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Political Cases or Political Questions: The Justiciability of Public Nuisance Climate Change Litigation and the Impact on Native Village of Kivalina v. ExxonMobil

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The Legal Implications of the Delta Vision Strategic Plan

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Fresh water scarcity is one of the biggest issues currently facing California. Since autumn of 2006, below-average precipitation and snowpack have led to a serious drought that is projected to continue through 2010.1 The lack of rainfall heavily impacted agriculture and municipalities in arid parts of the state and necessitated increases in the amount of water farmers and Southern Californian cities needed from

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government water distribution systems. Two-thirds of California’s water is supplied by the Central Valley Project and the State Water Project (Projects), both of which pump water out of the Sacramento - San Joaquin River Delta (Delta).\(^2\) Initially, the drought caused increases in the amount of water pumped through the Delta, which altered the natural water flows in the estuary.\(^3\)

The Delta is also critical habitat for two endangered fish species that suffered significant population decline as a result of the increase in “through-Delta” pumping.\(^4\) Both species followed the artificial flow of the water caused by the additional pumping, which led them to the Projects’ pumps in the southern Delta, where the species became entrapped and inevitably died.\(^5\) The pumps further threatened the endangered fish by modifying the salinity levels in the Delta, making it easier for non-native species to outcompete or prey on the Delta’s native species.\(^6\)

Scientists have confirmed that pumping water out of the Delta is a major threat to the endangered fish species that live there. In response to this discovery, the Natural Resources Defense Council (“NRDC”) brought suit against the Secretary of the Interior, challenging the validity of the biological opinion used to justify increased water exports to farms and cities south of the Delta that were needed as a result of the drought. In 2007, Judge Wagner of the U.S. District Court for the Central District of California found for the NRDC and ordered restrictions on Delta pumping.\(^7\)

The pumping restrictions have greatly limited the amount of water available for agriculture in the Central Valley and for municipal and agricultural uses in Southern California. In response to the water crisis created by restricted Delta pumping, Governor Schwarzenegger created the Delta Vision group that subsequently produced the Delta Vision Strategic Plan (Plan).\(^8\) The Plan was created in an effort to find a way to secure California’s water supply while still protecting the Delta. A dual conveyance system is proposed in the Plan, which will continue to pump water through

\(^2\) California State Water Project Overview, CAL. DEP’T OF WATER RES. (August 11, 2010), http://www.water.ca.gov/swp/.


\(^4\) Id.

\(^5\) Id.

\(^6\) Id.


the Delta and will also pump water directly out of the Sacramento River before it reaches the Delta.9

This Note explores the legal implications of the Plan’s proposed dual conveyance system and its likely effect on the Delta as an ecosystem. First, this Note will give a brief history of water exports from the Delta and summarize the Delta Vision planning process. This Note will then discuss the possible legal issues surrounding the implementation of the dual conveyance system proposed in the Plan. Lastly, this Note will explore alternatives to the proposed dual conveyance system that have the potential to provide adequate amounts of water to all of California at a much lower cost, while still ensuring that the Delta remains a viable ecosystem.

I. Introduction

The Sacramento - San Joaquin River Delta is one of the largest estuaries in the western United States.10 The estuary is a rare inverted delta because it branches out before reaching the largest body of water toward which it flows.11 The Delta is home to over 700 native plant and animal species, many of which are unique to the Delta.12 More than half a million people and five hundred thousand acres of agricultural land are located adjacent to the Delta.13 The Delta is vital to California’s physical and economic survival, providing water for over 25 million Californians and 3 million acres of agriculture.14

Background of Central Valley & State Water Project Exports From the Delta

The Central Valley Project (“CVP”) and the State Water Project (“SWP”) are the largest water delivery systems in California and supply water to about two-thirds of the state’s population.15 The CVP, which was started in

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13. Id.
14. Id.
the 1930s, transfers water from the Delta to California’s Central Valley and over twenty thousand farmers and their three million acres of land. The CVP delivers an average of seven million acre-feet annually of water, ninety percent of which provides for agriculture, the other ten percent of which is allocated to two million domestic customers.

The SWP, which began in 1960, uses twenty-two upstream dams and reservoirs to transport water to the California Aqueduct. The SWP delivers two and a half million acre-feet of water annually, the majority of which goes to Southern California. Thirty percent of total SWP deliveries is allocated to agriculture and seventy percent goes to twenty million domestic customers. The Project supports three billion dollars of California’s over one trillion dollar economy.

II. Current Problems Facing the Delta

A. Fishery Depletion

One of the negative effects of the SWP and CVP is that their operations are causing the Delta to become an inhospitable place for native fish. According to Peter Moyle, a fisheries biologist at the University of California, Davis, Delta water diversions are the primary threat to endangered fish species whose natural habitat is the Delta. Native fish species began declining in 2001 and scientists fear it is an indicator that the entire ecosystem is collapsing.

The Sacramento River and the Northern Delta are both critical habitat for the Sacramento River winter-run Chinook salmon (Chinook salmon)

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19. Id.
23. Id.
whose numbers are dropping drastically.\textsuperscript{24} From 2003 to 2007, the Chinook salmon’s population dropped from over eight hundred thousand to ninety thousand.\textsuperscript{25} This decline is attributed to the Project’s pumping, which in 2005 caused fifty-five percent of the Sacramento and San Joaquin rivers’ natural flows to not reach the San Francisco Bay.\textsuperscript{26} According to Tina Swanson, a senior scientist with the Bay Institute, “[t]he flows were less than what the salmon needed, and the populations are collapsing.”\textsuperscript{27} This drastic decrease has closed the last two commercial salmon fishing seasons, which has hurt California’s economy.\textsuperscript{28}

Another Delta native is even worse off than the Chinook salmon. The Delta smelt (smelt) is a rare fish uniquely adapted to the Delta.\textsuperscript{29} The small translucent fish has been listed as an endangered species as a result of the Projects, whose pumps suck up the fish and grind them up.\textsuperscript{30} The pumps also kill the smelt by drawing in river water which keeps Delta water in certain areas artificially fresh, depriving the smelt of the sometimes brackish water the smelt evolved in, where salinity depends on the tides.\textsuperscript{31}

The first major step taken to lessen the negative externalities of the Projects’ pumping was the Central Valley Project Improvement Act of 1992, which mandated that at least one-fifth of the Projects’ exports be dedicated to rivers, estuaries, and habitats in the Delta for fish and wildlife restoration.\textsuperscript{32} Another major victory for the Delta’s native wildlife was a 2007 federal court decision by the Honorable Oliver Wagner, who ruled that the Projects’ exports must be reduced by one-third for the benefit of the endangered smelt.\textsuperscript{33} These mandated export reductions have hit urban
water users in Southern California hard; for example, the Metropolitan Water District had to impose mandatory conservation measures and pay farmers in the Central Valley to give up their allocations.\textsuperscript{34} Agriculture has been the hardest hit, receiving only ten percent of its entitlement in 2009, which has caused unemployment in rural areas of the Central Valley to skyrocket.\textsuperscript{35}

**B. Climate Change**

Climate change could have a huge effect on the Delta’s health as an ecosystem and California’s overall supply of freshwater. Projections indicate that in the future, snowfall will decrease and a majority of the State’s freshwater supply will be delivered as warm, heavy rain.\textsuperscript{36} This greatly increases the likelihood of summer and autumn water shortages because there will not be much snow left as late in the season.\textsuperscript{37} California’s reservoirs do not have the capacity to store the possible increase in rainfall due to climate change.\textsuperscript{38} The reservoirs will have to release water that would otherwise have been stored in naturally occurring snowpacks, leading to a waste of precipitation.\textsuperscript{39} Climate change could also lead to more precipitation being wasted after heavy rains because California’s reservoirs will not have the capacity to store all the water; it will have to be released to avoid flooding.\textsuperscript{40}

**III. Delta Vision and the Blue Ribbon Task Force’s Strategic Plan**

Delta Vision was established on September 17, 2006, by an Executive Order of Governor Arnold Schwarzenegger.\textsuperscript{41} The Delta Vision Blue Ribbon Task Force (Task Force) was subsequently created and charged with the task

\textsuperscript{34} Id.
\textsuperscript{35} Id.
\textsuperscript{36} \textsc{Susan Moser et al., The Future is Now: An Update on Climate Change Science Impacts and Response Options for California} 15 (2009).
\textsuperscript{37} Id. at 16.
\textsuperscript{38} Id. at 17.
\textsuperscript{39} Id.
\textsuperscript{40} Id.
of developing a durable vision for sustainable management of the Delta.\textsuperscript{42} The goal of the Task Force was to create a long-term management Plan to restore and maintain identified Delta functions and the economic and social well-being of all Californians.\textsuperscript{43} The Task Force published its vision, Our Vision for the California Delta, in January 2008 and developed the Delta Vision Strategic Plan to implement its vision which was issued in October 2008.\textsuperscript{44} The Plan is based on achieving a wide range of goals for the Delta.\textsuperscript{45}

\section*{A. Task Force's Conditional Dual Conveyance System Recommendation}

Goal 5, Strategy 5.1, and Action 5.1.1 of the Plan will be the focus of this note.\textsuperscript{46}

\textbf{Goal 5:} Build facilities to improve the existing water conveyance system and expand statewide storage, and operate both to achieve the co-equal goals.

\textbf{Strategy 5.1:} Expand options for water conveyance, storage, and improved reservoir operations.

\textbf{Action 5.1.1:} Direct the Department of Water Resources (DWR) and other allied agencies to further investigate the feasibility of a dual conveyance facility, building upon the Bay-Delta Conservation Plan effort.

\begin{enumerate}
\item Id. at v.
\item Id. at 168.
\item Id. at 2. The following goals are listed in the Plan:
\begin{itemize}
\item Legally acknowledge the co-equal goals of restoring the Delta ecosystem and creating a more reliable water supply for California.
\item Recognize and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place, an action critical to achieving the co-equal goals.
\item Restore the Delta ecosystem as the heart of a healthy estuary.
\item Promote statewide water conservation, efficiency, and sustainable use.
\item Build facilities to improve the existing water conveyance system and expand statewide storage, and operate both to achieve the co-equal goals.
\item Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and strategic levee investments.
\item Establish a new governance structure with the authority, responsibility, accountability, science support, and secure funding to achieve these goals.
\end{itemize}
\item Id. at vii-xiii.
\item Id. at 101, 103.
\end{enumerate}
There are many problems with the current conveyance system used in the Delta. The Task Force cites the present conveyance and storage system’s limited flexibility in the timing and location of water flows through the Delta as the need for the adoption of the dual conveyance facility listed in Action 1.1.\textsuperscript{47} The Task Force concluded that the best option for transporting water out of the Delta is a two-channel dual conveyance system that combines a single through-Delta channel, with a second channel designed solely for water conveyance.\textsuperscript{48} The strategic Plan further states that the current system’s south Delta export pumps kill a large number of fish because the pumps draw fresh water across the Delta.\textsuperscript{49} The Plan hypothesizes that the alternative intake locations provided by the dual conveyance system will lessen the negative externalities of the pumps on the fish.\textsuperscript{50}

A dual conveyance system would completely change the Delta’s current system of conveyance and have many profound impacts on the Delta as an ecosystem. The Task Force predicts that it would have many advantages over the current system, including expanding overall water export capacity and increasing management flexibility by allowing water to be conveyed in a variety of ways.\textsuperscript{51} According to the Task Force, the dual conveyance facility would also improve drinking water quality by moving some of the water supply intake points from their current location in the South Delta where water quality is low, to free-flowing river channels where quality is higher.\textsuperscript{52}

Critics of the dual conveyance system disfavor the idea because it is analogous to the peripheral canal that was proposed in the early 1980s.\textsuperscript{53} The peripheral canal was an idea that would allow water from the Sacramento River to be diverted around the Delta to the CVP and SWP pumping plants in the south Delta where it would then be conveyed to the Central Valley and Southern California.\textsuperscript{54} Many Northern Californians saw the canal as a potential water grab and defeated it by proposition in 1982.\textsuperscript{55} Environmentalists remain concerned that the proposed dual conveyance

\begin{thebibliography}{9}
\bibitem{47} ld.
\bibitem{48} ld. at 36.
\bibitem{49} ld.
\bibitem{50} ld.
\bibitem{51} ld.
\bibitem{52} ld.
\bibitem{53} Tom Chorneau, \textit{Governor’s Delta Plan Reignites Peripheral Canal Debate}, SACRAMENTO BEE, Sept. 27, 2007.
\bibitem{54} ld.
\bibitem{55} ld.
\end{thebibliography}
system could hurt the health of the Delta by taking too much freshwater from the ecosystem.\textsuperscript{56}

\section*{B. Possible Configurations for the Dual Conveyance System}

The first possible configuration for the dual conveyance system proposed by the DWR is to have the subterranean tunnel run west of the Delta.\textsuperscript{57} The other configuration entails the isolated conveyance running east of the Delta.\textsuperscript{58} The Western Delta Alignment configuration is estimated to cost seventeen billion dollars and the Eastern Delta Alignment configuration cost is estimated at fourteen billion dollars.\textsuperscript{59} A map detailing each configuration’s location is provided in Appendix A.\textsuperscript{60}

The Task Force proposes that the construction of the dual conveyance system begin in 2012 and finish by 2016.\textsuperscript{61} It is unclear which configuration will be selected, but both of the proposed configurations are ripe with a plethora of legal issues. The paramount legal issues of interference with the existing water rights structure, land acquisition, violation of the Endangered Species Act, and the implications of the Public Trust Doctrine and California Fish and Game Code § 5937 will be explored in the remainder of this note.

\section*{IV. Possible Legal Hurdles}

\subsection*{A. Violation of California’s Established Water Rights Hierarchy}

\subsubsection*{1. Riparian Rights}

A riparian right is the “entitlement of a land owner to the water on or bordering his or her property, including the right to prevent diversion or misuse of upstream waters.”\textsuperscript{62} In California, a riparian water right is

\begin{itemize}
\item \textsuperscript{56} Id.
\item \textsuperscript{57} An Initial Assessment of Dual Delta Water Conveyance, CAL. DEP’T OF WATER RES. 2 (April 2008), http://deltavision.ca.gov/BlueRibbonTaskForce/April2008/Handouts/Item_5d_Report.pdf.
\item \textsuperscript{58} Id.
\item \textsuperscript{59} Id. at 3.
\item \textsuperscript{60} See infra Appendix A: Map of the Dual Conveyance System Proposed Alternatives.
\item \textsuperscript{62} Perchival, Schroeder, Miller & Leape, Environmental Regulation: Law, Science, and Policy 1170, (5th ed. 2006).
\end{itemize}
analogous to real property and receives the highest priority in California’s water-rights hierarchy. Riparian users may use their water rights on riparian land or for in-stream purposes, which include recreational uses and aesthetic enjoyment. All riparians along a watercourse share a mutual right to as much water as each reasonably may use for beneficial purposes on riparian land.

Delta residents whose land is directly adjacent to the Delta have a riparian right to water in the Delta. These riparian users have a right to receive water of reasonable quality which gives them a claim for relief against both upstream discharges of pollutants and against upstream diversions that unreasonably diminish the quality of the water available to them. Thus, if Delta diversions under the proposed dual conveyance system either impair the amount of water available to riparians for their reasonable use or reduce the amount of fresh water flowing to the Delta enough that water quality is diminished, Delta riparians could bring suit against the State of California and/or the specific appropriators.

Delta riparians could allege that the upstream appropriation of their water constitutes a taking under the Fifth Amendment of the United States Constitution. In order to bring a takings claim, the riparians would have to establish that they hold a compensable property right to the water in the Delta. While their riparian status establishes their rights to use water on their riparian land or for in-stream uses, this right is limited by the Reasonable Use Doctrine. In 1928, California’s Constitution was amended to add Article X, Section 2, the Reasonable Use Doctrine, which states:

The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.

Therefore, as long as Delta riparians use their water in a reasonable way for a beneficial use, they have a valid property right to the water.

The Reasonable Use Doctrine was used to defeat the statutory allocation of water rights in Joslin v. Marin Municipal Water District. The Joslins held a riparian right to water from a creek that ran through their property.

68. 67 Cal. 2d. 132 (1967).
and asserted this right against the Marin Municipal Water District (Marin) which had interfered with this right by constructing a dam that inhibited the creek from flowing freely through the Joslins’ property.\(^69\) Prior to the installation of the dam, the creek flooded seasonally and deposits from this flooding supplied the Joslins’ sand and gravel business.\(^70\) In a landmark decision, the California Supreme Court found that the Joslins’ use had become unreasonable in light of Marin’s new reasonable use of the water in the creek.\(^71\) According to the Court, the reasonableness of a use is dependent on the facts of each case and cannot be assessed without taking into account “statewide considerations of transcendent importance.”\(^72\) Therefore, because there is no property right in an unreasonable use, the Joslins were not entitled to compensation for their loss.

The Court’s holding in Joslin could threaten Delta riparians’ water rights because Marin’s municipal use is akin to the proposed dual conveyance system’s use. Thus, a court could find that the Delta riparians’ use is unreasonable in light of the dual conveyance system’s new reasonable use. If the State of California did challenge the reasonableness of the Delta riparians’ use, and the court found for the State, the riparians would not be compensated for their lost water right. The likelihood of this happening is unknown, but the circumstances surrounding the Delta riparians’ right and the Joslins differ greatly.

The Delta riparians’ right can be distinguished from the Joslins’ in many ways. First, most riparians in the Delta use their water right for irrigation purposes in order to support agriculture, which the State has deemed a beneficial use. A majority of the non-agricultural Delta riparians use the Delta for recreation, which is a valid use of a riparian right, as established in Prather v. Hoberg, which recognized boating as a legitimate use of a riparian right.\(^73\) Another factor that could distinguish Joslin from the Delta riparians is that the Joslins claimed a right to the entire natural flow of the creek, seeking to prevent any upstream use.\(^74\) A majority of Delta riparians are likely to insist that their right only extends to the amount of water necessary for the Delta to remain viable.

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69. Id. at 134-35.

70. Id.

71. Id. at 141.

72. Id. at 140.

73. 24 Cal. 2d 549, 560-62 (1944).

74. Joslin, 67 Cal. 2d. at 141.
2. Prior Appropriators

California's water right hierarchy in regards to appropriators is governed by the Doctrine of Prior Appropriation, which can be summarized as “first in time, first in right.” In application, this means that the senior appropriator is entitled to fulfill his/her need before a junior appropriator is entitled to use any water. California recognizes two forms of appropriative rights; the first type is referred to as a “pre-1914 appropriative right.” This term applies to appropriative rights acquired before the Water Commission Act of 1913, which became effective on December 19, 1914. Post-1914 appropriative rights must be based on a permit or license issued by the State Water Resources Control Board. Pre-1914 appropriative rights relate back to the time when the appropriator began using the water. Appropriative rights are also governed by the Reasonable Use Doctrine and thus must be used in a reasonable manner for a beneficial use. According to the California Water Code, when an appropriation is no longer used reasonably for a beneficial use, the appropriator's right ceases. If an appropriator fails to use all or part of its allocation of water reasonably and beneficially for a period of five years, all unused water “may revert back to the public and shall, if reverted, be regarded as unappropriated public water.” Thus, appropriative rights are not permanent and may be forfeited upon an unreasonable use finding by the State Water Resources Control Board.

Any appropriations made by the proposed dual conveyance system from the Sacramento and San Joaquin rivers will be considered Post-1914 appropriative rights. The appropriations are subject to the Doctrine of Prior Appropriation and must be used in a reasonable manner for a beneficial use. If appropriations are not used reasonably for a beneficial use for a period of five years, all unused water may revert back to the public and shall, if reverted, be regarded as unappropriated public water.
Appropriation, and will be considered junior to Pre-1914 appropriators and any other appropriators with an earlier permit date assuming that the current appropriators use their allocations reasonably and for a beneficial use. According to the California Court of Appeal, in times of shortage junior appropriators must curtail their diversions in reverse order of priority until the shortage is eliminated.86 Therefore, if a water shortage occurs in the future, the dual conveyance system could be required to reduce its diversions as much as is necessary to reduce the shortage.

B. Land Acquisition

Both configurations of the dual conveyance system will require thousands of acres of land to be acquired in order to build the proposed subterranean tunnel and related facilities. The implementation of either of these configurations requires land between Sacramento and Tracy to be purchased. According to the layout of the Eastern alignment configuration shown on the map in Appendix A, the conveyance would run along the west side of Interstate 5.87 It would transport water from the Sacramento River between the towns of Freeport and Hood; then continue through the towns of Walnut Grove, Thornton, and Stockton; then head west toward Tracy.88 The Western alignment configuration would begin exporting water from the Sacramento River a little north of Freeport, then proceed southeast, passing through the towns of Rio Vista, Bethel Island, Knightsen, Discovery Bay, and Byron.89

All of the above mentioned areas, except for Stockton, are rural cities and exhibit a wide range in population size and average housing unit prices, which are listed below.

**Stockton**
Mean Housing Price: $283,444 in 2008.90

**Hood**
Mean Housing Price: $100,000 in April 2009.91

88. Id.
89. Id.
**Walnut Grove**
Mean Housing Price: $202,580 in 2008.92

**Thornton**
Mean Housing Price: $319,984 in 2008.93

**Rio Vista**
Mean Housing Price: $401,994 in 2008.94

**Bethel Island**
Mean Housing Price: $305,663 in 2008.95

**Knightsen**
Median Housing Price: $712,877 in 2008.96

**Discovery Bay**
Mean Housing Price: $746,157 in 2008.97

**Byron**
Mean Housing Price: $386,953 in 2008.98

The above figures are an indication of how expensive the necessary land acquisition will be. The population statistics raise another inevitable issue - government acquisition of land is often perceived negatively by the public. The proposed dual conveyance system has the potential to directly affect a large group of people, which could make the proposal vulnerable to a plethora of lawsuits.

Large amounts of private property would inevitably have to be acquired through eminent domain in order to proceed with either alignment configuration. The State of California would have to comply with the Fifth Amendment of the United States Constitution, which states “nor shall private property be taken for public use, without just compensation.” The Fifth Amendment applies to the States through the Fourteenth Amendment. The California Constitution also addresses the issue of eminent domain, allowing for private property to be taken or damaged for a public use if just compensation is first paid to the owner. The construction of the proposed dual conveyance system is a state action, therefore any necessary land acquisition will be governed by the Fifth Amendment of United States Constitution and Article I, Section 19 of the California Constitution.

The paramount legal issue surrounding eminent domain involves the determination of what qualifies as a public use. According to the U.S. Supreme Court, a taking's purpose, not its mechanics, will be scrutinized during the public use determination. The purpose of the proposed dual conveyance system is to guarantee that all of California has continuous access to fresh water which qualifies as a public purpose. The acquirement of land necessary for the construction of the proposed dual conveyance system subterranean tunnel is constitutional because it is necessary to further a public purpose.

California will have to pay just compensation to the involved property owners which the U.S. Supreme Court has held “is for the property, and not to the owner.” The U.S. Supreme Court has also held that indirect costs to the property owner caused by the taking are generally not worthy of just compensation. Under U.S. Supreme Court precedent, the State of

99. U.S. Const. amend. V.
100. U.S. Const. amend XIV.
California will be required to compensate property owners for the value of their land that is needed for the construction and installation of the subterranean tunnel, but not for the indirect costs associated with this taking. The use of only a portion of private land by the government can qualify as a partial taking if the intrusion is “so immediate and direct as to subtract from the owner’s full enjoyment of the property and to limit his exploitation of it.” Thus, the State of California will have to give private property owners just compensation for a partial taking of their land as well. The Supreme Court has held that just compensation is fair market value for all available uses and purposes, but it is not the subjective value to the owner.

C. Violation of the Endangered Species Act

The Delta is home to two endangered species, the smelt and the Chinook salmon. The smelt was listed as endangered on March 4, 2009, by the California Fish and Game Commission. This classification qualifies the smelt for special protection under both the California and Federal Endangered Species Acts. The Chinook salmon was listed as endangered on January 4, 1994, and its endangered status was reaffirmed on June 28, 2005. Thus, both species are protected under the Federal Endangered Species Act (“ESA”) which makes it unlawful for any person to “take any such species within the United States or the territorial seas of the United States.” Section nine of the ESA defines “take” as to: “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct.” In order for the dual conveyance system to proceed it will need to acquire a special permit from the Secretary of the Interior authorizing the inevitable “takes” of the species. These permits are very difficult to obtain.

The proposed dual conveyance system will prohibit some of the Sacramento River’s natural flow from reaching the Delta. Scientists have

already concluded that reduced fresh water flows to the Delta are the reason for both of the above-mentioned species’ decline.113 Thus, any further reduction is likely to negatively affect the already struggling species. In *Tennessee Valley Authority v. Hill*, the Supreme Court held that the legislative intent behind the ESA was to protect endangered species “whatever the cost.”114 Thus, the ESA is not impacted by reasonable use arguments, because Congress has prioritized the preservation of endangered species above all other uses.

The dual conveyance system could also face another possible challenge under the Porter-Cologne Act, which requires that each regional board “establish such water quality objectives . . . as in its judgment will ensure the reasonable protection of beneficial uses.”115 The Porter-Cologne Act categorizes beneficial uses as a protected category which includes, but is not limited to, the “preservation and enhancement of fish, wildlife, and other aquatic resources.”116 Because the proposed dual conveyance system could have a deleterious effect on Delta fish species, it could be subject to scrutiny under the Porter-Cologne Act.

**D. The Public Trust Doctrine**

The proposed dual conveyance system could also face possible legal challenges under the Public Trust Doctrine, which originated in England and establishes a sovereign’s right to protect its navigable and tidal waters, particularly for navigation, commerce, and fishery purposes.117 In the United States, the Public Trust Doctrine established that the states have title to the bed and banks underlying navigable waters.118 Under the Public Trust Doctrine, the federal government retains the power to protect and enhance navigation, creating the federal navigational servitude which recognizes that waterways “are public in their nature, for highways of navigation and commerce.”119

The State of California holds title to the bed and banks of the Delta and the federal government holds a navigational servitude over the watercourse because the Delta is a navigable body of water. The proposed dual conveyance system could be challenged under the Public Trust

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Doctrine if it prevents such a large amount of water from the Sacramento River from reaching the Delta that it is no longer navigable. Currently there are many shallow places in the Delta that could become impassable, especially for larger ships which use the Delta as an east-west transportation channel. According to the U.S. Supreme Court, California has a duty to hold the banks and beds of navigable watercourses in trust for the people of the state, thus giving Californians the ability to navigate, fish, and carry out commerce on the waters of the state.

E. California Fish and Game Code § 5937

Depending on the method used to convey water from the Sacramento River to the dual conveyance system’s proposed new tunnel, environmental groups could challenge any dam built in connection with the conveyance system under California Fish and Game Code § 5937 (Section 5937), which states:

The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam.

Environmental groups used Section 5937 as justification for limiting Los Angeles’ diversions from Mono Lake. In California Trout, Los Angeles argued that it would be unconstitutional for the legislature to “impose a categorical priority for one use of water.” The court found this to be unpersuasive, finding “no preclusion in article X, section 2, of legislative power to make rules concerning what uses of water are reasonable.”

Applying the above principle to Delta fisheries and the proposed dual conveyance system, it could be argued that the new conveyance system would have to allow enough water to remain in the Sacramento River and proceed to the Delta as is necessary to keep the fisheries in “good condition.” In 2004, the NRDC brought suit against the Department of the Interior’s Bureau of Reclamation (Bureau). The NRDC accused the Bureau

122. Cal. Fish & Game Code § 5937.
124. Id. at 622.
125. Id.
of failing to release the requisite amount of water through the Friant Dam necessary to keep the fisheries in good condition. The court upheld its April 1992 ruling that Section 5937 “relates to the control, appropriation, use or distribution of water used in irrigation,” and therefore is applicable to the Bureau through Section 8 of the Reclamation Act of 1902. 127

The court held that Section 5937 places a duty on the dam owners, directing them to maintain “any fish” that falls into one of two enumerated categories: “any fish that may be planted below the dam” or that “exist below the dam.” 128 The court also recognized the California Court of Appeal’s decision in California Trout which held that “the Legislature has already balanced the competing claims for water . . . and determined to give priority to the preservation of their fisheries.” 129 Applying the above rationale to the present situation, the dual conveyance system would have to leave enough water in the Sacramento River as is necessary to keep fisheries in the River and the Delta in “good condition.” The already threatened condition of many native Delta fish species suggests that further diversions from the natural watershed would be disastrous for these species, thus leaving the project’s developer (the State of California) vulnerable to suit.

V. Possible Alternatives to the Dual Conveyance System

A. Increase Groundwater Storage

Groundwater storage is a good way to use natural infrastructure to store water during wet periods for use during the dry seasons. The Delta Vision Task Force incorporated groundwater storage provisions into the Strategic Plan. 130 These provisions are designed to bank or store water conveyed by the proposed dual conveyance system. 131 The Plan references the fact that currently there is more storage in Southern California than can be filled, but recognizes that due to increased demand and climate change, storage will eventually be at a premium. 132

Today groundwater is largely unregulated in California but it is unlikely that this will be the case in the future, “groundwater regulation lies in California’s future, at least at some point. A lot of states, Arizona for

127. Id. at 917 (quoting Natural Res. Def. Council v. Patterson, 791 F. Supp. 1425, 1433 (1992)).
131. Id.
132. Id.
example which is also an extremely arid state, have extensive groundwater programs.\textsuperscript{133} If groundwater is regulated in a way that allows it to be used more efficiently, the result would be an increase in the amount of fresh water that is readily available, especially in Southern California.\textsuperscript{134} This would significantly reduce the need for the dual conveyance system. The graph in Appendix B shows that groundwater storage is a better short-term alternative.\textsuperscript{135} According to the graph, more efficient groundwater storage has the potential to add up to one and a half million acre-feet per year at the relatively low cost of six-thousand dollars per acre-foot.\textsuperscript{136}

\textbf{B. Desalination}

Desalination has long been referred to as a good idea that is not economically feasible, yet on February 1, 2010, a desalination plant opened in Sydney, Australia, and it only cost slightly over one and a half billion dollars to build.\textsuperscript{137} Sydney's plant is expected to supply up to fifteen percent of the area's water needs, up to two hundred and fifty million liters a day at full capacity.\textsuperscript{138} The fresh water created by the plant will be distributed to one and a half million people throughout Sydney, as part or all of their water supply. In order to finance the construction of the plant, one hundred dollars a year will be added to the average person's water bill, allowing the project to be paid off in just four years.\textsuperscript{139} The plant is completely offset by wind energy created at a nearby wind farm.\textsuperscript{140}

The Australians have proven that desalination is a viable way to convert large amounts of salt water into fresh water. California is adjacent to the Pacific Ocean, making it an ideal place for desalination which would be a much cheaper alternative to the proposed dual conveyance system which is estimated to cost between fourteen and seventeen billion dollars.\textsuperscript{141}

\textsuperscript{134} Id.
\textsuperscript{135} See infra Appendix B, Options for Additional Water Supply Graph.
\textsuperscript{136} Id.
\textsuperscript{138} Id.
\textsuperscript{139} Id.
\textsuperscript{140} Id.
Appendix B presents a graph from the Delta Vision Strategic Plan, which illustrates that desalination is a good long-term solution, producing half a million acre-feet per year, slightly more than the amount produced from conveyance for the same price, two thousand dollars per acre-foot. Given the projected reductions in the Sierra snowpack, which feeds the Sacramento and San Joaquin rivers, desalination appears to be a better long-term solution to California’s water crisis.

C. Increased Water Use Efficiency

There are two major sectors of water use in California: urban and agricultural, both of which could each greatly increase water use efficiency. The urban users are governed by the Urban Water Management Planning Act (“UWMP”), which was enacted by California’s Legislature in 1983. This legislation should be amended to require the implementation of water efficiency strategies. Urban water conservation landscaping and the installation of low-flow fixtures and appliances are good techniques and devices for conserving water. According to the graph presented in the Delta Vision Strategic Plan, shown in Appendix B, urban water use efficiency is a very effective short-term solution that could create an additional two million acre-feet per year of available water. The biggest plus to urban water use efficiency is its low cost, which is less than one thousand dollars per acre-foot.

Agriculture accounts for the vast majority of California’s water that is diverted from surface water or pumped from groundwater, using thirty-four million of the total forty-three million acre-feet diverted. Agricultural water use efficiency could be increased in two ways, through “On-Farm Water Conservation Methods” and “Irrigation District System Improvements.” The DWR recommends irrigation scheduling, tailwater return systems, and irrigation system improvements as ways to increase “on-farm” water conservation. Another relatively simple method that could be
implemented is crop shifting, replacing low value water intensive crops with higher value, water-efficient crops.\textsuperscript{150}

DWR’s recommendations for increasing efficiency at the irrigation district level include tunnel lining, tunnel structure improvements, and remote monitoring and control.\textsuperscript{151} The benefits of agricultural water use efficiency are less significant than the benefits associated with urban water use efficiency. According to the graph shown in Appendix B, increased agricultural water use efficiency would produce half a million acre-feet per year but would cost over four thousand dollars per acre-foot, more than four times the cost of measures associated with urban efficiency.\textsuperscript{152}

\section*{D. Recycled Municipal Water}

Water recycling involves reusing treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processes, and toilet flushing.\textsuperscript{153} Recycled water can also be used for groundwater recharge, which is simply replenishing a groundwater basin using treated wastewater. Natural water recycling happens through the water cycle but the term water recycling generally refers to the use of technology to speed up the Earth’s natural processes.\textsuperscript{154}

Greywater recycling is defined as the reuse of water from the sinks, showers, washing machines and dishwashers in a home.\textsuperscript{155} Greywater is defined as “wastewater from household baths and washing machines that is recycled especially for use in gardening or for flushing toilets.”\textsuperscript{156} Blackwater is “wastewater from household toilets, with fecal contamination.”\textsuperscript{157} Most greywater recycling systems separate greywater from blackwater, which is then sent to the traditional sewer.\textsuperscript{158} The greywater goes through some sort of filter (usually a sand filter), which removes any organic matter, and then

\begin{itemize}
\item \footnotesize 150. Heather Cooley, et al., \textit{More with Less: Agricultural Water Conservation and Efficiency in California}, 6 (Nancy Ross, ed., Pacific Institute, September 2008), available at \url{http://www.pacinst.org/reports/more_with_less_delta/more_with_less.pdf}.
\item \footnotesize 151. \textit{Agricultural Water Use}, \textsc{Cal. Dept of Water Res.}, (2010), \url{http://www.water.ca.gov/wateruseefficiency/agricultural/}.
\item \footnotesize 152. See \textit{infra} Appendix B. Options for Additional Water Supply Graph.
\item \footnotesize 154. Id.
\item \footnotesize 156. Id.
\item \footnotesize 157. Id.
\item \footnotesize 158. Id.
\end{itemize}
depending on what ultimate use the water is destined for, it is disinfected with chlorine or iodine, or used as-is.\textsuperscript{159}

This type of water recycling would drastically lessen the demand for our freshwater supplies because greywater currently contributes seventy-five percent of total wastewater flow to domestic sewers.\textsuperscript{160} According to the graph shown in Appendix B, recycling municipal water is a great long-term solution.\textsuperscript{161} If recycled properly, municipal water supply could be increased by over one million acre-feet annually.\textsuperscript{162} This is also the most cost-effective long-term option, providing water that costs around one thousand dollars per acre-foot to deliver.\textsuperscript{163}

\section*{VI. Conclusion}

The Delta is a unique place with distinctive problems. It is home to a diverse group of people and wildlife who all rely on it in different ways. The Delta Vision Strategic Plan has good intentions for the Delta but the strategies that the plan proposes to reach its co-equal goals need to be researched further. The proposed dual conveyance system will require a massive amount of funding from California, a state where the financial condition is already tenuous. The dual conveyance system also threatens the already collapsing Delta ecosystem and the endangered species that struggle to survive in an increasingly harsh environment. Freshwater exports from the Delta are the source of the ecosystem’s crisis. According to Tina Swanson, a senior scientist at The Bay Institute, “increasing water exports could well push the ecosystem toward collapse,”\textsuperscript{164} leaving the smelt particularly negatively impacted.\textsuperscript{165} If the dual conveyance system is implemented, it will export even more fresh water from the Sacramento River before it reaches the Delta. The potential devastation this will have on the smelt, the Chinook salmon, and the ecosystem could be catastrophic if there are further increases in freshwater exports.

California’s water crisis is real and has far-reaching effects on its citizens. It is clear that something must be done and that this crisis is

\begin{itemize}
  \item \textsuperscript{159} Id.
  \item \textsuperscript{160} E. Eriksson et al., \textit{Household Chemical and Personal Care Products as Sources for Xenobiotic Organic Compounds in Grey Wastewater}, 29.2 Water S.A. 135-146 (2003).
  \item \textsuperscript{161} See \textit{infra} Appendix B, Options for Additional Water Supply Graph.
  \item \textsuperscript{162} Id.
  \item \textsuperscript{163} Id.
  \item \textsuperscript{165} Id.
\end{itemize}
projected to get worse if changes are not made to the current conveyance system. Climate change and an ever-increasing population will continue to strain California’s natural hydrological resources. The dual conveyance system is dependent on the vitality of the Sacramento and San Joaquin rivers for its success, but it is likely that the reduced Sierra snowpack will diminish these rivers’ flows, especially in the summer and fall.

Increased urban water use efficiency and the implementation of water recycling systems are the most affordable alternatives to the dual conveyance system. Appendix B illustrates the large amount of water that these alternatives can provide. These alternatives are the best choices because they are sustainable and will be resilient given the uncertainties facing California’s future water supply. The combination of these two alternatives is the superior option for the health of the Delta as an ecosystem, and they are the most environmentally friendly alternatives overall.

Through implementation of these alternatives, current water resources can be redirected and reallocated to where they are most needed, and California’s water needs can be addressed in the immediate future. In particular, Southern California municipalities can implement these alternatives to decrease their need for water from the SWP and CVP. The water supplied by the SWP and CVP could then be redirected to agricultural uses. The above-discussed alternatives are also better equipped to handle the uncertainties of climate change and thus provide a safer guarantee for California’s water needs than the dual conveyance system which has been proposed. However, none of these alternatives will work alone. California’s water needs require a collaborative approach and creative solutions both in the short and in the long term.

The proposed alternatives will be less damaging to the Delta as an ecosystem and to the endangered species that live there. These alternatives should be explored further and implemented in the near future instead of employing the dual conveyance system, an expensive short-term solution which has the potential to completely destroy one of California’s most exceptional and important natural resources.
Appendix A:
Map of the Dual Conveyance System Proposed Alternatives

Appendix B: Options for Additional Water Supply Graph