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Principal
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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

HEARING IN THE MATTER OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND UNITED STATES BUREAU OF RECLAMATION REQUEST FOR A CHANGE IN POINT OF DIVERSION FOR CALIFORNIA WATER FIX	TESTIMONY OF DAVID S. FRIES, PHD

Effects of WaterFix Project on Birds and Birding in the Sacramento-San Joaquin Delta

I, David Fries, do hereby declare:

Summary of Testimony

My testimony is submitted to describe the inadequacy of the Petition planning and analysis the environmental impacts of WaterFix on avian species. Specifically, removing large amounts of flows from the Sacramento River will diminish water quality and increase retention time of waters in the South and Central Delta; thus, harming bird species. Spreading great quantities of tunnel spoils over large areas in the Delta will destroy large areas of prime bird habitat. Analysis of the bird species that would be potentially harmed is inadequate. Mitigation for harm to be done is poorly described and inadequate. The WaterFix project will do great harm to avian species and beneficial uses of the Delta by Audubon Society Members.

Introduction

My name is David Fries. A true and correct copy of my Statement of Qualifications is provided as Exhibit DDJ-214. I am an avid bird watcher, with extensive experience in the Sacramento-San Joaquin Delta. For the past 20 years I have participated in the San Joaquin Audubon Society's Stockton Christmas Bird Count. The area of this Count is a 7.5 mile radius with a center at the junction of Interstate 5 and Highway 12. The area includes portions of Bouldin and Staten Islands, the Woodbride Rd. Ecological Reserve (Isenberg Crane Reserve) and other areas affected by the Petition. Currently I am Conservation Chair of the San Joaquin Audubon Chapter. I have owned four different sail boats and boated on the Delta for the past 30 years. I currently lead boating field trips into the Delta for members of the Audubon Society. I have served on the Board of the Bay/Delta Keeper and I am a science advisor to the California Sportfishing Alliance. I have attended multiple meetings of the Delta Stewardship

Council and the Independent Science Board. I have extensive knowledge of the Delta and have observed the continual loss of critical bird habitat and decreases in bird numbers over the past 30 years. I raise specific concerns and objections to the WaterFix Project petition. I speak for myself and the San Joaquin Audubon Chapter.

There are three major concerns that the San Joaquin Audubon Chapter and I have about the Petition. First is the loss of fresh water flow through the Delta. The major source of fresh water flow through the Delta comes from the Sacramento River. Sacramento River water is the best quality water flowing into the Delta. The Petition is to take up to one-third of the Sacramento River flow and divert it through the tunnels. The decreased flow will result in increased salt water intrusion into Delta waters. Fish species will be harmed, food chain will be disrupted, and habitat will be destroyed. Birds that depend on specific habitat for living, both migratory and year round residents, and breeding will be further stressed and pushed toward extinction. In 2010 the State Water Resources Control Board was charged with determining the Delta flow criteria pursuant to the Delta Reform Act. I have read the report (Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem).[1] The recommendations made by the expert panel pursuant to this charge have not been implemented and are completely ignored in the WaterFix Petition. Flow criteria required for a healthy Delta must be determined and met before any project proposing to divert additional water and divert flows can be approved .

Second, the decreased flow from the Sacramento will result in increased residence time of waters in the South and Central Delta. Increased residence time will result in stagnation, concentration of toxic substances (metals, pesticides, herbicides, etc), toxic algal blooms, and increased retention of invasive plant species such as the water hyacinths. Diving birds such as terns, cormorants, and pelicans would lose surface area where they can feed, ingest toxins that are detrimental to their health, and would pass those toxins on through the food chain.

Third, the construction of the tunnels and the location of the proposed intake sites will destroy vast amounts of irreplaceable habitat.

Tunnel Spoil Disposal

We are particularly concerned about the amount of tunnel spoil material generated by the project, and the fact that the final sites for placement of the tunnel spoils have not yet been identified. The Final EIR/EIS, Appendix 3B, only states, "Temporary storage areas will be designated for these materials. However, to reduce the long-term effects on land use and potentially support implementation of other project elements, the project proponents will develop site-specific plans for the beneficial reuse of these materials, to the greatest extent feasible" (Exhibit SWRCB-102, Appendix 3B, p. 3B-51 at 22.) No such plans for beneficial reuse have been developed. The California Department of Fish and Wildlife's Incidental Take Permit (ITP) states that the tunnel spoils will consist of "a plasticized mix consisting of soil cuttings, air, water, and may also include soil conditioning agents. Permittee may use non-toxic and biodegradable soil conditioning agents such as foams, polymers, and bentonite to make soils more suitable for excavation by a TBM." (p. 44.) 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. The Incidental Take Permit by the Department of Fish and Wildlife only states, that for the spoil sites,

> Prior to finalizing Project engineering design, Permittee shall coordinate with the TOT to develop a spoils disposal plan for the storage of spoils, RTM, and dredged material. The spoils disposal plan shall address size, locations, and required characteristics of designated storage sites; storage site preparation and dewatering; excavation of contaminated material; and chemical characterization, drainage, and treatment
> [...]
> Permittee shall size the designated storage sites to accommodate all RTM, dredge material, or spoils expected to be generated by Covered Activities and shall size and locate the sites to minimize the impact or encroachment on environmentally sensitive areas within the Project Area (p. 119.)

The Final EIR/EIS uses GIS data to estimate that Alternative 4A would bury in tunnel muck 55 acres of nontidal perennial aquatic habitat, 1 acre of perennial emergent wetland, and 1 acre of tidal freshwater emergent wetland, as well 219 acres of grasslands, 14 acres of riparian forest, and 2,253 acres of cultivated lands. (Exhibit SWRCB-102, Final EIR/EIS Appendix12E, Detailed Accounting of Direct Effects of Alternatives on Natural Communities and Covered Species, Table 12E-35, p. 96.) The facilities themselves are expected to eliminate another 19 acres of vernal pool complex, 23 acres of riparian forest, and 249 acres of grassland, as well as 1,292 acres of cultivated lands. The acres of habitat could increase by an unknown amount when the final alignment and final spoil sites are identified.

One cannot destroy habitat for critical species and attempt to "revive" that species at some later date by creating new and perhaps equivalent habitat. New habitat must be created and the threatened species established in that new setting before older established habitat is destroyed. Construction of the tunnels over a projected thirteen year period will destroy and disrupt critical habitat to such an extent that survival of critical species may not wait for new and perhaps suitable alternative living and breeding sites. Fact is, most of the space for habitat rehabilitation has already been altered or encroached upon to the extent that habitat mitigation may not be possible. We cannot afford to lose what little working habitat that already exists. A major complicating factor in the WaterFix petition is the poor science on which it is based. Climate warming and sea level rise is not adequately considered, as projections are made only to the year 2030. The Independent Review Panel advised that climate change and sea level

rise projections should be extended beyond 2030. The "Review of the Final Environmental Impact Report/Environmental Impact Statement for California WaterFix" by the Delta Independent Science Board June 16, 2017, lists the numerous inadequacies in the restoration and mitigation content of the WaterFix EIR. Following is a section of text from that review relative to environmental impact and mitigation:

> "Restoration and mitigation Summary of comments on the RDEIR/SDEIS Our concerns included: Long-term commitment—"….The missing details…include commitments and funding needed for science-based adaptive management and restoration to be developed and, more importantly, to be effective…."
>
> Landscape context— "Restoration projects should not be planned and implemented as single, stand-alone projects but must be considered in a broader, landscape context."
>
> Wetland loss—Although wetland restoration is a key element of mitigation, "We noticed little attention to the sequencing that is required for assessing potential impacts to wetlands: first, avoid wetland loss; second, …minimize; and third, …compensate."
>
> Mitigation ratios— "In view of inevitable failures and time delays in wetland restorations, mitigation ratios should exceed 1:1 for restoration of existing wetlands. The ratios should be presented, rather than making vague commitments…." "Also…clarify…out-of-kind and…in-kind replacement of losses….and whether such areas will exist with future sea-level rise."
>
> Early action— "To reduce uncertainty about outcomes, allow for beneficial and economical adaptive management…. mitigation actions should be initiated as early as possible….potential for landowners to develop mitigation banks could be encouraged so restoration could begin immediately…"
>
> Related changes in the Final EIR/EIS Long-term commitment—In the final EIR/EIS, we saw no call for or strategy to fund restoration and mitigation in a holistic landscape approach. In chapter 11, funding of invasive plant control was mentioned on p. 186 and 332. Funding for steelhead monitoring was mentioned on p. 198. The word "funding" also appears on p. 176. That does not add up to a strategy."

The WaterFix EIR is deficient in its analysis of threatened and endangered bird species that would be affected by building of the tunnels. In 2010, the Department of Fish and Game (DFG) published "Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta" (Exhibit SWRCB-66.) In that study, 37 species of birds are listed as threatened or of special concern. The WaterFix EIR lists mitigation for only two endangered and threatened species of birds (Swainson's Hawks and Tricolored Blackbirds; Exhibit SWRBC-102, Final EIR/EIS Table 10-1, p. 209) although all of the species listed in the DFG report are commonly or

occasionally found in the Project area. Threatened species are Black Rails, Clapper Rails, Greater Sandhill Cranes, Western Yellow-Billed Cuckoos, Least Bell's Vireos, and Bank Swallows.

Following are specifics on just a few of the species that would be significantly harmed by the construction project.

Sandhill Cranes

The San Joaquin Delta is the major wintering area for the Sandhill Crane along the Pacific Flyway. Both lesser and greater Sandhill Cranes are found in large numbers in the winter months (Nov – Feb) in the Delta.[5] Data from the Stockton Christmas Bird Count show that large numbers of the cranes are present each year. The count area includes parts of Bouldin, Staten and Venice Islands as well as the Woodbride Ecological Reserve. Table 1 shows the data from 2007 to 2016. A notable decline in the numbers of Sandhill Cranes has been recorded in recent years. WaterFix plans to use Bouldin Island as the main staging area for construction of the twin tunnels. Staten Island is planned to have main shafts dug for placing the 40 diameter tunnel boring machines. The Final EIR/EIS identifies that 1,506 acres of Sandhill Crane foraging habitat would be filled in with "reusable" tunnel muck, and the facilities themselves would "temporarily" disrupt another 16 acres of roosting and foraging habitat (Exhibit SWRCB-102, Final EIR/EIS Appendix 12E, Detailed Accounting of Direct Effects of Alternatives on Natural Communities and Covered Species, Table 12E-35, p. 97.) Much of the habitat of the Island would be destroyed on both islands. It is not clear where or even if this critical habitat could be replaced.

Table 1. Sandhill Crane Populations, Stockton Christmas Bird Count Data.

Name	Code	Year	Number	Number/Party Hours	Number of Counts Reporting Species	Num. of Observers on Reporting Counts
Sandhill Crane						
	sancra	2007	16935	133.6095	1	54
	sancra	2008	11101	87.7549	1	49
	sancra	2009	13101	88.9711	1	49
	sancra	2010	9091	75.6008	1	46
	sancra	2011	11868	87.2455	1	55
	sancra	2013	6868	55.8374	1	38
	sancra	2016	5890	46.6535	1	47

Tricolored Blackbirds

Tricolored Blackbirds (Table 2) are a species found in proposed construction zone of WaterFix (Exhibit DDJ-218.) In addition to being documented in the Christmas Bird Counts, these species are regularly reported on ebird lists for the region. The Final EIR/EIS records that the tunnel spoil sites will fill in an estimated 1,924 acres of tri-colored blackbird habitat, and the facilities themselves will destroy another 1,005 acres. (Exhibit SWRCB-102, Final EIR/EIS Appendix 12E, Table 12E-35, p. 97.) These birds are in decline and are included in the California Species of Concern. It is not clear how destruction of habitat in the Delta will affect this species or where suitable mitigation habit can be restored.

Table 2. Tricolored Blackbird Populations. Stockton Christmas Bird Count Data.

Name	Code	Year	Number	Number/Party Hours	Number of Counts Reporting Species	Num. of Observers on Reporting Counts
Tricolored Blackbird						
	tribla	2009	84	0.6627	1	54
	tribla	2010	54	0.4269	1	49
	tribla	2011	1207	8.1969	1	49
	tribla	2013	5	0.0368	1	55

California Black Rails

California Black Rails live and breed in the Delta, but are extremely difficult to detect. Audubon Birding Areas of Importance (Audubon BIAs) states; *"Big Break, including the Iron House Sanctuary (part of a water treatment facility) supports tidal marsh along the southern shoreline of the Stockton Deep Water Channel with a significant population of Black Rail, a species that probably occurs in Salicornia habitat at Sherman Isl. (T. Monolis, pers. Comm.). Elsewhere in the Delta, Black Rail occurs on most in-stream islands greater than 15 acres that support marsh vegetation elevated above the high tide and wave line." Black Rails are observed regularly in White Slough and the Consumnes River Reserve (e-bird listings) and presumed to inhabit the many larger in-stream islands.* (Exhibit DDJ-219.) The in-stream islands are rarely surveyed as they are accessible only by water and no survey effort has been made by the Petitioner. The Final EIR/EIS simply estimates, with no survey data, that no California Black Rails will be affected by the tunnel construction (Exhibit SWRCB-102, Final EIR/EIS Appendix 12E, Table 12E-35, p. 97.)

Wintering shorebirds

All of the Delta wetlands are habitat for both wintering and year-round shorebirds (Exhibit DDJ-220.) Many of these species are in decline and of great concern to environmental scientists as well as recreational birders. The Final EIR/EIS estimates that 279 acres of Least Tern Habitat will be destroyed by the facilities footprint. However, this may change depending upon final implementation of WaterFix. There is a large (150 birds) rookery of double-crested cormorants on the island just south of the proposed Bouldin Island staging area. This rookery will surely be disturbed by the construction.

Summer avian migrants to the Delta are of major preservation concern. These species are obviously not found in the Audubon Christmas Bird Counts and one must reference ebird listings or California Fish and Wildlife surveys for estimates of their occurrence in the WaterFix Project zone. Among those species of concern are Swainson's Hawks, Yellow Warblers, Least Bell's Vireos, Western Yellow-billed Cuckoos, Yellow-breasted Chats and Song Sparrows. Comment here is for only three of the species: however, it should be clear that preservation of habitat for all of the species is of importance.

Swainson's Hawks

Swainson's Hawks remain on the California Department of Fish and Wildlife threatened species list (Exhibit DDJ-222.) The sharp decline in numbers of Swainson's Hawks is attributed primarily to the loss of breeding and foraging habitat. The WaterFix construction zone is prime habitat for both breeding and foraging of the Hawks. Nest sites exist on all of the Islands and lands adjacent to where tunnel construction is proposed. The Final EIR/EIS estimates that 2,199 acres of foraging habitat and 10 acres of nesting habitat will be filled in with tunnel muck. Another 1,039 acres of foraging habitat and 6 acres of nesting habitat will be permanently destroyed by the facilities footprint. There is no way to prevent, nor to mitigate for, the disruption of known nesting sites or prime foraging habitat that WaterFix will definitely cause.

Yellow Warblers

Yellow Warblers are riparian habitat obligate breeders (Exhibit DDJ-223.) They are a California species of special concern. The species is reported as a extirpated breeder in the Sacramento-San Joaquin Valley and Delta areas. However, there are multiple observations of Yellow Warblers at most e-bird hotspots in the proposed WaterFix construction area. The birds are found in nesting season (May-July) as well as the Spring and Fall migratory seasons. Few nesting sites have been located but one cannot assume they do not exist. Detection of nesting pairs and nests in densely vegetated riparian habitat is difficult and requires further studies. One cannot assume nest sites do not exist as the WaterFix Petition has presumed.

American White Pelicans

Another bird of concern is the American White Pelican (Exhibit DDJ-224.) Small populations of the Pelicans are found in the Delta in most of the Christmas Bird Count years (Table 3). Typically, these birds are observed year-round in the areas of Bouldin, Staten and Venice Islands and the Woodbridge Ecological Reserve (ebird listings). Again, critical wetland habitat for these species would be destroyed by the WaterFix construction project.

Table 3. American White Pelican Populations. Stockton Christmas Bird Count Data.

Name	Code	Year	Number	Number/Party Hours	Number of Counts Reporting Species	Num. of Observers on Reporting Counts
American White Pelican						
	amwpel	2009	78	0.6154	1	54
	amwpel	2011	80	0.5433	1	49
	amwpel	2012	5	0.0416	1	46
	amwpel	2015	13	0.1057	1	38
	amwpel	2016	32	0.2535	1	47

Conclusion

In summary, it is clear that the WaterFix Petition has potential to do great harm to avian populations. It is also clear that WaterFix has not followed best science in designing the Project. Flow recommendations made by an expert State panel have been ignored. Independent scientific review boards have stated that there is too much uncertainty in climate change and sea level rise predictions. WaterFix has not presented a definitive analysis of potential harm it will cause to the environment and to threatened and endangered species. It is not clear how, where or when all the potential harm will be mitigated. Alternatives to WaterFix have not been adequately investigated. The Audubon San Joaquin Chapter has 422 members whose enjoyment of the avian species and beneficial use of the Delta will be irreparably damaged in the WaterFix Petition is approved. The State Water Board must recognize the Public Trust Rights and beneficial uses of the Delta that WaterFix would violate.

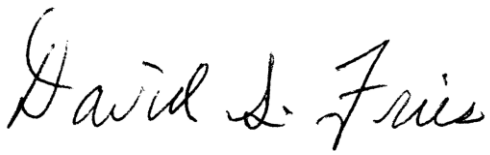
References cited

1. Exhibit DDJ-216 Simenstad C et al. Independent Review Panel Report for the 2016 California WaterFix Aquatic Science Peer Review. May 12, 2016.
2. Exhibit SWRCB-66 Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta. California Department of Fish and Game. 2016. http://deltacouncil.ca.gov/docs/delta-isb/final-quantifiable-biological-objectives-and-flow-criteria-aquatic-and-terrestrial
3. Exhibit DDJ-217 California Rare and Endangered Birds. Species Accounts. Greater Sandhill Crane. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=84008&inline
4. Exhibit DDJ-218 California Rare and Endangered Birds. Species Accounts. Tricolored Blackbirds. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=84008&inline.
5. Exhibit DDJ-219 Audubon Birding Areas of Importance. http://www.audubon.org/important-bird-areas/sacramento-san-joaquin-delta.
6. Exhibit DDJ-220 Myers JP. Conservation of migrating shorebirds: staging areas, geographic bottleneck, and regional movements. American Birds: Migration and Conservation. 17, 23-25, 1983.
7. Exhibit DDJ-221 Andres BA, et al. Population estimates of North American shorebirds, 2012. Water Study Group Bull. 119, 178-194, 2012.
8. Exhibit DDJ-222 Status Review: Swainson's Hawk in California. Five Year Status Report. California Fish and Game Commission. 2016.
9. Exhibit DDJ-223 Sacha KH. Yellow Warbler. in California Bird Species of Special Concern, Shuford WD and Gardali T, eds, Studies of Western Birds. 1: 332-339, 2008. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10425&inline

10. Exhibit DDJ-224 Shuford WD. American White Pelican. in California Bird Species of Special Concern, Shuford WD and Gardali T, eds, Studies of Western Birds. 1:130-135, 2008. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10389&inline.

I hereby attest that I provided true and correct copies of these documents.

Executed on this 28th day of November, 2017, in Sacramento, California.



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