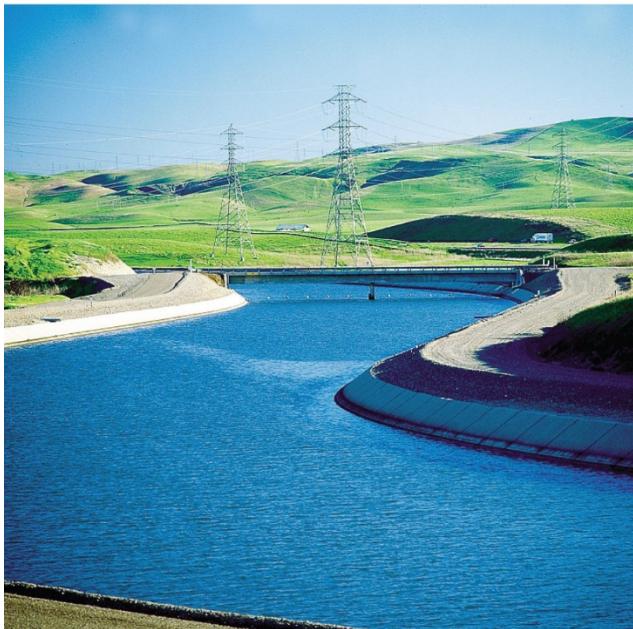


# Executive Summary

(as amended January 2019)



# Executive Summary

The Sacramento-San Joaquin River Delta is the grand confluence of California's waters, the place where the state's largest rivers merge in a web of channels—and in a maze of controversy. The Delta is a zone where the wants of a modern society come into collision with each other and with the stubborn limitations of a natural system. In 2009, seeking an end to decades of conflict over water, the Legislature established the Delta Stewardship Council with a mandate to resolve long-standing issues. The first step toward that resolution is the document you have before you, the Delta Plan.

Though more than 50 miles inland from the Golden Gate, Delta waters rise and fall with ocean tides. The Delta is in fact the upstream, mostly freshwater portion of the San Francisco Estuary, the largest estuarine system on the West Coast of the Americas, and one of California's prime natural assets. It is a major stop on the Pacific Flyway and the portal through which important fish species, including anadromous Chinook salmon, pass on their way to and from their spawning grounds in the interior.

The system of waters in which the Delta is so central has changed dramatically since California became a state. Rivers have been dammed and aqueducts built. Natural flows and fluxes have been disrupted to support cities and make the Central Valley the fruit basket and salad bowl of the nation. Approximately half of the water that historically flowed into and through the Delta is now diverted for human use, never reaching the sea. Much of this diversion occurs at points upstream, before the rivers come down to the Delta; but the last and largest draws take place in the Delta itself. On the southeast edge of the region, near Byron, two sets of mighty pumps extract water for shipment as far south as San Diego.

Two-thirds of California's people and 4.5 million acres of farmland receive some part of their water from the Delta.

The Delta landscape we know is itself the result of a great transformation, from a primeval wetland complex to an archipelago of diked islands, where soils that once grew vast thickets of tules now yield bountiful corn, alfalfa, tomatoes, and many other crops. The Delta is home to about 12,000 people on farms and in small historic communities, and to about half a million in the larger cities that are



pressing into the region from the fringe. More millions come to it for boating, fishing, hunting, bird watching, even windsurfing on its 700 miles of channels. Steeped in history, combining notes of the American heartland and of Holland, the Delta looks and feels like no other place in California. This is a land that people love.

It is not doing so well.

The very shape of the modern Delta is in danger. Farming of peat-rich ground like this always leads to oxidation, the literal vanishing of soil, and thus to subsidence. Many Delta islands now lie 15 feet or more below sea level and depend on aging dikes to prevent the water in adjacent channels from pouring in. Higher river flows in winter or spring, predicted results of climate change, will add to the pressure, and a great earthquake, sooner or later, will shake the region like a paint can on a mixer. Encroaching urbanization, meanwhile, puts more people and property on dangerous ground.

After years of slow decline, the condition of the Delta's watery ecosystem, as measured especially by the population of wild salmon and other native fishes, has gone critical. The list of causes begins, but does not end, with all those water withdrawals, a kind of tax that leaves the system in a condition of chronic drought. The specific, peculiar manner in which the last large gulps of water are withdrawn adds to the ecological cost. The continual introduction of alien aquatic species from around the world is altering the web of life, often at the expense of native and other valued species. Pollution from the vast and busy watershed does its share of harm.

Today, all those who depend on or value the Delta are, in a word, afraid. Delta residents face the possibility of floods from the east when the rivers flow strongly and of salinity intrusion from the west if they flow too feebly. Fishermen, both commercial and recreational, fret about the future of salmon and other species. Water suppliers that receive water from the Delta find those supplies insecure, subject to

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interruption by weather vagaries, levee failures, or pumping restrictions imposed in the desperate attempt to stem the decline of fish.

## **The Coequal Goals, the Delta Stewardship Council, and the Delta Plan**

Since the middle 1980s, California has been looking for ways to secure the natural and human values of the Delta while maintaining its place in the state's water plumbing. These efforts have generally started in hope and ended in impasse. In recent years environmentalists turned to the courts, using the blunt tool of the federal Endangered Species Act to force curtailment of water exports at certain times. In reaction, water suppliers south of the Delta have complained of "regulatory drought."

In 2009 the Legislature made its latest, most determined bid to find solutions, passing the Delta Reform Act and associated bills. First and foremost, it declared that State policy toward the Delta must henceforth serve two "coequal goals":

- Providing a more reliable water supply for California, and
- Protecting, restoring, and enhancing the Delta ecosystem.

These goals, the Legislature added, must be met in a manner that:

- Protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.

By affirming the equal status of ecosystem health and water supply reliability, the Legislature changed the terms of the conversation. It changed them further with the following pronouncement: “The policy of the state of California is to reduce reliance on the Delta in meeting California’s future water supply needs.” Here was recognition that, for the sake of the water system and the Delta both, a partial weaning of the one from the other is required.

The Delta Stewardship Council is the body entrusted with giving practical meaning to these directives. Publication of this Delta Plan completes its first assignment. The product of eight drafts, almost 100 public meetings, and nearly 10,000 comments, the Delta Plan pulls together in one place the steps that need to be taken to meet the coequal goals—measures that, in one way or another, could affect almost everyone in California. The Plan is to be revised every 5 years, or sooner as circumstances change.

The Delta Plan contains 87 provisions, some broad and some narrowly technical, some novel, some commonsensically familiar. What, in essence, does the Plan propose be done differently? At the risk of oversimplification, we can say that it asks California and Californians to do six large things:

- In order to improve and secure our water supply, while taking pressure off the Delta, we must use water more efficiently in cities and on farms, and develop alternative, usually local, sources.
- We must also get much better at capturing and storing the surplus water that nature provides in the wettest years, building reserves that can be drawn on in dry ones.

- To revitalize the Delta ecosystem, we must provide adequate seaward flows in Delta channels, on a schedule more closely mirroring historical rhythms: what the Plan calls natural, functional flows.
- We must also bring back generous wetlands and riparian zones in the Delta for the benefit of fish and birds.
- To preserve the Delta as a place, we must restrict new urban development to those peripheral areas already definitely earmarked for such growth, while supporting farming and recreation in the Delta’s core.
- And we must floodproof the Delta, as far as feasible, mainly by improving levees and by providing more overflow zones where swollen rivers can spread without doing harm.

What about today’s headline issue concerning the Delta—the proposed construction of tunnels to improve the way water destined for export southwards reaches the pump intakes near Byron? This initiative is part of what is called the Bay Delta Conservation Plan (BDCP). The BDCP is a different and more narrowly focused undertaking than the Delta Plan, into which, if certain conditions are met, it will be fused (see section, A Better System: Delta Conveyance).

The Delta Plan is *California’s* plan for the Delta, prepared in consultation with, and to be carried out by, all agencies in the field: the State Water Resources Control Board, ultimate arbiter of water rights and water quality; the California Department of Water Resources, the state’s water planner and also operator of the great State Water Project; the California Department of Fish and Wildlife, responsible for the welfare of the living system of the Delta; the Delta Protection Commission, which oversees land use and development on low-lying Delta islands; and many more agencies, State and local. Add to the list federal players like the Bureau of Reclamation, which runs the Central Valley Project; the U.S. Fish and Wildlife Service; the National Marine Fisheries Service; and the U.S. Army Corps of Engineers. Their cooperation has been promised, and it is vital.

The working parts of the Plan are 73 *Recommendations* and 14 *Policies*. *Recommendations* call attention to tasks being done or to be done by others. *Policies* are legal requirements that anyone undertaking a significant project in the Delta must meet. See the sidebar, From Plan to Reality, for more on the mechanics of realizing the Plan and pages ES-15 to ES-35 for a survey of all 87 provisions.

## FROM PLAN TO REALITY

The Legislature instructed the Delta Stewardship Council to “direct efforts across state agencies.” This “direction” has three distinct aspects.

First of all, the Council is to **coordinate**. It will chair a high-powered committee dedicated to implementing the Plan. The heads of key State and local agencies will be at that table, together with federal representatives. This body will meet for the first time in fall 2013. Agency staffs will work with that of the Council daily.

Second, the Council is to **keep track of progress**. Using specific performance metrics contained in the Plan, and guided by the Delta Science Program (see sidebar, Science at the Center), it will monitor what is actually being done toward Plan goals, and what changes of course may be indicated. The results will be widely publicized.

Third, in certain key areas, the Council can be called upon to **block damaging actions**. The Plan provisions that can trigger this authority are called Policies. To avoid premature encroachment on the work of other agencies, the Legislature devised an indirect path leading to Council intervention.

Actions subject to these Policies are called “covered actions,” but the Council itself cannot declare an action to be covered. It is the proposing agency that makes this determination. Legal standards apply, however, and if an action is questionably deemed not to be covered, the Council or any other party can take the agency to court.

Once an action is determined to be covered, the proposing agency must make sure it is in line with the Policies of the Delta Plan, filing a Certification of Consistency with contents specified in Delta Plan **Governance Policy 1**. If the agency says the action is consistent but another party or citizen thinks it is not, the opponent can then appeal to the Delta Stewardship Council. A Council member or the Council’s Executive Officer may initiate the appeal.

## Where Is the Money?

The Legislature sees “adequate and secure funding” as a need “inherent in the coequal goals.” In order to know what this entails, we need to form a clearer picture of the costs of the work now proposed for the Delta or on its behalf and how those costs might be met. This first edition of the Delta Plan proposes research toward that clarity.

## SCIENCE AT THE CENTER

The Delta Reform Act mandates that the Delta Plan be based on the best available scientific knowledge of our day. It must, moreover, be open to change as knowledge changes—and as paper proposals meet the test of reality. The results of every action are to be closely tracked, so that corrections can be made in a timely way—a process, much discussed but not sufficiently practiced, known as adaptive management.

To be more than a buzzword, adaptive management must bring two things to bear: new information, and a readiness to let new information disrupt old plans. Both, in the past, have been in scant supply.

Though Delta knowledge has expanded hugely in recent years, it is often a challenge to pull that data together and draw conclusions from it. Studies are done by different agencies for specific purposes and in narrow contexts; findings can be hard to integrate. The Delta Science Program, a function of the Council, will seek to overcome these gaps, linking the whole community of scientists at work. Guided by a top-flight Delta Independent Science Board, it will prepare, by December 31, 2013, a companion to the Delta Plan called the Delta Science Plan (**Governance Recommendation 1**).

The Delta Science Plan will propose a collaborative structure for doing science in the Delta. It will suggest ways of improving communication, resolving conflicting results, and accommodating uncertainty. It will offer priorities: how to apportion attention between immediate practical questions, on the one hand, and research aimed at increasing long-term understanding, on the other. It will sketch a more integrated approach to monitoring, so that results from different settings can be compared, and consider how computer modeling of the intricate Delta system might be improved.

Once a year, the Council will bring scientists together to assess what has been learned and what changes in ongoing plans and projects the new knowledge may suggest. Another conference? Yes, but with a difference: These findings will feed directly into ongoing refinement of the Delta Plan.

First step is an inventory: How much is now actually being spent, by all the agencies involved, that can be chalked up to furthering the coequal goals? Second comes an assessment of costs: How much will it take to carry out the projects and programs described in the Delta Plan, and what might the sources of support be for each one? The third step must be a comparison of resources and needs, and a reckoning of gaps: What key elements lack probable funding, and what might be done to fill these holes? (**Funding Principles Recommendations 1 through 3.**)

## Providing a More Reliable Water Supply for California...

The Delta's contribution to the overall statewide water supply is smaller than many people think. The proportion drawn directly from the Delta, mostly through the pumps near Byron, is only about 8 percent of the total. The bulk of California's water comes from more local sources, and always has.

Nevertheless, the Delta supply is important to many regions. Southern California imports about 25 percent of its water via the Byron pumps. The Tulare Lake Basin, the southern end of the Great Central Valley, gets 27 percent of its water by that route. Even the San Francisco Bay Area takes 16 percent of its supply from Delta pumps. On a more local scale, several water suppliers rely entirely on the Delta, and others have become dependent on this one overtaxed source to a risky degree.

In addition to water pulled directly from the Delta, a great deal is drawn from the Delta's tributary streams before they come down to sea level. San Francisco Bay Area cities reach far inland to tap the Tuolumne and Mokelumne Rivers in the Sierra Nevada, taking 27 percent of their water needs from these sources. Parts of the Central Valley tributary to the Delta get all of their water from that watershed by

*California water planning is full of good intentions. If the laws and policies that are now on the books were consistently carried out, the state's water system—including that part that is tied to the Delta—would work much better.*

definition, as do the people and farms of the Delta itself. (See also sidebar, *The Problem with Numbers*.)

The Delta Plan addresses water supply on three scales: California-wide, on the Delta watershed level, and in the areas that receive water from the Delta pumps. (See Figure ES-1, *The Delta Watershed and Areas Receiving Delta Water*.)

California water planning is full of good intentions. If the laws and policies that are now on the books were consistently carried out, the state's water system—including that part that is tied to the Delta—would work much better. The Delta Plan calls on *all* water suppliers to obey the many laws and guidelines that exist, and on the State's regulatory agencies to insist on compliance (**Water Resources Recommendation 1**).

## THE PROBLEM WITH NUMBERS

In talking of California water, we put trust in numbers: flows, usages, capacities, trends. But some seemingly solid and much-quoted figures are little more than guesses. By and large, we do not truly know how much water we are using or how much we are saving through conservation efforts. We know less than we should about Delta inflows and outflows. We know little about groundwater except that water tables in too many places are dropping. What information is available is often packaged in inscrutable ways. The Delta Plan asks all the agencies and water suppliers involved to provide or demand better information, and to communicate it better (**Water Resources Policy 2, WR Recommendations 16 through 19**).

Whatever the outcome of some current debates, California's next large increment of water supply will not come from major new engineering but from water conservation, recycling, local stormwater capture, and reasonable use of aquifers (see section, A Better System: Storing Floods to Ride Out Droughts).

These measures can yield an amount of water larger than the total that is drawn from the Delta today. State agencies in charge of water matters should systematically promote these practices, and *all* State agencies should model them in their own water usage. (**Water Resources Recommendations 6, 8, and 14.**)

Zooming in a bit from the statewide picture, the Delta Plan calls for all water users linked to the Delta—whether they take water from it directly, or tap the watershed—to reduce their draws. The State Water Resources Control Board should give special scrutiny to water use applications that could boost demand on the watershed. Urban and agricultural water suppliers are already required to write water management plans; these now should include “water supply reliability elements,” discussing, among other things, how to deal with the cascading effects if Delta pumping were halted for as long as 3 years. (**Water Resources Recommendations 3, 4, 5, and 7.**)

The Plan speaks most directly to those suppliers that serve water within the Delta or pump water out of the region—including the State Water Project, the Central Valley Project, and by extension the many agricultural and urban water purveyors that are the customers of these giants. Any organization that receives water from the projects must do its share to reduce reliance on the Delta, setting specific reduction targets and actually putting measures in place.

## The Delta Watershed and Areas Receiving Delta Water



**Figure ES-1**

The State Water Project is called on to write the corresponding provisions into contracts with its clients when these agreements are renewed or revised (**Water Resources Policies 1 and 2, WR Recommendation 2.**)

## A Better System: Storing Floods to Ride Out Droughts (and Give the Delta a Break)

The measures so far mentioned will take pressure off the Delta while actually increasing California's developed water supply. The further key to both goals is to harvest and store the water that is available from Central Valley rivers in the

wettest years, at the least environmental cost. The need is heightened by the fact of climate change, which stands to make rainy years all the wetter, and droughts all the more severe.

There are few opportunities left in California to build large new dams (or to raise the height of old dams), and the options that exist are dauntingly expensive. The California Department of Water Resources and the Bureau of Reclamation have been studying the possibilities. The Delta Plan urges the agencies to wrap up these studies, so that the State can decide the fate of these proposals once and for all (**Water Resources Recommendations 13 and 14**).

Much more water storage space exists right under our feet: in groundwater basins, or aquifers.

California began its history with a vast supply of water stored naturally in underground gravel fields and free for the taking via wells. In parts of the state, including most of the southern Central Valley, this endowment has been squandered, and groundwater levels have dropped, sometimes by hundreds of feet. One of the rationales for sending water south from the Delta has been to recharge aquifers, but not enough recharging has occurred. And the State's last comprehensive assessment of its groundwater situation was published in 1980—a third of a century ago.

The Delta Plan calls for a rededication to the conservative idea of using aquifers like bank accounts: to be filled up in wet times, in order that they may be drawn from in dry. It calls on the State to do the indispensable groundwater update, on local suppliers to write plans for sustainable groundwater management, and on the State Water Resources Control Board to stand ready to intervene in seriously overdrafted areas, if good local plans are not forthcoming, leading perhaps to the court procedure called groundwater adjudication. (**Water Resources Recommendations 9, 10, 11, and 14**.)

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There is another tool for making the supply stretch further: the sale or trade of water between suppliers, especially in times of shortage. Existing rules governing such transfers are found cumbersome by some and insufficiently protective of water rights and the environment by others. The State Water Resources Control Board should reformulate the guidelines by mid-2016 (**Water Resources Recommendations 14 and 15**).

## A Better System: Delta Conveyance

As noted, many of the state's water suppliers take their water from rivers at points upstream of the Delta. The two biggest, however—the State Water Project and the Central Valley Project—are different. Though most of the water they transport has its origin to the north, in the Sacramento River, their withdrawal points are deep in the Delta and well to the south, on the channel called Old River. Unlike most other water withdrawals, these affect the region not only by removing water but also by distorting flows.

The pumps at Byron have so much power that they essentially give the Delta a second mouth. In many channels, water runs backward at times, toward the pump intakes, not toward the sea. This situation is bad for salmon, Delta smelt, and other sensitive and legally protected species. Under the Bay Delta Conservation Plan, the Department of Water Resources and the federal Bureau of Reclamation are planning a kind of arterial bypass, segregating the water meant for the pumps at a new northern intake on the Sacramento River. The water corralled at this point would be sent to the pumps via a pair of tunnels. This arrangement

is intended to alleviate the backward flows that harm fish; in conjunction with major habitat improvements and other measures, it is supposed to bring endangered species far enough back from the brink to satisfy protective laws. Many Delta residents and environmentalists, though, fear that the new system will simply allow more water to be shipped south, doing, on balance, more harm than good.

The Delta Stewardship Council is not the author of the BDCP. Its role for now is to advise and to urge timely completion (**Water Resources Recommendation 12**). Later on, though, the Council may have a decisive say. Once the proposal is complete, the Department of Fish and Wildlife must declare that it meets the standards of the Delta Reform Act, and this declaration can in turn be appealed to the Council. If the Council does not concur, certain aspects of the BDCP will lose access to State funding. If all hurdles have been cleared, on the other hand, the BDCP will take its place as a component of the Delta Plan.

## **...and Protecting, Restoring, and Enhancing the Delta Ecosystem...**

The effort to improve the fortunes of the Delta ecosystem has two components that are vital: guaranteeing adequate flows from the rivers feeding into and through Delta channels, and creating new wetlands and other habitats in partial replacement for what has been lost. Three other components are merely very important: combating harmful exotic species, improving the management of salmon hatcheries, and protecting and improving water quality.

### **Toward “Natural Functional Flows”**

Humans have not only reduced the total quantity of runoff through the Delta toward the ocean but also have changed its timing, decreasing the historical torrents of spring and increasing the formerly feeble flows of autumn. In a natural system that evolved with wide variation, this shift toward a steady state is itself a source of harm.

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The minimum seaward flows to be maintained in Delta channels are set by the State Water Resources Control Board, according to season and year type (wet, above normal, below normal, dry, or critical). These required flows help fish; they also prevent saltwater intrusion. As a not-incidental side effect, the rules limit the amount of water that can be exported through the pumps.

The Water Board is now preparing to revise this flow regime, last updated in 2006. As a later step, the Water Board is to issue comparable flow standards for the major tributary rivers of the Delta. The Delta Plan recommends deadlines for these processes (mid-2014 and mid-2018). The adopted regulations will become elements of the Plan. The Delta Stewardship Council can be called upon to review any project that could affect Delta flows in the light of adopted flow criteria (**Ecosystem Restoration Policy 1, ER Recommendation 1**).

### **Habitat Restoration**

In its primeval state, the Delta was no uniform sea of reeds but a vast mesh of habitats including tule marsh threaded with rivers and sloughs, perched lakes filled by floods and very high tides, natural levees with big trees on them, and seasonal overflow basins behind the levees. Most of this mosaic has disappeared, converted to fifty large and many small leveed islands. Evidence of what was remains in agricultural soils of uncommon quality (and fragility).

The old scene will never return, but careful habitat restoration projects can help to reverse the region’s

ecological decline. Biologists have spent years locating the likeliest areas for such revival. The Delta Plan incorporates the latest thinking, essentially the Conservation Strategy drafted in 2011 by the Department of Fish and Wildlife (formerly the Department of Fish and Game).

Since the heart of the Delta is now well below sea level, due to subsidence, the suitable restoration sites are mostly found near Delta margins, where the soil surface is still high enough to permit marsh plants and riparian vegetation to take root. The Plan outlines six such zones: the Yolo Bypass, the floodplain west of Sacramento into which the Sacramento River spills in wet years; the Cache Slough Complex, where the Bypass rejoins the body of the Delta; a nexus in the eastern Delta, where the Mokelumne River and the Cosumnes River add their strands to the Delta's web; a zone in the southern Delta along the San Joaquin River; a collection of small tracts at the western apex of the Delta, where it narrows to meet Suisun Bay; and finally the Suisun Marsh, fringing that bay to the north. This fresh-to-brackish water marsh, the largest wetland in California, is mostly managed by hunting clubs for seasonal waterfowl ponds, but sizeable areas should be restored to full tidal action. The existing plan for Suisun Marsh, written by the San Francisco Bay Conservation and Development Commission, is 36 years old and does not take into account, for example, probable sea level rise.

The Delta Plan calls for the habitat restorations in the Conservation Strategy to be carried out by the Department of Fish and Wildlife and by the Delta Conservancy, a body established for such purposes in 2009; and it calls for a plan update for Suisun Marsh. The Delta Stewardship Council can be appealed to, if necessary, to block development or any other intrusion that might interfere with a restoration site. (**Ecosystem Restoration Policies 2 and 3, ER Recommendations 2, 3, and 5.**)

Much of the remaining good habitat in the Delta is found in strips along the water side of levees, and the Delta Plan looks to protect and widen these green margins. When levees are rebuilt or altered, the possibility of shifting them farther away from the water should always be explored. The growth of trees along the waterline should be encouraged. However, authority over many levees lies with the U.S. Army Corps of Engineers, and the Corps requires removal of trees and shrubs, on the theory that root systems have a weakening effect. (The matter is debated.) Given the value of tall vegetation for habitat, the Delta Plan asks the Corps to exempt Delta levees from this rule, where appropriate. (**Ecosystem Restoration Policy 4 and ER Recommendation 4.**)



## ***Exotic Species***

One of the less-visible forces to buffet the Delta ecosystem is the proliferation of nonnative aquatic species—fish, crustaceans, plants, and even the microscopic floating animals of zooplankton. Some were introduced deliberately; others arrived by random routes including the discharge of bilgewater from oceangoing ships and the dumping of goldfish bowls.

New arrivals keep appearing. Some of these intruders affect the system little, but other species, notably certain aquatic plants and filter-feeding clams, transform the web of life profoundly. The Delta Plan prohibits actions that could bring in new exotics or improve conditions for exotics that are here, and endorses the measures the Department of Fish and Wildlife is already planning to take against them. (**Ecosystem Restoration Policy 5, ER Recommendation 7.**)

Among the exotics are game species introduced in the nineteenth century and well-loved by fishermen: striped, largemouth, and smallmouth bass. It has become apparent that these voracious game fish are helping to deplete salmon, Delta smelt, and other species in trouble. The Delta Plan asks the Department of Fish and Wildlife to change angling rules to permit heavier fishing and somewhat suppress the bass population (**Ecosystem Restoration Recommendation 6**).

## ***Management of Hatchery Fish***

When dams on many rivers cut off spawning grounds for salmon and steelhead trout, hatcheries were built to compensate. Now there is worry that hatchery-raised salmon, less genetically diverse than their wild cousins, may mix with and reduce the fitness of the wild strains. Various solutions are proposed, including capturing wild fish to add their eggs to hatchery stock. The Delta Plan asks the Department of Fish and Wildlife and the U.S. Fish and Wildlife Service to put these ideas and recommendations into effect (**Ecosystem Restoration Recommendations 8 and 9**).

## ***Water Quality***

Pollution from the watershed is bad for the Delta ecosystem and for water users. The Delta Plan urges the responsible agencies—the State Water Resources Control Board, the Central Valley Regional Water Quality Control Board, and the San Francisco Bay Regional Water Quality Control Board—to protect “beneficial uses” of water in the Delta and Suisun Bay. Various ongoing projects of planning, rule-making, and construction should be brought to conclusion. All agencies should look at water quality when weighing actions covered under the Delta Plan. Special attention should be paid to pollution that might degrade habitat restoration sites. (**Water Quality Recommendations 1 through 12**.)

## ***...In a Way that Protects and Enhances the Values of the Delta as an Evolving Place***

Because of its role in greater systems—the San Francisco Estuary, the state water plumbing—the Delta is a subject of statewide debate. The conversation can seem to take place over the heads of the people who actually live in the region; and it can seem to overlook the lasting values of the place that is: its thriving agriculture, the beauty of its countryside, its cultural heritage, and its recreational bounty. The Delta Plan strives to redress this balance without promising what is probably impossible: the retention of the landscape exactly as it is today.

Honorific labels do not protect valuable assets, but they can help us recognize them. The Delta Plan asks that the Delta be declared a National Heritage Area by Congress and that Highway 160, its north-south artery, be designated a National Scenic Byway by the U.S. Department of Transportation (**Delta-as-Place Recommendations 1 and 2**).

Many Delta people fear that their concerns will be brushed aside as new water facilities and habitat restorations get under way. While deference cannot be guaranteed,

the Delta Plan calls on the agencies to respect local plans in siting such projects, to minimize conflict when possible, and to buy land from willing sellers when they can (**Delta-as-Place Policy 2, DP Recommendation 4**).

The distinctive Delta landscape has been much altered by urban encroachment, often entailing higher flood risk. The Delta Protection Commission, created in 1992 and strengthened by the Delta Reform Act of 2009, oversees development in the core area called the Primary Zone: Local decisions affecting this zone can be appealed to the Commission and overturned by it. However, this authority does not extend to the peripheral Secondary Zone, where the development pressure is strongest. The Delta Plan tightens control further, steering new development to the 26,000 acres in the Peripheral Zone that are already earmarked for urbanization in local plans. Small housing developments that may occur outside these limits must meet high flood control standards (**Delta-as-Place Policy 1, Risk Reduction Policy 2**). (See Figure ES-2, Delta Communities.)

A little more bustle might actually benefit 11 historic small towns or settlements within the Delta, known as the legacy communities. Most are spaced along the Sacramento River: Freeport, Clarksburg, Hood, Courtland, Locke, Walnut Grove, Ryde, Isleton, and Rio Vista. Knightsen and Bethel Island are near the lower channel of the San Joaquin River. Planners at all levels should respect the character, and promote the vitality, of these places (**Delta-as-Place Recommendation 3**).

The Delta Protection Commission has written an Economic Sustainability Plan containing numerous ideas for the support of the region's farm economy, parks and recreation, and roads and infrastructure. The Delta Plan adapts many of these as **Delta-as-Place Recommendations 5 through 19**.

## Flood Risk Reduction

In its primeval state, most of the Delta was wetland and slightly above sea level. Since levees created the modern islands and cultivation began, soils have subsided deeply. Many Delta tracts are strikingly below the level of the water in adjacent channels; rising sea level will make the differential worse. While the occasional levee break is part of Delta lore, multiple failures could bring disaster to the Delta landscape, economy, and ecosystem.

The Delta Plan urges all agencies in the Delta to plan for emergencies and to join forces in a regional response consortium, as proposed by the Delta Multi-Hazard Coordination Task Force. Every responsible party, public and private, should allocate money for flood prevention and reaction. Utilities should plan to minimize interruptions of service. The Department of Water Resources should expand its stockpiles of stone and earth for the use of all when breaches require rapid plugging. Higher levels of private flood insurance should be required, and the State should gain immunity from lawsuits related to flooding beyond its power to prevent. (**Risk Reduction Recommendations 1, 9, and 10**.)

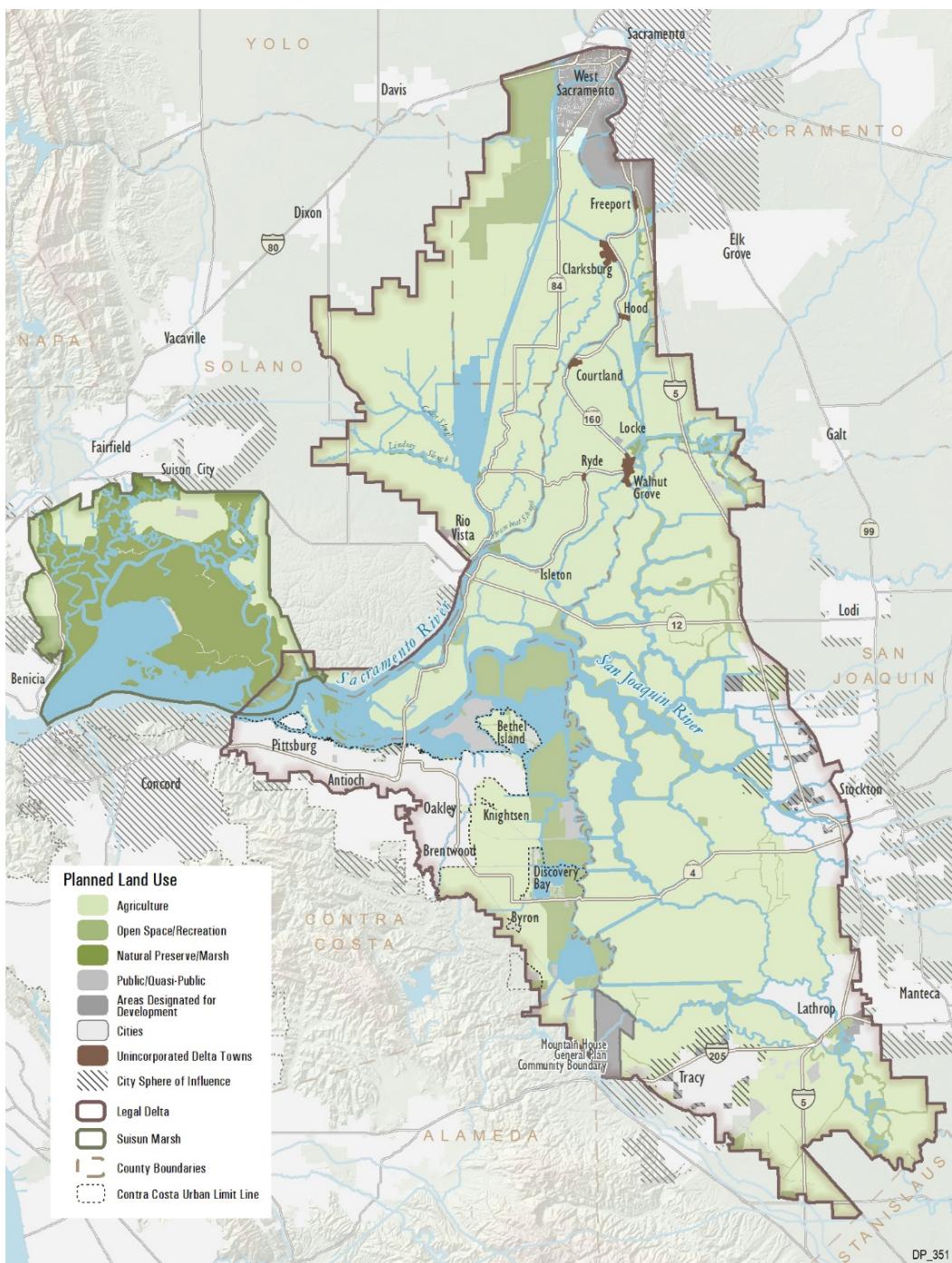
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*It is estimated that only about half the Delta's acreage is adequately protected.*

*There is not enough money for all the desirable improvements, nor is there a mechanism for sharing costs among all who benefit.*

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## Delta Communities



**Figure ES-2**

Sources: City of Benicia 2003, Contra Costa County 2008, Contra Costa County 2010, City of Fairfield 2008, City of Lathrop 2012, City of Manteca 2012, Mountain House Community Services District 2008, City of Rio Vista 2001, SACOG 2009, City of Sacramento 2008, Sacramento County 2011, Sacramento County 2012, Sacramento County 2013, San Joaquin County 2008a, San Joaquin County 2008b, Solano County 2008a, Solano County 2008b, City of Stockton 2011a, City of Stockton 2011b, City of Suisun City 2011, City of Tracy 2011a, City of Tracy 2011b, City of West Sacramento 2010, Yolo County 2010a, Yolo County 2010b.

There are more than 1,000 miles of Delta levees. The State is directly responsible for about one-third of the system; nearly 70 local Reclamation Districts are in charge of the rest. It is estimated that only about half the Delta's acreage is adequately protected. There is not enough money for all the desirable improvements, nor is there a mechanism for sharing costs among all who benefit. The Delta Plan calls on the Legislature to establish a locally based Delta Flood Risk Management Assessment District to raise money for combined defenses. Public and private utilities, too, should invest in defense of their facilities and lines. (**Risk Reduction Recommendations 2 and 3.**)

The State contributes massively to levee costs throughout the Delta, but on a not very systematic basis. The Legislature directed the Delta Stewardship Council to set priorities for these investments. **Risk Reduction Policy 1** offers broad principles. Urban areas come first; special attention must be paid to levees guarding roads and energy facilities. The channels through which water flows toward export pumps require protection, as does the pipeline that brings Sierra water across the Delta for the East Bay Municipal Utility District. Levees on the western islands, whose failure could bring salinity deep into the Delta, are also of high concern.

A more detailed study is to follow. Building on work being done by the Department of Water Resources, the Council will assess, island by island, the state of levees, the degree of subsidence, the extent and value of assets to be protected, and the cost of long-term defense. The result, due at the end of 2014, will be a tiered priority list for the expenditure of State levee funds (**Risk Reduction Recommendation 4**).

To take pressure off the levee system, floodwaters need room to move and to spread without causing harm (and often to the benefit of plants, birds, and fish). Two such safety valves already exist at the Yolo Bypass and the Cosumnes-Mokelumne floodplain; a third such zone is proposed for the lower San Joaquin River at Paradise Cut. The Delta Plan urges expansion of the flood relief system, and requires that

present or potential overflow areas be kept free of encroachments. Levee setbacks are also encouraged. (**Risk Reduction Policies 3 and 4, RR Recommendations 5 through 8.**)

Given time, land subsidence can actually be reversed. Experimental plots show that soils can be deepened by growing tules in shallowly flooded fields, at a rate of a little over an inch a year. The tule plots also fix a lot of atmospheric carbon and thus do their bit toward slowing climate change. The Delta Plan encourages expansion of this work (**Delta-as-Place Recommendation 7**).

## Finding the Way Through

When the first Spanish explorers took their boats into the Sacramento-San Joaquin River Delta, they were feeling their way. They could see the channel they were in, as far as the next bend or junction of sloughs. They had a general idea of where they were going. Between the near and the far, though, were mysteries. Which waterways connected to others, which petered out in the marshes? Where was the real way through?

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*Tangible marks of progress may at first be as subtle as shifting shoreline features seen from a Delta boat.*

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This first edition of the Delta Plan is a little like such an exploration. A short reach of channel is visible; another stretch can be assessed from local information. After that, the route is a matter of educated guesswork.

The Delta Plan can be fairly specific about steps to be taken in the next 5 years. The Delta Science Plan is already under way. The in-depth study of levees will begin by fall 2013. The Interagency Implementation Committee will meet by

the end of the year. Just around the next bend, the State Water Resources Control Board will adopt its momentous new flow rules; a final decision on Delta conveyance (the Bay Delta Conservation Plan) looms beyond that.

It will not have escaped the reader how many of these measures seem rather abstract, involving studies, rule-making, the gathering of information, the refining of procedures, the testing of powers—not so much doing as planning, and even planning how to plan. This is simply the phase we are in. Tangible marks of progress may at first be as subtle as shifting shoreline features seen from a Delta boat. Here, though, are some markers to look for. We will be doing well if, in a few years' time:

- Many urban and rural water suppliers that draw on the Delta have taken real steps to reduce that reliance, with measured, reported results.
- Flows in Delta channels, controlled under new State Water Resources Control Board rules, are looking a good deal more like the historical ones.
- Several new habitat restoration projects in the Delta have moved from the planning to the construction stage.
- Subsidence reversal planting has expanded from the small pilot projects seen today.
- Measurably less acreage of Delta waters is dominated by nonnative water plants.
- Stocks of endangered fish are showing a rebound.
- Key levees have been strengthened, especially in the environs of Stockton and Sacramento.
- No further rural farmland has been lost to urbanization.

The next edition of the Delta Plan, due in 2018 or sooner, will be a little longer on specifics and a little shorter on question marks. A few more miles of the channel ahead will have come into view. New uncertainties, no doubt, will have

replaced old. The captains will continue to disagree. But, just as it was in the old days, the route through the Delta will be the one way forward.

Beyond all local debates and confusions, the destination is clear. We want a Delta landscape that remains essentially itself while adapting gradually and gracefully to a future marked by climate change and sea level rise. We want a Delta ecosystem that works markedly better than today's, reflected partly in a resurgence of native fish. And we want an end to the endless wrangling about Delta flows and plumbing—a truce that can only be achieved if the entire California water system undergoes a measure of reform.

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*In solving the “Delta problem,” we will not only be doing right by a treasured land- and waterscape. We will be putting the entire state of California on a sounder development path.*

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Driven by cost, environmental concern, and sheer practicality, the water world is already shifting away from reliance on distant dams and aqueducts and toward trust in conservation, local sources, and better use of groundwater storage. This change is reflected in the fact, startling to many, that California's total water consumption has not climbed in recent years; in fact, despite our increasing population, use has slightly dropped. The Delta Plan gives a push to trends already under way.

In solving the “Delta problem,” we will not only be doing right by a treasured land- and waterscape. We will be putting the entire state of California on a sounder development path.

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## Photo Credits

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**Page ES-1:** The Delta Conservancy

**Page ES-9:** Delta Stewardship Council

## Delta Plan Policies and Recommendations

The Delta Plan contains a set of regulatory policies that will be enforced by the Delta Stewardship Council's appellate authority and oversight. The Delta Plan also contains priority recommendations, which are nonregulatory but call out actions essential to achieving the coequal goals.

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
<b>Chapter 2</b>		
G P1 (23 CCR section 5002)	Detailed Findings to Establish Consistency with the Delta Plan	<p>(a) <i>This policy specifies what must be addressed in a certification of consistency filed by a State or local public agency with regard to a covered action. This policy only applies after a “proposed action” has been determined by a State or local public agency to be a covered action because it is covered by one or more of the regulatory policies contained in Article 3. Inconsistency with this policy may be the basis for an appeal.</i></p> <p>(b) <i>Certifications of consistency must include detailed findings that address each of the following requirements:</i></p> <ul style="list-style-type: none"> <li>(1) <i>Covered actions, in order to be consistent with the Delta Plan, must be consistent with this regulatory policy and with each of the regulatory policies contained in Article 3 implicated by the covered action. The Delta Stewardship Council acknowledges that in some cases, based upon the nature of the covered action, full consistency with all relevant regulatory policies may not be feasible. In those cases, the agency that files the certification of consistency may nevertheless determine that the covered action is consistent with the Delta Plan because, on whole, that action is consistent with the coequal goals. That determination must include a clear identification of areas where consistency with relevant regulatory policies is not feasible, an explanation of the reasons why it is not feasible, and an explanation of how the covered action nevertheless, on whole, is consistent with the coequal goals. That determination is subject to review by the Delta Stewardship Council on appeal;</i></li> <li>(2) <i>Covered actions not exempt from CEQA must include all applicable feasible mitigation measures adopted and incorporated into the Delta Plan as amended April 26, 2018 (unless the measure(s) are within the exclusive jurisdiction of an agency other than the agency that files the certification of consistency), or substitute mitigation measures that the agency that files the certification of consistency finds are equally or more effective;</i></li> <li>(3) <i>As relevant to the purpose and nature of the project, all covered actions must document use of best available science;</i></li> <li>(4) <i>Ecosystem restoration and water management covered actions must include adequate provisions, appropriate to the scope of the covered action, to assure continued implementation of adaptive management. This requirement shall be satisfied through both of the following:</i></li> </ul> <ul style="list-style-type: none"> <li>(A) <i>An adaptive management plan that describes the approach to be taken consistent with the adaptive management framework in Appendix 1B, and</i></li> <li>(B) <i>Documentation of access to adequate resources and delineated authority by the entity responsible for the implementation of the proposed adaptive management process.</i></li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
		<p>(c) A conservation measure proposed to be implemented pursuant to a natural community conservation plan or a habitat conservation plan that was:</p> <ol style="list-style-type: none"> <li>(1) Developed by a local government in the Delta; and</li> <li>(2) Approved and permitted by the California Department of Fish and Wildlife prior to May 16, 2013 is deemed to be consistent with sections 5005 through 5009 of this Chapter if the certification of consistency filed with regard to the conservation measure includes a statement confirming the nature of the conservation measure from the California Department of Fish and Wildlife.</li> </ol>
G R1	Development of a Delta Science Plan	<p>The Delta Stewardship Council's Delta Science Program should develop a Delta Science Plan by December 31, 2013. The Delta Science Program should work with the Interagency Ecological Program, Bay Delta Conservation Plan, California Department of Fish and Wildlife, and other agencies to develop the Delta Science Plan. To ensure that best science is used to develop the Delta Science Plan, the Delta Independent Science Board should review the draft Delta Science Plan. The Delta Science Plan should address the following:</p> <ul style="list-style-type: none"> <li>▪ A collaborative institutional and organizational structure for conducting science in the Delta</li> <li>▪ Data management, synthesis, scientific exchange, and communication strategies to support adaptive management and improve the accessibility of information</li> <li>▪ Strategies for addressing uncertainty and conflicting scientific information</li> <li>▪ The prioritization of research and balancing of the short-term immediate science needs with science that enhances comprehensive understanding of the Delta system over the long term</li> <li>▪ Identification of existing and future needs for refining and developing numerical and simulation models along with enhancing existing Delta conceptual models (e.g., the Interagency Ecological Program (IEP) Pelagic Organism Decline (POD) and the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) models)</li> <li>▪ An integrated approach for monitoring that incorporates existing and future monitoring efforts</li> <li>▪ An assessment of financial needs and funding sources to support science</li> </ul>
<b>Chapter 3</b>		
WR P1 (23 CCR section 5003)	Reduce Reliance on the Delta through Improved Regional Water Self-Reliance	<p>(a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:</p> <ol style="list-style-type: none"> <li>(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);</li> <li>(2) That failure has significantly caused the need for the export, transfer, or use; and</li> <li>(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.</li> </ol> <p>(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action to export water from, transfer water through, or use water in the Delta, but does not cover any such action</p>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
		<p><i>unless one or more water suppliers would receive water as a result of the proposed action.</i></p> <p>(c) (1) <i>Water suppliers that have done all of the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:</i></p> <p class="list-item-l1">(A) <i>Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;</i></p> <p class="list-item-l1">(B) <i>Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and</i></p> <p class="list-item-l1">(C) <i>Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).</i></p> <p class="list-item-l1">(2) <i>Programs and projects that reduce reliance could include, but are not limited to, improvements in water use efficiency, water recycling, stormwater capture and use, advanced water technologies, conjunctive use projects, local and regional water supply and storage projects, and improved regional coordination of local and regional water supply efforts.</i></p>
WR R1	Implement Water Efficiency and Water Management Planning Laws	<i>All water suppliers should fully implement applicable water efficiency and water management laws, including urban water management plans (Water Code section 10610 et seq.); the 20 percent reduction in statewide urban per capita water usage by 2020 (Water Code section 10608 et seq.); agricultural water management plans (Water Code section 10608 et seq. and 10800 et seq.); and other applicable water laws, regulations, or rules.</i>
WR R2	Require SWP Contractors to Implement Water Efficiency and Water Management Laws	<i>The California Department of Water Resources should include a provision in all State Water Project contracts, contract amendments, contract renewals, and water transfer agreements that requires the implementation of all State water efficiency and water management laws, goals, and regulations, including compliance with Water Code section 85021.</i>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
WR R3	Compliance with Reasonable and Beneficial Use	<p><i>The State Water Resources Control Board should evaluate all applications and petitions for a new water right or a new or changed point of diversion, place of use, or purpose of use that would result in new or increased long-term average use of water from the Delta watershed for consistency with the constitutional principle of reasonable and beneficial use. The State Water Resources Control Board should conduct its evaluation consistent with Water Code sections 85021, 85023, 85031, and other provisions of California law. An applicant or petitioner should submit to the State Water Resources Control Board sufficient information to support findings of consistency, including, as applicable, its urban water management plan, agricultural water management plan, and environmental documents prepared pursuant to the California Environmental Quality Act.</i></p>
WR R4	Expanded Water Supply Reliability Element	<p><i>Water suppliers that receive water from the Delta watershed should include an expanded water supply reliability element, starting in 2015, as part of the update of an urban water management plan, agricultural water management plan, integrated water management plan, or other plan that provides equivalent information about the supplier's planned investments in water conservation and water supply development. The expanded water supply reliability element should detail how water suppliers are reducing reliance on the Delta and improving regional self-reliance consistent with Water Code section 85201 through investments in local and regional programs and projects, and should document the expected outcome for a measurable reduction in reliance on the Delta and improvement in regional self-reliance. At a minimum, these plans should include a plan for possible interruption of water supplies for up to 36 months due to catastrophic events impacting the Delta, evaluation of the regional water balance, a climate change vulnerability assessment, and an evaluation of the extent to which the supplier's rate structure promotes and sustains efficient water use.</i></p>
WR R5	Develop Water Supply Reliability Element Guidelines	<p><i>The California Department of Water Resources, in consultation with the Delta Stewardship Council, the State Water Resources Control Board, and others, should develop and approve, by December 31, 2014, guidelines for the preparation of a water supply reliability element so that water suppliers can begin implementation of WR R4 by 2015.</i></p>
WR R6	Update Water Efficiency Goals	<p><i>The California Department of Water Resources and the State Water Resources Control Board should establish an advisory group with other State agencies and stakeholders to identify and implement measures to reduce impediments to achievement of statewide water conservation, recycled water, and stormwater goals by 2014. This group should evaluate and recommend updated goals for additional water efficiency and water resource development by 2018. Issues such as water distribution system leakage should be addressed. Evaluation should include an assessment of how regions are achieving their proportional share of these goals.</i></p>
WR R7	Revise State Grant and Loan Priorities	<p><i>The California Department of Water Resources, the State Water Resources Control Board, the California Department of Public Health, and other agencies, in consultation with the Delta Stewardship Council, should revise State grant and loan ranking criteria by December 31, 2013, to be consistent with Water Code section 85021 and to provide a priority for water suppliers that includes an expanded water supply reliability element in their adopted urban water management plans, agricultural water management plans, and/or integrated regional water management plans.</i></p>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
WR R8	Demonstrate State Leadership	<i>All State agencies should take a leadership role in designing new and retrofitted State-owned and -leased facilities, including buildings and California Department of Transportation facilities, to increase water efficiency, use recycled water, and incorporate stormwater runoff capture and low-impact development strategies.</i>
WR R9	Update Bulletin 118, California's Groundwater Plan	<i>The California Department of Water Resources, in consultation with the Bureau of Reclamation, U.S. Geological Survey, the State Water Resources Control Board, and other agencies and stakeholders should update Bulletin 118 information using field data, California Statewide Groundwater Elevation Monitoring (CASGEM), groundwater agency reports, satellite imagery, and other best available science by December 31, 2014, so that this information can be included in the next California Water Plan Update and be available for inclusion in 2015 urban water management plans and agricultural water management plans. The Bulletin 118 update should include a systematic evaluation of major groundwater basins to determine sustainable yield and overdraft status; a projection of California's groundwater resources in 20 years if current groundwater management trends remain unchanged; anticipated impacts of climate change on surface water and groundwater resources; and recommendations for State, federal, and local actions to improve groundwater management. In addition, the Bulletin 118 update should identify groundwater basins that are in a critical condition of overdraft.</i>
WR R10	Implement Groundwater Management Plans in Areas that Receive Water from the Delta Watershed	<i>Water suppliers that receive water from the Delta watershed and that obtain a significant percentage of their long-term average water supplies from groundwater sources should develop and implement sustainable groundwater management plans that are consistent with both the required and recommended components of local groundwater management plans identified by the California Department of Water Resources Bulletin 118 (Update 2003) by December 31, 2014.</i>
WR R11	Recover and Manage Critically Overdrafted Groundwater Basins	<i>Local and regional agencies in groundwater basins that have been identified by the California Department of Water Resources as being in a critical condition of overdraft should develop and implement a sustainable groundwater management plan, consistent with both the required and recommended components of local groundwater management plans identified by the California Department of Water Resources Bulletin 118 (Update 2003), by December 31, 2014. If local or regional agencies fail to develop and implement these plans, the State Water Resources Control Board should take action to determine if the continued overuse of a groundwater basin constitutes a violation of the State's Constitution Article X, Section 2, prohibition on unreasonable use of water and whether a groundwater adjudication is necessary to prevent the destruction of or irreparable injury to the quality of the groundwater, consistent with Water Code sections 2100 and 2101.</i>
WR R12a	Promote Options for New and Improved Infrastructure Related to Water Conveyance	<i>Subject to completion of environmental review and approval by the lead agency, and applicable regulatory approvals from other public agencies, the following infrastructure options are hereby promoted:</i> (1) <i>The California Department of Water Resources (DWR) the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), and local beneficiary agencies should pursue a dual-conveyance option for the Delta. Dual conveyance is a combination of through-Delta conveyance and isolated conveyance to allow operational flexibility. Dual conveyance alternatives should be evaluated, and a selected plan designed and implemented, consistent with WR R12b, below. Dual conveyance should incorporate existing and new intakes</i>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
		<p><i>and facility improvements for both isolated, below-ground conveyance and through-Delta conveyance of State Water Project (SWP) and Central Valley Project (CVP) water supplies from the Sacramento River to the south Delta, as follows:</i></p> <ul style="list-style-type: none"> <li>(a) <i>The isolated conveyance should incorporate one or more new screened intakes that protect native fish and that are operated to minimize harmful reverse flow conditions in Old and Middle rivers while maintaining water quality for in-Delta uses. Isolated conveyance should complement existing and improved through-Delta conveyance to promote operational flexibility, protect water quality, and support ecosystem restoration.</i></li> <li>(b) <i>To protect the Delta ecosystem, the State Water Resources Control Board should ensure that operational criteria for new and improved conveyance facilities comply with applicable State Water Resources Control Board requirements, including any flow criteria adopted pursuant to Water Code 85086(c)(2).</i></li> <li>(c) <i>Dual conveyance requires continued maintenance and further improvement of through-Delta conveyance. Through-Delta conveyance improvements may include channel improvements consistent with the Delta Plan and additional facilities that could provide for improved operations for native fish protection.</i></li> </ul> <p>(2) <i>DWR in collaboration with local beneficiary agencies should pursue new intake and conveyance facilities for conveying SWP supplies from the Sacramento River to SWP contractors in Solano and Napa Counties. This is both to protect native fish and improve the quality and reliability of water supplies delivered via the North Bay Aqueduct.</i></p> <p>(3) <i>Local agencies, in coordination with DWR and Reclamation, should pursue new conveyance facilities or conveyance facility improvements that allow use of multiple Delta intakes associated with the Los Vaqueros Project. This would increase operational flexibility for local, SWP, and CVP municipal and environmental water supplies conveyed from the south Delta.</i></p> <p>(4) <i>DWR, Reclamation, and local beneficiary agencies, in coordination with the California Department of Fish and Wildlife, National Marine Fisheries Service and U.S. Fish and Wildlife Service, should evaluate and identify for near-term implementation feasible actions to contribute to reducing fish losses associated with existing pumping operations at the Banks Pumping Plant and Jones Pumping Plant, consistent with the 2009 Biological Opinion and Conference Opinion on the Long-Term Central Valley Project and State Water Project Operations Criteria and Plan; the 2009 Biological Opinion on the Coordinated Operations of the Central Valley Project and State Water Project in California; and the 2014 Recovery Plan for Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. These actions may include, but are not limited to:</i></p> <ul style="list-style-type: none"> <li>(a) <i>Implementing changes to the operations and physical infrastructure of the facilities where such changes can improve fish screening and salvage operations and reduce mortality from entrainment and salvage.</i></li> <li>(b) <i>Evaluating and implementing effective predator control actions, such as fishery management or directed removal programs, for minimizing predation</i></li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
		<p>on juvenile salmon and steelhead in Clifton Court Forebay and in the primary channel at the Tracy Fish Collection Facility.</p>
WR R12b	<p>Evaluate, Design, and Implement New or Improved Conveyance or Diversion Facilities in the Delta</p>	<p>(c) Evaluating and implementing effective predation reduction actions associated with salvage operations, such as transporting and releasing fish in multiple locations in the Delta.</p> <p>(d) Installing equipment to monitor for the presence of predators and to monitor flows at the fish collection facilities.</p> <p>(e) Modifying Delta Cross Channel gate operations and evaluating methods to control access to Georgiana Slough and other migration routes into the interior Delta to reduce diversion of listed juvenile fish from the Sacramento River and the San Joaquin River into the southern or central Delta..</p> <p>(1) In selecting new and improved Delta infrastructure for conveying SWP, CVP, and market transfer water supplies from the Sacramento River to the south Delta, project proponents should analyze and evaluate a range of alternatives including, but not limited to the following:</p> <p>(a) A reasonable range of flow criteria, rates of diversion, and other operational criteria required to satisfy applicable requirements of State and federal fish and wildlife agencies and the State Water Resources Control Board, and other operational requirements and flows necessary for protecting, restoring, and enhancing the Delta ecosystem under a reasonable range of hydrologic conditions (as described under WR R12h, below). This includes identifying water available for export and other beneficial uses, consistent with water quality requirements of the State Water Resources Control Board.</p> <p>(b) A reasonable range of dual-conveyance alternatives, including options for the number and location of new intakes, a range of isolated conveyance capacities, through-Delta conveyance improvements, and other facilities that could improve operations for native fish and in-Delta water quality, as applicable.</p> <p>(c) The potential effects of climate change on the conveyance alternatives under consideration, including possible precipitation and runoff pattern changes, temperature, and sea level rise estimates consistent with guidance provided by the California Natural Resources Agency, National Research.</p> <p>(d) Council, or other appropriate projections. The potential effects on migratory fish and aquatic resources and habitats.</p> <p>(e) The potential effects on Sacramento River and San Joaquin River flood management.</p> <p>(f) The resilience and recovery of Delta conveyance alternatives to catastrophic failure caused by earthquake, flood or other natural disaster.</p> <p>(g) The potential effects of each Delta conveyance alternative on Delta water quality, flows, and water levels, including the effects of these changes on in-Delta water users.</p> <p>(h) The operational benefits and/or detriments of providing multiple intake locations.</p> <p>(i) The potential short-term and long-term effects of each Delta conveyance alternative on terrestrial species.</p>

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		<p>(j) <i>The potential effects of each Delta conveyance alternative on the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.</i></p> <p>(k) <i>The cost-effectiveness of the alternatives in furthering the coequal goals. Cost-effectiveness means the degree to which a project or action is effective in achieving desired outcomes in relation to its cost.</i></p> <p>(2) <i>Project proponents should design and implement new or improved conveyance infrastructure in the Delta consistent with the following parameters:</i></p> <ul style="list-style-type: none"> <li>(a) <i>Located in areas with seasonally favorable freshwater conditions, and areas that are less vulnerable to degradation during sustained droughts and under anticipated future climate change and sea level rise conditions.</i></li> <li>(b) <i>Located to avoid impacts to and, where possible, improve conditions for habitat restoration opportunities in priority restoration areas identified in the Delta Plan, and other important restoration opportunity areas identified by the California Department of Fish and Wildlife.</i></li> <li>(c) <i>Located, designed, and operated to minimize adverse conditions for native aquatic and terrestrial species, including but not limited to those conditions related to flow direction and water quality.</i></li> <li>(d) <i>Designed to avoid or minimize native fish entrainment and impingement.</i></li> <li>(e) <i>Designed to balance adverse project impacts against the project's long- and short-term benefits.</i></li> <li>(f) <i>Designed to minimize disruptions to transportation and business activities during routine maintenance activities, with consideration given to scheduling planned maintenance activities in consultation with local governments to minimize impacts to residents and businesses, and establishing communication protocols to notify residents of planned and unplanned maintenance activities.</i></li> <li>(g) <i>Designed to complement the Delta landscape and minimize aesthetic impacts, including visual impacts of spoils material stockpiles.</i></li> <li>(h) <i>Designed to maximize beneficial reuse of spoils materials to the extent practicable and feasible.</i></li> <li>(i) <i>Implemented in accordance with detailed project implementation plans developed in cooperation with affected communities, local governments, the Delta Protection Commission, and stakeholders to minimize and/or mitigate adverse environmental effects consistent with Delta Plan Policy GP 1, and avoid or reduce conflicts with existing or planned land uses consistent with Delta Plan Policy DP P2, and in consideration of Delta Plan recommendations DP R14, DP R16 and DP R17. Project implementation plans should consider and protect the unique character and historical importance of legacy communities, be consistent with the State's policy regarding the human right to water, and incorporate good neighbor policies to avoid negative impacts on agricultural lands, residents, and business. Items that should be addressed in the plans include, but are not limited to, the following:</i> <ul style="list-style-type: none"> <li>i. <i>Construction sequencing or phasing;</i></li> <li>ii. <i>Temporary and long-term spoils placement;</i></li> <li>iii. <i>Plans for temporary traffic routing that are consistent with local transportation plans, including consideration of permanent</i></li> </ul> </li> </ul>

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		<p><i>improvements to transportation and alternative transportation routes to avoid the most severe impacts to levels of service during construction;</i></p> <p>iv. <i>Effects of construction activities on recreation and other visitor-related activities and businesses, including disruptions to transportation, temporary waterway closures, aesthetic and noise effects, and access to marinas, parks, and other recreation facilities;</i></p> <p>v. <i>Effects on local surface water and groundwater supplies during construction;</i></p> <p>vi. <i>Mechanisms for communicating with landowners, communities, and local governments before and during construction;</i></p> <p>vii. <i>Mechanisms by which community members and stakeholders can raise concerns during construction and in association with ongoing facility operations and maintenance; and</i></p> <p>viii. <i>Legally-permissible project delivery methods which are cost effective and provide for an expedited design and construction timeline that minimizes disruption to affected communities.</i></p>
WR R12c	Improve or Modify Through-Delta Conveyance	<p>(1) <i>Project proponents should design, implement, and adaptively manage improved or modified through-Delta conveyance and appurtenant facilities (such as gates, permanent barriers, or fish handling facilities) to:</i></p> <p>(a) <i>Substantially lessen or avoid impacts and provide net improvements to riparian habitat and channel margin habitat along anadromous fish migratory corridors and, where feasible, enhance conditions for native fish.</i></p> <p>(b) <i>Substantially lessen or avoid impediments and provide net improvements to anadromous fish migration.</i></p> <p>(c) <i>Substantially lessen or avoid impacts to public safety and include or contribute to levee improvements along Old and Middle Rivers consistent with Chapter 7 of the Delta Plan.</i></p> <p>(d) <i>Modify the conveyance capacity or hydraulic characteristics of existing Delta waterways (e.g., improving levees and/or dredging) in a manner that provides multiple benefits, including: taking advantage of periods when water flow and quality conditions are favorable for improving water supply delivery reliability, quality, and flexibility and for protecting, restoring, and enhancing the Delta ecosystem; improving floodplain values and functions; improving habitat conditions during fish migration; and reducing flood risks.</i></p>
WR R12d	Promote Options for New or Expanded Water Storage	<p><i>Subject to completion of environmental review and approval by the lead agency, and applicable regulatory approvals from other public agencies, options for new or expanded water storage are hereby promoted as follows:</i></p> <p>(1) <i>Within the Delta watershed, project proponents should design and operate new or expanded offstream or onstream surface water storage projects consistent with the criteria in WR R12h to:</i></p> <p>(a) <i>Provide water supply reliability, water quality, operational flexibility to adapt to changing conditions, and ecosystem benefits under variable hydrologic conditions, and, where possible, flood risk management benefits.</i></p> <p>(b) <i>Improve resilience to the effects of climate change, sea level rise, higher stream temperatures, long-term drought conditions, and emergency supply disruptions.</i></p>

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WR R12e	Design, Construct and Implement New or Expanded Surface Water Storage	<p>(c) Allow greater flexibility in storing water supplies during periods when more water is available for carryover into periods when less water is available and/or Delta exports are reduced.</p> <p>(d) Take advantage of periods when the water flow, quality, and environmental requirements of State and federal agencies are being met, for improving water supply delivery reliability and flexibility and protecting, restoring, and enhancing the Delta ecosystem.</p> <p>(e) Contribute to improved conjunctive management of both surface and groundwater resources to maximize efficient water use and contribute to sustainable management of groundwater basins, consistent with the Sustainable Groundwater Management Act.</p> <p>(2) Within the Delta water export area, project proponents should implement new or expanded surface water storage projects that improve resilience to the effects of climate change and drought and are operated to allow storage of exported and local surface water supplied during wetter periods for use during dryer periods when exports from the Delta are reduced. Opportunities to store stormwater and recycled water supplies of suitable quality should also be promoted as a strategy for improved regional water management and reduced reliance on the Delta. This includes projects in the San Francisco Bay Area, San Joaquin Valley, Central Coast region, and Southern California.</p> <p>(3) Within the Delta watershed and Delta water export area, project proponents should implement groundwater storage and extraction projects, including facilities for groundwater withdrawal, recharge, injection, and monitoring that are consistent with the criteria in WR R12f below.</p> <p>(4) The State Water Resources Control Board should review and consider revisions to existing regulations to facilitate the safe use of recycled water, stormwater, and other local water supplies for groundwater replenishment.</p> <p>(1) Project proponents should design, implement, and adaptively manage new or expanded surface storage projects in the Delta, its watershed, and Delta water export areas to:</p> <ul style="list-style-type: none"> <li>(a) Improve resilience of the State's water supply system through demonstration of benefits under current and anticipated future conditions, including climate change, changing water demands, and regulatory conditions.</li> <li>(b) Contribute to regional self-reliance and reduced reliance on the Delta.</li> <li>(c) Demonstrate contributions to the goals of the Sustainable Groundwater Management Act by promoting conjunctive use to achieve long-term groundwater basin sustainability.</li> <li>(d) Enable participation in water exchanges and transfers that benefit the Delta ecosystem and improve regional water supply reliability.</li> <li>(e) Demonstrate cost-effectiveness, where cost-effectiveness means the degree to which a project or action is effective in achieving desired outcomes in relation to its cost.</li> <li>(f) Minimize and mitigate the impacts of storage on stream flows and water quality, including impacts during construction.</li> </ul> <p>(2) Project proponents should design and implement new or expanded surface water storage projects in the Delta and Delta watershed, where feasible, to further achievement of the coequal goals by:</p>

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		<ul style="list-style-type: none"> <li>(a) Providing for the dedicated storage of water during wet periods for carry over and later use during dry periods, while balancing the benefits of providing more natural, functional flows to the Delta and its tributaries, meeting other ecosystem needs and providing flood risk management benefits.</li> <li>(b) Enhancing water temperature management on Delta tributaries either directly or through coordinated operations with other facilities.</li> <li>(c) Incorporating storage space dedicated to ecosystem benefits, such as flow management, water temperature, other water quality benefits, or providing water supplies to wildlife refuges.</li> <li>(d) Integrating new and/or expanded storage with other existing or planned storage and conveyance systems to increase ecosystem and water supply benefits. This includes developing and/or updating coordinated operations plans, and/or agreements with other storage and conveyance systems.</li> <li>(e) Contributing to the protection of water quality in the Delta and its watershed for all beneficial uses consistent with the State Water Resources Control Board's Bay-Delta Plan.</li> <li>(f) Contributing to more natural, functional flows that support ecosystem health.</li> </ul> <p>(3) Project proponents should design and implement, where feasible, new or expanded surface water storage projects outside the Delta watershed, but within the Delta water export area, such as projects within the San Joaquin Valley, Central Coast, or Southern California regions, to:</p> <ul style="list-style-type: none"> <li>(a) Contribute to reduced reliance on the Delta and regional self-reliance and, particularly during dry periods, through storage of available water supplies during wet periods for use during dry periods.</li> <li>(b) Promote conjunctive management of surface and groundwater resources, and contribute to achieving groundwater sustainability goals established pursuant to the Sustainable Groundwater Management Act or applicable local plans, as appropriate.</li> <li>(c) Contribute to a comprehensive, integrated water management approach that considers multiple water supply sources including, but not limited to, stream flow, groundwater, imported water, stormwater, and recycled water, as applicable.</li> </ul>
WR R12f	Implement New or Expanded Groundwater Storage	<p>(1) Funding, planning, and technical support provided by State and regional agencies for groundwater projects should:</p> <ul style="list-style-type: none"> <li>(a) Promote multiple benefits, minimize harmful effects to the ecosystem, help achieve Bay-Delta Plan objectives, as applicable, and be consistent with guidance from the State Water Resources Control Board and DWR for implementing the Sustainable Groundwater Management Act.</li> <li>(b) Promote increased groundwater recharge using locally available water, such as recharge via stream-aquifer interactions, floodwater or stormwater capture, recharge using recycled water, or others, provided such actions do not result in harmful impacts to functional flows in local streams.</li> <li>(c) Promote conjunctive management of surface water and groundwater resources, including in-lieu recharge.</li> <li>(d) Promote new or expanded groundwater banking and exchange projects.</li> </ul>

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WR R12g	Promote Options for Operations of Storage and Conveyance Facilities	<p>(e) Promote the construction of new or improved local conveyance infrastructure to convey water to and from groundwater recharge and recovery facilities.</p> <p>(f) Promote the construction of new or improved conveyance infrastructure that interconnects Delta export conveyance facilities with local conveyance facilities.</p> <p>(g) Promote implementation of the Central Valley Salt and Nitrate Management Plan and achievement of management goals and priorities for protection of water quality, where appropriate.</p> <p>(h) Promote wellhead treatment, access to conjunctively-managed surface supplies, or other means of providing access to safe, clean, and affordable water supplies for communities relying on impaired groundwater.</p> <p>(i) Demonstrate consistency with applicable Groundwater Sustainability Plans under the Sustainable Groundwater Management Act.</p> <p>(j) Include new infrastructure that is consistent with WR R12f (1)(a)-(c), above.</p> <p>(k) Assess the ecosystem and water supply impacts and benefits to the Delta, including providing mitigation, as appropriate.</p> <p>(l) Promote opportunities for storage of flood waters (e.g., floodplain storage) or stormwater that can be managed for groundwater recharge.</p> <p>(2) DWR should develop a model ordinance for groundwater recharge that urges cities and counties to incorporate groundwater recharge and storage into land-use planning and zoning, and to protect areas with the highest potential for groundwater recharge from incompatible uses. (Note: A representative map showing the soil suitability index for groundwater banking projects on agricultural lands is shown in Figure 3-11.)</p> <p>(3) DWR or the State Water Resources Control Board should prepare a proposal for an incentive program, in coordination with the Department of Conservation or the U.S. Department of Agriculture's conservation programs, for landowners to protect lands with high groundwater recharge potential for the purpose of contributing to sustainable groundwater management.</p> <p>Subject to completion of environmental review and approval by the lead agency, the following options for the operation of conveyance and storage are hereby promoted:</p> <p>(1) DWR, in coordination with Reclamation, should develop a Drought Water Operations Strategy for the SWP and CVP to meet State Water Resources Control Board-specified flow and water quality criteria during extended drought conditions lasting up to six years, or for the extended timeframe recommended by the Real Time Drought Operations Team (RTDOT) describing opportunities and tools to improve routine operations to adapt to drought conditions. In developing the Strategy, DWR and Reclamation should include criteria for defining appropriate levels or stages of drought affecting the SWP and CVP, in coordination with the RTDOT agencies and the North, Central, and South Delta Water Agencies. The Strategy should consider in-Delta actions and activities, and operations and storage of other facilities or projects that support achievement of the coequal goals. This strategy should be submitted to the Delta Stewardship Council by 2020 and be updated following future declarations of emergency associated with extreme hydrological conditions pursuant to the California Emergency Services Act (Government Code Sections 8550-8668),</p>

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		<p>within one year of completing an After-Action Report, or when physical or regulatory changes necessitate an update.</p> <p>(2) DWR and Reclamation should use an adaptive management approach, consistent with the Delta Plan's adaptive management framework and in alignment with existing collaborative adaptive management efforts, for the coordinated operation of SWP and CVP through-Delta conveyance to promote the coequal goals, including considerations for protecting, enhancing, and restoring the ecosystem and maintaining adequate flows, flow direction, water levels, and water quality for Delta agriculture, recreation, and communities.</p> <p>(3) Lead agencies for new or modified conveyance facilities, and new and expanded storage facilities—including those options identified in WR R12a and WR R12d should develop operational plans consistent with WR R12h, below.</p> <p>(4) To improve water management flexibility and to support coordinated operations with new storage facilities, local agencies—in coordination with DWR and Reclamation, as appropriate—should pursue the following new or improved conveyance facilities outside of the Delta, to reduce reliance on the Delta and promote regional self-reliance:</p> <ul style="list-style-type: none"> <li>(a) Facilities that promote the movement or exchange of SWP, CVP, and local water supplies, such as between the east and west sides of the San Joaquin Valley or between other regions.</li> <li>(b) Facilities that improve groundwater recharge and/or conjunctive use in overdrafted aquifers of the San Joaquin Valley, Tulare Lake Basin, and other Delta water export areas.</li> <li>(c) Facilities that increase groundwater banking or exchange, or that promote increased use of stormwater, recycled water, desalinated water, or other local water supplies in regions tributary to, or that rely on, Delta water supplies.</li> </ul>
WR R12h	Operate Delta Water Management Facilities Using Adaptive Management Principles	<p>(1) Project proponents should develop plans for the operation or reoperation of water conveyance and control facilities in the Delta, or new or modified storage facilities in the Delta and its watershed, that incorporate adaptive management consistent with the Delta Plan's adaptive management framework and further achievement of the coequal goals by:</p> <ul style="list-style-type: none"> <li>(a) Including specific and measurable operating objectives (consistent with State Water Resources Control Board's Bay-Delta Plan objectives), that address: <ul style="list-style-type: none"> <li>i. Protection for and enhancements to the Delta ecosystem, including improved water temperature management, while reliably delivering water.</li> <li>ii. Avoidance or mitigation of adverse effects on in-Delta recreation and in-Delta water quality, including identifying salinity targets for the south Delta that are designed to prevent severe water quality degradation and toxic events in dry and critically dry years.</li> <li>iii. Avoidance or mitigation of adverse effects on stream flows and water quality.</li> <li>iv. Avoid or mitigate adverse effects on agriculture in the Delta, including identifying salinity targets suitable for the types of crops grown in the Delta.</li> </ul> </li> </ul>

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		<p>v. Protection of the quality, reliability, and affordability of water supplies for communities relying on impaired water supplies, including disadvantaged communities, consistent with California Water Code section 106.3.</p> <p>(b) Enabling diversions during periods when Delta water flow, quality, and environmental requirements are being met for improving water supply delivery reliability and flexibility to changing conditions, and for protecting, restoring, and enhancing the Delta ecosystem.</p> <p>(c) Incorporating adaptive management plans, consistent with the Delta Plan's adaptive management framework and developed in coordination with operators and applicable regulatory agency staff, for modifying operations to meet State Water Resources Control Board flow and water quality requirements, and California Department of Fish and Wildlife conservation and recovery goals, under the following:</p> <ul style="list-style-type: none"> <li>i. Extended drought conditions (more than three years in duration).</li> <li>ii. Changed climate conditions including sea level rise and changed hydrologic conditions over the anticipated project life.</li> <li>iii. Extreme wet years and flood events.</li> </ul> <p>(d) Demonstrating that projects can contribute to a more reliable water supply, and can protect, restore, and enhance the Delta ecosystem under a range of future conditions, including changing climate and sea level rise projections from the California Natural Resources Agency or National Research Council, or other appropriate projections.</p> <p>(e) Evaluating the applicability of forecast-informed reservoir operations.</p> <p>(f) Considering coordination and integration of operations with existing and/or planned conveyance and water storage facilities to maximize their potential to contribute to the goals of the Sustainable Groundwater Management Act, and the goals of other applicable programs and plans related to sustainable groundwater, stormwater, and floodwater management.</p> <p>(g) Reviewing and updating, as needed, the flood space reservation guidelines for upstream reservoirs in coordination with the U.S. Army Corps of Engineers and reservoir owners or operators.</p> <p>(2) Project proponents should develop operation plans for new water conveyance facilities in the Delta, and new or expanded storage facilities in the Delta watershed, that:</p> <ul style="list-style-type: none"> <li>(a) Ensure that operations are adequately monitored, evaluated, and revised using adaptive management to make progress towards achieving defined performance measures.</li> <li>(b) Be based upon accurate, timely, and transparent water accounting and budgeting.</li> <li>(c) Ensure that operations provide water levels, water flow, and water quality suitable for in-Delta agricultural and recreational uses.</li> </ul>

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WR R12i	Update the Bay-Delta Plan and Consider Drought	<p>(1) In developing and implementing updates to the Bay-Delta Plan, and flow requirements for priority tributaries to the Delta to protect beneficial uses in the Bay-Delta watershed, the State Water Resources Control Board should:</p> <ul style="list-style-type: none"> <li>(a) Consider and contribute to achievement of applicable Delta Plan performance measures.</li> <li>(b) Require water diverters in the Delta and its watershed that are responsible for meeting Bay-Delta Plan requirements, including but not limited to DWR and Reclamation, to develop a process and plan for meeting applicable flow and water quality requirements during extended drought conditions (characterized by multiple, successive dry years) to further the coequal goals and minimize reliance on temporary urgency change petitions and related requests.</li> </ul>
WR R12j	Operate New or Improved Conveyance and Diversion Facilities Outside of the Delta	<p>(1) Conveyance facilities outside the Delta should be operated in consideration of effects on Delta water quality, the timing and magnitude of flows in the Delta, water supplies available for export from the Delta, and effects on opportunities to protect, restore, and enhance the Delta ecosystem.</p> <p>(2) In allocating funding for new water conveyance and conveyance improvement projects outside the Delta that support regional self-reliance, the State should give preference to projects that:</p> <ul style="list-style-type: none"> <li>(a) Reduce reliance on the Delta for water supply during dry and critically dry years by the specific designation, in operational agreements or plans, of carryover storage for beneficial use during these periods.</li> <li>(b) Improve conjunctive management of surface and groundwater resources and contribute to achieving groundwater sustainability goals established pursuant to the Sustainable Groundwater Management Act or local plans, as appropriate.</li> <li>(c) Support ecosystem enhancement and/or provide more natural, functional flows in the Delta and its tributaries.</li> <li>(d) Improve the ability of regions that rely on the Delta, for all or a portion of their water supplies, to withstand and adapt to changing current and future hydrologic conditions.</li> <li>(e) Improve the quality, reliability, and affordability of water supplies for communities relying on impaired water supplies, including disadvantaged communities, consistent with California Water Code section 106.3.</li> <li>(f) Contribute to a comprehensive, integrated water management approach that considers multiple water supply sources including, but not limited to, stream flow, groundwater, imported water, stormwater, desalinated water, water saved through increased efficiency, and recycled water, as applicable.</li> <li>(g) Improve flexibility to accommodate water market transfer and exchange opportunities that benefit the environment.</li> </ul>
WR R12k	Promote Water Operations Monitoring Data Management, and Data Transparency	In meeting the requirements of the 2016 Open and Transparent Water Data Act, DWR should coordinate with the Council to incorporate information related to Delta Plan performance measures and links to the Council's online tracking and reporting tools, as appropriate, in an effort to promote transparency and accessibility of data in tracking progress toward achieving the coequal goals.

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WR R13	Complete Surface Water Storage Studies	<p><i>The California Department of Water Resources should complete surface water storage investigations of proposed off-stream surface storage projects by December 31, 2012, including an evaluation of potential additional benefits of integrating operations of new storage with proposed Delta conveyance improvements, and recommend the critical projects that need to be implemented to expand the state's surface storage.</i></p>
WR R14	Identify Near-term Opportunities for Storage, Use, and Water Transfer Projects	<p><i>The California Department of Water Resources, in coordination with the California Water Commission, Bureau of Reclamation, State Water Resources Control Board, California Department of Public Health, the Delta Stewardship Council, and other agencies and stakeholders, should conduct a survey to identify projects throughout California that could be implemented within the next 5 to 10 years to expand existing surface and groundwater storage facilities, create new storage, improve operation of existing Delta conveyance facilities, and enhance opportunities for conjunctive use programs and water transfers in furtherance of the coequal goals. The California Water Commission should hold hearings and provide recommendations to the California Department of Water Resources on priority projects and funding.</i></p>
WR R15	Improve Water Transfer Procedures	<p><i>The California Department of Water Resources and the State Water Resources Control Board should work with stakeholders to identify and recommend measures to reduce procedural and administrative impediments to water transfers and protect water rights and environmental resources by December 31, 2016. These recommendations should include measures to address potential issues with recurring transfers of up to 1 year in duration and improved public notification for proposed water transfers.</i></p>
WR P2 (23 CCR section 5004)	Transparency in Water Contracting	<p>(a) <i>The contracting process for water from the State Water Project and/or the Central Valley Project must be done in a publicly transparent manner consistent with applicable policies of the California Department of Water Resources and the Bureau of Reclamation referenced below.</i></p> <p>(b) <i>For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers the following:</i></p> <p class="list-item-l1">(1) <i>With regard to water from the State Water Project, a proposed action to enter into or amend a water supply or water transfer contract subject to California Department of Water Resources Guidelines 03-09 and/or 03-10 (each dated July 3, 2003), which are attached as Appendix 2A; and</i></p> <p class="list-item-l1">(2) <i>With regard to water from the Central Valley Project, a proposed action to enter into or amend a water supply or water transfer contract subject to section 226 of P.L. 97-293, as amended or section 3405(a)(2)(B) of the Central Valley Project Improvement Act, Title XXXIV of Public Law 102-575, as amended, which are attached as Appendix 2B, and Rules and Regulations promulgated by the Secretary of the Interior to implement these laws.</i></p>
WR R16	Supplemental Water Use Reporting	<p><i>The State Water Resources Control Board should require water rights holders submitting supplemental statements of water diversion and use or progress reports under their permits or licenses to report on the development and implementation of all water efficiency and water supply projects and on their net (consumptive) use.</i></p>

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WR R17	Integrated Statewide System for Water Use Reporting	<p><i>The California Department of Water Resources, in coordination with the State Water Resources Control Board, California Department of Public Health, California Public Utilities Commission, California Energy Commission, Bureau of Reclamation, California Urban Water Conservation Council, and other stakeholders, should develop a coordinated statewide system for water use reporting. This system should incorporate recommendations for inclusion of data needed to better manage California's water resources. The system should be designed to simplify reporting; reduce the number of required reports where possible; be made available to the public online; and be integrated with the reporting requirements for the urban water management plans, agricultural water management plans, and integrated regional water management plans. Water suppliers that export water from, transfer water through, or use water in the Delta watershed should be full participants in the data base.</i></p>
WR R18	California Water Plan	<p><i>The California Department of Water Resources, in consultation with the State Water Resources Control Board, and other agencies and stakeholders, should evaluate and include in the next and all future California Water Plan updates information needed to track water supply reliability performance measures identified in the Delta Plan, including an assessment of water efficiency and new water supply development, regional water balances, improvements in regional self-reliance, reduced regional reliance on the Delta, and reliability of Delta exports, and an overall assessment of progress in achieving the coequal goals.</i></p>
WR R19	Financial Needs Assessment	<p><i>As part of the California Water Plan Update, the California Department of Water Resources should prepare an assessment of the state's water infrastructure. This should include the costs of rehabilitating/replacing existing infrastructure, an assessment of the costs of new infrastructure, and an assessment of needed resources for monitoring and adaptive management for these projects. The California Department of Water Resources should also consider a survey of agencies that may be planning small-scale projects (such as storage or conveyance) that improve water supply reliability.</i></p>
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ER P1 (23 CCR section 5005)	Delta Flow Objectives	<ul style="list-style-type: none"> <li>(a) <i>The State Water Resources Control Board's Bay Delta Water Quality Control Plan flow objectives shall be used to determine consistency with the Delta Plan. If and when the flow objectives are revised by the State Water Resources Control Board, the revised flow objectives shall be used to determine consistency with the Delta Plan.</i></li> <li>(b) <i>For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, the policy set forth in subsection (a) covers a proposed action that could significantly affect flow in the Delta.</i></li> </ul>
ER R1	Update Delta Flow Objectives	<p><i>Development, implementation, and enforcement of new and updated flow objectives for the Delta and high-priority tributaries are key to the achievement of the coequal goals. The State Water Resources Control Board should update the Bay Delta Water Quality Control Plan objectives as follows:</i></p> <ul style="list-style-type: none"> <li>(a) <i>By June 2, 2014, adopt and implement updated flow objectives for the Delta that are necessary to achieve the coequal goals.</i></li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
		<p>(b) By June 2, 2018, adopt, and as soon as reasonably possible, implement flow objectives for high-priority tributaries in the Delta watershed that are necessary to achieve the coequal goals.<sup>1</sup></p> <p>Flow objectives could be implemented through several mechanisms including negotiation and settlement, Federal Energy Regulatory Commission relicensing, or adjudicative proceeding.<sup>2</sup></p> <p>Prior to the establishment of revised flow objectives identified above, the existing Bay Delta Water Quality Control Plan objectives shall be used to determine consistency with the Delta Plan. After the flow objectives are revised, the revised objectives shall be used to determine consistency with the Delta Plan.</p>
ER P2 (23 CCR section 5006)	Restore Habitats at Appropriate Elevations	<p>(a) Habitat restoration must be carried out consistent with Appendix 3, which is Section II of the Draft Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions (California Department of Fish and Wildlife 2011). The elevation map attached as Appendix 4 should be used as a guide for determining appropriate habitat restoration actions based on an area's elevation. If a proposed habitat restoration action is not consistent with Appendix 4, the proposal shall provide rationale for the deviation based on best available science.</p> <p>(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that includes habitat restoration.</p>
ER P3 (23 CCR section 5007)	Protect Opportunities to Restore Habitat	<p>(a) Within the priority habitat restoration areas depicted in Appendix 5, significant adverse impacts to the opportunity to restore habitat as described in section 5006, must be avoided or mitigated.</p> <p>(b) Impacts referenced in subsection (a) will be deemed to be avoided or mitigated if the project is designed and implemented so that it will not preclude or otherwise interfere with the ability to restore habitat as described in section 5006.</p> <p>(c) Impacts referenced in subsection (a) shall be mitigated to a point where the impacts have no significant effect on the opportunity to restore habitat as described in section 5006. Mitigation shall be determined, in consultation with the California Department of Fish and Wildlife, considering the size of the area impacted by the covered action and the type and value of habitat that could be restored on that area, taking into account existing and proposed restoration plans, landscape attributes, the elevation map shown in Appendix 4, and other relevant information about habitat restoration opportunities of the area.</p> <p>(d) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers proposed actions in the priority habitat restoration areas depicted in Appendix 5. It does not cover proposed actions outside those areas.</p>

<sup>1</sup> SWRCB staff should work with the Council and DFW to determine priority streams. As an illustrative example, priority streams could include the Merced River, Tuolumne River, Stanislaus River, Lower San Joaquin River, Deer Creek (tributary to Sacramento River), Lower Butte Creek, Mill Creek (tributary to Sacramento River), Cosumnes River, and American River. Implementation through hearings is expected to take longer than the deadline shown here.

<sup>2</sup> Implementation through adjudicative proceedings or FERC relicensing is expected to take longer than the deadline shown here.

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
ER P4 (23 CCR section 5008)	Expand Floodplains and Riparian Habitats in Levee Projects	<p>(a) Levee projects must evaluate and where feasible incorporate alternatives, including the use of setback levees, to increase floodplains and riparian habitats. Evaluation of setback levees in the Delta shall be required only in the following areas (shown in Appendix 8): (1) The Sacramento River between Freeport and Walnut Grove, the San Joaquin River from the Delta boundary to Mossdale, Paradise Cut, Steamboat Slough, Sutter Slough; and the North and South Forks of the Mokelumne River, and (2) Urban levee improvement projects in the cities of West Sacramento and Sacramento.</p> <p>(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action to construct new levees or substantially rehabilitate or reconstruct existing levees.</p>
ER R2	Prioritize and Implement Projects that Restore Delta Habitat	<p>Bay Delta Conservation Plan implementers, California Department of Fish and Wildlife, California Department of Water Resources, and the Delta Conservancy should prioritize and implement habitat restoration projects in the areas shown on Figure 4-8. Habitat restoration projects should ensure connections between areas being restored and existing habitat areas and other elements of the landscape needed for the full life cycle of the species that will benefit from the restoration project.</p> <p>Where possible, restoration projects should also emphasize the potential for improving water quality. Restoration project proponents should consult the California Department of Public Health's Best Management Practices for Mosquito Control in California.</p> <ul style="list-style-type: none"> <li>▪ <b>Yolo Bypass.</b> Enhance the ability of the Yolo Bypass to flood more frequently to provide more opportunities for migrating fish, especially Chinook salmon, to use this system as a migration corridor that is rich in cover and food.</li> <li>▪ <b>Cache Slough Complex.</b> Create broad nontidal, freshwater, emergent-plant-dominated wetlands that grade into tidal freshwater wetlands, and shallow subtidal and deep open-water habitats. Also, return a significant portion of the region to uplands with vernal pools and grasslands.</li> <li>▪ <b>Cosumnes River–Mokelumne River confluence.</b> Allow these unregulated and minimally regulated rivers to flood over their banks during winter and spring frequently and regularly to create seasonal floodplains and riparian habitats that grade into tidal marsh and shallow subtidal habitats.</li> <li>▪ <b>Lower San Joaquin River floodplain.</b> Reconnect the floodplain and restore more natural flows to stimulate food webs that support native species. Integrate habitat restoration with flood management actions, when feasible.</li> <li>▪ <b>Suisun Marsh.</b> Restore significant portions of Suisun Marsh to brackish marsh with land-water interactions to support productive, complex food webs to which native species are adapted and to provide space to adapt to rising sea level action. Use information from adaptive management processes during the Suisun Marsh Habitat Management, Preservation, and Restoration Plan's implementation to guide future habitat restoration projects and to inform future tidal marsh management.</li> <li>▪ <b>Western Delta/Eastern Contra Costa County.</b> Restore tidal marsh and channel margin habitat at Dutch Slough and western islands to support food webs and provide habitat for native species.</li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
ER R3	Complete and Implement Delta Conservancy Strategic Plan	<p>As part of its Strategic Plan and subsequent Implementation Plan or annual work plans, the Delta Conservancy should:</p> <ul style="list-style-type: none"> <li>▪ Develop and adopt criteria for prioritization and integration of large-scale ecosystem restoration in the Delta and Suisun Marsh, with sustainability and use of best available science as foundational principles.</li> <li>▪ Develop and adopt processes for ownership and long-term operations and management of land in the Delta and Suisun Marsh acquired for conservation or restoration.</li> <li>▪ Develop and adopt a formal mutual agreement with the California Department of Water Resources, California Department of Fish and Wildlife, federal interests, and other State and local agencies on implementation of ecosystem restoration in the Delta and Suisun Marsh.</li> <li>▪ Develop, in conjunction with the Wildlife Conservation Board, the California Department of Water Resources, California Department of Fish and Wildlife, Bay Delta Conservation Plan implementers, and other State and local agencies, a plan and protocol for acquiring the land necessary to achieve ecosystem restoration consistent with the coequal goals and the Ecosystem Restoration Program Conservation Strategy.</li> <li>▪ Lead an effort, working with State and federal fish agencies, to investigate how to better use habitat credit agreements to provide credit for each of these steps: (1) acquisition for future restoration; (2) preservation, management, and enhancement of existing habitat; (3) restoration of habitat; and (4) monitoring and evaluation of habitat restoration projects.</li> <li>▪ Work with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service to develop rules for voluntary safe harbor agreements with property owners in the Delta whose actions contribute to the recovery of listed threatened or endangered species.</li> </ul>
ER R4	Exempt Delta Levees from the U.S. Army Corps of Engineers' Vegetation Policy	Considering the ecosystem value of remaining riparian and shaded riverine aquatic habitat along Delta levees, the U.S. Army Corps of Engineers should agree with the California Department of Fish and Wildlife and the California Department of Water Resources on a variance that exempts Delta levees from the U.S. Army Corps of Engineers' levee vegetation policy where appropriate.
ER R5	Update the Suisun Marsh Protection Plan	The San Francisco Bay Conservation and Development Commission should update the Suisun Marsh Protection Plan and relevant components of the Suisun Marsh Local Protection Program to adapt to sea level rise and ensure consistency with the Suisun Marsh Preservation Act, the Delta Reform Act, and the Delta Plan.
ER P5 (23 CCR section 5009)	Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species	<ul style="list-style-type: none"> <li>(a) The potential for new introductions of or improved habitat conditions for nonnative invasive species, striped bass, or bass must be fully considered and avoided or mitigated in a way that appropriately protects the ecosystem.</li> <li>(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that has the reasonable probability of introducing or improving habitat conditions for nonnative invasive species.</li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
ER R6	Regulate Angling for Nonnative Sport Fish to Protect Native Fish	<i>The California Department of Fish and Wildlife should develop, for consideration by the Fish and Game Commission, proposals for new or revised fishing regulations designed to increase populations of listed fish species through reduced predation by introduced sport fish. The proposals should be based on sound science that demonstrates these management actions are likely to achieve their intended outcome and include the development of performance measures and a monitoring plan to support adaptive management.</i>
ER R7	Prioritize and Implement Actions to Control Nonnative Invasive Species	<i>The California Department of Fish and Wildlife and other appropriate agencies should prioritize and fully implement the list of "Stage 2 Actions for Nonnative Invasive Species" and accompanying text shown in Appendix J taken from the Conservation Strategy for Restoration of the Sacramento–San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions (DFG 2011). Implementation of the Stage 2 actions should include the development of performance measures and monitoring plans to support adaptive management.</i>
ER R8	Manage Hatcheries to Reduce Genetic Risk	<i>As required by the National Marine Fisheries Service, all hatcheries providing listed fish for release into the wild should continue to develop and implement scientifically sound Hatchery and Genetic Management Plans (HGMPs) to reduce risks to those species. The California Department of Fish and Wildlife should provide annual updates to the Delta Stewardship Council on the status of HGMPs within its jurisdiction.</i>
ER R9	Implement Marking and Tagging Program	<i>By December 2014, the California Department of Fish and Wildlife, in cooperation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, should revise and begin implementing its program for marking and tagging hatchery salmon and steelhead to improve management of hatchery and wild stocks based on recommendations of the California Hatchery Scientific Review Group, which considered mass marking, reducing hatchery programs, and mark selective fisheries in developing its recommendations.</i>

**Chapter 5**

DP R1	Designate the Delta as a National Heritage Area	<i>The Delta Protection Commission should complete its application for designation of the Delta and Suisun Marsh as a National Heritage Area, and the federal government should complete the process in a timely manner.</i>
DP R2	Designate State Route 160 as a National Scenic Byway	<i>The California Department of Transportation should seek designation of State Route 160 as a National Scenic Byway, and prepare and implement a scenic byway plan for it.</i>
DP P1 (23 CCR section 5010)	Locate New Urban Development Wisely	<p>(a) <i>New residential, commercial, and industrial development must be limited to the following areas, as shown in Appendix 6 and Appendix 7:</i></p> <ul style="list-style-type: none"> <li>(1) <i>Areas that city or county general plans as of May 16, 2013, designate for residential, commercial, and industrial development in cities or their spheres of influence;</i></li> <li>(2) <i>Areas within Contra Costa County's 2006 voter-approved urban limit line, except no new residential, commercial, and industrial development may occur on Bethel Island unless it is consistent with the Contra Costa County general plan effective as of May 16, 2013;</i></li> <li>(3) <i>Areas within the Mountain House General Plan Community Boundary in San Joaquin County; or</i></li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
		<p>(4) The unincorporated Delta towns of Clarksburg, Courtland, Hood, Locke, Ryde, and Walnut Grove.</p> <p>(b) Notwithstanding subsection (a), new residential, commercial, and industrial development is permitted outside the areas described in subsection (a) if it is consistent with the land uses designated in county general plans as of May 16, 2013, and is otherwise consistent with this Chapter.</p> <p>(c) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers proposed actions that involve new residential, commercial, and industrial development that is not located within the areas described in subsection (a). In addition, this policy covers any such action on Bethel Island that is inconsistent with the Contra Costa County general plan effective as of May 16, 2013. This policy does not cover commercial recreational visitor-serving uses or facilities for processing of local crops or that provide essential services to local farms, which are otherwise consistent with this Chapter.</p> <p>(d) This policy is not intended in any way to alter the concurrent authority of the Delta Protection Commission to separately regulate development in the Delta's Primary Zone.</p>
DP P2 (23 CCR section 5011)	Respect Local Land Use When Siting Water or Flood Facilities or Restoring Habitats	<p>(a) Water management facilities, ecosystem restoration, and flood management infrastructure must be sited to avoid or reduce conflicts with existing uses or those uses described or depicted in city and county general plans for their jurisdictions or spheres of influence when feasible, considering comments from local agencies and the Delta Protection Commission. Plans for ecosystem restoration must consider sites on existing public lands, when feasible and consistent with a project's purpose, before privately owned sites are purchased. Measures to mitigate conflicts with adjacent uses may include, but are not limited to, buffers to prevent adverse effects on adjacent farmland.</p> <p>(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers proposed actions that involve the siting of water management facilities, ecosystem restoration, and flood management infrastructure.</p>
DP R3	Plan for the Vitality and Preservation of Legacy Communities	Local governments, in cooperation with the Delta Protection Commission and Delta Conservancy, should prepare plans for each community that emphasize its distinctive character, encourage historic preservation, identify opportunities to encourage tourism, serve surrounding lands, or develop other appropriate uses, and reduce flood risks.
DP R4	Buy Rights of Way from Willing Sellers When Feasible	Agencies acquiring land for water management facilities, ecosystem restoration, and flood management infrastructure should purchase from willing sellers, when feasible, including consideration of whether lands suitable for proposed projects are available at fair prices.
DP R5	Provide Adequate Infrastructure	The California Department of Transportation, local agencies, and utilities should plan infrastructure, such as roads and highways, to meet needs of development consistent with sustainable community strategies, local plans, the Delta Protection Commission's Land Use and Resource Management Plan for the Primary Zone of the Delta, and the Delta Plan.

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
DP R6	Plan for State Highways	<p><i>The Delta Stewardship Council, as part of the prioritization of State levee investments called for in Water Code section 85306, should consult with the California Department of Transportation as provided in Water Code section 85307(c) to consider the effects of flood hazards and sea level rise on State highways in the Delta.</i></p>
DP R7	Subsidence Reduction and Reversal	<p><i>The following actions should be considered by the appropriate State agencies to address subsidence reversal:</i></p> <ul style="list-style-type: none"> <li>▪ <i>State agencies should not renew or enter into agricultural leases on Delta or Suisun Marsh islands if the actions of the lessee promote or contribute to subsidence on the leased land, unless the lessee participates in subsidence reversal or reduction programs.</i></li> <li>▪ <i>State agencies currently conducting subsidence reversal projects in the Delta on State-owned lands should investigate options for scaling up these projects if they have been deemed successful. The California Department of Water Resources should develop a plan, including funding needs, for increasing the extent of their subsidence reversal and carbon sequestration projects to 5,000 acres by January 1, 2017.</i></li> <li>▪ <i>The Delta Stewardship Council, in conjunction with the California Air Resources Board (CARB) and the Delta Conservancy, should investigate the opportunity for the development of a carbon market whereby Delta farmers could receive credit for carbon sequestration by reducing subsidence and growing native marsh and wetland plants. This investigation should include the potential for developing offset protocols applicable to these types of plants for subsequent adoption by the CARB.</i></li> </ul>
DP R8	Promote Value-added Crop Processing	<p><i>Local governments and economic development organizations, in cooperation with the Delta Protection Commission and the Delta Conservancy, should encourage value-added processing of Delta crops in appropriate locations.</i></p>
DP R9	Encourage Agritourism	<p><i>Local governments and economic development organizations, in cooperation with the Delta Protection Commission and the Delta Conservancy, should support growth in agritourism, particularly in and around legacy communities. Local plans should support agritourism where appropriate.</i></p>
DP R10	Encourage Wildlife-friendly Farming	<p><i>The California Department of Fish and Wildlife, the Delta Conservancy, and other ecosystem restoration agencies should encourage habitat enhancement and wildlife-friendly farming systems on agricultural lands to benefit both the environment and agriculture.</i></p>
DP R11	Provide New and Protect Existing Recreation Opportunities	<p><i>Water management and ecosystem restoration agencies should provide recreation opportunities, including visitor-serving business opportunities, at new facilities and habitat areas whenever feasible; and existing recreation facilities should be protected, using California State Parks' Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh and Delta Protection Commission's Economic Sustainability Plan for the Sacramento-San Joaquin Delta as guides.</i></p>
DP R12	Encourage Partnerships to Support Recreation and Tourism	<p><i>The Delta Protection Commission and Delta Conservancy should encourage partnerships between other State and local agencies, and local landowners and business people to expand recreation, including boating, promote tourism, and minimize adverse impacts to nonrecreational landowners.</i></p>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
DP R13	Expand State Recreation Areas	<i>California State Parks should add or improve recreation facilities in the Delta in cooperation with other agencies. As funds become available, it should fully reopen Brannan Island State Recreation Area, complete the park at Delta Meadows-Locke Boarding House, and consider adding new State parks at Barker Slough, Elkhorn Basin, the Wright-Elmwood Tract, and south Delta.</i>
DP R14	Enhance Nature-based Recreation	<i>The California Department of Fish and Wildlife, in cooperation with other public agencies, should collaborate with nonprofits, private landowners, and business partners to expand wildlife viewing, angling, and hunting opportunities.</i>
DP R15	Promote Boating Safety	<i>The California Department of Boating and Waterways should coordinate with the U.S. Coast Guard and State and local agencies on an updated marine patrol strategy for the region.</i>
DP R16	Encourage Recreation on Public Lands	<i>Public agencies owning land should increase opportunities, where feasible, for bank fishing, hunting, levee-top trails, and environmental education.</i>
DP R17	Enhance Opportunities for Visitor-serving Businesses	<i>Cities, counties, and other local and State agencies should work together to protect and enhance visitor-serving businesses by planning for recreation uses and facilities in the Delta, providing infrastructure to support recreation and tourism, and identifying settings for private visitor-serving development and services.</i>
DP R18	Support the Ports of Stockton and West Sacramento	<i>The ports of Stockton and West Sacramento should encourage maintenance and carefully designed and sited development of port facilities.</i>
DP R19	Plan for Delta Energy Facilities	<i>The California Energy Commission and California Public Utilities Commission should cooperate with the Delta Stewardship Council as described in Water Code section 85307(d) to identify actions that should be incorporated in the Delta Plan by 2017 to address the needs of Delta energy development, storage, and distribution.</i>
<b>Chapter 6</b>		
WQ R1	Protect Beneficial Uses	<i>Water quality in the Delta should be maintained at a level that supports, enhances, and protects beneficial uses identified in the applicable State Water Resources Control Board or regional water quality control board water quality control plans.</i>
WQ R2	Identify Covered Action Impacts	<i>Covered actions should identify any significant impacts to water quality.</i>
WQ R3	Special Water Quality Protections for the Delta	<i>The State Water Resources Control Board or regional water quality control board should evaluate and, if appropriate, propose special water quality protections for priority habitat restoration areas identified in recommendation ER R2 or other areas of the Delta where new or increased discharges of pollutants could adversely impact beneficial uses.</i>
WQ R4	Complete Central Valley Drinking Water Policy	<i>The Central Valley Regional Water Quality Control Board should complete the Central Valley Drinking Water Policy by July 2013.</i>
WQ R5	Complete North Bay Aqueduct Alternative Intake Project	<i>The California Department of Water Resources should complete the North Bay Aqueduct Alternate Intake Project Environmental Impact Report by December 31, 2012, and begin construction as soon as possible thereafter.</i>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
WQ R6	Protect Groundwater Beneficial Uses	<p><i>The State Water Resources Control Board should complete development of a Strategic Workplan for protection of groundwater beneficial uses, including groundwater use for drinking water, by December 31, 2012.</i></p>
WQ R7	Participation in CV-SALTS	<p><i>The State Water Resources Control Board and Central Valley Regional Water Quality Control Board should consider requiring participation by all relevant water users that are supplied water from the Delta or the Delta watershed or discharge wastewater to the Delta or the Delta watershed to participate in the Central Valley Salinity Alternatives for Long-Term Sustainability Program.</i></p>
WQ R8	Completion of Regulatory Processes, Research, and Monitoring for Water Quality Improvement	<p><i>The State Water Resources Control Board and the San Francisco Bay and Central Valley Regional Water Quality Control Boards are currently engaged in regulatory processes, research, and monitoring essential to improving water quality in the Delta. In order to achieve the coequal goals, it is essential that these ongoing efforts be completed and, if possible, accelerated, and that the Legislature and Governor devote sufficient funding to make this possible. The Delta Stewardship Council specifically recommends that:</i></p> <ul style="list-style-type: none"> <li>▪ <i>The State Water Resources Control Board should complete development of the proposed policy for nutrients for inland surface waters of the State of California by January 1, 2014.</i></li> <li>▪ <i>The State Water Resources Control Board and the San Francisco Bay and Central Valley Regional Water Quality Control Boards should prepare and begin implementation of a study plan for the development of objectives for nutrients in the Delta and Suisun Marsh by January 1, 2014. Studies needed for development of Delta and Suisun Marsh nutrient objectives should be completed by January 1, 2016. The water boards should adopt and begin implementation of nutrient objectives, either narrative or numeric, where appropriate, for the Delta and Suisun Marsh by January 1, 2018.</i></li> <li>▪ <i>The State Water Resources Control Board and the Central Valley Regional Water Quality Control Board should complete the Central Valley Pesticide Total Maximum Daily Load and Basin Plan Amendment for diazinon and chlorpyrifos by January 1, 2013.</i></li> <li>▪ <i>The State Water Resources Control Board and the Central Valley Regional Water Quality Control Board should prioritize and accelerate the completion of the Central Valley Pesticide Total Maximum Daily Load and Basin Plan Amendment for pyrethroids by January 1, 2016.</i></li> <li>▪ <i>The State Water Resources Control Board and the San Francisco Bay and Central Valley Regional Water Quality Control Boards have completed Total Maximum Daily Load and Basin Plan Amendments for methylmercury, and efforts to support their implementation should be coordinated. Parties identified as responsible for current methylmercury loads or proponents of projects that may increase methylmercury loading in the Delta or Suisun Marsh should participate in control studies or implement site-specific study plans that evaluate practices to minimize methylmercury discharges. The Central Valley Regional Water Quality Control Board should review these control studies by December 31, 2018, and determine control measures for implementation starting in 2020.</i></li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
WQ R9	Implement Delta Regional Monitoring Program	<i>The State Water Resources Control Board and Regional Water Quality Control Boards should work collaboratively with the California Department of Water Resources, California Department of Fish and Wildlife, and other agencies and entities that monitor water quality in the Delta to develop and implement a Delta Regional Monitoring Program that will be responsible for coordinating monitoring efforts so Delta conditions can be efficiently assessed and reported on a regular basis.</i>
WQ R10	Evaluate Wastewater Recycling, Reuse, or Treatment	<i>The Central Valley Regional Water Quality Control Board, consistent with existing water quality control plan policies and water rights law, should require responsible entities that discharge wastewater treatment plant effluent or urban runoff to Delta waters to evaluate whether all or a portion of the discharge can be recycled, otherwise used, or treated in order to reduce contaminant loads to the Delta by January 1, 2014.</i>
WQ R11	Manage Dissolved Oxygen in Stockton Ship Channel	<i>The State Water Resources Control Board and the Central Valley Regional Water Quality Control Board should complete Phase 2 of the Total Maximum Daily Load and Basin Plan Amendment for dissolved oxygen in the Stockton Deep Water Ship Channel by January 1, 2015.</i>
WQ R12	Manage Dissolved Oxygen in Suisun Marsh	<i>The State Water Resources Control Board and the San Francisco Bay Regional Water Quality Control Board should complete the Total Maximum Daily Load and Basin Plan Amendment for dissolved oxygen in Suisun Marsh wetlands by January 1, 2014.</i>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
<b>Chapter 7</b>		
RR R1	Implement Emergency Preparedness and Response	<p><i>The following actions should be taken by January 1, 2014, to promote effective emergency preparedness and response in the Delta:</i></p> <ul style="list-style-type: none"> <li>▪ <i>Responsible local, State, and federal agencies with emergency response authority should consider and implement the recommendations of the Sacramento-San Joaquin Delta Multi-Hazard Coordination Task Force (Water Code section 12994.5). Such actions should support the development of a regional response system for the Delta.</i></li> <li>▪ <i>In consultation with local agencies, the California Department of Water Resources should expand its emergency stockpiles to make them regional in nature and usable by a larger number of agencies in accordance with California Department of Water Resources' plans and procedures. The California Department of Water Resources, as a part of this plan, should evaluate the potential of creating stored material sites by "over-reinforcing" west Delta levees.</i></li> <li>▪ <i>Local levee-maintaining agencies should consider developing their own emergency action plans, and stockpiling rock and flood-fighting materials.</i></li> <li>▪ <i>State and local agencies and regulated utilities that own and/or operate infrastructure in the Delta should prepare coordinated emergency response plans to protect the infrastructure from long-term outages resulting from failures of the Delta levees. The emergency procedures should consider methods that also would protect Delta land use and ecosystem.</i></li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
RR R2	Finance Local Flood Management Activities	<p><i>The Legislature should create a Delta Flood Risk Management Assessment District with fee assessment authority (including over State infrastructure) to provide adequate flood control protection and emergency response for the regional benefit of all beneficiaries, including landowners, infrastructure owners, and other entities that benefit from the maintenance and improvement of Delta levees, such as water users who rely on the levees to protect water quality.</i></p> <p><i>This district should be authorized to:</i></p> <ul style="list-style-type: none"> <li>▪ <i>Identify and assess all beneficiaries of Delta flood protection facilities.</i></li> <li>▪ <i>Develop, fund, and implement a regional plan of flood management for both project and nonproject levees of the Delta, including the maintenance and improvement of levees, in cooperation with the existing reclamation districts, cities, counties, and owners of infrastructure and other interests protected by the levees.</i></li> <li>▪ <i>Require local levee-maintaining agencies to conduct annual levee inspections per the California Department of Water Resources subventions program guidelines, and update levee improvement plans every 5 years.</i></li> <li>▪ <i>Participate in the collection of data and information necessary for the prioritization of State investments in Delta levees consistent with RR P1.</i></li> <li>▪ <i>Notify residents and landowners of flood risk, personal safety information, and available systems for obtaining emergency information before and during a disaster on an annual basis.</i></li> <li>▪ <i>Potentially implement the recommendations of the Sacramento-San Joaquin Delta Multi-Hazard Coordination Task Force (Water Code section 12994.5) in conjunction with local, State, and federal agencies, and maintain the resulting regional response system and components and procedures on behalf of SEMS jurisdictions (reclamation district, city, county, and State) that would jointly implement the regional system in response to a disaster event.</i></li> <li>▪ <i>Identify and assess critical water supply corridor levee operations, maintenance, and improvements.</i></li> </ul>

POLICY OR RECOMMENDATION NUMBER	SHORT TITLE	POLICY/RECOMMENDATION LANGUAGE
RR R3	Fund Actions to Protect Infrastructure from Flooding and Other Natural Disasters	<ul style="list-style-type: none"> <li>▪ <i>The California Public Utilities Commission should immediately commence formal hearings to impose a reasonable fee for flood and disaster prevention on regulated privately owned utilities with facilities located in the Delta. Publicly owned utilities should also be encouraged to develop similar fees. The California Public Utilities Commission, in consultation with the Delta Stewardship Council, the California Department of Water Resources, and the Delta Protection Commission, should allocate these funds among State and local emergency response and flood protection entities in the Delta. If a new regional flood management agency is established by law, a portion of the local share would be allocated to that agency.</i></li> <li>▪ <i>The California Public Utilities Commission should direct all regulated public utilities in their jurisdiction to immediately take steps to protect their facilities in the Delta from the consequences of a catastrophic failure of levees in the Delta, to minimize the impact on the State's economy.</i></li> <li>▪ <i>The Governor, by Executive Order, should direct State agencies with projects or infrastructure in the Delta to set aside a reasonable amount of funding to pay for flood protection and disaster prevention. The local share of these funds should be allocated as described above.</i></li> </ul>
RR P1 (23 CCR section 5012)	Prioritization of State Investments in Delta Levees and Risk Reduction	<p>A. <b>Fund levee maintenance.</b> Funding for maintenance of levees shall continue to be available throughout the Delta where authorized by Water Code section 12980 et seq.</p> <p>B <b>Prioritize levee improvements.</b> The priorities listed below (see Delta Plan, Chapter 7 map and table of Delta Levees Investment Priorities) shall guide State discretionary investments in the improvement and major rehabilitation of Delta levees. As DWR selects levee improvement projects for funding through its levee funding programs, it should fund projects at the very high priority islands or tracts, subject to its consideration of the benefits, costs, engineering considerations, and other factors, before approving projects at high priority or other priority tracts. If available funds are sufficient to fully fund levee improvements at the very high priority tracts, then funds for improvements or major rehabilitation of levees on high priority islands and tracts may be provided, and after those projects have been fully funded, then projects at other priority islands and tracts may be funded.</p> <p><i>The Department of Water Resources shall certify projects' consistency with this regulatory policy when its funding decisions are made and shall report annually to the Council about its decisions to award State funds for Delta levee improvements, including the location of each funded improvement, the priority of the affected islands or tracts, the improvements funded, including the relevant levee improvement type, habitat mitigation or enhancement features, estimated reduction in levee fragility, expected reduction in annual fatalities and damages, State funds awarded, and local or federal matching funds.</i></p> <p><b>Delta Levee Investment Strategy (DLIS) Priorities</b></p> <p>When DWR's contributions towards levee improvements vary from these priorities, it shall identify how the funding is inconsistent with this guidance, describe why variation from the priorities is necessary, and explain how the funding nevertheless protects lives, property, and the State's interests in water supply reliability and restoration, protection, and enhancement of the Delta ecosystem</p>

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		<p><i>while considering the Delta's unique agricultural, natural, historic, and cultural values. That determination is subject to review by the Delta Stewardship Council on appeal.</i></p> <p>(a) <i>For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that involves discretionary State investments in the improvement and major rehabilitation of Delta levees. Nothing in this policy establishes or otherwise changes existing levee standards.</i></p>
RR R4	Actions for the Prioritization of State Investments in Delta Levees	<p><i>The Delta Stewardship Council, in consultation with the California Department of Water Resources, the Central Valley Flood Protection Board, the Delta Protection Commission, local agencies, and the California Water Commission, should develop funding priorities for State investments in Delta levees by January 1, 2015. These priorities shall be consistent with the provisions of the Delta Reform Act in promoting effective, prioritized strategic State investments in levee operations, maintenance, and improvements in the Delta for both levees that are a part of the State Plan of Flood Control and nonproject levees. Upon completion, these priorities shall be considered for incorporation into the Delta Plan.</i></p> <p><i>The priorities should identify guiding principles, constraints, recommended cost share allocations, and strategic considerations to guide Delta flood risk reduction investments, supported by, at a minimum, the following actions to be conducted by the California Department of Water Resources, consistent with available funding:</i></p> <ul style="list-style-type: none"> <li>▪ <i>An assessment of existing Delta levee conditions. This should include the development of a Delta levee conditions map based on sound data inputs, including, but not limited to:</i> <ul style="list-style-type: none"> <li>▪ <i>Geometric levee assessment</i></li> <li>▪ <i>Flow and updated stage-frequency analysis</i></li> </ul> </li> <li>▪ <i>An island-by-island economics-based risk analysis. This analysis should consider, but not be limited to, values related to protecting:</i> <ul style="list-style-type: none"> <li>▪ <i>Island residents/life safety</i></li> <li>▪ <i>Property</i></li> <li>▪ <i>Value of Delta islands' economic output, including agriculture</i></li> <li>▪ <i>State water supply</i></li> <li>▪ <i>Critical local, State, federal, and private infrastructure, including aqueducts, state highways, electricity transmission lines, gas/petroleum pipelines, gas fields, railroads, and deep water shipping channels</i></li> <li>▪ <i>Delta water quality</i></li> <li>▪ <i>Existing ecosystem values and ecosystem restoration opportunities</i></li> <li>▪ <i>Recreation</i></li> <li>▪ <i>Systemwide integrity</i></li> </ul> </li> <li>▪ <i>An ongoing assessment of Delta levee conditions. This should include a process for updating Delta levee assessment information on a routine basis.</i></li> </ul> <p><i>This methodology should provide the basis for the prioritization of State investments in Delta levees. It should include, but not be limited to, the public reporting of the following items:</i></p>

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		<ul style="list-style-type: none"> <li>▪ Tiered ranking of Delta islands, based on economics-based risk analysis values</li> <li>▪ Delta levee conditions status report, including a levee conditions map</li> <li>▪ Inventory of Delta infrastructure assets</li> </ul>
RR P2 (23 CCR section 5013)	Require Flood Protection for Residential Development in Rural Areas	<p>(a) New residential development of five or more parcels shall be protected through floodproofing to a level 12 inches above the 100-year base flood elevation, plus sufficient additional elevation to protect against a 55-inch rise in sea level at the Golden Gate, unless the development is located within:</p> <ol style="list-style-type: none"> <li>(1) Areas that city or county general plans, as of May 16, 2013, designate for development in cities or their spheres of influence;</li> <li>(2) Areas within Contra Costa County's 2006 voter-approved urban limit line, except Bethel Island;</li> <li>(3) Areas within the Mountain House General Plan Community Boundary in San Joaquin County; or</li> <li>(4) The unincorporated Delta towns of Clarksburg, Courtland, Hood, Locke, Ryde, and Walnut Grove, as shown in Appendix 7.</li> </ol> <p>(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that involves new residential development of five or more parcels that is not located within the areas described in subsection (a).</p>
RR P3 (23 CCR section 5014)	Protect Floodways	<p>(a) No encroachment shall be allowed or constructed in a floodway, unless it can be demonstrated by appropriate analysis that the encroachment will not unduly impede the free flow of water in the floodway or jeopardize public safety.</p> <p>(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that would encroach in a floodway that is not either a designated floodway or regulated stream.</p>
RR P4 (23 CCR section 5015)	Floodplain Protection	<p>(a) No encroachment shall be allowed or constructed in any of the following floodplains unless it can be demonstrated by appropriate analysis that the encroachment will not have a significant adverse impact on floodplain values and functions:</p> <ol style="list-style-type: none"> <li>(1) The Yolo Bypass within the Delta;</li> <li>(2) The Cosumnes River-Mokelumne River Confluence, as defined by the North Delta Flood Control and Ecosystem Restoration Project (McCormack-Williamson), or as modified in the future by the California Department of Water Resources or the U.S. Army Corps of Engineers (California Department of Water Resources 2010); and</li> <li>(3) The Lower San Joaquin River Floodplain Bypass area, located on the Lower San Joaquin River upstream of Stockton immediately southwest of Paradise Cut on lands both upstream and downstream of the Interstate 5 crossing. This area is described in the Lower San Joaquin River Floodplain Bypass Proposal, submitted to the California Department of Water Resources by the partnership of the South Delta Water Agency, the River Islands Development Company, Reclamation District 2062, San Joaquin Resource Conservation District, American Rivers, the American Lands Conservancy, and the Natural</li> </ol>

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		<p><i>Resources Defense Council, March 2011. This area may be modified in the future through the completion of this project.</i></p> <p>(b) <i>For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that would encroach in any of the floodplain areas described in subsection (a).</i></p> <p>(c) <i>This policy is not intended to exempt any activities in any of the areas described in subsection (a) from applicable regulations and requirements of the Central Valley Flood Protection Board.</i></p>
RR R5	Fund and Implement San Joaquin River Flood Bypass	<p><i>The Legislature should fund the California Department of Water Resources and the Central Valley Flood Protection Board to evaluate and implement a bypass and floodway on the San Joaquin River near Paradise Cut that would reduce flood stage on the mainstem San Joaquin River adjacent to the urban and urbanizing communities of Stockton, Lathrop, and Manteca in accordance with Water Code section 9613(c).</i></p>
RR R6	Continue Delta Dredging Studies	<p><i>The current efforts to maintain navigable waters in the Sacramento River Deep Water Ship Channel and Stockton Deep Water Ship Channel, led by the U.S. Army Corps of Engineers and described in the Delta Dredged Sediment Long-Term Management Strategy (USACE 2007, Appendix K), should be continued in a manner that supports the Delta Plan and the coequal goals. Appropriate dredging throughout other areas in the Delta for maintenance purposes, or that would increase flood conveyance and provide potential material for levee maintenance or subsidence reversal should be implemented in a manner that supports the Delta Plan and coequal goals. Coordinated use of dredged material in levee improvement, subsidence reversal, or wetland restoration is encouraged.</i></p>
RR R7	Designate Additional Floodways	<p><i>The Central Valley Flood Protection Board should evaluate whether additional areas both within and upstream of the Delta should be designated as floodways. These efforts should consider the anticipated effects of climate change in its evaluation of these areas.</i></p>
RR R8	Develop Setback Levee Criteria	<p><i>The California Department of Water Resources, in conjunction with the Central Valley Flood Protection Board, the California Department of Fish and Wildlife, and the Delta Conservancy, should develop criteria to define locations for future setback levees in the Delta and Delta watershed.</i></p>
RR R9	Require Flood Insurance	<p><i>The Legislature should require an adequate level of flood insurance for residences, businesses, and industries in floodprone areas.</i></p>
RR R10	Limit State Liability	<p><i>The Legislature should consider statutory and/or constitutional changes that would address the State's potential flood liability, including giving State agencies the same level of immunity with regard to flood liability as federal agencies have under federal law.</i></p>

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<b>Chapter 8</b>		
FP R1	Conduct Current Spending Inventory	<i>An inventory of current State and federal spending on programs and projects that do or may achieve the coequal goals will be conducted. Data sources to be used include the CALFED cross-cut budget, State bond balance reports, and the annual State budget, among others. Consideration will be given to selecting an independent agency (which could include a non governmental organization) to conduct the inventory.</i>
FP R2	Develop Delta Plan Cost Assessment	<i>Costs will be assigned to the projects and programs proposed in the Delta Plan (Chapters 2 through 7) and sources of funding will be identified.</i>
FP R3	Identify Funding Gaps	<i>Current State and federal funding gaps will be identified that are determined to hinder progress toward meeting the coequal goals.</i>

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