See below.)

There was no analysis of operations of the project with levee failure north of Bouldin Island. There is potentially significant salinity intrusion with low Sacramento River flows if there was large scale levee failure due to sea level rise. While the US Geological Survey lists Hood’s elevation as 7 feet, the bottom of the Sacramento River in the vicinity of Hood can be over 20 feet below sea level.

In addition, the Delta Conveyance Design and Construction Authority has withdrawn the Engineering Design standards that mandated that the Delta Conveyance be designed for a 100 year lifetime.

For these reasons, there is insufficient information for the Public Water Agencies to dictate the alignment of the Delta conveyance, or even to adequately assess the conveyance as a water supply project.

Sincerely,



Deirdre Des Jardins, Director
California Water Research

³ Resource Management Associates, Preliminary Seismic Risk Analysis Associated with Levee Failures in the Sacramento – San Joaquin Delta, Appendix A, Delta Levees Seismic Risk Assessment Modeling 30 and 50 Breach Scenarios, 2005. Available at http://www.calwater.ca.gov/content/Documents/library/LSI-DSRAppendix_A.pdf.

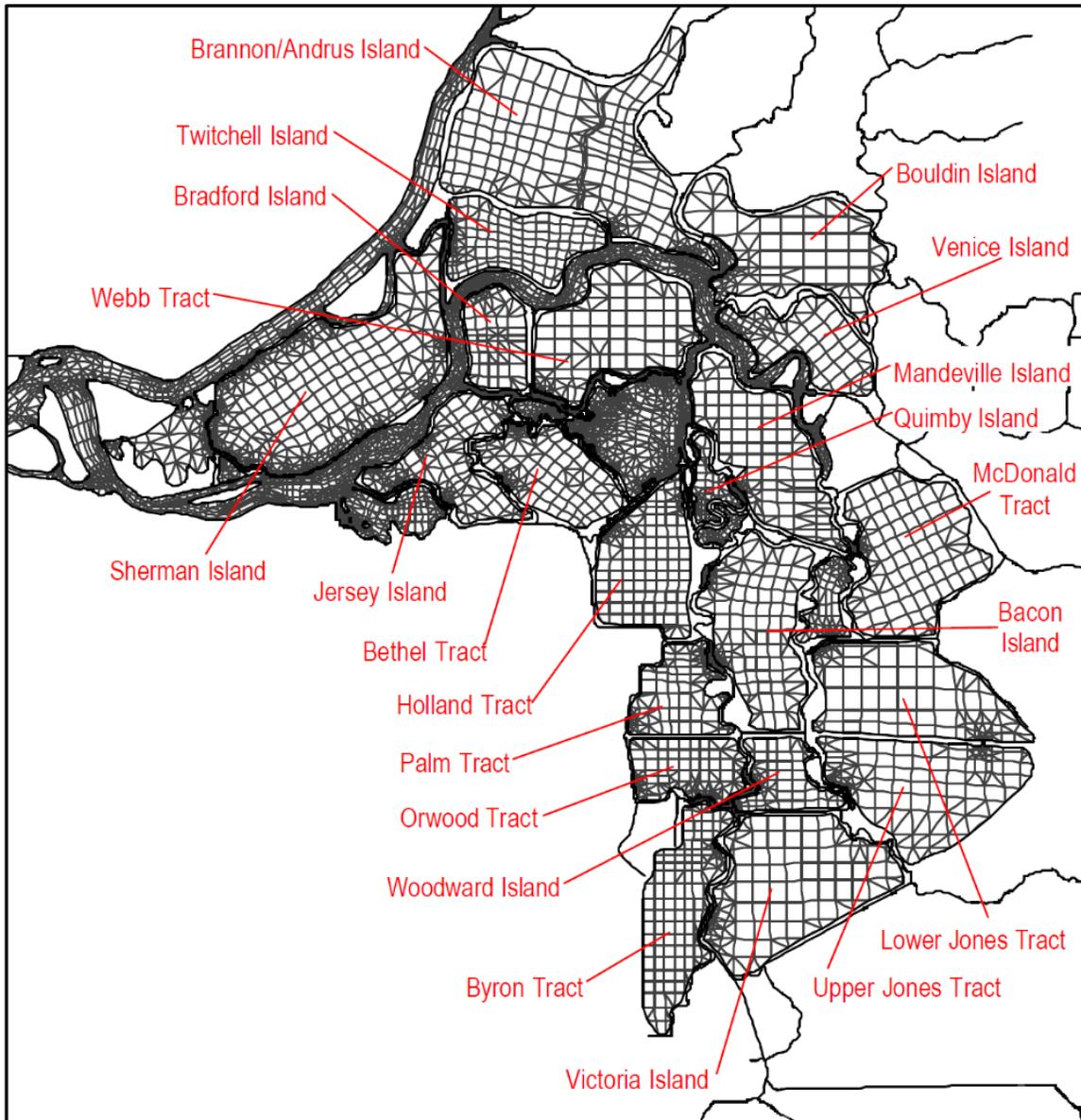


Figure 2-3 Detail of finite element mesh modifications for 50 breach simulations (with Sherman Island breached).