Deirdre Des Jardins
145 Beel Dr
Santa Cruz, CA 95060
ddj@cah2oresearch.com

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Delta Stewardship Council
980 9th Street, Ste. 1500
Sacramento, CA 95814

California Water Research comments on WaterFix consistency certification.

These comments are with respect to the Best Available Science requirement in the Delta Plan, and also with respect to whether there is substantial evidence in the record about WaterFix project impacts on the Delta.

1. **Modeling of initial WaterFix operations is based on speculation about the Biological Opinions**

In *Pacific Gas & Electric Co. v. Zuckerman (1987),* 189 Cal. App. 3d at 1135 :

> Where an expert bases his conclusion upon assumptions which are not supported by the record, upon matters which are not reasonably relied upon by other experts, or upon factors which are speculative, remote or conjectural, then his conclusion has no evidentiary value. [citations omitted] In those circumstances the expert's opinion cannot rise to the dignity of substantial evidence. [citations omitted.]

County of San Joaquin attorney Tom Keeling cited a similar provision of law in his closing statement. Absent a Record of Decision by the Bureau of Reclamation, and a final Biological Opinion, the Delta Stewardship Council should not consider any of the information in the administrative record that is based on speculative operational scenarios to be substantial evidence.

As I testified for PCFFA in Part 2 of the SWRCB WaterFix hearing in Exhibit PCFFA-203, all of the impact analyses for the WaterFix are based on speculative operational scenarios. The following is from my testimony, Exhibit PCFFA-203.

> The CWF H3+ operational scenario is derived from the ESA and CESA consultations, which are ongoing. The Biological Opinions state that the ultimate operational criteria for the

WaterFix project ("WaterFix" or "CWF") have not been finalized, and Reclamation has initiated a second ESA Section 7 consultation. Thus the CWF H3+ operational scenario is based on merely a snapshot in time of ongoing consultation processes. Therefore, the results and impact analyses based on modeling of the CWF H3+ scenario are fundamentally speculative and uncertain. The Part 2 testimony of DWR's witnesses based on CWF H3+ fails to acknowledge this uncertainty.

In addition, the CWF H3+ scenario likely cannot be operationalized without the current Coordinated Operating Agreement, which requires Reclamation to provide 75% of storage releases to meet in-basin needs. Reclamation's witness testified in the WaterFix hearing that the COA is being renegotiated.

The significance of the risk to in-basin needs is greater because the Final EIR/EIS (Exhibit SWRCB-102) states that the North Delta diversions could ultimately be used to abandon salinity control in the Delta.

My summary is on p. 3-5, and the discussion is on p. 13-27.

Since DWR is still preparing the entire administrative record, I have submitted PCFFA-203, which is my testimony, and the supporting exhibits with these comments. The testimony and supporting exhibits were accepted into evidence.

2. The WaterFix project also has no defined long-term operational scenario, but could be used to abandon salinity control in the Delta

The Final EIR/EIS, at Chapter 29, p. 16, line 34 also discusses abandoning salinity control in the Delta:

The location of the north Delta diversion facility is further inland making it less vulnerable to salinity intrusion. Even with substantial sea level rise and critically dry upstream conditions, salinity could be repelled from this location. By establishing an alternative diversion point for Delta exports, a great deal of Delta management flexibility is added.

[…] Alternatives 1A–2C, 3, 4, and 5 would allow the Delta to be managed in a number of different ways, including maintaining salinity as it is currently managed or allowing salinity to fluctuate more freely in the Delta as it did prior to the development of upstream reservoirs

I cross-examined John Leahigh about this section of the Final EIR/EIS on May 11, 2017. I've provided a copy of the entire transcript with my comments, because I couldn't find a copy of the entire transcript in the record that DWR provided.

WaterFix hearing transcript, May 11, 2017 p. 96:11 to 97:24.

MS. DES JARDINS: Have you considered --
Mr. Leahigh, let me break it down.
Have you considered the higher
Sea level rise, the higher salinity intrusion scenarios
For operations of the State Water Project?

WITNESS LEAHIGH: Well, what I can tell you is yeah, we have to

respond to whatever change in conditions are. And so with an increase in sea level, quite frankly, what that would do is, first of all, make it more expensive in terms of State Water Project water supply to meet existing criteria. So, you know, there's been analyses done showing that results in decrease in State Water Project yield as a result of that.

MS. DES JARDINS: So you have considered that this facility could be -- could be used in a way where you -- where you allowed salinity to fluctuate naturally in the Delta without releasing water to meet the current salinity requirements?

WITNESS LEAHIGH: I think it becomes very speculative as far as to the extent -- what changes

would be made, depending on the magnitude of sea level rise. But as I said, just incrementally, the effects would be a reduction in State Water Project supplies in order to maintain -- if we were still responsible for maintaining the existing criteria, it would be – come directly out of State Water Project supplies.

MS. DES JARDINS: And so you haven't – that was my third question is you have not looked at what scenarios in terms of drier conditions, extended drought, salinity intrusion, that you would seek to change these requirements, or have you?

WITNESS LEAHIGH: No. Again, that's speculative. I think the modeling results show that there is a decrease in project delivery capabilities with these climate change effects.

The Delta Reform Act also mandated that the BDCP analyze operations under sea level rise of 55 inches, which was projected to be the maximum sea level rise at the end of the century. RMA performed a sensitivity analysis of operations of the isolated conveyance under sea level rise of 55 inches (140 cm.) The results were presented in a powerpoint in 2010 to the BDCP steering committee.

I introduced the powerpoint of RMA modeling results in the SWRCB WaterFix hearing as Exhibit DDJ-190, which I am also providing for the record with these comments. The relevant analysis on p. 14, 15, and 16. The RMA modeling assumes that SWP and CVP will switch to the North Delta intakes whenever EC gets above 1090 umhos/cm EC. This results in spikes of EC at Rock Slough to 1,500-2,500 umhos/cm EC from late Summer/Fall through Spring. The sensitivity analysis thus assumes that salinity control in the Delta is abandoned.

3. The WaterFix sea level rise projections do not use the current best available science.

As I testified for PCFFA in the WaterFix hearing, DWR's assumptions for sea level rise do not use the best available science, and are not appropriate for a multi-billion dollar project.

My testimony on sea level rise was Exhibit PCFFA-81. My statement of qualifications is Exhibit PCFFA-75. A notice of errata was submitted to the SWRCB on September 27, 2016, correcting a typo (2100, not 2030.) The supporting exhibits are PCFFA-62 through PCFFA-80. I've provided a copy of these exhibits with these comments, since DWR did not provide them with the administrative record. All were accepted into evidence, except the notice of errata.

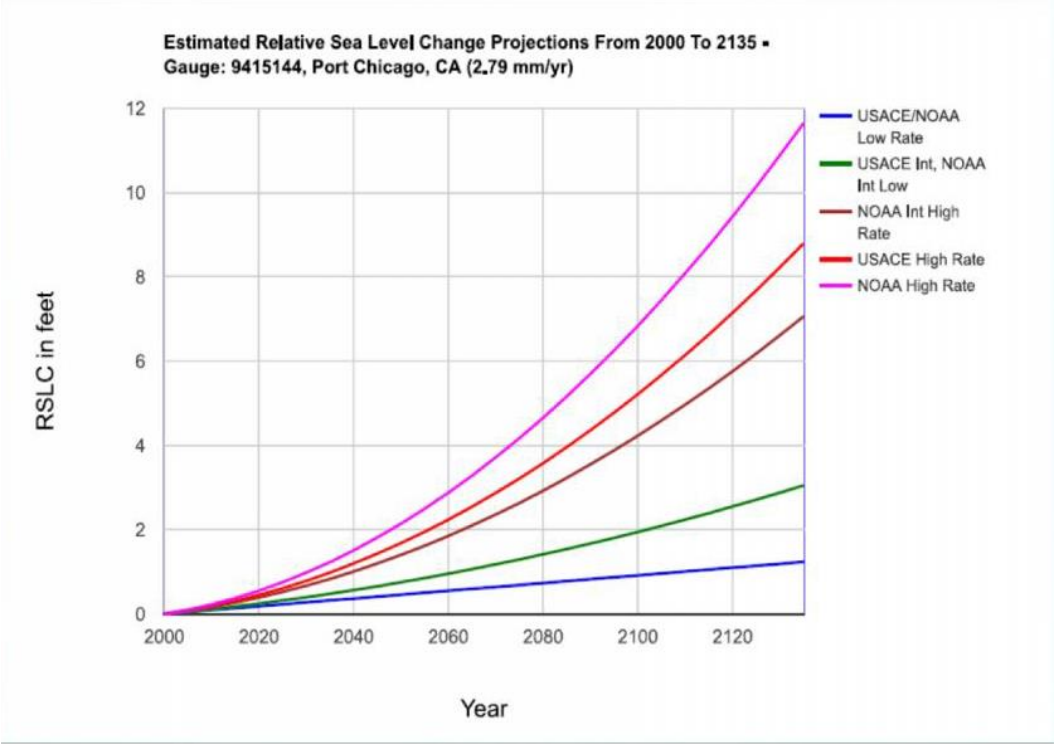
Chapter 29 of the Final EIR/EIS on climate change states on p. 29-2 at line 28 to 29:

> It should be noted, the California Ocean Protection Council and other scientific bodies have projected that sea level rise will not reach 55 inches (140 29 centimeters) until approximately the year 2100.

This mischaracterizes the Ocean Protection Council guidelines, which appear not to be in the administrative record index provided by DWR.

The Ocean Protection Council's high rate of sea level rise is consistent with the NOAA high level of sea level rise, which I testified to in Part 1 of the WaterFix hearing.

The following graph is from the Army Corps of Engineers' sea level rise calculator, and was introduced as Exhibit PCFFA-65 in the WaterFix hearing. The associated table of sea level rise values is Exhibit PCFFA-65 in the WaterFix hearing record. They show that under the NOAA high rate of sea level rise, there could be 55 inches of sea level rise by 2080.



So this may not be a problem for the distant future.

The Final EIR/EIS refers to the Army Corps of Engineer's guidance on sea level rise. I testified in Part 1 surrebuttal in the WaterFix hearing on the 2011 Army Corps of Engineers' Circular EC 1165-2-212, Sea-Level Change Considerations for Civil Works Program. The following is from page 11 of my testimony, Exhibit DDJ-208 testimony errata.

> With respect to using the "low", "intermediate", and "high" sea level rise estimates, the 2011 Army Corps sea level rise guidance (Exhibit DDJ-211) states

6. Incorporating Future Sea-Level Change Projections into Planning, Engineering Design, Construction, and Operating and Maintaining Projects.
[…]

b. Planning studies and engineering designs over the project life cycle, for both existing and proposed projects consider alternatives that are formulated and evaluated for the entire range of possible future rates of sea-level change (SLC), represented here by three scenarios of "low," "intermediate," and "high" sea-level change. These alternatives will include structural and nonstructural solutions, or a combination of both. Evaluate alternatives using "low," "intermediate," and "high" rates of future SLC for both "with" and "without" project conditions. (p.2)

My testimony continues on p. 12:

The 2011 Army Corps sea level rise guidance (Exhibit DDJ-211) also states

c. Determine how sensitive alternative plans and designs are to these rates of future local mean SLC, how this sensitivity affects calculated risk, and what design or operations and maintenance measures should be implemented to minimize adverse consequences while maximizing beneficial effects. Following the approach described in 6b above, alternative plans and designs are formulated and evaluated for three SLC possible futures. Alternatives are then compared to each other and an alternative is selected for recommendation. The approach to formulation, comparison and selection should be tailored to each situation. The performance should be evaluated in terms of human health and safety, economic costs and benefits, environmental impacts, and other social effects.

Clearly this wasn't done for alternative intake locations. It also was not done for the alternative of raising the levees.

As I testified in Part 1, the Army Corps of Engineers' Regulation, *Incorporating Sea Level Change in Civil Works Programs*, released in December 2013, superseded EC 1165-2-212.4 Exhibit DDJ-213 is a copy of the Regulation. It states:

(3) The low, intermediate, and high scenarios at NOAA tide gauges can be obtained through the USACE on-line sea level calculator at
http://www.corpsclimate.us/ccaceslcurves.cfm
The closest NOAA tide gauge to the Delta is at Port Chicago. The USACE low, intermediate, and high scenarios at the NOAA tide gauge at Port Chicago were provided in testimony in Part 1B for Pacific Coast Federation of Fishermens' Associations / Institute for Fisheries Resources (PCFFA/IFR.) as a graph in exhibit PCFFA-65 and a table in exhibit PCFFA-64.

The curves in exhibit PCFFA-65 were provided through 2135, which was the end of the estimated 100 year lifetime of the project, and within the lifetime of the Change Petition. The USACE intermediate and high rates of sea level rise are somewhat lower than those estimated by NOAA, but similar.

Clearly the high sea level rise scenarios have not been evaluated, either for initial operations at about 2035, for long term operations at about 2060, nor for the 100 year lifetime of the project.

Just analyzing the performance of a multibillion dollar project for intermediate levels of sea level rise is inadequate and does not use the best available science or the recommended methodology for evaluating project performance.

As John Bednarski testified in Part 1 rebuttal, 55 inches of sea level rise at the Golden Gate does not translate an increase of 55 inches of water surface elevation in the Delta.

The following is from Bednarski's testimony (Exhibit DWR-75, p.3:11-18):

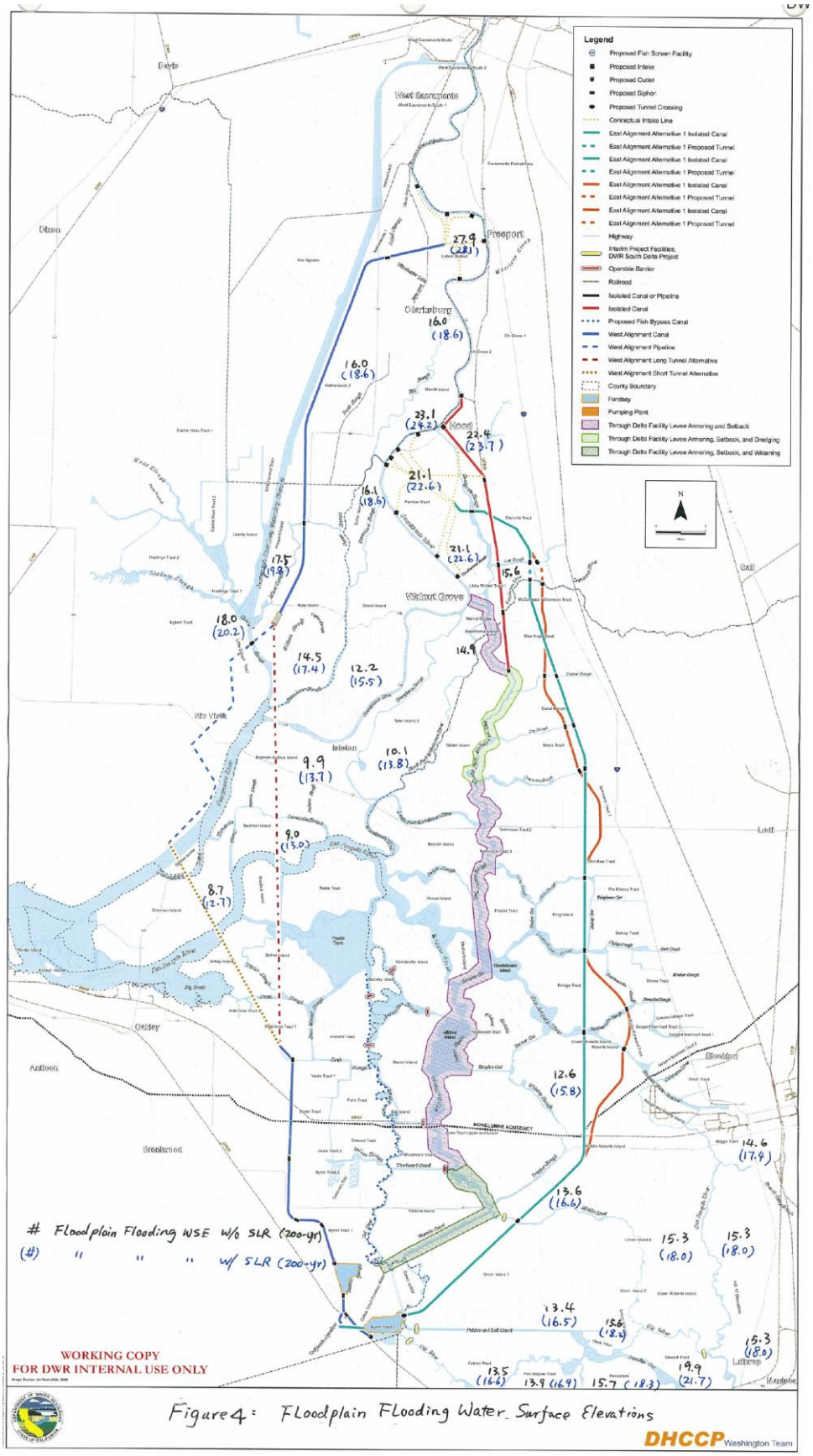
The CWF Engineering Design Correctly Accounts for Sea Level Rise.

> Testimony by Ms. Des Jardins alleges that the CWF conceptual engineering design estimates for 18 inches of sea level rise are not realistic when compared to sea level rise estimates for Port Chicago. In fact, the CWF conceptual engineering design used a conservatively high estimate of 55 inches of sea level rise at the Golden Gate Bridge. However, projected sea level rise decreases moving further upstream, such that the 55-inch estimate at the Golden Gate Bridge translates to 18 inches at the intake locations.

The map on the next page is from the WaterFix project technical memorandum by Mineart et. al. on Flood Elevations and Protection, Exhibit DWR-661, which is being used for the WaterFix project design.

Page 30 of Exhibit DWR-661 shows the maximum water surface elevations in the Delta, with and without 55 inches (140 cm) of sea level rise. The differences in the Northern and Eastern parts of the Delta, in particular, are not huge.

Absent any further analysis, it should not be assumed that raising the levees to withstand sea level rise is not feasible or desirable. The analysis of levee performance should have been done for low, intermediate, and high sea level rise.


Legend
Proposed Fish Screen Facility
Proposed Intake
Proposed Outlet
Proposed Siphon
Proposed Tunnel Crossing
Conceptual Intake Line
East Alignment Alternative 1 Isolated Canal
East Alignment Alternative 1 Proposed Tunnel
East Alignment Alternative 1 Isolated Canal
East Alignment Alternative 1 Proposed Tunnel
East Alignment Alternative 1 Isolated Canal
East Alignment Alternative 1 Proposed Tunnel
East Alignment Alternative 1 Isolated Canal
East Alignment Alternative 1 Proposed Tunnel
Highway
Interim Project Facilities, DWR South Delta Project
Operable Barrier
Railroad
Isolated Canal or Pipeline
Isolated Canal
Proposed Fish Bypass Canal
West Alignment Canal
West Alignment Pipeline
West Alignment Long Tunnel Alternative
West Alignment Short Tunnel Alternative
County Boundary
Forebay
Pumping Plant
Through Delta Facility Levee Armoring and Setback
Through Delta Facility Levee Armoring, Setback, and Dredging
Through Delta Facility Levee Armoring, Setback, and Widening
N
Davis
West Sacramento
Dixon
Freeport
Clarksburg
Hood
Walnut Grove
Isleton
Rio Vista
Courtland
Locke
Galt
Lodi
Stockton
Lathrop
Oakley
Antioch
Brentwood
27.9 (28.1)
16.0 (18.6)
16.0 (18.6)
23.1 (24.2)
22.4 (23.7)
21.1 (22.6)
16.1 (18.6)
21.1 (22.6)
17.5 (19.8)
15.6
18.0 (20.2)
14.5 (17.4)
12.2 (15.5)
14.9
9.9 (13.7)
10.1 (13.8)
9.0 (13.0)
8.7 (12.7)
12.6 (15.8)
14.6 (17.4)
13.6 (16.6)
15.3 (18.0)
15.3 (18.0)
13.4 (16.5)
15.6 (18.4)
15.3 (18.0)
13.5 (16.6)
13.9 (16.9)
15.7 (18.3)
19.9 (21.7)
Floodplain Flooding WSE w/o SLR (200-yr)
(#) " " " w/ SLR (200-yr)
WORKING COPY
FOR DWR INTERNAL USE ONLY
Figure 4: Floodplain Flooding Water Surface Elevations
DHCCP Washington Team

4. **The WaterFix project assumes existing channel geometry won't change with sea level rise**

The water surface elevation projections in the Mineart technical memorandum assume the existing channel geometry doesn't change. The Mineart technical memorandum also uses Manning's equation for it's projections (Exhibit DWR-661, p. 7-8.) The Delta Risk Management Strategy peer review team commented that using Manning's equation was very simplistic, even for the Delta Risk Management Strategy.

The following is from Exhibit DDJ-172, p. 142, which was introduced on cross-examination of John Bednarski and Praba Pirabarooban.

> Peer review comment:
>
> > 9. Section 6.5, page 25, Equation 6-1. Using Manning's equation to approximate the stages due to rises in the ocean seems very simplistic, given the many factors involved and complexities of the hydrodynamics of flows in the Delta.
>
> Response:
>
> > The method is simple but provides a measure of the how far sea level rise may extend inland during a storm event. Although simple, the method was considered adequate for the level of detail needed by the Risk Analysis Report.

The following is from my cross-examination of John Bednarski and Praba Pirabarooban on April 25, 2018, Transcript p. 211:17-215:11.

> MS. DES JARDINS: Thank you. That's what I wanted to clear up, and that concludes my cross-examination of Ms. Buchholz.
>
> And then I wanted to pull up Exhibit DDJ 170. I've highlighted some of Mr. Bednarski's testimony. And please go to page 3 I have highlighted there.
>
> Mr. Bednarski, you say that projected sea level rise decreases moving further upstream such that 55-inch estimate at the Golden Gate Bridge translates to 18 inches at the intake locations; is that correct? So you're saying there's 18 inches of sea level rise?
>
> WITNESS PIRABAROOBAN: Yeah. That's the estimate we are using for design.
>
> MS. DES JARDINS: Okay. So let's go to page 23, line 11 to 13.
>
> And this is what it's based on, that there was an analysis done in 2009 to establish the design flood water surface elevations for the facilities, and that's Exhibit DWR-661.
>
> WITNESS PIRABAROOBAN: Yes.
>
> MS. DES JARDINS: So let's go to Exhibit DDJ 171, which is Exhibit DWR-661 with highlighting. Go to page 1 and scroll down a little.
>
> This technical memo was intended to provide initial tentative general flood protection information. Are you familiar with that limitation?

WITNESS PIRABAROOBAN: Could you repeat that?

I can barely hear you.

MS. DES JARDINS: It says this TEM is intended to provide initial tentative general flood protection information and guidelines.

WITNESS PIRABAROOBAN: I can see that there, yes.

MS. DES JARDINS: So are you going to develop more detailed -- detailed information that's not initial or tentative?

WITNESS PIRABAROOBAN: Yeah. We will review what's in this memo. And as part of our next engineering phase, if this criteria we have used needs to be refined, we will do that as part of the final design.

MS. DES JARDINS: Okay. Let me go to page 4, which covers tidal flooding. So stop. So this is -- is this scenario tidal flooding due to sea level rise assuming a levee breach without a storm flood event. And you have -- for that scenario, they did an estimate of mean high water along each alignment; is that correct? So is this the appropriate estimate for sea level rise?

WITNESS PIRABAROOBAN: I think that's explained in -- if we go to the correct pages, pages 6 and 7.

MS. DES JARDINS: All right.

WITNESS PIRABAROOBAN: Specifically page 7. That's where the second paragraph starts to discuss the sea level rise that's considered in this analysis.

MS. DES JARDINS: Okay. So this goes into Manning's equation. So the estimates of the increases were done with the following assumptions. The flows in the channels were unaffected by sea level rise, and it used Manning's equation. This was based on the delta risk management strategy, technical memo Phase 1; is that correct?

WITNESS PIRABAROOBAN: I think so, yes.

MS. DES JARDINS: Okay. Let's pull up another exhibit. DDJ 172 is the Delta risk management strategy technical memo. Scroll down, please, to the highlighted section. Stop.

And it says: "Using Manning's equation to approximate the stages due to rises in the ocean seems very simplistic given the many factors involved and the complexity of the hydrothermal conditions, the flows in the delta."

The response was: "The method is simple but provides a measure of how far sea level rise may extend inland during a storm event. Although simple, the method was considered adequate for the level of detail needed by the risk analysis report."

Are you aware of this limitation of Manning's equation?

WITNESS PIRABAROOBAN: Not familiar with this particular document you have open there. But, you know, I understand according to the DWR-661 we have submitted that they used the Manning's equation to project the sea level rise inland.

MS. DES JARDINS: Is it possible that the level of detail needed to design a $17 million project might be more detail than required for the delta risk management study?

WITNESS PIRABAROOBAN: Just wanted to mention that we are at the conceptual level; we are not at final design stage. So that's what I mentioned earlier. We would review the analysis and results and, if needed, we would refine these estimates as part of our final design.

The RMA analysis of operations under high sea level rise also assumes the existing channel geometry. The RMA analysis documents this on page 2.

If the Delta levees fail and the islands are left flooded, the channel geometry seems likely to change. Neither Manning's equation nor the RMA analysis are adequate to evaluate the long-term performance of the WaterFix North Delta diversions with sea level rise and island failure.

5. The WaterFix conceptual design is based on inadequate geotechnical and engineering analysis

The potential impacts of tunneling on many regionally important structures such as the Delta levees, major PG&E pipelines, and the Burlington Northern/Santa Fe Railroad Tracks, which are used by Amtrak was not analyzed in the WaterFix Conceptual Engineering Report or the Final EIR/EIS. In Chapter 9 of the Final EIR/EIS, DWR calculated between 0 and 2.9 inches of settlement on the surface (p. 9-288) from controlled tunneling:

> Given the likely design depth of the tunnel, the amount of settlement beneath developed areas and critical infrastructure (i.e., the village of Hood, SR 4 and SR 12, the EBMUD aqueduct, and a potentially sensitive satellite dish facility) would be minor. At the evaluated infrastructure, the predicted maximum ground surface settlement would range from 0.0 to 2.9 inches, with a change in ground slope ratio ranging from 0 to 1:714 (the higher value corresponding to a 0.14% slope). The width of the settlement "trough," as a cross-section oriented perpendicular to the tunnel alignment, would be 328 to 525 feet among the evaluated facilities. Other facilities that may be determined to be critical infrastructure include natural gas pipelines, the proposed EBMUD tunnel, levees, and local electrical distribution and communication lines .

The Delta Stewardship Council should recognize that the Delta levees have NOT even been recognized in the EIR as critical infrastructure, nor has other critical infrastructure in the Delta.

Chapter 9 of the WaterFix Final EIR/EIS briefly discusses risks of settlement from tunneling:

> **Impact GEO-3: Loss of Property, Personal Injury, or Death from Ground Settlement during Construction of Water Conveyance Features**
>
> Two types of ground settlement could be induced during tunneling operations: large settlement and systematic settlement. Large settlement occurs primarily as a result of over-excavation by the tunneling shield. The over-excavation is caused by failure of the tunnel boring machine to control unexpected or adverse ground conditions (for example, running,

> raveling, squeezing, and flowing ground) or operator error. Large settlement can lead to the creation of voids and/or sinkholes above the tunnel. In extreme circumstances, this settlement can affect the ground surface, potentially causing loss of property or personal injury above the tunneling operation.
>
> Systematic settlement usually results from ground movements that occur before tunnel supports can exit the shield and the tunnel to make full contact with the ground. Soil with higher silt and clay content tend to experience less settlement than sandy soil. (p. 9-195)

So ground loss from tunneling could be greater than that estimated by DWR.

Tom Williams, a PhD geologist with experience consulting on tunnel and pipeline projects around the world, testified in Part 1 of the WaterFix hearing that the WaterFix conceptual design is based on wholly inadequate geotechnical exploration, and seismic and structural engineering analysis, and the project has not adopted leakage criteria or settlement criteria when tunneling under the Delta levees.

Tom Williams' testimony is Exhibit DDJ-163, and his statement of qualifications is exhibit DDJ-162. As Tom Williams testifies, there are adverse ground conditions in the Delta at the level of the tunnels. Tom Williams' testimony states on p. 4 at line 23:

> No discussions of leakage and movement criteria for the tunnels or of separations at shaft/vent connections have been developed for long-term operations. Criteria for acceptable surface settlement before, during, and following tunnel construction have not been adopted and no mitigation has been proposed. Without these clear, specific design criteria and their required information base and mitigation, the tunnels and vents/shafts are inadequately documented and incompletely assessed for impacts during project construction and operation and are not assessed for environmental impacts and mitigation on legal stakeholders of water in the WaterFix Change Petition Hearing.

Tom Williams also testified in Part 2 rebuttal (Exhibit DDJ-300 errata.)

> while the leakage analysis done to validate the tunnel lining design (Exhibit DWR-659) looks competent, the analysis methodology is based on a 1994 paper by Fernandez7, who derives his estimates from assumptions for rock tunnels. The assumptions almost certainly don't apply to tunnel linings in soft alluvial deposits beneath the Delta and especially for the connecting tunnel/shaft portions. I would therefore expect that there will need to be significant changes to the tunnel design to ensure that the proposed segmented tunnel lining will not develop leaks under long-term operation. Due to cost escalation issues, an adequate design could require significant changes in the currently proposed tunnel alignment to move the segmented lining to better soils.

So the tunnel lining design fails to use the best available science, and that failure creates significant risks to the Delta.

There are also issues that the segmented design of the tunnel lining could leak in a maximum earthquake in the Delta, and that the tunnel shafts are vulnerable to liquefaction. The internal seismic analysis showed that the tunnel segments could separate in a 1 in 1,000 year event, and substantial, continuous liquefaction could be expected down to 100 feet.

As Tom Williams testified on p. 29:

> The potential problems with a single-pass liner are further obfuscated with analyses in the Final Draft CER, which use significantly weaker ground-motion assumptions than the preliminary engineering analysis. This gap in the analysis is of particular concern where the tunnels pass under important structures, including Delta island levees and channels, the Stockton Deep Water Shipping Channel, State Route 4, State Route 12, the Mokelumne Aqueduct, and natural gas and other product and services pipelines and where tunnels are joined with other structures (vents and shafts). Failures under a levee or channel could result in catastrophic flooding, endangering human life. Rapid failure under State Route 4 or 12 could also cause loss of life.

There also needs to be adequate monitoring for leakage. The Conceptual Engineering Report proposes to only inspect the tunnels for leakage once every 10 years. Tom Williams testified that there was a sunny day leak in Santa Clara Valley Water District's Pacheco pipeline, due to a lapse in inspections. The following is from p. 17:

> The Santa Clara Conduit pipeline failed in August 2015 and spilled 60 acre-feet of water into nearby Pacheco Creek (Exhibit DDJ-145), (Exhibit DDJ-146.) The pipeline was completed in 1985 and was 30 years old. A later failure analysis by the District found the last inspection had been in 2008 (Exhibit DDJ-147.)

Without adequate analysis and mitigation of potential impacts of the WaterFix tunnels construction and operations on Delta levees and other critical infrastructure in the Delta, the entire project may not be consistent with local land use policies, and thus against Delta Plan Policy P2.

6. Failure to adequately analyze impacts to terrestrial species

David Fries, the Chair of the San Joaquin Audubon Society Conservation Committee, testified in Part 2 of the WaterFix hearing that the Final EIR/EIS failed to adequately analyze impacts to bird. His statement of qualifications is Exhibit DDJ-214, and his testimony is Exhibit DDJ-215. His testimony and supporting exhibits are provided with these comments.

David Fries testified on page 4 at line 13:

> The ITP indicates that the tunnel spoils will be stacked to an average depth of 10 feet, after being treated extensively:
>
> > Permittee will dewater RTM to stabilize it for long-term placement in a storage area. Permittee will use atmospheric drying by tilling and rotating the material, combined with subsurface collection of excess liquids, to render the material dry and suitable for longterm storage or reuse; or if not sufficient, other methods may be used within the construction site. Leachate will drain from ponds to a leachate collection system, then will be pumped to leachate ponds for possible additional treatment. Disposal of the RTM decant liquids will be compliant with permitting in accordance with NPDES and Regional Water Quality Control Board regulations.
>
> The ITP does not indicate either a method for protecting the leachate ponds or for treating the Reusable Tunnel Material (RTM) decant liquids prior to discharge into the Delta.

The Final EIR does not identify the “temporary storage area” sites, nor, because the sites are not yet defined, are any surveys available of the habitat on the site, whether it is sensitive habitat such as wetlands or vernal pool, or the flora and fauna on the sites. Nor are any of the plans for reuse of the spoils described. Without identification of the tunnel spoil sites and adequate pre-construction surveys of the sites, or identification of the methods for treating and safely disposing of leachates, it seems impossible for this Board to determine how the project will impact bird species in the tunnel construction area.

Without final “temporary storage area” sites, there is no substantial evidence in the record for the Delta Stewardship Council to assess impacts on either wildlife or Delta communities and Delta residents and Delta land use.

Deirdre Des Jardins
Principal, California Water Research