THE DELTA PLAN AND REGIONAL WATER SELF-RELIANCE

November 2011

Water Leaders Class of 2011

Water Education Foundation

717 K Street, Suite 317

Sacramento, CA 95814

This page intentionally left blank

Table of Contents

This page intentionally left blank

ACRONYMS AND ABBREVIATIONS

CCWD	Contra Costa Water District
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CVP	Central Valley Project
DFG	California Department of Fish and Game
DSC	Delta Stewardship Council
DWR	California Department of Water Resources
GWRS	Groundwater Replenishment System
IRWMP	Integrated Regional Water Management Plan
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
OWOW	One Water One Watershed
SAWPA	Santa Ana Watershed Project Authority
SCVWD	Santa Clara Valley Water District
SFPUC	San Francisco Public Utilities Commission
SWP	State Water Project
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
Foundation	Water Education Foundation

This page intentionally left blank

SECTION 1: INTRODUCTION

1.1 Water Leaders Class 2011 / Mentors / Research Topic

The Water Education Foundation (Foundation) Water Leaders Class of 2011 (Water Leaders) is comprised of twenty water professionals from varying backgrounds. The 2011 class includes professionals with careers in environmental planning/engineering, public/private water utilities, legislative, agricultural, legal, and state/federal agencies and organizations. The theme that ties all the Water Leaders together is water and the key role that water plays in each of their professions. Through this program the Water Leaders have the opportunity to learn from other professionals with different backgrounds and expertise to develop a broad, holistic understanding of water-related issues.

Each Water Leader was partnered with a Mentor with a leading role in California water issues. Just as the group of Water Leaders represents a wide spectrum of interests in water, Mentors also come from diverse backgrounds and provide a range of perspectives related to current water issues. The Mentors for the 2011 class include policy makers and advocates, public agency officials, agricultural and urban water users, and habitat advocates.

MENTOR	WATER LEADER
Rich Atwater Executive Director Southern California Water Committee	**Eric Grubb** Management Analyst Cucamonga Valley Water District
Tracie Billington Chief, Financial Assistance Branch California Department of Water Resources	**Andria Loutsch** Water Resources Planner CDM
Bette Boatmun Director Contra Costa Water District	**Subir Saha** Engineer California Department of Water Resources
Byron Buck Executive Director State and Federal Contractors Water Agency	**Kelly White** Project Manager Environmental Science Associates
Sue Fry Regional Environmental Officer U S Bureau of Reclamation	**Jolie-Anne Ansley** Attorney Duane Morris LLP
David Guy President & CEO Northern California Water Association	**Minnie Santillan** Chief of Staff Assemblymember Henry T. Perea
Charlie Hoppin Board of Directors State Water Resources Control Board	**Elizabeth Mesbah** Project Engineer HDR Engineering Inc.
Jared Huffman Assemblymember California Assembly Water, Parks and Wildlife Committee	**Lindsey Fransen** Regulatory Analyst California Public Utilities Commission

MENTOR	WATER LEADER
Mike Machado Delta Protection Commission	**Newsha Ajami** Science and Technology Policy Fellow Senate Committee on Natural Resources and Water
Felicia Marcus Western Director Natural Resources Defense Council	**Alexa La Plante** Water Quality Project Manager ICF International
Mike McCullough Director of Environmental & Water Resources Northern California Golf Association	**Catherine Bowie** External Affairs Manager California American Water
Jessica Pearson Senior Policy Advisor Delta Stewardship Council	**Jennifer Allen** Director of Public Affairs Contra Costa Water District
Jason Peltier Chief Deputy General Manager Westlands Water District	**James Mizell** Attorney Taylor & Wiley
Tom Philp Executive Strategist, External Affairs Metropolitan Water District of Southern California	**Kristy Morris** Senior Water Quality Scientist Council for Watershed Health
Lester Snow Consultant	**Jonnalee Henderson** Business Manager Henderson Farms Inc.
Maureen Stapleton General Manager San Diego County Water Authority	**Magill Weber** Associate Project Director The Nature Conservancy
Melinda Terry Executive Director California Central Valley Flood Control Association	**Jill Chomycia** Senior Water Resources Planner MWH
Iovanka Todt Executive Director Floodplain Management Association	**Katie Morris** Senior Water Resources Specialist City of Corona Department of Water & Power
Craig Wilson Delta Watermaster	**Rachel Ballanti** Policy Analyst California Water Commission
Tom Zuckerman Counsel Central Delta Water Agency	**David Katzev** Civil Engineer East Bay Municipal Utility District

The 2011 class was challenged to answer the question "*in the final Delta Plan, how strong should regional water strategies and self-sufficiency be to improve conditions in the California Delta?*" While researching this topic, Water Leaders interviewed their Mentors using a series of questions developed by the class. The Water Leaders also spent a day shadowing their Mentor and attended two water tours organized

by the Foundation, including the Bay-Delta Tour, which enabled the class to further understand the diverse array of water issues in the Delta and across the state.

1.2 Background on the Delta

The Sacramento-San Joaquin River Delta (Delta) houses a complex water system that supports urban, agricultural, and industrial water users throughout the state. Water is diverted from the Delta via thousands of intakes, small and large, for use locally and across the state. In addition, the Delta region supports interests and businesses ranging from recreation and commercial fishing to transportation, housing, and agriculture. The Delta as a place represents the home, work, and recreational areas of half a million Californians according to Department of Water Resources (DWR). The Delta is also an important ecosystem that is home to aquatic and terrestrial species that depend on and thrive in habitat ranging from the freshwater streams that flow from the Sierras to the brackish water where freshwater from major rivers mixes with the saline waters of the San Pablo Bay. The Delta consists of a complex system of approximately 1,100 miles of levees that protect farms, cities, schools, and people; however, the integrity and maintenance of those levees remains a serious concern for all stakeholders. Rich in history, the Delta has been the primary water source for economic and population growth in California, but has also been the center of countless debates about water rights and water use in the state.

Legislation passed and signed into law in 2009 introduced a package of policies which California must implement by addressing water issues while meeting the "coequal" goals of providing water supply reliability and enhancing the Delta ecosystem. As part of that package, the Delta Stewardship Council (DSC) was formed to develop a plan for the Delta, known as the Delta Plan, to achieve the state-mandated coequal goals for the Delta.

> "Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place (CA Water Code §85054).

The DSC includes seven members with four appointed by the Governor, one appointed by the Senate, one appointed by the Assembly, and the Chair of the Delta Protection Commission.

The DSC began work on the Delta Plan in January 2011 and is scheduled to complete the 7th and Final Draft of the Delta Plan by the end of 2011, as well as complete and certify the Final Environmental Impact Report on the Delta Plan. Each draft of the Delta Plan is subject to a robust review process by the DSC, with input from the public. The analysis contained in this report is based on the 5th Draft of the Delta Plan released in August 2011.

1.3 Current Conditions in the Delta and Need for Supplemental Supplies

In the Phase 1 report of the *Delta Risk Management Strategy*, DWR is very clear about the current state of the Delta: "the Delta Region as it exists today is unsustainable." The reliability of Delta water supplies on an annual basis is becoming less dependable, flood control levees are susceptible to catastrophic failures, and habitat conditions for the Delta Smelt and other endangered species are declining due to degrading water quality and a variety of other unfavorable conditions. Mentor responses support the general

conclusion that immediate actions in the Delta are necessary to address critical issues related to water supply reliability, water quality, and ecosystem restoration. The development of supplemental water supplies, such as recycled water, local groundwater and surface water, and desalinated water, by Delta water users is necessary to reduce reliance on the Delta; however, opportunities to develop supplemental water supplies vary greatly from region to region.

1.4 The Delta Plan and Regional Self-Sufficiency

The 5th Draft of the Delta Plan addresses regional self-sufficiency in Chapter 4. By its own admission, the Delta Plan is primarily a strategic document providing guidance and recommendations to cities, counties, and state, federal, and local agencies regarding how to restore the Delta ecosystem and provide a more reliable water supply for California. However, the Delta Plan also contains a set of regulatory policies with which cities, counties and state and local agencies are expected to comply. These regulatory policies are enforceable under provisions of the Delta Reform Act. This Act requires programs, plans and projects by local and state agencies that qualify as "covered actions" under California Water Code § 85057.5 to be certified as consistent with the Delta Plan (California Water Code §§ 85225 et seq.).

To achieve the coequal goal of providing a more reliable water supply for California, the Delta Plan lays out six key water supply strategies, one of which is to "reduce reliance on the Delta through improved regional self-reliance." Under this strategy, the Delta Plan includes one regulatory policy that defines when a "covered action" to export water from, transfer water through or use water in the Delta is inconsistent with the Delta Plan. Such a covered action is inconsistent with the Delta Plan if the covered action negatively impacts one or more of the coequal goals. A covered action is also deemed inconsistent with the Delta Plan if one or more of the water suppliers receiving water from the Delta significantly causes the need for the covered action by failing to comply with one of the following:

- State law requiring urban water suppliers to adopt and implement an Urban Water Management Plan (UWMP) pursuant to Water Code section 10610 et seq. and to adopt and implement a plan to achieve a 20 percent reduction in statewide urban per capita use by 2020 pursuant to Water Code section 10608 et seq.;

- State law requiring agricultural water suppliers to adopt and implement agricultural water management practices pursuant to Water Code section 10608 et seq. and to adopt and implement an agricultural water management plan pursuant to Water Code section 1080 et seq.;

- A new requirement that water suppliers expand an existing or add a new Water Reliability Element, with specified information, to their Urban and/or Agricultural Water Management Plans or by including it in an approved Integrated Regional Water Management Plan (IRWMP) or other plan with equivalent information; or

- A new requirement that water suppliers develop and implement a conservation-oriented rate structure by December 31, 2020.

Regarding reducing reliance on the Delta through improved regional self-reliance, the Delta Plan also includes five recommendations:

- DWR should develop guidelines for the newly required "Water Reliability Element" in Urban and Agricultural Water Management Plans.

- DWR should include information to track water supply reliability performance measures and assess improvements in regional self-reliance, reduced reliance on the Delta, and statewide water supply reliability in the California Water Plan.

- DWR, the State Water Resources Control Board (SWRCB) and other agencies should revise state grant loan ranking criteria and identify additional funding and other incentives for local and regional strategies.

- All agencies should include water efficiency and other measures in new and retrofitted state facilities.

- DWR and/or SWRCB should require proponents requesting new points of diversion, place of use, or purpose of use that result in new or increased use of water from the Delta to demonstrate evaluation and implementation of all other feasible water supply alternatives

1.5 Report Organization

This report is based largely on an analysis of the Mentors' responses to the list of questions developed by the Water Leaders. Appendix A contains more specific information about the Mentors' responses to the individual questions. Since the Mentors come from a diverse range of backgrounds, it is assumed that, in general, Mentor responses are representative of the range of viewpoints held by stakeholders.

While the Delta Reform Act of 2009 provides direction and definition for implementation of the Delta Plan, identifying goals and outlining the authority of the DSC, the specific means by which the Delta Plan will be implemented to achieve the coequal goals remains to be resolved. The Mentors provided a variety of opinions regarding the appropriate scale and nature of regulations in the Delta Plan for achieving the coequal goals. These opinions are summarized in Section 2, Implementation of the Delta Plan and Regulatory Authority.

In alignment with the topic assigned to the 2011 Water Leader Class, Mentors were specifically asked for their opinions regarding regional water strategies and self-sufficiency. A general discussion of common obstacles to securing supplemental supplies is provided in Section 3, Considerations for Developing Supplemental Supplies. Recommended water supply strategies and success stories identified by the Mentors regarding self-sufficiency are presented in Section 4, Strategies and Success Stories. Section 5 discusses the key elements to be included in a cost-benefit analysis of the Delta Plan. Finally, a summary of lessons learned and water leader opinions are presented in Section 6, Conclusions.

This page intentionally left blank

SECTION 2: IMPLEMENTATION OF THE DELTA PLAN AND REGULATORY AUTHORITY

2.1 Purpose of the Delta Plan and Key Outcomes

Mentor opinions on the purpose and key outcomes of the Delta Plan were varied. Some mentors stated that the Delta Plan should create a framework for encouraging and motivating people to address regional water issues and reduce reliance on the Delta. Others emphasized that the Delta Plan should establish performance measures and require certain actions to improve water use efficiency and promote water conservation.

The primary conclusion drawn from responses is that the Delta is a complex system to manage and there are no easy solutions. The Delta Reform Act of 2009 requires the use of a science-based adaptive management program in the Delta Plan to manage water-related resources, including aquatic habitat and ecological conditions. The Delta Plan will be a living document that will be subject to modification over time in order to achieve the coequal goals in coordination with local, regional, and other statewide efforts.

2.2 Geographic Scope of the Delta Plan

FIGURE 1: THE LEGAL BOUNDARIES OF THE DELTA AND THE SURROUNDING WATERSHEDS (SOURCE: FIFTH DRAFT DELTA PLAN, DSC)

Background

In accordance with the Delta Reform Act of 2009 (Act), the Delta Plan must provide a framework to further the coequal goals within the legal Delta, the boundaries of which are defined in Section 12220 of the Water Code, and the Suisun Marsh (Section 85302(b)). For purposes of the Delta Plan, the legal Delta and the Suisun Marsh (as defined by Public Resources Code Section 29101 and protected by Division 19, commencing with Section 29000) are collectively referred to as the "Delta" unless otherwise specified. The Act states the Delta Plan may also identify actions to be taken outside of the Delta if those actions are determined to reduce flood risks in the Delta (Section 85307(a)), and recommend ecosystem restoration projects outside the Delta that will contribute to achievement of the coequal goals (Section 85302(b)). Figure 1 shows the legal boundaries of the Delta and Suisun Marsh, the Delta Watershed Area (CALFED boundary), and the regions outside of the Delta that use Delta water.

Opinions

Although Mentors generally agree that the Delta Plan should help guide and coordinate local and state actions and activities in the Delta, the regulatory authority of the Delta Plan is an issue of contention. Some Mentors argue that the coequal goals cannot be achieved without a statewide plan that addresses actions outside of the Delta that could have an impact on the Delta system. Mentors who believe the authority of the Delta Plan should be limited to actions and activities in the Delta argue that a statewide or broader plan would be heavily debated and is unlikely to be implemented. Others believe the jurisdiction of the Delta Plan should depend on the objective at hand; certain measures proposed by the plan could be more appropriate on a statewide level while others are more appropriate within the Delta. In general, this group of Mentors believes any regulatory requirements established by the Delta Plan should be limited to the Delta, but the policies should be applicable statewide.

5th Draft Delta Plan

The geographic scope of the 5th Draft Delta Plan encompasses two planning areas: a Primary Planning Area and a Secondary Planning Area. The DSC has authority over covered actions that take place in whole or in part in the Primary Planning Area, which is comprised of the legal Delta and the Suisun Marsh. Thus the requirement of consistency with the Delta Plan applies only to covered actions that occur in whole or in part in the Primary Planning Area. The Secondary Planning Area encompasses other areas of California, including the Delta watershed, the Trinity River watershed, and areas outside the Delta that receive exported water from the Delta, since actions in these areas may significantly impact the DSC's ability to achieve the coequal goals. As indicated in Section 2.3, the 5th Draft Delta Plan provides regulatory policies and recommendations for the Primary Planning Area, but only provides recommendations for the Secondary Planning Area.

2.3 Implementation of Delta Plan at the Regional and State Levels

Background

The Delta Reform Act of 2009 requires the DSC develop a legally enforceable Delta Plan. Per Senate Bill No. 1 Delta Governance/Delta Plan the Delta Plan is to be enforced by requiring a determination of consistency for covered actions proposed by local and state agencies. A state or local agency that proposes to undertake a covered action would be required to prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with the Delta Plan and submit that certification to the DSC. An appeal process for alleged inconsistencies with the Delta Plan would be established. Appeals would be brought before the DSC for review.

Opinions

Some Mentors stated that the Delta Plan should provide a framework for achieving the coequal goals, and this framework should be implemented through existing legal enforcement authority, perhaps with some assistance from subsequent enabling legislation. Others emphasized that the Delta Plan is meant to be advisory and a plan that attempts to regulate local and state agencies would trigger, or exacerbate, conflicts between stakeholder groups and would fail to further the coequal goals.

5th Draft Delta Plan

The Delta Plan builds on existing law and state and federal policy for improved water planning, such as the preparation of Urban Water Management Plans, Agricultural Water Management Plans, Groundwater Management Plans, and Integrated Regional Water Management Plans (IRWMPs), and on pending state and local actions such as flood management and emergency response planning. The Delta Plan attempts to integrate with the diverse efforts of state and local agencies while being responsive to the mandates of Delta Reform Act, which requires linked actions to achieve a more reliable water supply while retaining regional flexibility and reducing overall reliance on the Delta.

The 5th Draft of the Delta Plan contains several policies and recommendations related to water conveyance, conservation, storage, and efficiency; ecosystem restoration; protection and enhancement of the Delta as an evolving place; flood risk reduction, water quality protection, science, and governance. For the most part, the Delta Plan is structured as a strategic document that provides guidance and recommendations to local and state agencies for how to restore the Delta ecosystem and provide a more reliable water supply for California. The DSC would work with local and state agencies to promote and coordinate implementation of the recommendations. With respect to implementation of the regulatory policies, state and local agencies would be required to comply with the regulatory policies through the certification process. The DSC would not exercise direct review and approval authority over covered actions to determine consistency with the regulatory policies but would serve as an appellate body for alleged inconsistencies.

2.4 Compliance through Regulations vs. Incentives

Background

The DSC has the power to "adopt regulations or guidelines as needed" to carry out its duties, making it inherently regulatory; however, it also has the power to wield incentives, by disbursing funds "through grants, public assistance, loans, and contracts" (Water Code §85210). As described in the 5th Draft of the Delta Plan, the Delta Reform Act requires State or local agencies that propose to undertake covered actions to certify with the DSC, before acting, that their proposed plans, programs, or projects are consistent with the Delta Plan. If anyone appeals the certification within 30 days, the DSC will determine whether the covered action is indeed consistent with the Delta Plan.

Opinions

While most Mentors agreed that a blend of regulations and incentives is needed in the Delta Plan, the struggle to achieve a balance between these approaches is politically delicate. Opinions varied widely as to what extent either should be applied, how they should be applied, and ultimately, whether the DSC has the tools or ability to wield incentives or regulations.

None of the Mentors suggested regulations alone would achieve the goals of the Delta plan, though 10% suggested the Delta Plan should attempt to achieve its goals solely through incentives. A full 25%, while not specifically addressing the balance, noted that incentives would require funding and a financing plan, and/or questioned the DSC's authority to regulate. The majority of Mentors (60%) agreed the solution to the Delta should include both regulations and incentives, but even among those, some questioned whether

the DSC has the authority to regulate. Opinions also varied as to which tool should be implemented first: regulations or incentives.

5th Draft Delta Plan

The 5th Draft of the Delta Plan contains a set of integrated and legally enforceable regulatory policies that apply to covered actions, and requires "state or local agencies that propose to undertake covered actions to certify with the Council, before acting, that their proposed plans, programs, or projects are consistent with the Delta Plan." However, the 5th Draft of the Delta Plan also includes several recommendations on incentive programs to enhance achievement of the coequal goals.

2.5 The Role of the Delta Plan with Respect to Integrated Regional Water Management Plans and the Authority of State Agencies

Background

The Delta Reform Act established the Delta Stewardship Council as a state agency with broad powers to establish future Delta policy, with the primary goal of achieving the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. Given that hundreds of local, state, and federal public agencies have some responsibility over water and ecological resources in the Delta, many of the challenges associated with improving conditions in the Delta require multi-agency coordination and cooperation. This discussion focuses on the role of the Delta Plan with respect to IRWMP and the authority of DWR, SWRCB, and the California Department of Fish and Game (DFG).

Overview of Integrated Regional Water Management

Integrated Regional Water Management (IRWM) is a collaborative approach to water resource management that crosses jurisdictional, hydrologic, and political boundaries; involves multiple agencies, stakeholders, and individuals, and attempts to address the issues and differing perspectives of all entities involved through mutually beneficial solutions while increasing the ability of the region to compete for limited funding opportunities.

Duties of DWR

DWR is responsible for the overall management of California's water resources. Duties performed by DWR include, but are not limited to, developing strategies for managing the state's water resources, including updates of the California Water Plan; operating and maintaining the State Water Project (SWP); and providing policy direction and legislative guidance on water and energy issues.

Duties of DFG

The mission of the DFG is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. The DFG enforces multiple programs dedicated to the conservation and preservation of habitats and species in California, including the California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), and California Fish and Game Code. Under CESA, the DFG is

responsible for consulting with state lead agencies to determine if their actions would affect a state-listed threatened or endangered species. Under CEQA, the DFG is responsible for consulting with lead and responsible agencies and providing the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities. The DFG is also responsible for enforcing the provisions of the California Fish and Game Code.

Duties of SWRCB

SWRCB, created in 1967, has the primary authority over state water rights and water quality policy. The SWRCB is responsible for the enforcement of the Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code), which deals with potential discharges into water bodies that could result in adverse impacts on water quality. The responsibilities of the SWRCB are enforced at the local and regional levels by nine regional water quality control boards.

Opinions

For the most part, Mentors opined that the primary role of the Delta Plan is to help guide and coordinate local and state land use actions. To avoid duplicating efforts, the Delta Plan should not play a regulatory role or override any existing regulations or agency jurisdictions. The expectation is that the Delta Plan will establish high-level objectives and, in turn, local and state agencies will develop regional strategies to meet those objectives through IRWMPs. Stated differently, the Delta Plan should be a tool for use by local and state agencies to achieve the coequal goals.

5th Draft Delta Plan

In recognition that other government agencies have authorities and responsibilities over Delta resources, and as required by the Delta Reform Act, the 5th Draft Delta Plan states that the DSC will establish and oversee a committee of agencies responsible for implementing the Delta Plan. Each agency will be required to coordinate its covered actions with the DSC and other relevant agencies.

2.6 Criteria Governing the Development of Regional Supplemental Water Supplies

Background

The Delta Plan has placed significant emphasis on the need to develop water supplies outside the Delta. Potential requirements of the Delta Plan could have huge implications across the entire state of California. Identified stakeholders were asked what criteria should govern a region's responsibility to complete costly or controversial alternative supplies.

Opinions

Mentors agree that water supply sources outside the Delta are required to help provide a more reliable water supply for California and protect, restore, and enhance the Delta ecosystem. Mentors disagreed on the amount of regulation and control given to the DSC.

Many Mentors agreed that it is most important to conduct a thorough examination of alternative solutions and select projects that provide the most cost-efficient and effective solution.

Many Mentors agreed that the decision to develop water supplies outside the Delta should be made at the regional level. However, about half of the Mentors agreed that the Delta Plan should dictate the criteria for how individual regions should develop new supplies, while the other half argued that the Delta Plan should allow local control over developing regional sustainability. Section 3 describes supplemental supplies in more detail.

5th Draft Delta Plan

Currently, the Delta Plan does not establish targets for additional water conservation beyond existing state law and the 20% by 2020 consumption reduction deadline. It's clear that additional targets for urban conservation and agricultural water use efficiency will be necessary, but these will be addressed in future updates to the Delta Plan. Chapter 4 of the 5th Draft Delta Plan states that potential water supplies may come from improved conservation and water use efficiency in the urban and agricultural sectors, local groundwater and surface storage, conjunctive management, recycled water, and drinking water treatment, groundwater remediation and desalination.

2.7 Groundwater Management in the Delta Plan

Background

Groundwater in California constitutes a significant percentage of the state's water supplies. According to DWR studies cited in the 5th Draft Delta Plan, groundwater provides for roughly 20 to 40 percent of the state's combined urban and agricultural water use, depending on water year type, with about 75 percent used for agricultural irrigation and the remainder for urban uses. Over 40 percent of Californians rely on groundwater for part of their water supply, and many small to moderate-sized towns and cities are entirely dependent on groundwater for their drinking water systems. With groundwater playing such a critical role in California's water supply, should groundwater use be addressed in the Delta Plan?

Opinions

Based on responses from Mentors, stakeholders are split on the issue. Some believe the issues regarding groundwater management are too complex and political to be included in Delta Plan and instead should be addressed at the regional level through IRWMPs. These stakeholders believe the DSC does not have the authority to regulate groundwater use and should not as the majority of groundwater pumping occurs outside the geographic boundaries of the Delta.

In contrast, other stakeholders believe the Delta Plan should use a holistic approach and address all water resources, including groundwater. Provisions to guide groundwater management in the Delta Plan would create economic and regulatory incentives for groundwater management to reduce reliance on the Delta.

5th Draft Delta Plan

Although the 5th Draft Delta Plan does not include regulatory policies for groundwater management, the plan does include three recommendations related to sustainable groundwater management:

- Encourage local agencies that depend on groundwater to prepare sustainable groundwater management plans.

- Encourage DWR to coordinate with other local, state, and federal agencies to update Bulletin 118, which describes groundwater basins throughout the state.

- Encourages water suppliers that receive water diverted or exported from the Delta watershed and that receive a significant percentage of their long-term average water supplies from groundwater to develop and implement sustainable groundwater management plans.

This page intentionally left blank

SECTION 3: CONSIDERATIONS FOR DEVELOPING SUPPLEMENTAL SUPPLIES

3.1 Overview

Water users with diverse water supply portfolios have more flexibility and are less susceptible to supply shortages. The basic water management strategies that Delta water rights holders would pursue to increase regional water self-reliance involve increasing supplies and decreasing demand. Typically, these strategies involve aggressive conservation measures, water purchases or water transfers, development of local surface supplies, groundwater management/use, recycling, and desalination.

This section provides an overview of the challenges commonly associated with securing supplemental supplies and managing demand. This general discussion is based on Water Leader experience and not on Mentor responses.

3.2 Water Conservation and Demand Management

In planning for future water supplies, most major urban water users account for a foreseeable level of increased conservation in addition to existing conservation efforts. Throughout the state, residential, commercial, and industrial sectors have reduced water demand through conservation, and to a lesser extent, through water recycling. Because water conservation is already being practiced and will increase in the future, it will be more difficult to implement substantial cutbacks in water use in the future. Demand hardening refers to the increasing difficulty and expense of achieving short-term water conservation levels during shortages as more long-term conservation measures are implemented and water-use efficiency is maximized. As described by DWR:

> Demand hardening occurs when agencies implement water conservation programs that result in permanent reductions in water use, such as retrofitting plumbing fixtures or installing low-water-use landscaping. These measures lessen agencies' ability to implement rationing to reduce water use during droughts, and can result in great impacts to urban water users (e.g., loss of residential landscaping) when rationing is imposed. (DWR, 2005)

Thus, the urban water users that have historically been most effective in managing water demand through conservation may have the least opportunities for achieving further savings in the future.

3.3 Water Recycling

Developing water recycling projects requires cooperation with wastewater agencies and the construction and operation of water recycling treatment plants and distribution pipelines. Although water recycling is becoming increasingly common in California, it is not universally accepted by all communities and for all permitted uses. Community support for recycled water supplies and its application for even non-potable uses sometimes present a challenge for implementation.

3.4 Water Purchases and Transfers

Short-term and long-term water purchases or transfers from other existing water-rights holders represent a potential source of supplemental supplies. Since the U.S. Bureau of Reclamation and DWR's

commitments to existing contractors and to the protection, restoration, and enhancement of fish and wildlife habitat, preclude new water supply contracts/agreements for the SWP and Central Valley Project (CVP), potential sources of water purchases and transfers are often limited to other existing contractors with surplus water during certain water years or only in the short-term. Considerations for water purchases and transfers include restrictions associated with entitlements, contracts, and water rights; Delta pumping restrictions; and wheeling arrangements.[1] Although existing infrastructure is sometimes used through agreements with neighboring agencies to convey water to the recipient of the water purchase or transfer, if and when supply and system capacity is available, construction or expansion of interties or connecting pipelines may also be necessary.

3.5 Local Surface Water Supplies

The availability of local surface water supplies is subject to existing water rights and users, and regulatory restrictions associated with fisheries, aquatic habitat and species, riparian habitat, and water quality to maintain other beneficial uses. Acquiring regulatory approvals for the construction and operation of new surface water diversion structures can be extremely challenging. New surface water supplies may also require new treatment, storage, or transmission facilities. Since the availability of surface water supplies varies greatly from year to year, new storage facilities are needed to allow water agencies to store water when surface water is abundant. The technical and institutional considerations involving the development of new surface water supplies often make such options infeasible.

3.6 Storage

Very few agencies have constructed major surface water storage reservoirs in Northern California in recent decades due to ecological impacts, cost, availability of suitable sites and other issues. However, in recent years some agencies have been successful at acquiring the necessary approvals for projects to increase storage at existing reservoirs. The ability of a region to acquire, through agreements with other agencies, use of a portion of an existing storage facility is uncertain; the terms of such agreements favor the dry-year and seasonal supply needs of the reservoir owner/operator.

3.7 Conjunctive Water Use

Conjunctive use of a groundwater basin is an option only for users that currently utilize groundwater. In some regions water quality issues, long-term sustainable yield, production rates, restrictions on appropriative rights, and existing regional and local groundwater management policies, ordinances and practices can greatly limit the availability of supplemental groundwater supplies and opportunities for conjunctive use projects.

3.8 Regional Desalination

Regional desalination involves the construction of seawater desalination facilities to produce potable water supplies by reverse-osmosis technologies. At least conceptually, regional desalination can provide year-round supplies during all hydrologic year types. While there are no restrictions on the availability

[1] Wheeling arrangements are agreements to use existing infrastructure owned by a third party to transport/convey water from a source to a customer.

of seawater, this option would likely involve substantial facility siting considerations since regional agencies would have to build and operate intake and outfall structures, pump stations, treatment plants, and transmission pipelines. In addition to infrastructure costs, the energy consumption requirements of desalination facilities are typically very high when compared to other water supply sources, which makes desalination cost-prohibitive for many regions. Further, numerous regulatory and permitting issues are associated with the desalination process, including protection of aquatic resources, water quality, and brine disposal issues. For these reasons, desalination may be a feasible option in only a limited number of regions.

This page intentionally left blank

SECTION 4: STRATEGIES AND SUCCESS STORIES

The Delta Plan lists a number of strategies to reduce reliance on the Delta through improved regional water self-reliance. The Mentors also provided ideas for such strategies, as well as examples of success stories from around the state and descriptions of their own agencies' actions.

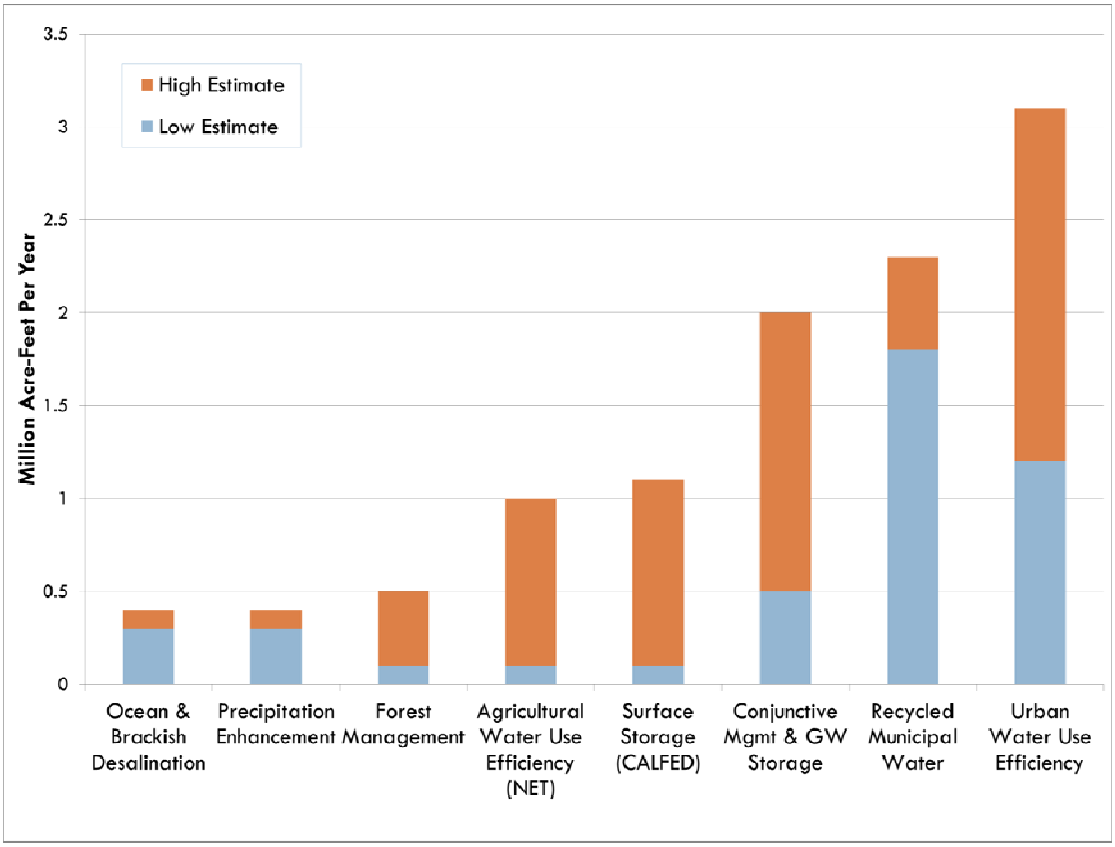

FIGURE 2: STRATEGIES TO INCREASE WATER SUPPLY AND REDUCE DEMAND (ADAPTED FROM 5TH DRAFT DELTA PLAN)

The top three strategies in the Delta Plan, in terms of water savings potential, were mentioned by Mentors:

- Urban Water Use Efficiency
- Recycled Municipal Water
- Conjunctive Management and Groundwater Storage

However, the second most common strategy mentioned by Mentors – desalination – has the least potential of the strategies listed in Delta Plan. According to one Mentor, "the key to improving regional self-sufficiency is minimizing regulation that might restrict agencies from investing in regional supplies." The effect of regulation may not be directly measurable but should nonetheless be considered in efforts to strengthen regional self-sufficiency.

Mentors highlighted several examples of regional self-sufficiency success stories that can contribute to the coequal goals:

- Regional water supply reliability
- Water conservation/efficiency
- Groundwater recharge
- Water storage
- Reuse/recycling
- Stormwater management
- Desalination

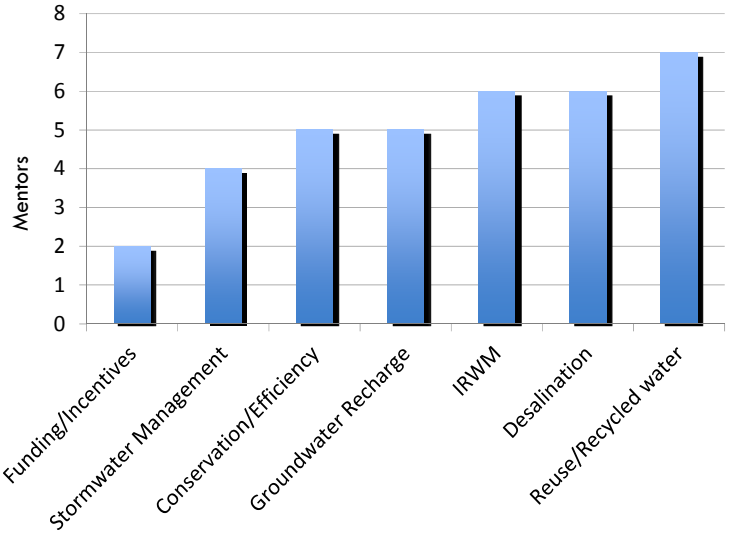

FIGURE 3: MENTOR SUGGESTED STRATEGIES TO INCREASE WATER SUPPLY AND REDUCE DEMAND

4.1 Recent and Current Projects

The following cases describe recent or current success stories of improvements in self-sufficiency of water supplies. These stories provide examples of what could be implemented in other regions to help lessen dependence on Delta water supplies.

LOS VAQUEROS RESERVOIR: Contra Costa Water District (CCWD) built the Los Vaqueros Reservoir in the mid-1990s, funded locally by CCWD customers, to serve as a water quality reservoir. Los Vaqueros (Figure 4) is an off-stream reservoir filled by water diverted from the Delta. Because CCWD is 100% dependent on the Delta, customers were previously subject to seasonal fluctuations in water quality, such as high salinity levels, prior to construction of Los Vaqueros. Currently, CCWD diverts water from the Delta when water quality is good and stores it in Los Vaqueros. As water quality declines in the Delta (late summer and early fall), CCWD releases water from the reservoir to blend with water diverted from Delta intakes. This project provides water quality benefits to customers while also providing an environmental benefit in the Delta using an intake that uses "positive barrier" screens that run parallel to the flow of water on Old River allowing water diversions without impacting fish. In addition, CCWD practices a "no diversion" period when intakes are shut down to protect fish.

FIGURE 4: LOS VAQUEROS RESERVOIR BEFORE EXPANSION

In 2011, CCWD began construction to expand Los Vaqueros after a decade of studies on an expansion (Figure 5). Studies included several options with local, regional, state, and federal partners.

In April 2011, CCWD moved forward with a locally funded expansion to provide benefits including improving water supply reliability and water quality for CCWD customers and protecting Delta fisheries through flexible operation of pumping facilities and fish screens. The construction underway will increase the capacity of the reservoir from 100,000 acre-feet to 160,000 acre-feet. Although this is currently a local project, opportunities remain for partners to utilize the expanded capacity or for a larger expansion project.

FIGURE 5: LOS VAQUEROS DAM DURING CONSTRUCTION - SUMMER 2011

CITY OF LONG BEACH CONSERVATION (Long Beach, 2010): The City of Long Beach has had a conservation program in place since the 1990s. In 2005, it went one step further and adopted prohibitions on certain water uses. Conservation measures used by the City include:

- Expanded use of recycled water;
- Landscape ordinance and turf replacement program;
- Requiring water conservation devices on outdoor hoses and commercial sinks;
- Requiring recirculation of wash and rinse water at commercial laundries and car washes;
- Prohibiting any water use resulting in excessive or unreasonable runoff; and
- Prohibiting excess use or loss of water due to breaks or leaks in plumbing or distribution systems.

The conservation program has successfully reduced use and helped meet demand. Approximately 34% of the City's potable water demand is met through conservation, and between 1980 and 2010, per capita water consumption in Long Beach has declined 34% from 167 gallons to 110 gallons.

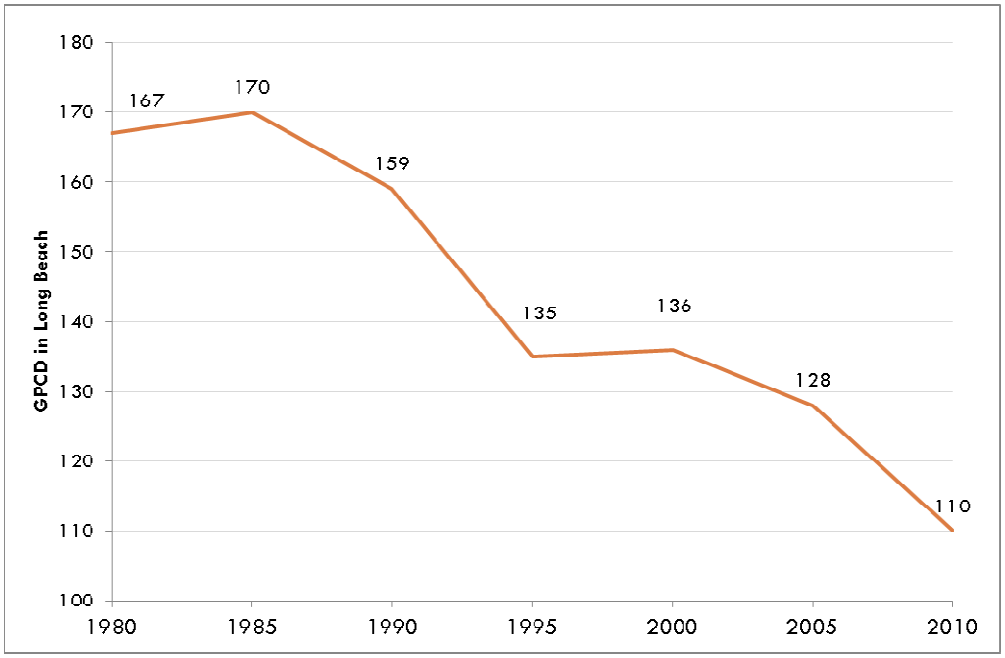

FIGURE 6: DAILY PER CAPITA WATER USE (GPCD) IN LONG BEACH (ADAPTED FROM 2010 UWMP)

SANTA CLARA VALLEY WATER DISTRICT'S DIVERSIFIED WATER PORTFOLIO (SCVWD, 2010):

Santa Clara Valley Water District (SCVWD) provides water for approximately two million people in 15 cities throughout Santa Clara County. SCVWD relies on multiple sources of water:

GROUNDWATER — SCVWD stores the majority of its local and imported water reserves in local aquifers through managed groundwater recharge. SCVWD operates and maintains 18 recharge systems, including over 70 off-stream ponds totaling more than 320 acres and 30 local creeks. SCVWD also participates in an out-of-county banking program with the Semitropic Water Storage District.

LOCAL SURFACE WATER — SCVWD manages 10 local reservoirs for the immediate treatment and delivery of water to its retail agencies, for groundwater recharge and storage in local aquifers, and for flood control.

IMPORTED WATER — SCVWD typically imports less than its contractual amounts from the SWP and CVP. SCVWD routinely acquires supplemental imported supplies through short-term and long-term water transfers, water exchanges, and groundwater banking activities.

RECYCLED WATER — SCVWD works with local wastewater entities to promote recycling at four wastewater treatment plants owned and operated by cities within Santa Clara County.

DEMAND MANAGEMENT — SCVWD implements water use efficiency, water conservation, and demand management programs to meet long-term water reliability goals and short-term demand.

Figure 7describes SCVWD's projected water supply and demand comparisons based on 2002 data in 5-year increments from 2015 through 2035.

Source	Demand Year				
	2015	2020	2025	2030	2035
SWP	64,000	64,000	64,000	64,000	64,000
CVP	108,100	108,100	108,100	108,100	108,100
Local Supplies	145,020	145,020	153,800	153,800	153,800
Recycled Water	18,680	22,280	25,780	29,180	29,380
SFPUC	61,000	63,700	63,850	63,850	63,850
New supplies/conservation per Water Master Plan	0	0	0	0	3,790
Total Supplies	**396,800**	**403,100**	**415,530**	**418,930**	**422,920**
Demand before Conservation Savings (1992 base yea	438,820	460,910	483,120	507,870	521,420
Demand after Conservation Savings	**375,720**	**384,810**	**396,420**	**409,370**	**422,920**

FIGURE 7: SCVWD SUPPLY AND DEMAND COMPARISON (ACRE-FEET), NORMAL YEAR – 2002 (ADAPTED FROM SCVWD 2010 UWMP)

ORANGE COUNTY WATER DISTRICT GROUNDWATER REPLENISHMENT SYSTEM: The Orange County Water District (OCWD) is at the forefront of implementing regional strategies to lessen their reliance on imported water from the State Water Project and the Colorado River. OCWD manages and maintains a vast groundwater basin that provides most of northern and central Orange County's drinking water. Over the years, OCWD has continually purchased portions of the Santa Ana River channel for groundwater recharge and now owns over 1,000 acres. OCWD has also invested in infrastructure improvements to maximize groundwater recharge. Improvements include rubber dams on the Santa Ana River to direct flows into the groundwater recharge basins, pumping stations, miles of pipelines, and a sophisticated control system.

The most recent improvement is the Groundwater Replenishment System (GWRS). The system provides purified sewer water that is transported through a 13-mile pipeline into two separate groundwater recharge basins. The system provides a year-round source of high quality water for groundwater recharge. Water used in the GWRS is first treated at the Orange County Sanitation District (OCSD). OCSD collects more than 200 million gallons of wastewater per day and removes a high degree of impurities through several processes. The wastewater undergoes treatment through bar screens, grit chambers, trickling filters, activated sludge, clarifiers, and disinfection processes before it is sent to the GWRS. After wastewater is treated at the OCSD, it flows to the GWRS where it undergoes a state-of-the-art purification process consisting of microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide. The product water is near-distilled-quality.

FIGURE 8: OCWD GROUNDWATER RECHARGE SITE (SOURCE: OCWD)

The GWRS has a current production capacity of 70 million gallons of water per day and a total production of 23.5 billion gallons per year. After water is treated with the three-step process at the GWRS, approximately 35 million gallons per day of GWRS water are pumped into injection wells to prevent seawater intrusion. The other 35 million gallons per day are pumped to recharge basins in Anaheim where the GWRS water filters through sand and gravel to replenish the deep aquifers in Orange County's groundwater basin.

FIGURE 9: OCWD'S GROUNDWATER REPLENISHMENT SYSTEM (SOURCE: OCWD)

The cost to design and construct the GWRS project was $481 million. The project produces enough water for nearly 600,000 people. It uses less than half the energy required to pump imported water from Northern California to Orange County. It uses less than one-third the energy it takes to desalinate ocean water and is one of the most celebrated civil engineering and water reuse projects in the world.

ONE WATER ONE WATERSHED PLAN: The One Water One Watershed Plan (OWOW) is the Santa Ana Watershed IRWMP prepared under the direction of the Santa Ana Watershed Project Authority (SAWPA). The OWOW plan encompasses all sub-regions, political jurisdictions, water agencies and non-governmental stakeholders within the Santa Ana watershed. The OWOW plan considers all types of water including imported, local surface and groundwater, stormwater, and wastewater effluent as a single water resource.

The OWOW plan is an attempt to change the way water is managed in the watershed from reliance on large centralized infrastructure projects to a systems approach in which decentralized facilities such as groundwater basins and desalinization plants are used to complement existing centralized facilities. Decentralized facilities must provide benefits across boundaries within the entire watershed.

The OWOW plan addresses four main issues that could impact future water demand and supply in the Santa Ana region:

- Climate change;
- Drought in the Colorado River basin;
- Reduced water supply from the Delta; and
- Population growth and development.

FIGURE 10: COMPONENTS OF AN IDEAL OWOW PROJECT (SOURCE: SAWPA)

Some of the quantifiable targets documented in the OWOW plan are:

- Recycle and reuse 100% of the wastewater in the watershed;
- Store water to account for half of watershed demand for 3 years;
- Reuse all of Santa Ana River flow at least once;
- Reduce potable water use 20% by 2020; and
- Capture and recharge 80% of rainfall.

Projects included in the OWOW plan are mostly watershed-wide in their approach and will provide multiple benefits to more than one region or agency within the watershed. Projects focus on water supply, water quality, habitat restoration/flood control, or recreational opportunities. OWOW projects should have multiple benefits, for example: groundwater recharge, water quality improvements, ecosystem restoration, and reduction of erosion and sedimentation. Much of the OWOW plan is dedicated to selecting candidate projects and prioritizing each project for funding. A total of 297

projects were evaluated and ranked in the OWOW plan, which will be considered for funding in the future.

4.2 Summary of Success Stories

These success stories from both northern and southern California exemplify that some water suppliers are already improving regional self-reliance and reducing dependence on water from the Delta and other outside sources. From increases in local water supply, to mandates on water conservation, to reusing wastewater and recharging groundwater basins, water agencies and districts across the state are investing in regional solutions. Lessons learned from these success stories related to strengthening regional self-reliance are:

- Benefits from a flexible and forward-thinking original design (Los Vaqueros Reservoir)
- Values of regional stakeholder involvement (Los Vaqueros Reservoir and OWOW)
- Customers/Beneficiaries pay for projects (Los Vaqueros Reservoir and OCWD)
- Projects should provide multiple benefits:
    - Los Vaqueros Reservoir – supply reliability, water quality, and Delta ecosystem benefits;
    - OCWD – energy and cost savings, water recycling, and groundwater recharge;
    - OWOW – habitat restoration, water quality improvements, stormwater capture and reuse, and involvement of stakeholders from different regions.
- Focus on multiple strategies rather than relying on silver bullet (SCVWD and Long Beach)
- Value of making long-term investments (OCWD)
- Conservation can delay new supply infrastructure investment and reduce reliance on imported water even as overall demand increases.

SECTION 5: COST-BENEFIT ANALYSIS OF DELTA PLAN

Background

A cost-benefit analysis is an economic decision-making approach that attempts to quantify the value of implementing a policy or action by comparing the expected quantifiable costs to the expected quantifiable benefits. When benefits outweigh costs, the policy or action is considered cost-effective and generally worth implementing. Therefore the scope of what is included in the quantifiable costs and benefits can alter the decision's outcome. The Delta Reform Act requires the Delta Stewardship Council to prepare, adopt and implement the Delta Plan regardless of the cost. However, many Mentors still acknowledged the need for a cost-benefit analysis.

Opinions

Many Mentors argued that a cost-benefit analysis should reflect users of Delta water. For example, consider the benefits of the Delta Plan to statewide water users compared to the cost of the Delta Plan to statewide water users.

Conversely, some Mentors opted for a geographic approach to the cost-benefit analysis. Some argue these analyses should compare regional costs to regional benefits, while others believe the Delta Plan is a statewide document and should be evaluated on the same broad level.

Several Mentors pointed to the cost of developing new water sources if the Delta Plan is not implemented and believed these costs should be compared to the benefits for such new water supplies. They further believe the beneficiaries of these projects should pay the full cost of implementing them.

Many Mentors agreed the benefits of the Delta Plan must be compared to the cost of doing nothing. In an uncertain Delta, these Mentors admit the cost of doing nothing is, at times, impossible to quantify.

Mentors acknowledge several costs that should be considered during a cost-benefit analysis:

- Infrastructure construction costs
- Infrastructure operation and maintenance costs for the life of the infrastructure
- Regulatory compliance costs
- Loss of economic activity generated by water use and water reliability as the result of a Delta levee system failure and other reductions in water supplies from the Delta
- Environmental impacts
- Environmental restoration costs
- Social impacts

In establishing the DSC as the state agency responsible for the Delta Plan, the Delta Reform Act of 2009 makes no mention of the cost to implement the plan, nor does it say the project may be abandoned if it is not cost-effective. However, the "elephant in the room" is the potentially dramatic cost to achieve the coequal goals.

Recognizing this challenge, the 5th Draft Delta Plan includes a Finance Plan Framework outlined in Chapter 9. The current Finance Plan Framework allows for both immediate and near-term needs. The 5th Draft Delta Plan also recognizes the global recession and statewide budget crisis that limit the resources available to fund Delta improvements. Two of the guiding principles of the Finance Plan Framework are "Beneficiary Pays" and "Stressors Pay." This refers to the entities that bear the cost of implementation; stakeholders or agencies that benefit from the Delta Plan pay for the cost of implementing it and stakeholders and agencies that have a negative impact on the Delta share the burden.

SECTION 6: CONCLUSIONS

The Delta provides a water supply source and conveyance conduit to water users statewide. It is an important ecosystem and home to aquatic and terrestrial species that depend on and thrive in the Delta, and it contains a unique economic and cultural environment all its own, based on family farms and recreation unlike any other place in the world. The Delta Plan represents the latest attempt to address the complex and dynamic issues affecting the Delta, and it is being developed in an environment focused on regional and state-wide solutions to water supply issues. The ultimate implementation of the Delta Plan, like the Delta itself, remains a contentious and complicated issue, as reflected in the variety of opinions presented throughout this report.

After researching the issues surrounding the Delta and following the development of the Delta Plan, the Water Leaders of 2011 answered a similar set of questions as those posed to the Mentors. The Water Leaders, like their Mentors, have a range of opinions yet agree on a number of key issues. The Water Leaders believe it is important for all stakeholders involved in the Delta Plan to look within the Delta, their own regions, and across California to identify innovative and collaborative approaches that will ultimately lead to achieving the coequal goals of the Delta Plan. Table 1 summarizes the questions and results. The last column in the table shows the numbers of Water Leaders that agree with a particular general response for each of the questions. Questions 1, 5, and 6 allowed for multiple responses.

TABLE 1: WATER LEADER RESPONSES TO MENTOR QUESTIONS

QUESTION		GENERAL RESPONSE	NUMBER OF WATER LEADERS
1	What is the purpose of the Delta Plan and what will be the key outcomes?	Providing vision and strategy	12
		Focusing on coequal goals	8
		Providing regulatory direction	3
2	What do you think the role of the Delta Plan is intended to be in relation to IRWMPs or the authority of state agencies?	Regulatory	2
		Guiding	17
		Not sure	1
3	How should the Delta Plan be implemented at both the regional and state levels if it is to be "legally enforceable?"	Existing legal enforcement authority	9
		Should not be legally enforceable	8
		Not sure	3
4	Should the reach of the Delta Plan be statewide, restricted to the Delta watershed, or limited to the statutory Delta?	Limited to Delta boundaries	4
		Extended beyond Delta boundaries	8
		Some sections should be statewide while others should be limited to Delta	8

QUESTION		GENERAL RESPONSE	NUMBER OF WATER LEADERS
5	What are the key strategies needed to improve regional self-sufficiency?	Conservation and Efficiency	15
		IRWM	15
		Recycled Water	14
		Groundwater Recharge	11
		Funding & Incentives	11
		Stormwater Management	9
		Desalination	6
6	What are integral things to consider in a cost-benefit analysis of the Delta Plan?	State & Federal issues	3
		Affected regions	7
		Implementation costs	13
		Other – ecosystem, society, and economics	4
7	Should the Delta Plan address groundwater use to reduce reliance on Delta Water, and if so, how?	Yes, address regionally	9
		Yes, holistic approach	11
8	To achieve the goals of the Delta Plan, how should the Delta Stewardship Council balance achieving compliance through regulation versus through offering incentives?	A balance of both	7
		Regulations needed first	4
		Incentives needed first	6
		Questioned DSC's authority to regulate	3
9	In light of the emphasis included in the first draft of the Delta Plan to develop water supplies outside of the Delta, what criteria should govern a region's responsibility to complete costly or controversial alternative supplies?	Statewide analysis	3
		Regional analysis	5
		Dictated by Delta Plan	2
		Dictated by local region	10
10	How strong should regional water strategies and self-sufficiency be to improve conditions in the Delta?	Important, but not solution	11
		Is the key	7
		Not sure	2

Similar to the responses from the mentors, the Water Leaders of 2011 believe the purpose of the Delta Plan is multifaceted. However, the majority (60%) of the Water Leaders agree the primary role of the Delta Plan is to provide vision and strategy on a local, regional, and state-wide level. Along the same lines, almost all (85%) of the Water Leaders think the Delta Plan should be a guiding document, as opposed to regulatory, as it relates to IRWMPs or local and regional authorities. Water Leaders are split as to how the Delta Plan should be implemented and ultimately enforced. Half of the class believes the local authorities in regions across the state should be responsible for legally enforcing the Delta Plan while the other half of the class does not think the Delta Plan should be legally enforceable at all.

The Water Leaders of 2011 are divided in terms of whether the reach of the Delta Plan should be statewide, restricted to the legal boundary of the Delta, or a mix of both. 40% of the class agreed with

the response that parts of the Delta Plan should be statewide in the approach while other parts should be solely restricted to the legal boundary of the Delta. Another 40% of the class believes that the entire Delta Plan should extend beyond the legal boundary of the Delta while only 20% of the Water Leaders think the Plan should only address issues within the legal boundary of the Delta. In terms of a cost-benefit-analysis, the 2011 Water Leaders believe that implementation costs are the most important to consider.

The Water Leaders of 2011 believe the top three strategies to improve regional self-sufficiency across the state are water conservation, IRWMPs, and recycled water. Implementing water conservation goals, writing IRWMPs, and using recycled water to meet demands are three proven measures that are already working to reduce regional reliance on water exports from the Delta. The Water Leaders believe offering funding and incentives, recharging groundwater aquifers, and developing stormwater management plans contribute to improving regional self-reliance, but are not key strategies. On the whole, the Water Leaders do not see desalination as a means to solving the regional self-sufficiency problem.

More than half of the Water Leaders (55%) see regional self-sufficiency as important, but not the solution to solving the problems in the Delta. 35% of the Water Leaders view regional water strategies as the key to improving conditions in the Delta while the 10% of the class remains unsure. Policies, recommendations, and examples of success stories are all part of the Delta Plan and will provide guidelines to help implement regional self-sufficiency solutions. Similar to what is being accomplished by the Santa Clara Valley Water District, the Orange County Water District, and the City of Long Beach, the Water Leaders believe it will be the responsibility of each region to develop region-specific plans to implement innovative means to create self-sufficiency. The Delta Plan should assist and guide in this process and outline incentives, but should not govern what to do or how to implement local plans and programs.

IMPLEMENTATION OF REGIONAL SELF-SUFFICIENCY

Water Leaders developed the following three ideas for improving the implementation of regional self-sufficiency policies and recommendations in the Delta Plan.

1. **Delta Plan Appendix with self-sufficiency solutions.** Water Leaders recommend including an appendix in the Delta Plan with self-sufficiency solutions. This appendix would have sound technical solutions and would be updated on an as-needed basis with the Delta Plan. Local regions would be able to use the information in this appendix to solve their own self-sufficiency problems. While the Delta Plan provides policies, recommendations, and examples of success stories as guidelines to help implement regional self-sufficiency solutions, it would also provide a list of actual solutions with details on effectiveness based on region, implementation steps, and costs. The Delta Plan provides examples of solutions, such as capturing urban storm water runoff for groundwater recharge and outdoor irrigation, and other projects that make water available that may have historically been ignored, underutilized, or unavailable. Examples such as these should be continually built upon and provided to local agencies as the plan is updated and adapted to the State's increasing knowledge base.

2. **Support at the local level with funding and problem solving.** Regions will need support from the state to both fund and develop regional strategies. The 2011 Water Leaders believe implementation costs are the most important factor to consider in addressing Regional Self Sufficiency in the Delta Plan. The burden of the costs to reduce reliance on the Delta's water supply, as well as other statewide projects with regulations, such as Senate Bill X7-7, will fall on local agencies. While opportunities for grants, loans, and other forms of funding will help local agencies become more self-sufficient, it can still be difficult for many such agencies to secure funds. In addition, local agencies are trying to do what they can with the funding sources they have, but may not always find support for their projects from the State. State agencies and the Delta Stewardship Council may have to be more open to and supportive of innovative solutions, and help local agencies align their projects with the co-equal goals of the Delta Plan. These efforts can be focused on projects that offer a reduction decrease in use of Delta water supplies, (i.e., Water Reliability Element discussed in the Delta Plan) to local agencies that are already on track to develop more local, reliable supplies.

3. **Regulatory consistency with policies and recommendations.** The policies and recommendations in the Delta Plan should to be consistent with other state regulations. Each state agency has their own policies, regulations, and guidance principles that uphold their individual missions and goals. However, state agencies' regulations sometimes conflict with one another and make it difficult for local agencies to comply with all regulations. An effort to align agency goals with the Delta Plan would ensure that state policies, regulations and guidance principles are implemented in a manner that is consistent with one another, as well as with the Delta Plan's co-equal goals. If a conflict arises, state agencies will work collaboratively to resolve the issue, and if needed, rework compliance requirements so that local agencies can realistically comply with all agency requirements.

REFERENCES

California Department of Water Resources (DWR), California Water Plan Update 2005, 2005.

California Department of Water Resources (DWR), Delta Risk Management Strategy (DRMS) Phase I, 2009.

Delta Stewardship Council, 5th Draft Delta Plan. August 2, 2011.

Long Beach Water Department, 2010 Urban Water Management Plan, 2010.

Orange County Water District (OCWD), Groundwater Replenishment System Press Kit, 2010.

Santa Ana Watershed Project Authority (SAWPA), One Water One Watershed 2010 Integrated Regional Water Management Plan (OWOW), 2010.

Santa Clara Valley Water District (SCVWD), 2010 Urban Water Management Plan, 2010.

This page intentionally left blank

APPENDIX A: SUMMARY OF RESPONSES FROM MENTOR INTERVIEWS

CLASS RESEARCH TOPIC: In the final Delta Plan, how strong should regional water strategies and self-sufficiency be to improve conditions in the California Delta?

The following provides a summary of answers provided by all mentors to questions prepared by the 2011 Water Leaders Class. Responses have been summarized based on the common responses from mentors to questions provided. Whenever possible we have provided majority and minority responses and identified them as such.

Question 1: From your perspective, what is the purpose of the Delta Plan and what will be the key outcomes?

- The purpose of the Delta Plan is to provide a holistic vision for what we want the Delta to look like in the future, coupled with a long-term strategy to get there.
- The vision should include a reliable water supply for the State, a restored Delta ecosystem, flood control, and disaster preparedness.
- The strategies should include performance measures; directions to and coordination among agencies; local actions such as land use and water supply self-sufficiency measures and adaptive management plans.

Question 2: What do you think the role of the Delta Plan (DP) is intended to be in relation to Integrated Regional Water Management Plans (IRWMP) or the authority of state agencies such as the State Water Resources Control Board, Department of Water Resources, and the California Department of Fish & Game?

The Delta Stewardship Council is tasked with preparing and implementing the Delta Plan. The intent of the Delta Plan is to provide a basis for determining if a covered action as defined by the Delta Reform Act of 2009 will be consistent with the Delta Plan. The Council does not have unlimited regulatory authority over actions related to the Delta. The Council is intended to serve as an appellate body that intervenes only when actions are deemed to be inconsistent with the Delta Plan. When asked what the role the Delta Plan should play in regulatory authority of other agencies and in existing plans, our mentors' answers were divided into two major sections: regulatory vs. guiding, and creating vs. coordinating.

Regulatory vs. Guiding

- The majority of mentors believed the Delta Plan should be a guiding document rather than a set of regulations. 85% of respondents believed it was a guiding document versus 5% who believed it was a regulatory document; the remaining 10% were not familiar with the IRWM process.
- The Delta Plan should simply provide a guide or a framework for agencies, or help coordinate agency action. It should not play a regulatory role or override any existing regulations or

agency jurisdictions, but it can set high-level objectives that other entities, such as IRWMPs, should work to meet.

- The Delta Plan should integrate and direct agencies, the legislature, and IRWMPs to work together to implement the plan and meet its goals

Creating vs. Coordinating

- The Delta Plan is a tool to tie together existing regulations and make sure they are consistent and complimentary

- The Delta Plan is a top-down document – like a city General Plan – with a comprehensive set of policies and strategies that other agencies and regulations then need to follow.

Question 3: How should the Delta Plan be implemented at both the regional and state levels if it is to be "legally enforceable"?

In general, responses seemed more focused on the issue of <u>if</u> the Delta Plan would be legally enforceable instead of how. Nearly a third of our mentors believed the plan should not be legally enforceable. Another 21% weren't sure the plan should be legally enforceable. The majority of respondents believed the Delta Plan should be implemented through existing legal enforcement agencies.

<u>Yes, the plan should be legally enforceable:</u>

- The Delta Stewardship Council's work will be regulatory to review consistency with the overall plan. In addition, the Delta Plan will call on other state, regional and local agencies to implement a lot of provisions.

- The Delta Stewardship Council will be responsible to formally review actions that are challenged and make determinations that they are or are not covered by the Delta Plan.

- Covered actions need to be taken seriously to ensure consistency with the Delta Plan.

<u>No, the plan should not be legally enforceable:</u>

- If the Delta Plan is made to be legally enforceable, it will lead to a constant fight between large numbers of stakeholders and agencies and ultimately go nowhere.

- Making the Delta Plan legally enforceable was not the original intention; instead it is a master plan.

Question 4: Should the reach of the Delta Plan be statewide, restricted to the Delta watershed, or limited to the statutory boundaries of the Delta?

Majority of responses indicated that the Delta Plan should apply beyond the Delta to cover actions that could have an impact on the Delta system. At the same time, some responses preferred the plan to focus on the Delta primarily out of concern that a state-wide plan would be heavily debated and never implemented.

- Half of our mentors believed the reach of the Delta Plan should be statewide to be successful to ensure coverage of projects that may not be physically located in the Delta, but could have impacts on the Delta system.

- The second most popular response was a combination of Delta and statewide boundaries. 39% of our mentors believed the reach of the Delta Plan should depend on the individual objectives with some things being more appropriate on a statewide level and other being more appropriate within the Delta Regulations should focus on the Delta, but the policies should be applicable state-wide.

- A small minority believed the Delta Plan should initially just focus on the Delta to allow an opportunity for implementation and evaluate effectiveness.

Question 5: What are the key strategies needed to improve regional self-sufficiency? Do you have any good examples/success stories to share?

- All strategies should be on the table. Each region has a unique set of resources and opportunities to improve self-sufficiency. Integrated Regional Water Management Plans (IRWMPs) can help each region identify the resources available and opportunities for developing supplemental supplies.

- Need to identify funding for these projects. Need to increase utility rates and create financial incentive programs to encourage water districts to pursue these projects.

- Key strategies include: water recycling and reuse; groundwater recharge; stormwater retention; desalination; local storage; groundwater recovery; etc.

- Success stories include:

    - San Diego County Water Authority: water transfer agreement with Imperial Irrigation District

    - Orange County Water District (water recycling); Santa Ana Watershed Project Authority (One Water One Watershed)

    - Metropolitan Water District (Diamond Valley Reservoir)

    - Long Beach Water Department: aggressive water conservation measures

- Monterey County Water Resources Agency (Salinas Valley Rubber Dam Project)
- Inland Empire Utilities Agency (Chino Basin GW Recharge Project)
- DWR (proposed Sites Reservoir)
- Contra Costa Water District (Los Vaqueros Reservoir Expansion)

Question 6: How does your agency (or you or your organization) integrate conservation, recycling, desalination or other water supplies in development of water resource portfolios that are sustainable and strengthen local self-sufficiency?

A general theme of the answers is that true sustainability and self-sufficiency will require a well-rounded portfolio approach by incorporating a combination of conservation, diverse infrastructure development, new water supplies where available, and other minor miscellaneous efforts. Breaking down the various parts in order of popularity:

Conservation is the top recommendation out of the mentor answers.

Examples of conservation, in no particular order, include:

- Consumer trade-in/incentive programs
- Education programs
- State funded bonds for conservation projects
- Water conservation based pricing; charging customers for the true cost of water

Relevant commentary included:

- Conservation only aids in sustainability if the conserved water is stored. Otherwise, conservation will only create a larger future shortage.
- For agriculture, conservation produced limited returns as most users have already adopted the high-return conservation measures.
- Infrastructure
- Developing a diverse portfolio of water sources and programs is key to sustainability and self-sufficiency.

Examples of infrastructure, in no particular order, include:

- Water storage, either surface or conjunctive use groundwater
- Stormwater capture

- Increased use of recycled water
- Development of New Supplies

  In addition to conservation, many agencies have invested in new water supplies such as recycled water and desalination. Among our mentors, developing new supplies was widely recognized as very difficult or impossible. However, one mentor believed that if a new supply could be found, it would provide for the best solution.

- Other minor projects

Other possible projects to aid in sustainability include:

- Public/Private partnerships are likely to emerge in the future as public funding for projects decreases and private entities step in to fill the void.
- Increased surface water storage by expansion of existing reservoirs or construction of new reservoirs
    - Expansion of Los Vaqueros Reservoir
    - Expansion and redesign of Forest Lake Reservoir
    - Integrated flood management projects

Question 7: What are integral things to consider in a cost-benefit analysis of the Delta Plan?

There were very few commonalities in terms of the approach for cost-benefit analysis. The scope of the analysis ranged drastically, from very micro to very macro, as illustrated by the list below:

- **New Production Only** – Cost of new water produced vs. benefit of new water to new water users. This approach prevented spreading the cost of new water across all water users. Rather, those relying on the new water were paying 100% of its cost.
- **Water Users Only**
    - Cost to users of water vs. benefit to users of water.
- **Regional Approach**
    - Cost to regions vs. benefits to regions.
- **State-wide Approach**
    - Cost to State vs. benefits to State.

The Water Users Only approach was reflected in the majority of mentors' answers. The Water Users approach compares the costs to consumers to the benefits to consumers. This is a common approach to infrastructure financing in the State. Many mentors also noted the importance of considering the cost of doing nothing. For example, what are the future costs of levee failures and flood damage; how does that compare with the costs of implementing the Delta Plan. One mentor summed up the controversy over the cost of the Delta Plan by stating that "willingness to spend must equate to willingness to pay."

In addition there were a few hybrid options mentioned including:

- A comparative Water User cost-benefit vs. State-wide cost-benefit approach; and
- A regional cost-benefit approach that was weighted proportionally based on benefit gained.

Insightful comments:

- Willingness to spend must equate to willingness to pay.

Costs must include

- Infrastructure construction
- Infrastructure operation and maintenance over life of infrastructure
- Regulatory compliance costs
- Economic activity generated by water use
- Economic activity generated by water reliability
- Environmental impacts
- Environmental restoration costs
- Social impacts

Question 8: Should the Delta Plan address groundwater use to reduce reliance on Delta water, and if so, how?

Our mentors were split on whether the Delta Plan should address groundwater specifically or not.

- Yes. Half of the mentors believed the Delta Plan should address groundwater use by:
    - Promoting sustainable groundwater management
    - Encouraging groundwater recharge
    - Creating economic and regulatory incentives for groundwater management to reduce reliance on the Delta
    - Opportunity for the State to weigh-in on groundwater could exist by looking at the reasonable use doctrine.
- No. Half of the mentors believed groundwater is too complicated and political of an issue to be included in Delta Plan. Groundwater use and management should be addressed at the regional level through the IRWMPs.
- Yes. A few mentors believed the Delta Plan should consider groundwater, and all other water resources, as part of a holistic approach.

Question 9: To achieve the goals of the Delta Plan, how should the Delta Stewardship Council balance achieving compliance through regulation versus through offering incentives?

- Regulation and Incentives

  The majority of our mentors supported a mix of regulations and incentives. The mentors were split on how a regulations and incentives would work together. Some supported a balanced mix in which incentives encourage good behavior and reward agencies that are moving toward the Delta Plan goals while maintaining regulations to ensure compliance. Others acknowledged that it is best when actions are voluntary and not regulatory; incentives should be offered first to spur action and then enforce regulations when they are necessary and there is an agency with regulatory authority. In other words, try the "carrot" first and when necessary resort to the "stick." One mentor believed that regulations are the appropriate course of action where they already exist, but incentives should be offered for actions that can't be regulated.

- DSC should not be a broad regulator

  Three mentors believed that while some regulations will be needed, the Delta Stewardship Council does not have broad regulatory authority. Regulations needed to achieve the goals of the Delta Plan may fall under the authority of existing agencies.

- The Delta Plan has limited regulatory authority; the only regulatory authority is through the acceptance of Certifications of Consistency for covered actions.

Once the Council has developed the Delta Plan, agencies and stakeholders submit will submit certifications of consistency for covered actions describing how the action is consistent with the Delta Plan. According to three of our mentors, this should be the Council's only regulatory action; accepting reports on consistency with the Delta Plan and identifying conflicts between the vision if this plan and the vision of other plans, such as local general plans.

- Incentives

  Two mentors believe that incentives are the best tools for implementing a change in behavior.

Other recurring themes:

- Funding Issues:
  - The Delta Stewardship Council does not have funding to provide any incentives.
  - The Council can help offer incentives by coordinating with other entities and funding agencies to establish standards for receiving grant funding.
  - Incentive programs require funding. The Delta Stewardship Council needs to develop a financing plan.
- Challenges:
  - Finding the right balance of regulation vs. incentives.
  - Selecting the right projects to receive incentive money; making sure that incentives are created in a way that they actually help achieves compliance.
  - Finding funding for incentives.

Question 10: In light of the emphasis included in the first draft of the Delta Plan to develop water supplies outside the Delta, what criteria should govern a region's responsibility to complete costly or controversial alternative supplies?

- Cost Effectiveness/ Cost-Benefit Analysis

  It is important to conduct a thorough examination of the alternatives and look for projects that are cost-efficient and effective. In short, find programs that offer the most for the least. The cost of water to an agency's customers, with and without the development of that water supply must be considered. You must have reliable information coming from many sources for the cost-benefit assessment. Regions should not be forced to do specific types of projects if they are not cost effective.

- Not the Delta Plan's responsibility/ Decision lies with region

  The Delta Plan should not dictate what individual regions are doing, or should be doing. The Delta Plan should just give them the goal. A region's responsibility to complete alternative supplies rests, ultimately with the region.

- Regional self-sufficiency/ Reduced reliance on the Delta

  The legislation sets the policy that must drive this - reduce reliance on the Delta and promote regional self-sufficiency. The degree to which a region relies on the Delta for its water supply should dictate the level of responsibility for developing other water sources. Regions have to diversify their portfolios.

- Environmental Friendliness/Sustainability

- The criteria should consider which supplies are the most environmentally-friendly to use. Each region will need to seriously evaluate environmental trade-offs of water supply projects.

Other Answers:

- Growth of an area. How well the area is doing with the tools they currently have available. Immediate opportunities for development of alternative supplies. Value to the larger system. Cost of water. Water Rights. Technical and Legal Feasibility.

- Cost should not part of the decision.

- Even if the alternative to Delta supply is way more costly, under no circumstances should imports from the Delta be increased.

- Consistency with the Delta Plan should be a requirement for grant funding.

- If an agency meets the requirements of the BDCP, they should have the right to excess Delta supply.