Delta Protection Commission Comments on the Delta Independent Science Board's Review of the Delta Conveyance Project EIR

A Comprehensive Peer Review of the EIR Is Essential to Assure It Uses the Best Available Science. We ask you to use the full breadth of scientific expertise to assure the EIR's credibility. "Peer review conducted by active experts in the applicable field(s) of study" is part of the Delta Plan's definition of best available science[1]. A review of other large ecosystem restoration efforts concluded that peer review is the best way to ensure credibility and the development and use of best available science[2].

Your task is daunting, partly because the EIR is legally required to address such a wide variety of topics, including many that comprise "Delta as Place" values. We suggest that to properly address "Delta as Place" values, your review should examine not just water supply and ecosystem issues, but also agriculture, aesthetics, cultural resources, environmental justice, land use, noise, recreation, and traffic. Some of these topics may not be within board members' expertise. We encourage you to consider enlisting outside expertise to supplement that represented on your board where you determine it would be helpful to adequately review these issues. Recruiting supplemental expertise would have the added benefit of widening social scientists' attention to the Delta, as recommended by the Delta Social Science Task Force[3].

Consider the Delta's Human Environment as Carefully as its Natural One. We hope you will ensure that the Delta's residents, farmers, other workers, and recreationists receive as much attention as its fish, wildlife, and aquatic ecosystem. Like the fish and wildlife that receive so much attention, the Delta's multiracial population is also at risk. Too many residents and workers have low incomes, and others' jobs rely on water-dependent farms or tourism. The communities where residents live and work, the waterways that attract recreationists, and the highways traveled to jobs and shopping, to transport produce, and to draw visitors are as critical as the river channels and other habitats where wildlife and fish live and migrate.

Delta people noticed that the BDCP EIRs paid greater attention to issues that affected fish, wildlife, and aquatic ecosystems rather than those affecting Delta people; the two BDCP EIR chapters analyzing effects on biological resources were over 2.5 times longer than the nine chapters analyzing effects on "Delta as Place" resources including land use, noise, recreation, socioeconomics, visual resources, cultural resources, transportation, and environmental justice. This disparity epitomizes the imbalance in the use of social versus biophysical sciences in the consideration of Delta issues.

In your review, we hope you will examine whether the concerns of the Delta's residents, farmers, and visitors receive equitable and careful attention. Are they assessed using current data? Are specific actions to reduce damaging effects spelled out whenever feasible, rather

than deferred to be worked out later? Are performance standards clearly stated? When harm is unavoidable, is appropriate compensatory mitigation proposed to offset damage, just as it would be for damage to migratory birds or salmon?

Adequate Data is Essential. We ask that you assess the adequacy of the data used in the EIR's assessment of "Delta as Place" impacts. The Delta Plan states: "Ultimately, best available science requires scientists to use the best information and data to assist management and policy decisions". Its criteria for best available science include in part:

- Relevance. … The quality and relevance of data and information used shall be clearly addressed.
- Timeliness … Data collection shall occur in a manner sufficient for adequate analyses before a management decision is needed.

In your review, we ask that you examine the adequacy of data and analyses related to "Delta as Place" issues. Data used to assess impacts to "Delta as Place" values in the BDCP EIRs were too often lacking, slight, or outdated.

- Housing. Little data about housing in Hood, Courtland, Clarksburg, Locke, or Walnut Grove were presented, despite the potential for adverse impacts to housing in those communities.
- Recreation. Data about Delta recreationists' activities were from 1980, 1997 and, for boating from 2000-01 (other than the limited surveys noted below). No data were cited about bank fishing, other day users, sightseers, wine and food visitors, or cultural tourists.
- Noise. Although a measure of the adverse effect of noise is the extent of change from ambient conditions, no surveys of existing noise in the most affected communities appear to have been conducted. Rather, the BDCP EIRs' estimates of existing noise were approximated from studies elsewhere.

The BDCP EIRs' data about recreational boating is a particularly striking example of the inadequacy of data and the imbalance in attention to "Delta as Place" values. Boating is the primary activity supporting the Delta's $275 million annual recreation and tourism sector, as well as a key feature of the Delta lifestyle. To prepare for the BDCP EIRs, boaters were surveyed on some waterways affected by conveyance alternatives on a total of 103 days over two years, compared to 42,700 days of surveys of giant garter snakes[4]. The 808 total hours of recreational boating surveys on those channels also contrast with 5800 hours of monitoring bats. Boating surveys were conducted on only a single holiday weekend in 2009 and about a dozen days at each site surveyed during summer 2010, without assessment of how factors like weather or air quality may have influenced boating activity. No surveys were conducted during spring or fall, when angling for migrating striped bass and salmon draws many boaters to the Sacramento, San Joaquin, and Mokelumne Rivers in recreation patterns different from summer months.

An additional concern is whether Covid-19 pandemic safety protocols have limited gathering of field data essential to understanding the project's effects on the Delta. We understand collection of current traffic counts has been interrupted by the Covid-19 shutdown and have read that some fish surveys were also interrupted. We do not know how the pandemic may have limited other monitoring and data collection, such as of boating, other recreation, background noise, or the culturally-significant landscape features and visual resources that the project's shafts or bays will impact.

In your review, we hope you will examine whether the data presented are sufficient. Can they be used to establish representative baselines for "Delta as Place" attributes? Are they timely or dated? If Covid-19 safety protocols prevented or limited gathering of some data, is adequate substitute information provided? Was information collection informed by best practices for gathering and evaluating each type of data? Can they be used to understand how the project will change attributes that contribute to the Delta's economy and quality of life? Could they be tracked with further monitoring as a project is implemented to assess whether mitigation measures ought to be adaptively managed?

Apply Adaptive Management. In your review, we hope you will consider how adaptive management is applied to "Delta as Place" issues. How well the BDCP EIRs forecast impacts on "Delta as Place" values was a matter of significant controversy. Delta local governments, organizations, and interests questioned the data and the methods used in those forecasts and the adequacy of proposed mitigation measures. Areas of disagreement included impacts to in-Delta water resources, agriculture, land use, recreation, noise, and traffic. Other scientific studies of the impacts of large construction projects on rural communities such as the Delta demonstrate their potential for dramatic and often unexpected impact[5] [6]. Most of these studies, however, examine energy or mining projects or provision of new water supplies, rather than a water conveyance pipeline.

The Delta Reform Act and Delta Plan call for adaptive management when making decisions in the face of such uncertainties. The Delta Plan emphasizes the value of adaptive management when making decisions under uncertain conditions, increasing the likelihood of success in obtaining goals when compared to implementing a management strategy without monitoring or feedback. It has been decades since DWR has constructed a new project as complex as the proposed Delta conveyance tunnel. This fact coupled with its recent challenges in maintaining Oroville Dam have compounded Delta residents' and organizations' lack of confidence in DWR's ability to accurately forecast and adequately avoid or mitigate the proposed tunnel's damaging impacts in the Delta.

An EIR could provide the first planning stage of the Delta Plan's three-stage adaptive management process. One inherent goal for DWR's plan should be protecting the Delta's unique cultural, recreational, and agricultural values as an evolving place (Water Code section 85020(b)), rather than just the water supply reliability goal proposed by DWR. More detailed

"Delta as Place" objectives can be derived from the "levels of significance" that are established in the EIR to determine whether adverse effects are significant (CEQA Guidelines section 15064.7). The EIR's narrative provides the conceptual model, explaining both how impacts are expected to arise and how they can be avoided, reduced, or compensated for by the selected alternative or mitigation measures.

Missing from the BDCP EIRs' approach to protecting "Delta as Place" values, however, was a commitment to adaptive management's monitoring and evaluation phases. Monitoring to address "Delta as Place" values was too often limited to simple compliance monitoring to confirm that a mitigation measure had been implemented, without performance monitoring to assess whether those measures had adequately avoided, reduced, or compensated for impacts. Nor was a process proposed for promptly assessing what additional action or other adaptation may be appropriate when impacts exceed the agreed-upon significance levels.

The periodic socioeconomic monitoring reports that the Canada Energy Regulator required of the Trans Mountain Expansion Project[7] may offer a model for applying all three phases of the Delta Plan's adaptive management model to "Delta as Place" values if the Delta conveyance tunnel is built. The Trans Mountain Expansion Project is a 610-mile oil and gas pipeline from Alberta across First Nations' lands and other rural areas to the Pacific coast. Canada's Energy Regulator requires it to prepare periodic reports that identify construction-related social or economic issues and concerns raised by local residents and other stakeholders, using an agreed-upon set of project indicators that help the pipeline company monitor the impacts of construction and identify any areas that may require modification.

In your review, we hope you will examine whether the project's adaptive management program gives sufficient consideration to "Delta as Place" values. Does the best available science indicate that mitigation measures will be effective? Do the levels of significance proposed in the EIR provide adequate performance measures for assessing mitigation measures' effectiveness? Is proposed monitoring of project effects on "Delta as Place" values well-designed? Can it produce information promptly that could be used to adjust mitigation measures when needed? Is there a satisfactory process for sharing monitoring information with Delta residents and organizations? Is there a satisfactory process for identifying when adaptation is needed, and for agreeing on adjustments to better avoid damaging impacts? Could applying adaptive management to monitor and adjust mitigation measures if a project is implemented help address doubts and uncertainties about effects on "Delta as Place" values?

Consider Climate Change Comprehensively. We ask you to insist that the EIR account for the full range of climate change impacts that affect the proposed project. How well the Delta conveyance tunnel anticipates the effects of climate change is a key scientific issue affecting the project, as it was for its predecessors. In its consideration of appeals of CA WaterFix, Delta Stewardship Council staff concluded that DWR did not adequately support its certification that its sea-level rise modeling reflected the best available science[8]. DSC staff determined that DWR

did not rely on the best available science because DWR did not rely on the California Ocean Protection Council's guidance for extreme risk decisions (e.g., a project with a lifespan beyond 2050) and did not submit evidence of modeling beyond 2060 (e.g., for 2100 or beyond), as recommended for new infrastructure (such as the CA WaterFix) with a long anticipated life cycle where there is little tolerance for risk. Rather, DWR relied on California Ocean Protection Council guidance (up to 60 cm (24 inches) of sea-level rise by 2060) for low-risk decisions.

Climate change will have many more effects on the project than just changing sea levels. Climate models predict other changes: warmer temperatures; shorter, more intense wet seasons; and more volatile precipitation, resulting in wetter wet years and drier dry years[9]. Warmer winters will decrease water storage in snowpack, and potentially require changes in how reservoirs store water that would be exported by the project. As summers warm, more water could be consumed in the Delta watershed, leaving less surplus water for export. More intensive water trading during droughts could alter how exports are managed if more water is transferred south from Sacramento Valley farmers. Rising sea levels could affect not only Delta levees necessary for through-Delta conveyance, but also the volume of freshwater released through the Delta to protect water quality and the Bay-Delta ecosystem, and thus unavailable for export.

Delta residents, water users, and local governments are also affected by climate change, so they are especially aware of its complex implications. Adequately anticipating climate change impacts will require consideration of the best available science not only about rising seas, but also about a comprehensive set of factors affecting the use and management of water in the Central Valley and other State Water Project (SWP) service areas. In considering whether the project uses the best available science about climate change, we hope you will ask if the EIR is based on up-to-date forecasts of the magnitude and pace of climate changes affecting the project. Does the EIR adequately anticipate changes in water available for export, considering how climate change may affect snowpack, runoff, reservoir operations, and water use in areas of origin, including the Delta? Do operating plans for the tunnels anticipate how climate change may restrict the amount of water available for export as needs for instream flows grow to protect water temperatures, in-Delta water quality, and other facets of the Bay-Delta ecosystem? Are tunnel plans sufficiently flexible to adjust to climate change surprises while still meeting in-Delta and ecosystem water needs? Is the project resilient to floods, droughts, or other disasters that may worsen as the climate changes? Are there adequate plans to recover from these calamities?

Can the Project Meet Its Goals And Objectives? We ask that your review examine whether the EIR is supported by science-based modeling that confirms the tunnel can meet DWR's goal and objectives for it. Establishing clear goals and objectives for water management or ecosystem projects, based on the best available science, is an early step in the planning phase of the Delta Plan's adaptive management framework. A subsequent planning step in the adaptive management framework is modeling to link a project to its objectives, clarifying why a

selected action will meet its goals and objectives. We ask that you review how well DWR has undertaken this planning.

DWR hopes its tunnel will make SWP and perhaps Central Valley Project (CVP) exports more reliable. We ask you to examine whether the best available science supports DWR's expectation that its tunnel can meet its objectives. DWR states the goal for its Delta conveyance project is to "restore and protect the reliability of State Water Project [SWP] water deliveries and, potentially, Central Valley Project [CVP] deliveries south of the Delta[10]". This goal is reflected in DWR's objectives for the project:

- To address anticipated sea level rise and other reasonably foreseeable consequences of climate change and extreme weather events.
- To minimize the potential public health and safety impacts from reduced quantity and quality of SWP, and potentially CVP, deliveries south of the Delta resulting from a major earthquake that breaches Delta levees

DWR does not propose improving Delta levees, which we believe is essential. The Delta Protection Commission advocates improved through-Delta conveyance, rather than the isolated conveyance facility proposed by DWR. This recommendation derives partly from our recognition that DWR's proposed tunnel addresses only some of the factors that contribute to the unreliability of Delta water exports. Even if a tunnel is built, some SWP exports and perhaps all CVP exports would continue to rely on water conveyed through existing Delta channels. The conveyance of those exports, and the quality of those and other Delta waters, depend on maintenance and improvement of the Delta's levee network. The Delta Plan states:

> The channels that convey water through the Delta to users in the Bay Area, San Joaquin Valley, or Southern California, and the islands that prevent saltwater intrusion into Delta water supplies depend upon levees for their preservation. Should the levees that protect these channels fail, the impacts on water supplies could be felt statewide. Improving these Delta levees is an investment in water supply reliability.

Some claim that there is better than a 50/50 chance that in the next 30 years a major earthquake will occur that can disable the Delta's current levee-supported conveyance infrastructure on which exports will continue to rely. DWR's project, however, does not propose improvements to the Delta levee network to protect ongoing through-Delta conveyance. Nor is improving Delta levees a priority of the Administration's 2020 Water Resilience Portfolio[11] or the Climate Resiliency Bond proposed in the Governor's FY 2020-21 Budget [12].

Is DWR's project supported by modeling that comprehensively examines effects on SWP and CVP reliability? Adaptive management planning for the Delta conveyance project should include

modeling of how the reliability of SWP and CVP deliveries may be improved by construction of the proposed tunnel. This modeling should recognize that, despite completion of the proposed tunnel, sea-level rise, extreme weather events, or earthquakes may still contribute to future breaches of Delta levees, which would affect the reliability of those SWP and CVP water exports that would continue to be conveyed through Delta channels to the existing SWP and CVP south Delta facilities. This modeling should consider the Delta Plan's water supply reliability definition[13].

Factors other than levee failure also contribute to the unreliability of Delta exports. These factors include drought, growing demand by north-of-Delta and in-Delta water users with superior water rights, alterations in runoff because of climate change, potential regulatory changes, or legal challenges.

In considering whether the project is supported by modeling that uses the best available science, we hope you will examine whether the EIR is supported by models that consider the risk of SWP and CVP water supply interruptions due to levee failure from floods, earthquakes, and other causes that will remain despite construction of the proposed tunnel. Does the modeling confirm that construction of the proposed tunnel, without accompanying improvements of key Delta levees, is sufficient to accomplish the project's goal of restoring and protecting the reliability of SWP water deliveries and, potentially, CVP deliveries south of the Delta? Does the modeling account for the risks of interruptions from drought, growing demand by north-of-Delta and in-Delta water users with superior water rights, or alterations in runoff because of climate change? Does it model the improvement in SWP and CVP water supply reliability that could result from completion of the proposed tunnel in comparison to existing risks or those forecast without the project? Does the modeling confirm that exports through the tunnel and from existing SWP and CVP facilities will more closely match water supplies available to be exported, based on water-year type and consistent with the coequal goal of protecting, restoring, and enhancing the Delta ecosystem?

ENDNOTES

[1] Delta Stewardship Council. 2019. "Appendix 1A-1. Best Available Science". In *Delta Plan as Amended*. Sacramento, CA.

[2] Van Cleve, F. Brie, C. Simenstad, F. Goetz, T. Mumford, et. al. 2004. Application of the "Best Available Science" in Ecosystem Restoration: Lessons Learned from Large Scale Restoration Efforts in the USA. Puget Sound Restoration Partnership Technical Report 2004-01.

[3] Biedenweg, K., J. Sanchirico, H. Doremus, R. Johnston, J. Medellín-Azuara, & C.M. Weible. 2020. A Social Science Strategy for the Sacramento-San Joaquin Delta. Report delivered to the Delta Stewardship Council.

[4] Department of Water Resources (DWR). 2011. 2009-2001 Bay-Delta Conservation Plan EIR/EIS Environmental Data Bay-Delta Report. Sacramento CA.

[5] Clements, Rebecca. 2006. A social and environmental impact assessment that examines the impacts that have resulted from the construction and operation of the Channel Tunnel. A thesis submitted in partial fulfilment of the requirements for the Degree of Master of Arts in European Studies, University of Canterbury. Retrieved 5/27/20 from https://ir.canterbury.ac.nz/bitstream/handle/10092/924/thesis_fulltext.pdf.

[6] Putz, Audrey, Alex Finken, and Gary A. Goreham, Sustainability in Natural Resource-Dependent Regions That Experienced Boom-Bust-Recovery Cycles: Lessons Learned from a Review of the Literature, Center for Community Vitality Working Paper (Fargo, ND: North Dakota State University, 2011), 14. Retrieved 5/27/20 from http://www.visionwestnd.com/pdf/Boom-bust%20communities.pdf.

[7] Transmountain. 2020. Socio-Economic Monitoring Reports. Retrieved 5/27/20 from https://www.transmountain.com/socio-economic-reports

[8] Delta Stewardship Council. 2018. Sacramento, CA. "Draft Staff Recommendation: Determination Regarding Appeals of the Certification of Consistency by the California Department of Water Resources for California WaterFix". Sacramento, CA.

[9] Public Policy Institute of California. 2018. *Climate Change and Water*. Retrieved 6/24/20 from https://www.ppic.org/wp-content/uploads/californias-water-climate-change-and-water-november-2018.pdf

[10] DWR. 2020. Notice of Preparation of Environmental Impact Report for the Delta Conveyance Project (January 15, 2020). Sacramento CA.

[11] California Natural Resources Agency (CNRA). 2020. *2020 Water Resilience Portfolio*. Retrieved 8/3/20 from https://waterresilience.ca.gov/wp-content/uploads/2020/07/Final_California-Water-Resilience-Portfolio-2020_ADA3_v2_ay11-opt.pdf

[12] California. 2020. *2020-21 Governor's Budget*. Retrieved 6/25/20 from http://www.ebudget.ca.gov/budget/2020-21/#/Home.

[13] The Delta Plan, in defining water supply reliability, provides a three point test:

> "Achieving the coequal goal of providing a more reliable water supply for California" means all of the following:
>
> (A) Better matching the state's demands for reasonable and beneficial uses of water to the available water supply. This will be done by promoting, improving,

investing in, and implementing projects and programs that improve the resiliency of the state's water systems, increase water efficiency and conservation, increase water recycling and use of advanced water technologies, improve groundwater management, expand storage, and improve Delta conveyance and operations. The evaluation of progress toward improving reliability will take into account the inherent variability in water demands and supplies across California.

(B) Regions that use water from the Delta watershed will reduce their reliance on this water for reasonable and beneficial uses, and improve regional self-reliance, consistent with existing water rights and the State's area-of-origin statutes and Reasonable Use and Public Trust Doctrines. This will be done by improving, investing in, and implementing local and regional projects and programs that increase water conservation and efficiency, increase water recycling and use of advanced water technologies, expand storage, improve groundwater management, and enhance regional coordination of local and regional water supply development efforts; and

(C) Water exported from the Delta will more closely match water supplies available to be exported, based on water year type and consistent with the coequal goal of protecting, restoring, and enhancing the Delta ecosystem. This will be done by improving conveyance in the Delta and expanding groundwater and surface storage both north and south of the Delta to optimize diversions in wet years when more water is available and conflicts with the ecosystem are less likely, and limit diversions in dry years when conflicts with the ecosystem are more likely. Delta water that is stored in wet years will be available for water users during dry years, when the limited amount of available water must remain in the Delta, making water deliveries more predictable and reliable. In addition, these improvements will decrease the vulnerability of Delta water supplies to disruption by natural disasters, such as, earthquakes, floods, and levee failures.