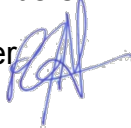




DELTA STEWARDSHIP COUNCIL

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To: Delta Stewardship Council Members
From: Joe Grindstaff, Executive Officer 
Date: February 14, 2011
Subject: Delta Plan – First Staff Draft

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Today we will release the Agenda package for next week's meeting --- containing the first staff draft of the Delta Plan. I expect that our final Delta Plan will look drastically different from this version, but this first draft is intended to provide you with a discussion document and to assist you as you consider the direction and policy goals of the Delta Plan.

I want to point out four key preliminary staff draft findings in this document:

1. **“California’s total water supply is oversubscribed. California regularly uses more water annually than is provided by nature.”** This reality makes the management of our limited surface water supplies and the Delta even more critical. When water exports from the Delta are reduced, the unintended consequence is increased demand on an already overused and unsustainable groundwater system.
2. **“California’s water supply is increasingly volatile.”** Precipitation and runoff patterns are changing, increasing uncertainty for water supply and quality, flood management, and ecosystem functions.” We must adapt our management practices in order to protect ourselves against present and future risk and if we are to achieve the coequal goals.
3. **“Even with substantial ecosystem restoration efforts, some native species may not survive.”** Best available science indicates that some stressors are beyond our control and the system may have already changed so much that some species may never be able to recover.
4. **“There is no comprehensive state or regional emergency response plan for the Delta.”** In spite of all the analysis that says that we have greater risk than New Orleans, all we have at the state and regional level are plans to develop plans.

On the positive side, I do believe the Delta Plan finally offers California an opportunity to address some of the Delta’s most vexing problems, specifically, achieving the co-equal goals.

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

There are some things to keep in mind as you review the draft:

The Executive Summary, Chapters 4 (Science and Adaptive Management), 7 (Water Quality), 10 (Governance), 11 (the Finance Plan) and 12 (Integration of Delta Plan Strategies) will be added later. Some of these chapters will evolve around the decisions made in the main policy chapters.

At the heart of this first draft are the core policy chapters: Manage Water Resources, Restore Delta Ecosystem, Reduce Delta Flood Risk, Protect and Enhance...the California Delta as Evolving Place.

For this version I ask you look past the wordsmithing and readability issues that will be worked out by staff over time. Instead, draw your attention to the organizing principles of the draft, and give staff direction on how to approach the findings and strategies.

The core chapters (chapters 5 – 9) are organized as follows: introduction, co-equal goals, inherent objectives (drawn from Water Code Section 85020), other objectives (drawn from the Delta Reform Act as well as other state law), findings, and finally, a list of potential policy areas for additional focus. In this draft, the findings range from direct quotations from state law to conclusions or excerpts from state or local agency publications.

I welcome your input about how staff should organize and standardize the findings sections and in determining appropriate linkages between the findings, statutory objectives and eventually, the policies. This will naturally lead to a discussion about how to craft policies that will ultimately achieve the objectives of the Delta Plan.

Once the Council weighs in on the structure of the Delta Plan, staff can format the document and improve its readability and logical flow. After this is accomplished the Council can focus exclusively on the policy-based discussions, which will be the heart of the Delta Plan.

At our February 24-25 meeting we have reserved six hours to devote to discussion of the staff draft. At the following meeting (workshop) on March 10-11 we expect to have more in depth discussion of each of the core policy chapters, with panels and detailed analysis. The second version of draft Delta Plan will be released on March 18. We will then make sure staff has satisfactorily reflected your direction and proceed with the Delta Plan development process, one draft each month with up to four days of discussion. The fourth version in May is anticipated to become the basis for our Draft Environmental Impact Report (EIR).

After circulating the draft EIR we will bring back all the public comments and once again a new draft of the plan. After three additional months, we expect the seventh draft in November to be the final staff draft, with the Council at that meeting adopting the Delta Plan. The plan is then forwarded to the Office of Administrative Law (OAL) which reviews the plan and issues it as a regulation.

FIRST STAFF DRAFT DELTA PLAN

This is the first of seven (7) staff draft versions of the Delta Plan, which will be presented to the Delta Stewardship Council (Council) in the following order:

- ◆ **February 2011:** First Staff Draft Delta Plan
- ◆ **March 2011:** Second Staff Draft Delta Plan
- ◆ **April 2011:** Third Staff Draft Delta Plan
- ◆ **May 2011:** Fourth Staff Draft Delta Plan (for modification and approval by the Council to be circulated with the Draft Environmental Impact Report)
- ◆ **September 2011:** Fifth Staff Draft Delta Plan
- ◆ **October 2011:** Sixth Staff Draft Delta Plan
- ◆ **November 2011:** Seventh Staff Draft Delta Plan (for adoption by the Council)

At each stage of the development of the Staff Draft Delta Plan there will be public meetings at the Council meetings for the purpose of receiving information and comments and for Council deliberation. In addition, public comments are welcome during the entire process and will become a formal part of the record. The Council encourages written public comments to be submitted to deltaplancomment@deltacouncil.ca.gov.

All Council meetings are public and simulcast on the Council website at www.deltacouncil.ca.gov.

RELEVANT POINTS TO THE FIRST STAFF DRAFT DELTA PLAN

- ◆ Executive Summary and Chapters 4, 6, 10, 11 and 12 are under development and are not included in the First Staff Draft Delta Plan.
- ◆ Performance Measures and Targets are under development and will be included as they are completed.
- ◆ Graphics are under development and will be included as they are completed.
- ◆ Technical editing for all information in the Staff Draft Delta Plan versions, including fact-checking, grammatical, and style changes, and inclusion of additional citations and references will be ongoing.

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Executive Summary

1

2

3 *Under Development*

4

Chapter 1

The Delta Plan

1
2

3 In November 2009, the California Legislature enacted SBX7 1 to ensure statewide water supply reliability
4 and ecosystem health for the Sacramento-San Joaquin Delta (Delta) and Suisun Marsh. SBX7 1 became
5 effective on February 3, 2010. ¹ Among other provisions, SBX7 1 included the Sacramento-San Joaquin
6 Delta Reform Act of 2009 (Delta Reform Act) that requires development of a legally enforceable,
7 comprehensive, long-term management plan for the Delta and Suisun Marsh, referred to as the Delta Plan.

8 The Delta Stewardship Council (Council), an independent agency of the state created by SBX7 1 will
9 "...develop, adopt, and commence implementation of the Delta Plan by January 1, 2012." (Water Code
10 Section 85300)

11 The fundamental purpose of the Delta Plan is to achieve the coequal goals. The coequal goals are defined
12 in law as "*the two goals of providing a more reliable water supply for California and protecting,*
13 *restoring, and enhancing the Delta ecosystem.*" These fundamental statewide interests will be pursued in
14 a way that "*...protects and enhances the unique cultural, recreational, natural resources, and agricultural*
15 *values of the Delta as an evolving place.*" (Water Code Section 85054). The Delta Reform Act also
16 defines a number of objectives for the Delta Plan, which will guide the development of policies and
17 strategies in future drafts.

18 The Delta Plan is a legally enforceable management plan for the Delta that will establish state policy
19 related to the Delta and guide the actions of state and local agencies. Proposed projects that occur in
20 whole or in part in the Delta ("covered actions," as defined in Water Code Section 85057.5) must be
21 consistent with the Delta Plan. The Delta Plan will include policies, strategies and performance measures
22 which aim to reduce future risks to the Delta, Suisun Marsh, and most of California and to achieve the
23 objectives as set forth in state law. The Delta Plan looks ahead to 2100. However, the Delta Plan will also
24 propose strategies that are needed immediately, and actions phased through time to attain the coequal
25 goals by or before 2100. The phasing of the Delta Plan is described in further detail in Chapter 2.

26 The Delta Plan is designed to address the challenges and identify the opportunities that exist and that are
27 anticipated to occur during the next century. To be clear, no plan can solve all the problems of the Delta,
28 or the water and ecosystem concerns of California. As with other major social issues --- poverty, crime,
29 healthcare, tax policy, environmental protection, economic growth --- new generations of Californians
30 will debate and address these continuing issues. However, the Delta Plan will be successful if it allows

¹ The Act modified amended Sections 29702, 29725, 29727, 29733, 29735, 29735.1, 29738, 29741, 29751, 29752, 29754, 29756.5, 29763, 29771, and 29780 of the Public Resources Code; added Sections 29703.5, 29722.5, 29722.7, 29728.5, 29759, 29773, 29773.5, and 29778.5; added Division 22.3 of the Public Resources Code; repealed Section 29762 and repealed and added Sections 29736, 29739, 29753, 29761, 29761.5, and 29764 of the Public Resources Code. The Act also added Division 35 (commencing with Section 85300) and repealed Division 26.4 of the Water Code.

1 California to move forward on the key statewide concerns, while recognizing the uniqueness of the Delta
2 and Suisun Marsh.

3 The Delta is Critical to all Californians and to 4 Delta Residents

5 The Sacramento-San Joaquin Delta and Suisun Marsh is part of an estuary of enormous significance. At
6 the same time, the Delta is the location through which water flows to more than two-thirds of all
7 Californians. The Delta also is home to approximately 600,000 residents (Delta Protection Commission,
8 Final Draft Economic Sustainability Plan, Framework Study, 2010). Most of these residents live in urban
9 development located along the edges of the Delta and Suisun Marsh.

10 The Delta is defined by water that flows from the 27.2 million acre watershed of the Sacramento and San
11 Joaquin rivers, and 1,115 miles of levees that create approximately 65 islands or tracts and help protect
12 over 737,000 acres of land within the statutory Delta. Downstream and to the west of the Delta, the
13 Suisun Marsh is defined by more than 200 miles of levees that create over 85,000 acres of managed
14 wetlands, uplands, and waterways.

15 The boundaries of the statutory Delta were established by the Delta Protection Act of 1959 (Water Code
16 Section 12220). The boundaries of the 490,053-acre Primary Zone and the 246,938-acre Secondary Zone
17 were defined by the Delta Protection Act of 1992, as defined below.

18 *"Delta" means the Sacramento-San Joaquin Delta, as defined in Section 12220 of the Water*
19 *Code...(Public Resources Code Section 29722)*

20 *"Primary zone" means the delta land and water area of primary state concern and statewide*
21 *significance which is situated within the boundaries of the delta, as described in Section 12220 of*
22 *the Water Code, but that is not within either the urban limit line or sphere of influence line of any*
23 *local government's general plan or currently existing studies, as of January 1, 1992. The precise*
24 *boundary lines of the primary zone includes the land and water areas as shown on the map titled*
25 *"Delta Protection Zones" on file with the Secretary of State. Where the boundary between the*
26 *primary zone and secondary zone is a river, stream, channel, or waterway, the boundary line*
27 *shall be the middle of that river, stream, channel, or waterway." (Public Resources Code Section*
28 *29728)*

29 *"Secondary zone" means all the delta land and water area within the boundaries of the delta not*
30 *included within the primary zone, subject to the land use authority of local government, and that*
31 *includes the land and water areas as shown on the map titled 'Delta Protection Zones' on file*
32 *with the Secretary of State." (Public Resources Code Section 29731)*

33 While actions within the Delta are critical to its future sustainability, actions outside of the Delta,
34 including upstream and downstream urban and agricultural use patterns, have perhaps the greatest impact
35 on the Delta and its sustainability. Water management practices across the state affect demand on water
36 supplies conveyed through the Delta. For this reason, as supported by language in SBX7 1, the Delta Plan
37 will address statewide actions, including water management practices, as they relate to the Delta.

38 The Delta and the Delta watershed are essential for virtually all of California's residents and provide the
39 following significant benefits:

- 40 ♦ The Delta watershed provides all or a portion of surface water or groundwater supplies to more
41 than 96 percent of residents in California (Department of Finance website, 2011).

- 1 ♦ The Delta supports more than 55 fish species and more than 750 plant and wildlife species. Of
2 these species, approximately 100 wildlife species, 140 plant species, and 13 taxonomic units of
3 fish are considered special-status species, and are afforded some form of legal or regulatory
4 protection. (CNDDDB, 2010; USFWS, 2010; CNPS, 2010)
- 5 ♦ The Delta and Suisun Marsh levees and lands support interstate and state highways and railroad
6 tracks that support intra-state and inter-state California traffic; more than 500 miles of major
7 electrical transmission lines (115 to 500 kilovolts), 60 substations, and over 400 miles of major
8 natural gas pipelines that provide energy throughout Northern California; and critical pipelines
9 that provide transportation fuels from Sacramento to airports and other fuel depots throughout the
10 San Francisco Bay Area. (DPC, 2010; DWR, 2009)
- 11 ♦ The Delta and Suisun Marsh levees and lands support over 500,000 acres of agricultural crops
12 and 146,000 employees that directly or indirectly support a portion of the California economy.
13 (DPC, 2010)

14 California has Declared that the Delta is a Natural Resource of 15 Major Significance

16 The California Legislature and past Governors have recognized the importance of the Delta and the Delta
17 watershed through numerous declarations and findings included in the Public Resources and Water codes,
18 including the following findings:

19 *...the Sacramento-San Joaquin Delta is a natural resource of statewide, national, and*
20 *international significance, containing irreplaceable resources, and it is the policy of the state to*
21 *recognize, preserve, and protect those resources of the delta for the use and enjoyment of current*
22 *and future generations. (Public Resources Code Section 29701)*

23 *...the Delta is a critically important natural resource for California and the nation. It serves*
24 *Californians concurrently as both the hub of the California water system and the most valuable*
25 *estuary and wetland ecosystem on the west coast of North and South America. (Water Code*
26 *Section 85002)*

27 *The Delta is a distinct and valuable natural resource of vital and enduring interest to all the*
28 *people and exists as a delicately balanced estuary and wetland ecosystem of hemispheric*
29 *importance. (Water Code Section 85022(c)(1))*

30 *The permanent protection of the Delta's natural and scenic resources is the paramount concern*
31 *to present and future residents of the state and nation. (Water Code Section 85022(c)(2))*

32 *To promote the public safety, health, and welfare, and to protect public and private property,*
33 *wildlife, fisheries, and the natural environment, it is necessary to protect and enhance the*
34 *ecosystem of the Delta and prevent its further deterioration and destruction. (Water Code Section*
35 *85022(c)(3))*

36 *The agricultural land of the Delta, while adding greatly to the economy of the state, also provides*
37 *a significant value as open space and habitat for water fowl using the Pacific Flyway, as well as*
38 *other wildlife, and the continued dedication and retention of that Delta land in agricultural*
39 *production contributes to the preservation and enhancement of open space and habitat values.*
40 *(Public Resources Code Section 29703(b))*

41

1 The Delta is at Risk

2 Conditions that threaten the Delta are real, immediate, and of concern to all Californians. Business as
3 usual operations, management and investment will all but guarantee failure. Numerous studies have
4 evaluated how the water systems, Delta and Suisun Marsh ecosystems, and Delta and Suisun Marsh levee
5 systems function; and how likely it is for the Delta and Suisun Marsh to successfully resist or recover
6 from ongoing and future threats. While some of the policy implications of these studies are disputed, their
7 underlying conclusions are consistent. Water supplies and ecosystem health in the Delta, Suisun Marsh,
8 and the Delta watershed; general condition of, and level of investment necessary to maintain Delta and
9 Suisun Marsh levees; and the ability of the Delta economy to respond to these changing issues are simply
10 inadequate to counter the number, severity, and likelihood of risks that the Delta and Suisun Marsh
11 currently face.

12 The entire statutory Delta, as shown in Figure 1-1, has been declared "inherently floodprone," in state
13 law.² The Delta is located near numerous earthquake fault zones, especially along the western edge, that
14 threaten residents, visitors, agriculture, and the ecosystem. Urban development that is encroaching upon
15 the Delta risks disrupting the unique character of the community.

16 Collectively, these risks:

- 17 ♦ Threaten lives, property, and sectors of California's economy;
- 18 ♦ Threaten water supplies in part or in whole for a large portion of the state;
- 19 ♦ Threaten ecosystem conditions that support anadromous fish populations throughout the Delta
20 watershed and along the Pacific Coast;
- 21 ♦ Threaten migrating birds along a portion of the Pacific Flyway;
- 22 ♦ Threaten existing transportation and energy corridors that cross the Delta, and
- 23 ♦ Threaten the continued existence of unique Delta communities.

24 It would be a mistake to act as if each risk can be addressed on its own. All of the risks in the Delta are
25 linked, and the ability to respond to those risks requires that the linkages be acknowledged.

26 Recent Events: The Delta Vision Effort

27 After decades of political debates, statewide ballot measures, and many statutory changes trying to solve
28 the complex problems of the Delta and Suisun Marsh, and the Delta watershed then-Governor Arnold
29 Schwarzenegger issued Executive Order 2-17-06 on September 28, 2006 initiating the Delta Vision
30 process to develop a "durable vision for sustainable management of the Delta." The Executive Order
31 presented a summary of the concerns for the continued viability of the Delta and defined the following
32 Delta issues:

33 *"the Sacramento-San Joaquin Delta estuary, including Suisun Bay and Marsh (hereafter*
34 *"Delta"), supports a unique and irreplaceable combination of environmental and economic*
35 *resources. The Delta is a source of water for farmlands, growing communities and businesses*

² The Legislature further finds that improvements and continuing maintenance of the levee system will not resolve all flood risks and that the delta is inherently a floodprone area wherein the most appropriate land uses are agriculture, wildlife habitat, and, where specifically provided, recreational activities, and that most of the existing levee systems are degraded and in need of restoration, improvement, and continuing management. (Public Resources Code Section 29704)

1 *and provides a unique estuarine habitat for many resident and migratory fish and birds, some*
2 *listed as threatened or endangered species. It is an area that supports vital energy,*
3 *transportation, communications and water facilities, and important agricultural, recreational*
4 *and cultural resources. The Delta is of state and national significance and must be protected and*
5 *managed effectively for the future well being of the people and the environment.."*

6 *"the Delta is the hub of California's two largest water distribution systems, the federal Central*
7 *Valley Project and State Water Project, and at least 7,000 other permitted water diverters have*
8 *developed water supplies from the watershed feeding the Bay-Delta estuary, providing drinking*
9 *water to about 23 million people and irrigation water to about 7 million acres of highly*
10 *productive agricultural lands."*

11 *"the Delta is intersected by highways, roads, and utility lines critical to regional, state and*
12 *interstate commerce and economy."*

13 *"recent findings that indicate a two in three chance of a major earthquake occurring in or near*
14 *the Delta in the next fifty years, have raised awareness and concerns about the vulnerability of*
15 *Delta levees...threats such as an aging levee system, regional climate change, rising sea levels,*
16 *seismic events and urbanization pose an imminent threat to the Delta."*

17 *"the combined threats and changing conditions within the Delta require immediate attention*
18 *because of the potentially catastrophic environmental and economic consequences if timely*
19 *action is not planned for and undertaken."*

20 In response to decades of federal, state and local reports dealing with water, ecosystem, flood, levee
21 protection and other issues impacting the Delta, and in response to recommendations in the Delta Vision
22 Strategic Plan and other studies, the Legislature adopted SB7X 1, which included the Delta Reform Act
23 and created the Council, and required development of the Delta Plan. SBX7 1 contains the following
24 declarations of legislative intent which are relevant to the Council's preparation of the Delta Plan (Water
25 Code Sections 85001 through 85004):

26 85001. *The Legislature finds and declares all of the following:*

27 *(a) The Sacramento-San Joaquin Delta watershed and California's water infrastructure*
28 *are in crisis and existing Delta policies are not sustainable. Resolving the crisis requires*
29 *fundamental reorganization of the state's management of Delta watershed resources.*

30 *(b) In response to the Delta crisis, the Legislature and the Governor required*
31 *development of a new long-term strategic vision for managing the Delta. The Governor*
32 *appointed a Blue Ribbon Task Force to recommend a new "Delta Vision Strategic Plan"*
33 *to his cabinet committee, which, in turn, made recommendations for a Delta Vision to the*
34 *Governor and the Legislature on January 3, 2009.*

35 *(c) By enacting this division, it is the intent of the Legislature to provide for the*
36 *sustainable management of the Sacramento-San Joaquin Delta ecosystem, to provide for*
37 *a more reliable water supply for the state, to protect and enhance the quality of water*
38 *supply from the Delta, and to establish a governance structure that will direct efforts*
39 *across state agencies to develop a legally enforceable Delta Plan.*

40 The Delta Vision Strategic Plan stated that Californians are beginning to be aware that water is not an
41 unlimited resource and resolving competing demands for the water and Delta resources will require
42 resolution of conflicts through the effective use of California's water rights law, including reasonable use
43 and public trust principles. Californians that rely upon the Delta also are beginning to understand that
44 Delta levees will require substantial improvement to prevent future failures caused by ongoing operations,

1 lack of maintenance, seismic events, climatic events, or sea level rise. As was described in the Delta
2 Vision Strategic Plan, the following items should be considered for the Delta Plan:

- 3 ♦ California state government cannot guarantee adequate rain or snow every year to provide
4 reliable Delta watershed water supplies to meet all existing and projected water demands at
5 affordable prices.
- 6 ♦ California state government cannot guarantee every threatened and endangered species in the
7 Delta will be restored to a population level that existed decades ago.
- 8 ♦ California state government cannot guarantee the Delta will be free from threats of flood,
9 earthquake, or other natural disasters. Nor can the state necessarily provide funds to repair all
10 levees and protect all current uses of land.

11 However, California state government can work with Californians to plan for regionally sustainable water
12 supplies to meet reasonable water demands for all beneficial uses; implement ecosystem restoration plans
13 to improve the health of the Delta and Suisun Marsh ecosystem; improve Delta water quality to support
14 human health and a healthy ecosystem; reduce risks in the Delta to future land uses and infrastructure
15 benefits; and work with the Delta communities to provide an evolving Delta that protects and enhances
16 the unique cultural, recreational, and agricultural values of the Delta. The Delta Plan is intended to do just
17 that.

18

Chapter 2

Purpose and Use of the Delta Plan

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3

4 The fundamental purpose of the Delta Plan is to further the coequal goals and all of the inherent policy
5 objectives defined by statute. The Delta Plan will establish a set of integrated, legally enforceable
6 policies, strategies, and actions that will serve as a basis for future findings of consistency by state and
7 local agencies with regard to projects related to the Delta (Water Code Section 85300(a)), and for
8 subsequent evaluation of those findings by the Council on appeal, as provided in statute and Council
9 regulation. Meeting the coequal goals will require that proposed plans, programs and projects that impact
10 the Delta will be carried out, approved or funded by a state or local agency are consistent with the Delta
11 Plan.

12 [Ed. Note: draft findings and categories of policies and strategies are included in this draft but will
13 undergo many rounds of revision]

14 Implementation of the Coequal Goals and 15 Objectives

16 The objectives of the Delta Plan are defined by the coequal goals, and policy objectives presented in
17 Water Code sections 85054, 85020, 85021, 85022(c), and 85023, as follows.

18 85054. *"Coequal goals" means the two goals of providing a more reliable water supply for*
19 *California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall*
20 *be achieved in a manner that protects and enhances the unique cultural, recreational, natural*
21 *resource, and agricultural values of the Delta as an evolving place.*

22 85020. *The policy of the State of California is to achieve the following objectives that the*
23 *Legislature declares are inherent in the coequal goals for management of the Delta:*

24 (a) *Manage the Delta's water and environmental resources and the water resources of*
25 *the state over the long term.*

26 (b) *Protect and enhance the unique cultural, recreational, and agricultural values of the*
27 *California Delta as an evolving place.*

28 (c) *Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a*
29 *healthy estuary and wetland ecosystem.*

- 1 *(d) Promote statewide water conservation, water use efficiency, and sustainable water*
2 *use.*
- 3 *(e) Improve water quality to protect human health and the environment consistent with*
4 *achieving water quality objectives in the Delta.*
- 5 *(f) Improve the water conveyance system and expand statewide water storage.*
- 6 *(g) Reduce risks to people, property, and state interests in the Delta by effective*
7 *emergency preparedness, appropriate land uses, and investments in flood protection.*
- 8 *(h) Establish a new governance structure with the authority, responsibility,*
9 *accountability, scientific support, and adequate and secure funding to achieve these*
10 *objectives.*
- 11 85021. *The policy of the State of California is to reduce reliance on the Delta in meeting*
12 *California's future water supply needs through a statewide strategy of investing in improved*
13 *regional supplies, conservation, and water use efficiency. Each region that depends on water*
14 *from the Delta watershed shall improve its regional self-reliance for water through investment in*
15 *water use efficiency, water recycling, advanced water technologies, local and regional water*
16 *supply projects, and improved regional coordination of local and regional water supply efforts.*
- 17 85022 *(c) The Legislature finds and declares all of the following:*
- 18 *(1) The Delta is a distinct and valuable natural resource of vital and enduring*
19 *interest to all the people and exists as a delicately balanced estuary and wetland*
20 *ecosystem of hemispheric importance.*
- 21 *(2) The permanent protection of the Delta's natural and scenic resources is the*
22 *paramount concern to present and future residents of the state and nation.*
- 23 *(3) To promote the public safety, health, and welfare, and to protect public and*
24 *private property, wildlife, fisheries, and the natural environment, it is necessary*
25 *to protect and enhance the ecosystem of the Delta and prevent its further*
26 *deterioration and destruction.*
- 27 *(4) Existing developed uses, and future developments that are carefully planned*
28 *and developed consistent with the policies of this division, are essential to the*
29 *economic and social well-being of the people of this state and especially to*
30 *persons living and working in the Delta.*
- 31 85023. *The longstanding constitutional principle of reasonable use and the public trust doctrine*
32 *shall be the foundation of state water management policy and are particularly important and*
33 *applicable to the Delta.*

34 **Geographic Scope and Use of the Delta Plan**

35 The Council is the agency charged with adopting and implementing the Delta Plan. Additionally, state
36 and local agencies proposing to undertake a "covered action," as defined by Water Code Section 85057.5,
37 must certify that the action is consistent with the Delta Plan in accordance with Water Code Section
38 85225.

39 The Delta Plan includes a range of policies and strategies that will guide state and local agency actions
40 that take place in the Delta, Delta watershed, and areas of the state that use water from the Delta

1 watershed, as shown in Figure 2-1. The geographical areas covered by the Delta Plan are defined as
2 follows:

3 The Primary Planning Area includes the statutory Delta and Suisun Marsh based upon Water Code
4 Section 85300(a) that states "*The Delta Plan shall include subgoals and strategies to assist in guiding*
5 *state and local agency actions related to the Delta.*" One of the uses of these strategies will be for state or
6 local public agencies that propose to undertake a covered action to determine if the covered action is
7 consistent with the Delta Plan. The term "covered action" is defined in Water Code Section 85057.5(a)
8 generally as "*a plan, program, or project as defined pursuant to Section 21065 of the Public Resources*
9 *Code that...[w]ill occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh.*" The
10 Act defines the term "Delta" in Section 85058 which refers to "*the Sacramento-San Joaquin Delta as*
11 *defined in Section 12220 and the Suisun Marsh, as defined in Section 29101 of the Public Resources*
12 *Code.*"

13 The Secondary Planning Area includes areas within the Delta watershed, other areas that contribute water
14 to the Delta watershed through imports (Trinity watershed), and areas outside of the Delta watershed that
15 use water from the watershed. The Council extended the Delta Plan planning area outside of the Delta and
16 Suisun Marsh because the Act includes several provisions that address issues outside of the Delta,
17 including Water Code Sections 85020(d), 85302(b), 85303, 85304, and 85307(a).

18 85020(d) *Promote statewide water conservation, water use efficiency, and sustainable water use.*

19 85302(b) *The geographic scope of the ecosystem restoration projects and programs identified in*
20 *the Delta Plan shall be the Delta, except that the Delta Plan may include recommended*
21 *ecosystem projects outside the Delta that will contribute to achievement of the coequal goals.*

22 85303. *The Delta Plan shall promote statewide water conservation, water use efficiency, and*
23 *sustainable use of water.*

24 85304. *The Delta Plan shall promote options for new and improved infrastructure relating to the*
25 *water conveyance in the Delta, storage systems, and for the operation of both to achieve the*
26 *coequal goals.*

27 85307(a) *The Delta Plan may identify actions to be taken outside of the Delta, if those actions are*
28 *determined to significantly reduce flood risks in the Delta.*

29 The Delta Plan is designed to be considered by federal agencies as described in Water Code Section
30 85300(d)(1) and (2).

31 85300 (d) (1) *The council shall develop the Delta Plan consistent with all of the following:*

32 (A) *The federal Coastal Zone Management Act of 1972 (16 U.S.C. Sec. 1451 et*
33 *seq.), or an equivalent compliance mechanism.*

34 (B) *Section 8 of the federal Reclamation Act of 1902.*

35 (C) *The federal Clean Water Act (33 U.S.C. Sec. 1251 et seq.).*

36 (2) *If the council adopts a Delta Plan pursuant to the federal Coastal Zone Management*
37 *Act of 1972 (16 U.S.C. Sec. 1451 et seq.), the council shall submit the Delta Plan for*
38 *approval to the United States Secretary of Commerce pursuant to that act, or to any other*
39 *federal official assigned responsibility for the Delta pursuant to a federal statute enacted*
40 *after January 1, 2010.*

41 Following submission of the Delta Plan to the United States Secretary of Commerce, it is anticipated that
42 the Department of Commerce would consider the application and, if determined appropriate, initiate

1 environmental review pursuant to the National Environmental Policy Act (NEPA) of 1970 to inform their
2 decisions.

3 Inclusion and Consideration of Other Plans

4 Several concurrent planning efforts will be reviewed during preparation of the Delta Plan. Some of these
5 plans are not yet complete and may not be complete in time to be considered in their final form. The
6 Council will consider what information is available and can elect to amend the Delta Plan at any time to
7 include or reflect new information. These plans include the Delta Protection Commission Land Use and
8 Resources Management Plan, Economic Sustainability Plan, and the studies used to develop the
9 Economic Sustainability Plan; Central Valley Flood Protection Plan; Habitat Management, Preservation
10 and Restoration Plan for Suisun Marsh; State Water Resources Control Board Development of Flow
11 Criteria for the Sacramento-San Joaquin Delta Ecosystem; Department of Fish and Game Draft
12 Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern
13 Dependent on the Delta; California Emergency Management Agency emergency preparedness and
14 response strategies for the Delta; Bay Delta Conservation Plan; San Joaquin County Multi-Species
15 Habitat Conservation and Open Space Plan; East Contra Costa County Habitat Conservation Plan; Habitat
16 Conservation Plans and Natural Community Conservation Plans under development for Santa Clara
17 County, Solano County Water Agency, and Sacramento County; and general plans for counties and cities
18 in the Delta.

19 Implementation Milestones for the Delta Plan

20 The Delta Reform Act includes references to two specific long-term milestones. The first reference is to
21 *"Restore large areas of interconnected habitats within the Delta and its watershed by 2100."* (Water Code
22 Section 85302(e)(1))

23 The second reference is to the incorporation of the Bay Delta Conservation Plan (BDCP) if the BDCP
24 meets the requirements of Water Code sections 85320 and 85321. The BDCP's associated Natural
25 Community Conservation Plan and Habitat Conservation Plan permits are anticipated to be for a 50-year
26 period. If the Council finds that the BDCP meets the standards outlined in statute, the BDCP shall be
27 included in the Delta Plan. If the Council determines that the BDCP fails to meet the statutory criteria,
28 *"the BDCP shall not be incorporated into the Delta Plan and the public benefits associated with the*
29 *BDCP shall not be eligible for state funding."* (Water Code Section 85320(b))

30 To provide long-term perspective and accommodate these goals, the Delta Plan will include policies,
31 strategies and performance measures through 2100. Adoption of this time frame allows for reasonable
32 staging of progress to achieve the coequal goals.

33 The Delta Plan will include policies, strategies and performance measures for the following milestones.

- 34 ♦ **Initial Five Years:** 2012 - 2016
- 35 ♦ **Near-Term:** 2025
- 36 ♦ **Mid-Century:** 2050
- 37 ♦ **Long-Term:** 2100

1 Review and Update Process

2 In accordance with Water Code Section 85300(c) the "council shall review the Delta Plan at least once
3 every five years and may revise it as the council deems appropriate." Although the Water Code requires a
4 review at least once every five years, the Council may consider modifications to the Delta Plan at shorter
5 intervals.

6 Following adoption of the Delta Plan, it is anticipated that monitoring programs will be established to
7 determine progress toward meeting the coequal goals. Results from the monitoring programs will be used
8 through adaptive management procedures to modify strategies and performance measures. As other plans
9 are completed and information is provided through monitoring and adaptive management programs, the
10 Council will review those results periodically and determine the need to modify the Delta Plan.

11

Chapter 3

Organization of the Delta Plan

The Delta Plan has been developed to provide policies to achieve the coequal goals and policy objectives, as described in Chapter 2. In accordance with Water Code, the Delta Plan has been developed to:

85308 (a) *Be based on the best available scientific information and the independent science advice provided by the Delta Independent Science Board.*

(b) *Include quantified or otherwise measurable targets associated with achieving the objectives of the Delta Plan.*

(c) *Where appropriate, utilize monitoring, data collection, and analysis of actions sufficient to determine progress toward meeting the quantified targets*

(d) *Describe the methods by which the council shall measure progress toward achieving the coequal goals*

(e) *Where appropriate, recommend integration of scientific and monitoring results into ongoing Delta water management*

(f) *Include a science-based, transparent, and formal adaptive management strategy for ongoing ecosystem restoration and water management decisions.*

The Inherent Objectives Form the Core Policy Chapters of the Delta Plan

The so-called “inherent objectives” outlined in the Delta Reform Act to meet the coequal goals form the basis for the core policy chapters of the Delta Plan.

◆ **Manage Water Resources**

- *Manage water resources of the state over the long term. (Water Code Section 85020(a))*
- *Promote statewide conservation, water use efficiency, and sustainable water use. (Water Code Section 85020(d))*
- *Improve the water conveyance system and expand statewide water storage. (Water Code Section 85020(f))*

- 1 ♦ **Restore the Delta Ecosystem**
- 2 • *Manage environmental resources over the long term.* (Water Code Section 85020(a))
- 3 • *Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a healthy*
- 4 *estuary and wetland ecosystem.* (Water Code Section 85020(c))
- 5 ♦ **Improve Water Quality**
- 6 • *Improve water quality to protect human health and the environment consistent with achieving*
- 7 *water quality objectives.* (Water Code Section 85020(e))
- 8 ♦ **Reduce Delta Flood Risks**
- 9 • *Reduce risks to people, property, and state interests in the delta by effective emergency*
- 10 *preparedness, appropriate land uses, and investments in flood protection.* (Water Code
- 11 Section 85020(g))
- 12 ♦ **Protect and Enhance the Delta as an Evolving Place**
- 13 • *Protect and enhance the unique cultural, recreational, and agricultural values of the*
- 14 *California Delta as an evolving place.* (Water Code Section 85020(b))
- 15 ♦ **Governance Plan to Support Coequal Goals**
- 16 • *Establish a new governance structure with the authority, responsibility, accountability,*
- 17 *scientific support, and adequate and secure funding to achieve these objectives.* (Water Code
- 18 Section. 85020(h))
- 19 ♦ **Finance Plan to Support Coequal Goals**
- 20 • *Establish a new governance structure with the authority, responsibility, accountability,*
- 21 *scientific support, and adequate and secure funding to achieve these objectives.* (Water
- 22 Code Section. 85020(h))

23 Policies from each category will be integrated into specific implementation plans for the Initial Five

24 Years, Near Term Implementation, Mid-Century Implementation, and Long Term Implementation

25 periods. The integrated implementation plan will be presented in Chapter 12.

26 Definitions

27 [Ed. Note: the definitions section is a work in progress and will be expanded and refined in future drafts]

28 The Delta Plan has been developed using several terms with specific definitions developed for the Delta

29 Plan. These terms are defined below and are used in the following context throughout the Delta Plan.

- 30 ♦ **Adaptive Management**
- 31 • *A framework and flexible decision making process for ongoing knowledge acquisition,*
- 32 *monitoring, and evaluation leading to continuous improvement in management planning and*
- 33 *implementation of a project to achieve specified objectives.* (Water Code §85052).

34

- 1 ♦ **Best Available Science**
- 2 • Best available science is a process that meets the criteria of (1) relevance, (2) inclusiveness,
3 (3) objectivity, (4) transparency and openness, (5) timeliness, and (6) peer review.³
- 4 • Best available science is consistent with the scientific process.⁴
- 5 • Best available science is specific to a decision context and would necessarily be related to the
6 specific decision to be made and the time frame available for that decision. For science to be
7 considered “best available” to support a decision, reasonable care must be taken to identify all
8 available and relevant scientific information. Sources for best available science may include
9 peer reviewed publications, general scientific reports and publications, scientific expert
10 opinion, or even anecdotal evidence. See Chapter 4 for a more detailed discussion of best
11 available science. [Chapter 4 is not included in this version of the Staff Draft Delta Plan.]
- 12 ♦ **Coequal Goals**
- 13 • Defined by Water Code Section 85054 - "*Coequal goals*" means the two goals of providing a
14 more reliable water supply for California and protecting, restoring, and enhancing the Delta
15 ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the
16 unique cultural, recreational, natural resource, and agricultural values of the Delta as an
17 evolving place." Coequal goals are further defined in Water Code sections 85020, 85021,
18 85022(c), and 85023, as presented in Chapter 2.
- 19 ♦ **Findings**
- 20 • Conclusions reached after examination or investigation.
- 21 ♦ **Inherent Objectives**
- 22 • The objectives from Water Code Section 85020 are inherent, or essential, to the coequal goals
23 (defined above).
- 24 ♦ **Objectives**
- 25 • Desired results that are tangible, precise, and measurable that promotes long-term vision
26 and/or supports short-term incentives. The objectives are defined by Water Code sections
27 85302(c) through (e) and 85303 through 85307, as presented in Chapters 5 through 9.
- 28 ♦ **Performance Measures or Performance Measurement**
- 29 • A performance measure is qualitative or quantitative information that enables the Council to
30 track progress in meeting an objective of the Delta Plan.
- 31 • As described in Water Code Section 85211
- 32 85211. *The Delta Plan shall include performance measurements that will enable the council*
33 *to track progress in meeting the objectives of the Delta Plan. The performance measurements*
34 *shall include, but need not be limited to, quantitative or otherwise measurable assessments of*
35 *the status and trends in all of the following:*

³ National Research Council, Committee on Defining the Best Scientific Information Available for Fisheries Management. 2004. *Improving the use of “Best Scientific Information Available” Standard in Fisheries Management*. National Academy Press, Washington D.C. Available from http://www.nap.edu/catalog.php?record_id=11045#toc (accessed July 2010).

⁴ Sullivan, P. J., J. M. Acheson, P. L. Angermeier, T. Faast, J. Flemma, C. M. Jones, E. E. Knudsen, T. J. Minello, D. H. Secor, R. Wunderlich, and B. A. Zanetell. 2006. *Defining and implementing best available science for fisheries and environmental science, policy, and management*. American Fisheries Society, Bethesda, Maryland, and Estuarine Research Federation, Port Republic, Maryland. Available from http://www.fisheries.org/afs/docs/policy_science.pdf (accessed July 2010).

1 *(a) The health of the Delta’s estuary and wetland ecosystem for supporting viable*
2 *populations of aquatic and terrestrial species, habitats, and processes, including viable*
3 *populations of Delta fisheries and other aquatic organisms.*

4 *(b) The reliability of California water supply imported from the Sacramento River or the*
5 *San Joaquin River watershed.*

- 6 • An example of a qualitative performance measure is achievement of a milestone.
7 • An example of a quantitative performance measure is the number of acres of tidal marsh
8 restored by a specified date.

9 ♦ **Policies**

- 10 • Guiding principles or procedures to influence actions in order to attain long-term objectives.

11 ♦ **Target**

- 12 • A quantifiable level of performance to be achieved in a specific time period.
13

1

2

3

4

Chapter 4 Science and Adaptive Management for a Changing Delta

5 *Under Development*

6

Chapter 5

Manage Water Resources

[Ed. Note: This chapter will likely change substantially upon receiving input from ongoing work by The Water Boards on the Strategic Plan, Bay Delta Conservation Program, Department of Water Resources projects related to implementation of the 20x2020 program and Delta Initiatives and public comment]

California's water supply predominantly comes from a combination of local and regional sources augmented through inter basin water transfers. Additionally, a relatively modest amount of imported water comes from out of state. The supply of all of this water is finite. Yet, for at least 50 years, because of the amount of water assigned by permit or water rights or contract, the serious overdraft of our groundwater supplies, and the growing need to restore adequate water supplies to protect the state's environmental resources, we find ourselves in an unsustainable trajectory of water conflicts .

Increasing regional water supply self-reliance has been a state and local policy for several decades. It is important to recognize that no region of the state is exactly identical to another and that regions will need a unique mix of water supply and water efficiency policies. Yet it is inescapable that, faced with continued population growth, climate uncertainty and other factors each region will need to more aggressively develop water efficiency practices in all sectors if the state is to achieve its water supply reliability goals. It is likewise clear that the development of water supplies previously considered too costly or controversial – such as sustainable recovery and reuse of groundwater, expanded use of recycled water and stormwater, and development of seawater desalination – must go forward.

In addition, the legacy of voter initiatives, federal and state legislation, regulation and court decisions over the past 40 years clearly illustrate that significantly improving the conditions of the Delta ecosystem is a necessary condition for also improving the water supply system for California. The Delta ecosystem will likely need a reasonable amount of additional water at appropriate times and places. It is also clear that improvement of the Delta-related water export system is a necessary condition for ecosystem improvement.

Underlying the success of all of these efforts is the state's urgent need for improved water information. California's understanding of the condition and use of its water supplies is woefully inadequate. No business would make decisions based on the quality of data that is available to the state, but California's water situation is so precarious that some of these decisions must be made while improved data collection systems are implemented.

This chapter presents the goals, objectives, findings, policies, and performance measures to improve water supply reliability, consistent with achieving the coequal goals. Collectively, these actions are intended to place the state on a trajectory of change that will result in significantly improved water management, enhanced operational flexibility, and increased water supply resiliency for the state. Only the beneficial and reasonable use of water, combined with a strong effort to prohibit the wasting of water, will allow California to prosper and protect our natural environment.

COEQUAL GOALS, INHERENT OBJECTIVES, AND OTHER OBJECTIVES FOR WATER RESOURCES

COEQUAL GOALS (Public Resources Code 29702)

29702. *The Legislature further finds and declares that the basic goals of the state for the Delta are the following:*

- (a) Achieve the two coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.*
- (b) Protect, maintain, and, where possible, enhance and restore the overall quality of the Delta environment, including, but not limited to, agriculture, wildlife habitat, and recreational activities.*
- (c) Ensure orderly, balanced conservation and development of Delta land resources.*
- (d) Improve flood protection by structural and nonstructural means to ensure an increased level of public health and safety.*

INHERENT OBJECTIVES TO THE COEQUAL GOALS (Water Code Section 85020)

85020. *The policy of the State of California is to achieve the following objectives that the Legislature declares are inherent in the coequal goals for management of the Delta:*

- (a) Manage the Delta's water and environmental resources and the water resources of the state over the long term.*
- (b) Protect and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place.*
- (c) Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a healthy estuary and wetland ecosystem.*
- (d) Promote statewide water conservation, water use efficiency, and sustainable water use.*
- (e) Improve water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta.*
- (f) Improve the water conveyance system and expand statewide water storage.*
- (g) Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and investments in flood protection.*
- (h) Establish a new governance structure with the authority, responsibility, accountability, scientific support, and adequate and secure funding to achieve these objectives.*

OTHER OBJECTIVES

The longstanding constitutional principle of reasonable use and the public trust doctrine form the foundation of California's water management policy and are particularly applicable to the Delta watershed and to the others areas that use Delta water as the basis for resolving water conflicts. (Water Code Section 85023) The constitutional principle is defined in Section 2 of Article X of the California Constitution as:

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

Water Code sections 85302, 85303, 85304, and 85211 provide direction on the implementation of measures to promote the coequal goals and inherent objectives.

85302. *(c) The Delta Plan shall include measures to promote a more reliable water supply that address all of the following:*

- (1) Meeting the needs for reasonable and beneficial uses of water.*
- (2) Sustaining the economic vitality of the state.*
- (3) Improving water quality to protect human health and the environment.*

85303. *The Delta Plan shall promote statewide water conservation, water use efficiency, and sustainable use of water.*

85304. *The Delta Plan shall promote options for new and improved infrastructure relating to the water conveyance in the Delta, storage systems, and for the operation of both to achieve the coequal goals.*

85211. *The Delta Plan shall include performance measurements that will enable the council to track progress in meeting the objectives of the Delta Plan. The performance measurements shall include, but need not be limited to, quantitative or otherwise measurable assessments of the status and trends...*

- (b) The reliability of California water supply imported from the Sacramento River or the San Joaquin River watershed.*

Draft Findings, Policies, Performance Measures, and Targets

[Ed. Note: performance measures and targets not included in this version of the Draft Delta Plan, will be added as policies are further developed.]

Promote a More Reliable Water Supply

85302. (c) *The Delta Plan shall include measures to promote a more reliable water supply that address all of the following:*

(1) *Meeting the needs for reasonable and beneficial uses of water.*

(2) *Sustaining the economic vitality of the state.*

(3) *Improving water quality to protect human health and the environment. (Water Code Section 85302(c))*

Findings

- ◆ **CALIFORNIA'S TOTAL WATER SUPPLY IS FINITE.** California regularly uses more water annually than is provided by nature. It is reasonable to do this for short periods of time, but only if there are enforceable plans in place for the longterm, sustainable replenishment of depleted storage waters, particularly for groundwater aquifers. (based upon information included in the DWR Water Plan Update 2009)
- ◆ **CALIFORNIA'S WATER INFRASTRUCTURE IS INCREASINGLY VULNERABLE TO EXTERNAL FACTORS SUCH AS CLIMATE CHANGE.** Many of the local, state and federal water systems within California were planned for hydrologic and climate conditions common during the to the late 1800s and early 1900s (DWR Division of Safety and Dams website, 2011; California Department of Public Works Report to Legislature of 1931 on State Water Plan, 1930; State Water Resources Control Board, Bulletin No. 1, Water Resources of California, 1951). All water systems must be based on assumption of supply, demands and variations . However, it is increasingly clear that the old assumptions are wrong. Change is occurring that was not anticipated, and our water supply and storage system is not well suited to respond to these changes. The amount of snowfall as compared to rain falling in the state is declining and this will reduce the amount of water available for use by municipalities and agriculture without development of additional storage. It has been projected that the snowpack in the Sacramento River watershed could decline up to ninety percent (90%) by 2100 with earlier snowmelt periods. In the past 50 years and into the next 100 years, the frequency of high water flows are greater than before, as are the frequency of lower water flows. (based upon information included in the DWR Water Plan Update 2009)
- ◆ **THE CONSTITUTION OF CALIFORNIA REQUIRES THAT WATER BE USED FOR BENEFICIAL PURPOSES, THAT WATER BE USED REASONABLY, AND THAT NO WASTING OF WATER SHALL OCCUR.** This provision of our Constitution, together with the constitutional Public Trust Doctrine related to the use of water, and a strong effort to prohibit the wasting of water, will increase water reliability and allow the natural environment to be protected. Consistent with the constitutional principle of reasonable use and the public trust doctrine, the right to use water or the right to use the use the flow of water should be limited to what is reasonably required for the beneficial use that is served. Such a right does not extend to

1 the waste or unreasonable use of water. (based on Section 2 of Article X of the California
2 Constitution)

- 3 ♦ **CALIFORNIA’S WATER SUPPLY IS PROVIDED BY LOCAL, REGIONAL, STATE
4 AND FEDERAL DAMS, RESERVOIRS AND CONVEYANCE SYSTEMS. HOWEVER,
5 IMPROVED REGIONAL WATER SUPPLY SELF-RELIANCE IS ONE OF THE
6 MAJOR WAYS WE CAN MEET OUR COEQUAL GOALS OVER THE COMING
7 DECADES .** Enhancing regional and local water supplies has been a state and local policy for
8 several decades. Consistent with Water Code Section 10531(c) states, the reliability of water
9 supplies can be significantly improved by diversifying water portfolios, taking advantage of local
10 and regional opportunities, and considering a broad variety of water management policies as
11 described in the California Water Plan. (based upon information included in the DWR Water Plan
12 Update 2009)
- 13 ♦ **SURFACE AND GROUNDWATER SUPPLIES WILL ONLY BE RELIABLE ON A
14 LONG-TERM BASIS IF GROUNDWATER OVERDRAFT IS ELIMINATED.** The 2011
15 Legislative Analyst's Office report, Improving Management of the State's Groundwater
16 Resources, states that at least forty-three (43%) of all Californians obtain some portion of their
17 drinking water from groundwater. This percentage increases to over sixty percent (60%) during
18 droughts. (DWR, 2009). Long-term management of groundwater as a reliable supply will require
19 the development of enforceable plans for replenishment of groundwater aquifers that eliminates
20 sustained overdraft of these basins. (based upon information included in the Legislative Analyst
21 Office Improving Management of the State's Groundwater Resources, 2011)

22 Promote Statewide Water Conservation, Water Use Efficiency, and 23 Sustainable Use of Water

24 85303. *The Delta Plan shall promote statewide water conservation, water use efficiency, and*
25 *sustainable use of water.*

26 Findings

- 27 ♦ **URBAN RESIDENTIAL WATER USE HAS NOT DECLINED FOR THE PAST 40
28 YEARS. AGRICULTURAL WATER USE HAS CONTINUED TO BE AT THE SAME
29 STATEWIDE LEVEL OF APPROXIMATELY 33-34 MAF PER YEAR FOR MANY
30 YEARS. WHAT REMAINS OF THE AVAILABLE WATER SUPPLY IS OFTEN
31 CALLED ENVIRONMENTAL WATER. WITH POPULATION GROWTH AND LITTLE
32 CHANGE IN WATER EFFICIENCY, CALIFORNIA'S WATER DEMANDS WILL
33 CONTINUE TO INCREASE.** Population in California has grown from 379,994 in 1860 to in
34 excess of 37 million in 2010. Ninety-six percent (96%) of the population either lives in the Delta
35 Watershed or uses water from the Delta Watershed. (Department of Finance website, 2011)
36 Irrigated acreage in California increased from less than 100,000 acres in 1859 to 8,016 million
37 acres in 2007. (U.S. Department of Agriculture, 2011) The per capita use of water in urban areas
38 of California has remained essentially the same for the past 40 years. (based upon information
39 included in DWR Bulletin 166-1, 1968; Bulletin 166-2, 1973; Bulletin 166-3, 1983; Bulletin-166-
40 4, 1994, and 20x2020 Water Conservation Plan,2010).
- 41 ♦ **WATER CONSERVATION IN ALL SECTORS CAN BE SIGNIFICANTLY IMPROVED.**
42 Numerous studies have documented the opportunities and challenges of increasing water
43 efficiency in all sectors – municipal, industrial, and agricultural. (based upon information
44 included in DWR 20x2020 Water Conservation Plan, 2010)

- 1 ♦ **REUSE OF WATER, RECYCLING, GROUNDWATER MANAGEMENT,**
2 **STORMWATER CAPTURE, TREATMENT AND REUSE OF IMPAIRED WATERS**
3 **SEA WATER DESALTING IS VITAL TO IMPROVING THE OVERALL RELIABILITY**
4 **OF CALIFORNIA’S WATER SUPPLIES, BUT IS NOT LIKELY TO BE A MAJOR**
5 **FACTOR FOR SEVERAL DECADES OR MORE .** DWR has identified the potential need to
6 develop over 3.8 to 9.6 million acre-feet/year of new water supplies over the next twenty years
7 which will help significantly increase the state’s water supply reliability. These projections do not
8 take into account new technology advancements that will further provide opportunities for local
9 and regional water supply development. (based upon information included in the DWR Water
10 Plan, 2005)

11 **Promote Options for New and Improved Water Conveyance,**
12 **Storage Systems, and Operations of Both to Achieve the Coequal**
13 **Goals**

14 85304. *The Delta Plan shall promote options for new and improved infrastructure relating to the*
15 *water conveyance in the Delta, storage systems, and for the operation of both to achieve the*
16 *coequal goals.*

17 **Findings**

- 18 ♦ **MANY OF CALIFORNIA'S WATER SUPPLY FACILITIES WERE INITIALLY**
19 **PLANNED AND DESIGNED BASED ON CONDITIONS IN THE LATE 1800S AND**
20 **EARLY 1900S, AND FACILITIES MAY REQUIRE MAJOR REPAIRS DUE TO AGE.**
21 Most of the facilities to convey water from the Delta Watershed initially were planned and
22 designed based upon precipitation and runoff patterns from the late 1800s and early 1900s. The
23 hydrologic records for some streams were intermittent or limited in duration. The current surface
24 supply and storage system in California, composed of over 1200 reservoirs, aqueducts, canals,
25 pipelines and dams, will be under stress.
- 26 ♦ **STATE WATER PROJECT LONG-TERM AVERAGE WATER DELIVERY**
27 **RELIABILITY HAS DECLINED SUBSTANTIALLY IN THE PAST SEVEN YEARS.** The
28 SWP reliability for average long-term deliveries have decreased over twelve percent (12%) over
29 the past eight years, as follows: 2002 Study - seventy-two percent (72%), 2005 Study - sixty-eight
30 percent (68%), 2007 Study - sixty-three percent (63%), and 2009 Study - sixty percent (60%).
31 The projected water supply reliability approximately twenty years into the future for each of these
32 studies has declined from from seventy-five percent (75%) in the 2002 study to sixty percent
33 (60%) for the 2009 study. (DWR 2002, 2005, 2007 and 2009) Although similar information is not
34 consistently available for other water supplies in the state, it is anticipated that similar reductions
35 in water supply reliability frequently occur due to increased environmental water needs and
36 increasing climate variability. (based upon information included in the DWR State Water Project
37 Reliability Studies published in 2002, 2005, 2007 and 2009)
- 38 ♦ **STORAGE CAPACITY MUST BE INCREASED AND RESERVOIR OPERATIONS**
39 **MODIFIED TO IMPROVE WATER SUPPLY RELIABILITY.** The Delta Vision Strategic
40 Plan indicated that storage must be increased and operation of existing reservoirs be modified, to
41 improve reliability for water users and reduce risk to the environment. To provide flexibility to
42 move water through or around the Delta at appropriate times, there must be places for the water to
43 be stored until it is needed upstream of the Delta and places to store water downstream of the
44 Delta when water can be moved through the Delta at times not needed by water users. Currently,
45 water could be moved through the Delta at many more times during the year if storage were

1 available south of the Delta. The need for additional south of Delta storage could become more
2 significant as climate change occurs or following disruptive seismic events in the Delta. (based
3 upon information included in the Delta Vision Strategic Plan, 2008)

- 4 ♦ **CONVEYANCE MUST BE CHANGED AND RE-OPERATED TO IMPROVE WATER
5 SUPPLY RELIABILITY.** The Delta Vision Strategic Plan indicated that new water conveyance
6 must allow flexibility in the timing and quantities of diversions to shift away from periods with
7 highest impacts on Delta and upstream ecology while still providing predictable and acceptable
8 volumes of quality water for diverted uses. In order to do this, it will be necessary to establish
9 clear and enforceable criteria and constraints for Delta water operations. (based upon information
10 included in the Delta Vision Strategic Plan, 2008)

- 11 ♦ **LOCAL STORAGE PROGRAMS CAN IMPROVE CAPTURE AND SUBSEQUENT USE
12 OF STORMWATER FLOWS, AND POSSIBLY DRY WEATHER RUNOFF, TO
13 INCREASE WATER SUPPLIES.** Many communities are implementing major stormwater
14 capture, treatment, and storage facilities to increase the local surface and groundwater supplies.
15 These programs also provide additional benefits by improving water quality of surface flows. In
16 many cases, it may be more cost-effective to capture, treat, and re-use the stormwater system
17 runoff than capture, treat, and discharge the flows. (based upon information included in SB 790
18 (2009), DWR Water Plan Update 2009, Metropolitan Water District of Southern California IRP
19 Technical Workgroup Stormwater/Urban Runoff Issue Paper - Final, 2009)

20 Measurable Assessment of Water Supply Reliability Imported from 21 the Delta Watershed

22 85211. *The Delta Plan shall include performance measurements that will enable the council to*
23 *track progress in meeting the objectives of the Delta Plan. The performance measurements shall*
24 *include, but need not be limited to, quantitative or otherwise measurable assessments of the*
25 *status and trends...*

26 *(b) The reliability of California water supply imported from the Sacramento River or*
27 *the San Joaquin River watershed. (Water Code Section 85211(b))*

28 *Findings*

- 29 ♦ **MANY LOCAL, REGIONAL, STATE, AND FEDERAL AGENCIES AND
30 ORGANIZATIONS COLLECT WATER DATA, BUT USE DIFFERING
31 METHODOLOGIES AND LEVELS OF DETAIL WHICH SEVERELY LIMITS THE
32 USEFULNESS OF THE INFORMATION.** Department of Water Resources Public Water
33 Systems Survey and Land and Water Use Program, California Urban Water Conservation
34 Council, California Public Utilities Commission, Department of Public Health, and Urban Water
35 Management Plans obtain data from local water agencies and private water companies in
36 different forms. Many of the data collection efforts are voluntary. Most of the data submittals are
37 not compiled in central electronic databases. (based upon information included in DWR 20x2020
38 Water Conservation Plan, 2010, and Water Plan Update 2009)
- 39 ♦ **TO BETTER UNDERSTAND AND TRACK THE WAYS WATER IS USED IN THE
40 URBAN, AGRICULTURAL AND THE ENVIRONMENTAL SECTORS, A RIGOROUS,
41 MANDATORY STATEWIDE WATER DATA COLLECTION AND ANALYSIS
42 PROGRAM IS NEEDED.** Advanced methods, such as satellite technology, are now available to
43 monitor water use but they have not been widely implemented due to costs and the newness of
44 the techniques. The Real Time Management Program for the San Joaquin River is one example of

1 a program that is being developed to use real-time water quality and flow monitoring data to
2 support water management operations in order to maximize the use of assimilative capacity for
3 salinity in the San Joaquin River. Similar programs exist and could be used for monitoring of
4 water quality, water diversions, and water use. (based upon information included in DWR
5 20x2020 Water Conservation Plan, 2010 and The California Water Boards 2010 Update to the
6 Strategic Plan 2008-2012, 2010)

7 Working Categories of Potential Policies and 8 Recommendations

9 The following categories have been identified to be considered as a basis for development of policies and
10 recommendations for performance measures and targets to manage water resources.

- 11 ♦ *Public Trust Flow Standards established by State Water Resources Control Board*
- 12 ♦ *Groundwater Management Requirements*
- 13 ♦ *Integrated Regional Water Management Plans, including consideration of the following*
14 *categories, in addition to other issues:*
 - 15 • *Water Use Efficiency*
 - 16 • *Recycled Water*
 - 17 • *Use of Currently Non-Potable Groundwater*
 - 18 • *Stormwater Capture and Reuse*
 - 19 • *Seawater Desalination*
 - 20 • *Local/Regional Storage*
- 21 ♦ *Future Water Supply Contracts*
- 22 ♦ *20x2020 Criteria and Future Standards*
- 23 ♦ *In-Delta Diversions and Conveyance (including re-location of North Bay Aqueduct and*
24 *In-Delta Diversions)*
- 25 ♦ *Future Water Transfer Programs - Short-term and Long-term*
- 26 ♦ *Statewide Storage*
- 27 ♦ *Application of Reasonable Use Criteria by State Water Resources Control Board*
- 28 ♦ *New Development Standards*
- 29 ♦ *Complete Bay Delta Conservation Plan*
- 30 ♦ *Data Collection Statewide Plan and Implementation Mechanisms*

31

Chapter 6

Restore Delta Ecosystem

[Ed. Note: This chapter will likely change substantially upon receiving input from ongoing work by The Water Boards on the Strategic Plan; Bay Delta Conservation Program; Department of Water Resources projects related to implementation of the Delta Initiatives; Suisun Marsh Habitat Management, Preservation, and Restoration Plan; regional habitat conservation plans and natural communities conservation plans; and Delta Protection Commission Economic Sustainability Plan; and public comment]

The Delta and Suisun Marsh ecosystem, as a large component of the San Francisco Estuary, was once one of the most biologically productive and diverse ecosystems on the west coast. The Delta ecosystem is now in peril. As a result of human activity to reclaim farmland, protect areas from flood, and provide water for agriculture and communities; discharge of wastes from agriculture, industry, and urban areas; and the introduction of non-native species, the Delta has been modified in ways that adversely influence ecosystem function and compromise its ability to support a healthy ecosystem. These changes not only affect the species that live there, but also the ecosystem services that benefit humans, such as improved water quality, agricultural productivity, healthy commercial and sport fisheries, flood protection, and recreation. The Delta ecosystem is now on a trajectory of change that cannot be completely reversed, but can be restructured to improve native species resilience. Actions taken from this point forward will contribute to defining the future Delta and the health of its ecosystem.

Numerous regulations, policies, programs, and plans that are already in place to improve the condition of the ecosystem or stem the decline of individual species may influence the direction of future restoration. Each of these efforts is generally in response to specific actions intended to mitigate or avoid the impacts of activities that could adversely affect the Delta ecosystem or the imperiled species it supports. These efforts contribute to improving the Delta ecosystem, but they are generally not well coordinated and responsibility for their implementation is broadly held by numerous entities.

The following presents the goals, objectives, and findings related to protecting, enhancing, and restoring the Delta ecosystem, consistent with achieving the coequal goals. Collectively, these actions are intended to place the Delta ecosystem on a trajectory of change that will result in diverse, biologically appropriate habitats and ecosystem processes that support viable and resilient populations of native species without substantial human intervention over the long term.

**COEQUAL GOALS, INHERENT OBJECTIVES,
AND OTHER OBJECTIVES TO RESTORE DELTA ECOSYSTEM**
COEQUAL GOALS (Public Resources Code 29702)

29702. *The Legislature further finds and declares that the basic goals of the state for the Delta are the following:*

- (a) Achieve the two coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.*
- (b) Protect, maintain, and, where possible, enhance and restore the overall quality of the Delta environment, including, but not limited to, agriculture, wildlife habitat, and recreational activities.*
- (c) Ensure orderly, balanced conservation and development of Delta land resources.*
- (d) Improve flood protection by structural and nonstructural means to ensure an increased level of public health and safety.*

INHERENT OBJECTIVES TO THE COEQUAL GOALS (Water Code Section 85020)

85020. *The policy of the State of California is to achieve the following objectives that the Legislature declares are inherent in the coequal goals for management of the Delta:*

- (a) Manage the Delta's water and environmental resources and the water resources of the state over the long term.*
- (b) Protect and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place.*
- (c) Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a healthy estuary and wetland ecosystem.*
- (d) Promote statewide water conservation, water use efficiency, and sustainable water use.*
- (e) Improve water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta.*
- (f) Improve the water conveyance system and expand statewide water storage.*
- (g) Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and investments in flood protection.*
- (h) Establish a new governance structure with the authority, responsibility, accountability, scientific support, and adequate and secure funding to achieve these objectives.*

OTHER OBJECTIVES

The coequal goals and inherent objectives listed above seek to support the protection of the Delta ecosystem. Achievement of these broad goals and objectives requires implementation of specific strategies. Water Code sections 85022 and 85302 provide direction on the implementation of measures to promote the coequal goals and inherent objectives.

85022(d) (5) *Develop new or improved aquatic and terrestrial habitat and protect existing habitats to advance the goal of restoring and enhancing the Delta ecosystem.*

(6) Improve water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta.

85302(c) *The Delta Plan shall include measures that promote all of the following characteristics of a healthy Delta ecosystem.*

- (1) Viable populations of native resident and migratory species.*
- (2) Functional corridors for migratory species.*
- (3) Diverse and biologically appropriate habitats and ecosystem processes.*
- (4) Reduced threats and stresses on the Delta ecosystem.*
- (5) Conditions conducive to meeting or exceeding the goals in existing species recovery plans and state and federal goals with respect to doubling salmon populations.*

85302(e) *The following subgoals and strategies for restoring a healthy ecosystem shall be included in the Delta Plan:*

- (1) Restore large areas of interconnected habitats within the Delta and its watershed by 2100*
- (2) Establish migratory corridors for fish, birds, and other animals along selected Delta river channels.*
- (3) Promote self-sustaining, diverse populations of native and valued species by reducing the risk of take and harm from invasive species.*
- (4) Restore Delta flows and channels to support a healthy estuary and other ecosystems.*
- (5) Improve water quality to meet drinking water, agriculture, and ecosystem long-term goals.*
- (6) Restore habitat necessary to avoid a net loss of migratory bird habitat and, where feasible, increase migratory bird habitat to promote viable populations of migratory birds..*

1 Draft Findings, Policies, Performance Measures, 2 and Targets

3 [Ed. Note: performance measures and targets not included in this version of the Draft Delta Plan, will be
4 added as policies are further developed.]

5 Restore or Protect Habitat

6 *Develop new or improved aquatic and terrestrial habitat and protect existing habitats to advance*
7 *the goal of restoring and enhancing the Delta ecosystem. (Water Code Section 85022(d)(5))*

8 *The Delta Plan shall include measures that promote all of the following characteristics of a*
9 *healthy Delta ecosystem: ...Restore large areas of interconnected habitats within the Delta and its*
10 *watershed by 2100. (Water Code Section 85302(e)(1))*

11 *The Delta Plan shall include measures that promote all of the following characteristics of a*
12 *healthy Delta ecosystem: ...Diverse and biologically appropriate habitats and ecosystem*
13 *processes. (Water Code Section 85302(c)(3))*

14 *The Delta Plan shall include measures that promote all of the following characteristics of a*
15 *healthy Delta ecosystem: ...Restore habitat necessary to avoid a net loss of migratory bird habitat*
16 *and, where feasible, increase migratory bird habitat to promote viable populations of migratory*
17 *birds. (Water Code Section 85302(e)(6))*

18 Findings

19 ♦ **HABITAT EXTENT AND COMPLEXITY HAVE BEEN SUBSTANTIALLY**
20 **ELIMINATED IN THE DELTA AND SUISUN MARSH.** The Delta is now relatively uniform
21 and largely lacking in natural habitats, and Suisun Marsh, while mainly seasonal managed
22 wetlands, is lacking natural habitat diversity. Levees have severed tidal creek systems, while
23 meander cutoffs and channel cuts have simplified channel structure and complexity and made the
24 Delta waterways highly connected (DWR 1995 [Delta Atlas]). Whole tidal marsh systems and
25 floodplains at the Delta margins have been removed and most of Suisun's tidal marshes are now
26 diked and managed predominantly for waterfowl hunting, affecting their functioning as native
27 resident fish and migratory bird habitats and migratory corridors. The complex geometry original
28 Delta and Suisun ecosystems, in combination with variable flow and transport processes,
29 promoted native population resilience by extensive and structurally diverse habitats that allow full
30 expression of evolved life history strategies. (Based upon information included in Moyle 2010.)

31 ♦ **THE DELTA ECOSYSTEM IS IRREVERSIBLY CHANGED.** Through a variety of human
32 actions that have substantially affected the Delta ecosystem (e.g., effects of hydraulic mining, dam
33 construction, and introduction of exotic species), restoration to the historical Delta is not possible.
34 In addition, recent evidence related to the Pelagic Organism Decline suggests that the ecosystem
35 has undergone a regime shift (based on information included in Baxter et al. 2010). Nonetheless,
36 protection of the Delta ecosystem, and restoration of the Delta ecosystem is required by law. With
37 this context, the expectations for success must be moderated by the reality of restoration. Large
38 scale restoration is very difficult. The current degraded condition of the Delta compounds the
39 problem, as do the presence of population, continued urban growth, and the growing demands for
40 water throughout California.

- 1 ♦ **NATURAL ECOSYSTEMS SELDOM CONFORM WITH POLITICAL BOUNDARIES**
2 **OR LAND OWNERSHIP PATTERNS.** Ecosystem restoration for conservation of native
3 species requires consideration of whole-landscape attributes and connectivity at natural spatial
4 and temporal scales, regardless of political or ownership boundaries. Doing so promotes native
5 species resilience by allowing full expression of population life history strategies for survival,
6 growth, and reproduction. Properly scaled and located restoration actions would leverage
7 historical landscape features, minimize the need for costly flood control levees, and create
8 persistent overlaps between aquatic physical/chemical attributes and landscape morphologies that
9 provide access, forage, cover, and physiological adaptation opportunities during all life-history
10 phases (Simenstad 2004, Peterson 2003). Land acquisition strategies for restoration of native
11 species should consider ecological relationships and connectivity that leverage historical
12 landscape features and consider whole landscape functioning and at ecologically relevant scales.
- 13 ♦ **THE PROCESSES FOR OBTAINING PROJECT-SPECIFIC PERMITTING AND**
14 **AUTHORIZATION ARE NOT WELL COORDINATED, WHICH COULD DELAY**
15 **PROGRESS ON ECOSYSTEM RESTORATION.** Implementation of ecosystem restoration
16 projects frequently requires the receipt of multiple permits related to water quality, endangered
17 species, streambed alteration, and others.
- 18 ♦ **THE CURRENT SCIENTIFIC INFRASTRUCTURE AND EXPERTISE ARE NOT**
19 **SUFFICIENT TO SUPPORT THE SCIENCE AND ADAPTIVE MANAGEMENT**
20 **NEEDED FOR SUCCESSFUL ECOSYSTEM RESTORATION.** There is no established
21 governance structure to oversee restoration design, ensure science integration into all restoration
22 efforts, prioritize ecosystem recovery strategies and actions at a broad scale, and oversee adaptive
23 management over the long term. (Based upon information included in Bay Delta Conservation
24 Plan Independent Science Advisors’ Report on Adaptive Management 2009).
- 25 ♦ **EVEN WITH SUBSTANTIAL RESTORATION EFFORTS, SOME NATIVE SPECIES**
26 **MAY NOT SURVIVE.** Expert opinion suggests that some stressors are beyond our control and
27 the system may have already changed so much that some species are living on the edge. In
28 addition, habitat conditions for some species may get worse before they improve. (Based upon
29 information included in Bennett et al. 2008.)

30 Improve Water Quality

31 *Improve water quality to protect human health and the environment consistent with achieving*
32 *water quality objectives in the Delta. (Water Code Section 85022(d)(6))*

33 *The Delta Plan shall include measures that promote all of the following characteristics of a*
34 *healthy Delta ecosystem: ...Improve water quality to meet drinking water, agriculture, and*
35 *ecosystem long-term goals. (Water Code Section 85302(e)(5))*

36 Findings

- 37 ♦ **RESTORING A HEALTHY ECOSYSTEM MAY REQUIRE DEVELOPING A MORE**
38 **NATURAL SALINITY REGIME IN PARTS OF THE DELTA.** Construction of dams,
39 operation of water projects, and diversion of water have substantially altered the volume and
40 timing of freshwater flows in the Delta. These changes in flow have altered the distribution and
41 variability of salinity in the Bay Delta system (Water Code 85003(c)). The altered salinity regime
42 has created conditions that adversely affect native species adapted to a more variable salinity
43 regime and favor exotic species. (Based upon information included in Moyle et al. 2010.)

- 1 ♦ **CONTAMINANTS DISCHARGED FROM MUNICIPAL, INDUSTRIAL, AND**
2 **AGRICULTURAL SOURCES DIRECTLY OR INDIRECTLY INTO THE DELTA HAVE**
3 **AFFECTED NATIVE SPECIES BY ALTERING FOOD WEBS, REDUCING FOOD WEB**
4 **PRODUCTIVITY, AND PRODUCING TOXICITY.** (Based upon information included in
5 CVRWQCB 2010 Resolution No. R5-2010-0079 and California Review in Fisheries Science
6 18:211-232, 2010.)

7 Promote Viable Populations of Native Resident and Migratory 8 Species

9 *The Delta Plan shall include measures that promote all of the following characteristics of a*
10 *healthy Delta ecosystem: ... Viable populations of native resident and migratory species.* (Water
11 Code Section 85302(c)(1))

12 *The Delta Plan shall include measures that promote all of the following characteristics of a*
13 *healthy Delta ecosystem: ... Conditions conducive to meeting or exceeding the goals in existing*
14 *species recovery plans and state and federal goals with respect to doubling salmon populations.*
15 *(Water Code Section 85302(c)(5))*

16 Findings

17 ♦ **FLOOD MANAGEMENT ABOVE THE DELTA AND AT THE DELTA MARGINS HAS**
18 **SUBSTANTIALLY REDUCED HABITAT FOR NATIVE SPECIES THAT USE**
19 **FLOODPLAINS.** This reduction in habitat is the result of changes in the inundation frequency,
20 depth, and duration on remaining accessible floodplains, which has reduced the availability of
21 habitat for native resident and migratory species that depend on inundated floodplain habitat.
22 (Based upon information included in Baxter et al. 2010.)

23 ♦ **MOST FLOODPLAINS IN THE CENTRAL VALLEY LACK CONNECTIVITY WITH**
24 **THE RIVERS TO THE DETRIMENT OF THE ECOSYSTEM.** Levee construction provided
25 the opportunity for other land uses on historical floodplains and reduced the extent of floodplain
26 and riparian habitats that support diverse and highly productive native flora and fauna. (Based
27 upon informatio included in Moyle et al. 2010.)

28 Establish Migratory Corridors

29 *Establish migratory corridors for fish, birds, and other animals along selected Delta river*
30 *channels.* (Water Code Section 85302(e)(2))

31 *The Delta Plan shall include measures that promote all of the following characteristics of a*
32 *healthy Delta ecosystem: ... Functional corridors for migratory species.* (Water Code Section
33 85302(c)(2))

34 Findings

35 ♦ **CURRENT INSTREAM STRUCTURES (e.g., DAMS, WEIRS, AND GATES) IMPAIR**
36 **LOCAL AND MIGRATORY MOVEMENT OF NATIVE RESIDENT AND**
37 **MIGRATORY SPECIES IN THE DELTA AND UPSTREAM REACHES.** (Based upon
38 information included in NMFS 2009.)

1 Reduce Threats and Stresses

2 *The Delta Plan shall include measures that promote all of the following characteristics of a*
3 *healthy Delta ecosystem: ...Reduced threats and stresses on the Delta ecosystem. (Water Code*
4 *Section 85302(c)(4))*

5 *Promote self-sustaining, diverse populations of native and valued species by reducing the risk of*
6 *take and harm from invasive species. (Water Code Section 85302(e)(3))*

7 *Findings*

- 8 ♦ **INTRODUCTIONS OF EXOTIC PLANT AND ANIMAL SPECIES HAVE DEGRADED**
9 **THE QUALITY OF HABITAT IN THE DELTA.** With approximately four new species
10 introductions per year, the San Francisco Estuary may be the most invaded aquatic ecosystem on
11 the planet. Some exotic species also directly compete with or prey upon native species. (Based
12 upon information included in Cohen and Carlton 1998.)
- 13 ♦ **ENTRAINMENT AT WATER DIVERSIONS IN AND UPSTREAM OF THE DELTA**
14 **ADVERSELY AFFECTS NATIVE AQUATIC SPECIES.** (Based upon information included
15 in NMFS 2009 and USFWS 2008.)

16 Provide a More Natural Flow Regime

17 *The following subgoals and strategies for restoring a healthy ecosystem shall be included in the*
18 *Delta Plan: Restore Delta flows and channels to support a healthy estuary and other ecosystems.*
19 *(Water Code Section 85302(e)(4))*

20 *Findings*

- 21 ♦ **CURRENT FLOW REGIMES HARM NATIVE SPECIES AND ENCOURAGE NON-**
22 **NATIVE SPECIES THROUGH THEIR EFFECTS ON TURBIDITY, SALINITY,**
23 **AQUATIC PLANT COMMUNITIES, AND NUTRIENTS.** Watershed and Delta inflows
24 affect habitat and biological resources in three different ways: flood plain activation, in-Delta net
25 flows and transport, and Delta outflows. Flows benefit native aquatic species when they have
26 more naturally variable frequency, magnitude, timing, duration, and rate of change across tidal to
27 interannual timescales. Flow is also a major determinant of habitat and transport through
28 interaction with Delta waterways geometry, reducing the quality, quantity, and juxtaposition of
29 aquatic habitats for many native species. New Delta flow standards will be needed to achieve the
30 ecosystem restoration objectives of the coequal goal. (Based upon information contained in
31 SWRCB 2010.)
- 32 ♦ **CLIMATE CHANGE HAS ALTERED AND WILL CONTINUE TO ALTER FLOW**
33 **REGIMES.** The effects of climate change are expected to be manifested as increased storm
34 intensities and more precipitation falling as rain and less as snow. As a result, the snowpack in the
35 Delta watershed will be reduced and the timing and magnitude of inflows will be altered. Over
36 the long term, climate change will increase water temperatures, raise sea level, and cause the
37 movement of salinity farther upstream. (Based on information included in the DWR Water Plan
38 Update 2009.)

39

1 Working Categories of Potential Policies and 2 Recommendations

3 The following categories have been identified to be considered as a basis for development of policies and
4 recommendations for performance measures and targets restoration of the Delta ecosystem.

- 5 ♦ *Complete Bay Delta Conservation Plan*
- 6 ♦ *Develop Land Acquisition Protocol*
- 7 ♦ *Acquire Land for Ecosystem Protection or Restoration*
- 8 ♦ *Protect or Restore Acreages by Habitat Type*
- 9 ♦ *Delta Waterway geometry*
- 10 ♦ *Streamline Permitting for Restoration Projects*
- 11 ♦ *Safe Harbor Agreements*
- 12 ♦ *Water Quality - Toxics*
- 13 ♦ *Water Quality - Nutrients*
- 14 ♦ *Enhance Floodplain Habitat*
- 15 ♦ *Fish Passage at Barriers*
- 16 ♦ *Reduce Fish Entrainment*
- 17 ♦ *Invasive Species Management*
- 18 ♦ *Public Trust Flow Standards established by State Water Resources Control Board*
- 19

1

2

3 *Under Development*

4

Chapter 7

Improve Water Quality

Chapter 8

Reduce Risks to People, Property, and State Interests in the Delta

[Ed. Note: This chapter will likely change substantially upon receiving input from ongoing work by the Delta Protection Commission Economic Sustainability Plan; emergency preparedness and response strategies for the Delta from the California Emergency Management Agency; levee operation, maintenance, and improvements in the Delta from the Central Valley Flood Protection Board; and public comment]

The Delta is an inherently flood prone area at the confluence of two massive watersheds. These watersheds, associated with the Sacramento and San Joaquin Rivers, collectively drain approximately 43,000 square miles. What was historically a tidal marsh formed through the interaction of fluctuating sea levels and an influx of alluvial sediments from river floods has been transformed into a complex labyrinth of reclaimed islands and waterways created through the construction of levees.

The current Delta includes more than 1,115 miles of levees with 65 islands or tracts protecting approximately 700,000 acres of land. These levees face a long list of potential threats: earthquakes, extreme high tides, significant wind generated waves, subsidence, and sea-level rise. Each of these threats individually is enough to cause serious concern; however, together they represent a potential for catastrophic disruption to the Delta and the State from levee failures. A mass failure of the levee system could have staggering effects upon California's economy, beginning with the 25 million urban water users and over 3 million acres of irrigated farmland that depend on water exported from the Delta.

The primary risk to the people, property, and State interests in the Delta are from the potential for levee failures. These failures not only result in damages to property and the potential for loss of life; but, they could also result in significant changes to the unique character of the Delta as an evolving place. This character relies on the Delta's ability to remain a productive agricultural region with viable and sustainable rural communities. As a result, any portfolio of risk reduction strategies must consider both urban and rural communities as well as agricultural lands in the identification, evaluation, and prioritization of investments. Investments which need to mitigate risk through a robust emergency preparedness, response, and recovery system as well as through appropriate land use and strategic levee improvements.

The following chapter presents the goals, objectives, findings, policies, and performance measures to reduce Delta flood risk inherent with achieving the coequal goals. Collectively, these actions are intended to provide a process to reduce Delta flood risk.

COEQUAL GOALS, INHERENT OBJECTIVES, AND OTHER OBJECTIVES TO REDUCE RISKS TO PEOPLE, PROPERTY, AND STATE INTERESTS IN THE DELTA

COEQUAL GOALS (Public Resources Code 29702)

29702. *The Legislature further finds and declares that the basic goals of the state for the Delta are the following:*

- (a) Achieve the two coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.*
- (b) Protect, maintain, and, where possible, enhance and restore the overall quality of the Delta environment, including, but not limited to, agriculture, wildlife habitat, and recreational activities.*
- (c) Ensure orderly, balanced conservation and development of Delta land resources.*
- (d) Improve flood protection by structural and nonstructural means to ensure an increased level of public health and safety.*

INHERENT OBJECTIVES TO THE COEQUAL GOALS (Water Code Section 85020)

85020. *The policy of the State of California is to achieve the following objectives that the Legislature declares are inherent in the coequal goals for management of the Delta:*

- (a) Manage the Delta's water and environmental resources and the water resources of the state over the long term.*
- (b) Protect and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place.*
- (c) Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a healthy estuary and wetland ecosystem.*
- (d) Promote statewide water conservation, water use efficiency, and sustainable water use.*
- (e) Improve water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta.*
- (f) Improve the water conveyance system and expand statewide water storage.*
- (g) Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and investments in flood protection.*
- (h) Establish a new governance structure with the authority, responsibility, accountability, scientific support, and adequate and secure funding to achieve these objectives.*

OTHER OBJECTIVES

The coequal goals and inherent objectives listed above seek to support reduction of flood risk in the Delta. Achievement of these broad goals and objectives requires implementation of specific policies. Water Code sections 85305, 85306, 85307, and 85309 provide direction on the implementation of measures to promote the coequal goals and inherent objectives.

85305. *(a) The Delta Plan shall attempt to reduce risks to people, property, and state interests in the Delta by promoting effective emergency preparedness, appropriate land uses, and strategic levee investments.*

(b) The council may incorporate into the Delta Plan the emergency preparedness and response strategies for the Delta developed by the California Emergency Management Agency pursuant to Section 12994.5.

85306. *The council, in consultation with the Central Valley Flood Protection Board, shall recommend in the Delta Plan priorities for state investments in levee operation, maintenance, and improvements in the Delta, including both levees that are a part of the State Plan of Flood Control and non-project levees.*

85307. *(a) The Delta Plan may identify actions to be taken outside of the Delta, if those actions are determined to significantly reduce flood risks in the Delta.*

(b) The Delta Plan may include local plans of flood protection.

(c) The council, in consultation with the Department of Transportation, may address in the Delta Plan the effects of climate change and sea level rise on the three state highways that cross the Delta.

(d) The council, in consultation with the State Energy Resources Conservation and Development Commission and the Public Utilities Commission, may incorporate into the Delta Plan additional actions to address the needs of Delta energy development, energy storage, and energy transmission and distribution.

85309. *The department, in consultation with the United States Army Corps of Engineers and the Central Valley Flood Protection Board, shall prepare a proposal to coordinate flood and water supply operations of the State Water Project and the federal Central Valley Project, and submit the proposal to the council for consideration for incorporation into the Delta Plan. In drafting the proposal, the department shall consider all related actions set forth in the Strategic Plan.*

1 Draft Findings, Policies, Performance Measures, 2 and Targets

3 [Ed. Note: performance measures and targets not included in this version of the Draft Delta Plan, will be
4 added as policies are further developed.]

5 Reduction of Risk by Promoting Effective Emergency 6 Preparedness

7 *The Delta Plan shall attempt to reduce risks to people, property, and state interests in the Delta*
8 *by promoting effective emergency preparedness. (based upon Water Code Section 85305(a))*
9

10 *The council may incorporate into the Delta Plan the emergency preparedness and response*
11 *strategies for the Delta developed by the California Emergency Management Agency pursuant to*
12 *Section 12994.5. (based upon Water Code Section 85305(b))*

13 Findings

- 14 ♦ **THERE IS NO STATE EMERGENCY RESPONSE PLAN FOR THE DELTA.** Even with
15 active levee maintenance, the risks to the Delta from earthquakes and floods will continue to
16 exist, increasing the need for emergency response planning. The development of a multi-
17 jurisdictional emergency response plan is currently underway as a result of Senate Bill 27, but no
18 individual county has completed a delta-specific emergency response plan. (based on Public
19 Resources Code section 12994)
- 20 ♦ **EMERGENCY PREPAREDNESS IS THE FIRST LINE OF FLOOD DEFENSE AND**
21 **LOCAL AGENCIES ARE THE PRIMARY RESPONSIBLE AGENTS.** The protection of
22 human life is a fundamental responsibility of government at all levels. In a disaster-prone area
23 like the Delta, it is imperative that federal, state, and local governments - and the citizens
24 themselves - be prepared for a variety of emergency situations, including those in which rapid
25 evacuation or rescue from cold floodwaters are necessary. Emergency response should be
26 routinely tested and practiced to ensure that critical operations can proceed smoothly when
27 needed. (Delta Vision Strategic Plan, Page 107, October 2008)
- 28 ♦ **RECENT FLOODS STIMULATE EMERGENCY RESPONSE PLANNING, BUT THE**
29 **PORCESS IS FAR TOO SLOW.** Since 1996, a variety of emerging trends have influenced
30 emergency management, including an increasing diversity of California's population, greater
31 vulnerability to floods and wildland fires as development expands, and the need for more
32 emphasis on disaster recovery and hazard mitigation efforts to reduce disaster impact. At the
33 national level, significant events such as Hurricane Katrina captured the world's attention and
34 have widely influenced emergency management today. Since then, some progress is evident in
35 California; the Department of Water Resources works with local and county emergency
36 responders in the Delta under the Standardized Emergency Management System in the event of a
37 flood, and an emergency exercise is planned in the Delta in the future, but more progress is
38 needed. (California Emergency Management Agency, State of California Emergency Plan, Page
39 vi, July 2009)
- 40 ♦ **SUBSIDED DELTA ISLANDS ARE AT THE HIGHEST RISK OF FLOODING AND**
41 **ARE LIKELY TO SUBSCUMB TO FLOOD OVER THE COMING DECADES.** (based on
42 DWR, Delta Risk Management Strategy Phase 1 Report, March 2009)

1 Reduction of Risk by Promoting Strategic Levee Investments

2 *The Delta Plan shall attempt to reduce risks to people, property, and state interests in the Delta by*
3 *promoting strategic levee investments. (based upon Water Code Section 85305(a))*

4
5 *The council, in consultation with the Central Valley Flood Protection Board, shall recommend in the*
6 *Delta Plan priorities for state investments in levee operation, maintenance, and improvements in the*
7 *Delta, including both levees that are a part of the State Plan of Flood Control and non-project levees.*
8 *(Water Code Section 85306)*

9 *The Delta Plan may identify actions to be taken outside of the Delta, if those actions are determined*
10 *to significantly reduce flood risks in the Delta. (Water Code Section 85307(a))*

11 *The Delta Plan may include local plans of flood protection. (Water Code Section 85307(b))*

12 **Findings**

- 13 ♦ **THE DELTA IS FLOOD PRONE.** The Legislature finds and declares that the leveed islands
14 and tracts of the Delta and portions of its uplands are flood prone areas of critical statewide
15 significance due to the public safety risks and the costs of public emergency responses to floods,
16 and that improvement and ongoing maintenance of the levee system is a matter of continuing
17 urgency to protect farmlands, population centers, the state's water quality, and significant natural
18 resource and habitat areas of the Delta. (Public Resources Code 29704).
- 19 ♦ **DELTA LEVEES ARE ALSO THREATENED BY EARTHQUAKES.** The last 100 years of
20 land subsidence has made the Delta islands deeper and resulted in building levees higher. These
21 levees are more susceptible now to failure during an earthquake than they were in 1906. In
22 addition, seismic activity since the 1906 earthquake has been reduced from the historical events
23 preceding that earthquake. Due to the lower number of significant earthquakes, stress is building,
24 increasing the chance of a large earthquake. On the basis of research conducted since the 1989
25 Loma Prieta earthquake, the U.S. Geological Survey and other scientists conclude that there is a
26 62 percent probability of at least one magnitude 6.7 or greater quake, capable of causing
27 widespread damage, striking the San Francisco Bay region by 2032. (State of California,
28 Department of Water Resources and Department of Fish and Game, Risks and Options to Reduce
29 Risks to Fishery and Water Supply Uses of the Sacramento-San Joaquin Delta, Page 12, January
30 2008)
- 31 ♦ **LEVEES DO NOT ELIMINATE RISK – LEVEES REDUCE RISK.** The Legislature
32 recognizes that Delta levees, which are earthen embankments typically founded on fluvial
33 deposits, cannot offer complete protection from flooding. History has shown that unavoidable
34 structural failures in the system will occur due to extraordinary events, imperfect knowledge, and
35 imperfect materials. A levee system can, however, decrease the frequency of floods and lessen
36 their adverse economic and social impacts. (Water Code 9601(b); State of California, Department
37 of Water Resources, Historical Reference Document for the State Plan of Flood Control, Page 1-
38 1, May 15, 2009)
- 39 ♦ **LEVEE SAFETY STATUS QUO IS UNACCEPTABLE.** The current levee safety reality for
40 the United States is stark— uncertainty in location, performance and condition of levees and a
41 lack of oversight, technical standards, and effective communication of risks. A look to the future
42 offers two distinct possibilities: one where we continue the status quo and await the certainty of
43 more catastrophes or one where we take reasonable actions and investments in a *National Levee*
44 *Safety Program* that turns the tide on risk growth. We strongly recommend the latter. (National

1 Committee of Levee Safety, Draft Recommendations for a National Levee Safety Program, Page
2 3, 15 January 2009)

- 3 ♦ **SETBACK LEVEES PROVIDE MULTIPLE BENEFITS.** Relocating levees at specific
4 locations where existing levees create constrictions in floodplain width and/or are at risk of
5 failing due to erosion and bank failure could improve conveyance capacity, reduce water surface
6 elevation, improve ecosystem functions, create new waterside areas for habitat restoration, reduce
7 flow velocities, and decrease the need for expensive bank protection. The realignments may allow
8 channels to meander within specified limits, thereby providing additional floodplain areas for the
9 development of riparian habitat. In addition, realigned levees could reduce the threat of levee
10 failure and increase storage, which attenuates flood flows. Relocating levees from the river to a
11 point where levee foundation material would be sound would reduce the risk of levee failure.
12 (U.S. Army Corps of Engineers, Sacramento and San Joaquin River Basins, California,
13 Comprehensive Study, Interim Report, Pages 82-83, December 20, 2002)

14 Reduction of Risks to Delta Infrastructure, Transportation, and 15 Transmission Corridors Across the Delta

16 *The council, in consultation with the Department of Transportation, may address in the Delta*
17 *Plan the effects of climate change and sea level rise on the three state highways that cross the*
18 *Delta. (Water Code Section 85307(c))*

19 *The council, in consultation with the State Energy Resources Conservation and Development*
20 *Commission and the Public Utilities Commission, may incorporate into the Delta Plan additional*
21 *actions to address the needs of Delta energy development, energy storage, and energy*
22 *transmission and distribution. (Water Code Section 85307(d))*

23 *The department, in consultation with the United States Army Corps of Engineers and the Central*
24 *Valley Flood Protection Board, shall prepare a proposal to coordinate flood and water supply*
25 *operations of the State Water Project and the federal Central Valley Project, and submit the*
26 *proposal to the council for consideration for incorporation into the Delta Plan. In drafting the*
27 *proposal, the department shall consider all related actions set forth in the Strategic Plan. (Water*
28 *Code Section 85309)*

29 Findings

- 30 ♦ **THE DELTA IS A CRITICAL UTILITY AND TRANSPORTATION CORRIDOR.**
31 California's economy, including the economy of the Delta, relies on an extensive and costly
32 infrastructure system that includes roads, highways railroads, water storage and conveyance,
33 drainage, pipelines, and electrical power production. Due to the Delta's location between major
34 population areas, its unique resources, especially water and natural gas, and its flat terrain and
35 general lack of development, the Delta has high value as a utility and transportation corridor.
36 (California Department of Water Resources, Technical Memorandum: Delta Risk Management
37 Strategy (DRMS), Prepared by URS Corporation/Jack R. Benjamin & Associates, Inc. May 2008)
- 38 ♦ **THE DELTA PROVIDES CRITICAL CORRIDORS FOR INFRASTRUCTURE**
39 **SERVING POPULATIONS AND MARKETS BEYOND THE DELTA.** Due to the Delta's
40 location between major population areas, its unique resources, especially water and natural gas,
41 and its flat terrain and general lack of development, the Delta has high value as a utility and
42 transportation corridor. (California Department of Water Resources, Technical Memorandum:
43 Delta Risk Management Strategy (DRMS), Prepared by URS Corporation/Jack R. Benjamin &
44 Associates, Inc. May 2008) Infrastructure within the Delta includes more than 500 miles of

1 transmission lines and 60 substations within the Delta boundaries carry power within California
2 as well as between regions of the western United States. (Delta Protection Commission Land Use
3 and Resources Management Plan. February 25, 2010.) Three interstate freeways (Interstate 5,
4 Interstate 80, and Interstate 580), three major state highways (State Routes 4, 12, and 160), major
5 county roads, and more than 50 bridges (including approximately 30 drawbridges) provide major
6 transportation and trucking routes through or near the Delta. (Delta Protection Commission Land
7 Use and Resources Management Plan. February 25, 2010.)

8 ♦ **INLAND PORTS CONNECTED TO THE DELTA ARE IMPORTANT TO THE**
9 **REGION'S ECONOMY.** The inland ports of Sacramento and Stockton constitute economic and
10 water dependent resources of statewide significance, fulfill essential functions in the maritime
11 industry, and have long been dedicated to transportation, agricultural, commercial, industrial,
12 manufacturing, and navigation uses consistent with federal, state, and local regulations, and that
13 those uses should be maintained and enhanced. (Public Resources Code 29711)

14 ♦ **THE MOKELUMNE AQUEDUCT, WHICH CROSSES THE DELTA, IS A MAJOR**
15 **SOURCE OF WATER FOR THE EAST BAY.** The Mokelumne Aqueduct that conveys water
16 for 1.3 million people in the East Bay Municipal Utility District crosses Orwood Tract,
17 Woodward Island, Jones Tract, Roberts Island, and Sargent-Barnhart Tract. (Delta Protection
18 Commission Land Use and Resources Management Plan. February 25, 2010.)

19 ♦ **MAJOR INTERSTATE, STATE, AND COUNTY ROADS CROSS THROUGH THE**
20 **DELTA.** Three interstate freeways (Interstate 5, Interstate 80, and Interstate 580), three major
21 state highways (State Routes 4, 12, and 160), major county roads, and more than 50 bridges
22 (including approximately 30 drawbridges) provide major transportation and trucking routes
23 through or near the Delta. (Delta Protection Commission Land Use and Resources Management
24 Plan. February 25, 2010.)

25 ♦ **CRITICAL FREIGHT AND PASSENGER RAIL INFRASTRUCTURE CROSSES THE**
26 **DELTA.** The Amtrak San Joaquin route from Bakersfield to Sacramento/Oakland crosses the
27 Delta with nearly 800,000 riders in 2006. Other rail companies, such as the Sierra Northern
28 Railway, use existing short-line tracks for inter-regional freight and passenger services in and
29 around the Delta. (Delta Protection Commission Land Use and Resources Management Plan.
30 February 25, 2010.)

31 ♦ **WATER DISTRIBUTION SYSTEMS WITHIN AND CROSSING THE DELTA ARE**
32 **CRITICAL TO THE STATE'S WATER SUPPLY.** The Delta is the hub of California's two
33 largest water distribution systems, the federal Central Valley Project and State Water Project, and
34 at least 7,000 other permitted water diverters have developed water supplies from the watershed
35 feeding the Bay-Delta estuary, providing drinking water to about 23 million people and irrigation
36 water to about seven million acres of highly productive agricultural lands. The State relies on
37 water, power, and transportation infrastructure in the Delta. (EO 2-17-06)

38 ♦ **CLIMATE CHANGE THREATENS IMPORTANT INFRASTRUCTURE IN THE**
39 **DELTA.** Long term impacts of climate change, including sea level rise, salt water intrusion,
40 flooding, levee failure, or reductions in water supplies will threaten the viability of maintaining
41 infrastructure and industry in the Delta. For example, rising groundwater levels could threaten the
42 integrity and effective operation of many underground pipelines. Delta industries would be
43 severely impacted by water quality degradation due to a number of factors such as sea level rise,
44 salt water intrusion, flooding, or reductions in water supplies. (California Natural Resources
45 Agency, Climate Adaptation Strategy, 2009)

1 Working Categories of Potential Policies and 2 Recommendations

3 The following categories have been identified to be considered as a basis for development of policies and
4 recommendations for performance measures and targets to reduce risks to people, property, and State
5 interests in the Delta.

- 6 ♦ *Multi Hazard Coordination Plan*
- 7 ♦ *Delta-specific emergency response exercises*
- 8 ♦ *Emergency Preparedness Plan*
- 9 ♦ *Inland Mass Evacuation Plan*
- 10 ♦ *Preplaced Stockpiles for Flood Fighting*
- 11 ♦ *Preplaced Contracts for Emergencies and Other Administrative Preparation*
- 12 ♦ *Designated Areas for Storage of Dredged Material from Channels*
- 13 ♦ *Land Use Decisions and Risk Reduction*
- 14 ♦ *Hazard Mitigation Plan to be Adopted by each General Plan*
- 15 ♦ *Identification of Hazard Mitigation Plan Adoption for Potential Infrastructure Corridors*
- 16 ♦ *Landowner Notification*
- 17 ♦ *Building Code Updates for Land in Floodplain*
- 18 ♦ *Mandate Participation in National Flood Insurance Plan and Community Ranking*
19 *Ssystem (if applicable)*
- 20 ♦ *Minimum 200 year Protection for Subdivision Permits*
- 21 ♦ *Set New Levee Standards Urban, Rural Community, Agricultural, and Other Land Uses*
- 22 ♦ *Setback Levees and Floodplain Expansion*
- 23 ♦ *Mandatory Levee Surveys every Five Years*
- 24 ♦ *Subventions Prioritization*
- 25 ♦ *Regional Levee District Creation*
- 26 ♦ *Coordination of flood and water operations of reservoirs*
- 27

Chapter 9

Protect and Enhance the Unique Cultural, Recreational, Natural Resources, and Agricultural Values of the California Delta as an Evolving Place

[Ed. Note: This chapter will likely change substantially upon receiving input from ongoing work by Delta Protection Commission Economic Sustainability Plan, land use plans, and public comment]

Since the mid-1800s, the Delta’s economy and culture have been defined by managing water to create farmable land, and by using the Delta’s waterways to move people and goods between the San Francisco Bay Area and Central Valley. In the past 100 years, the importance of the Delta has been elevated by a growing network of infrastructure, such as roadways, fresh water conveyance, power lines and pipelines that connect the Delta to other regions of the state. More recently, the population of some Delta communities has grown as people who work in San Francisco Bay Area, Sacramento, and Stockton regions relocate to enjoy the rural lifestyle offered by the Delta. A growing appreciation of the Delta’s character and role in California’s history has moved the Legislature to act to protect and enhance the Delta “as an evolving place.”

Over the decades, the Delta has evolved as a unique region with its own cultural, recreational, natural, and agricultural character. This unique rural character should be protected and enhanced.

The Delta’s predominant land use has remained agriculture, and its varied crops surround small unincorporated and “legacy communities” – towns with distinct natural, agricultural, and cultural heritage. These towns possess a rural character and include cultural events, specialty local businesses, and nearby recreational opportunities that are attractive to many visitors. The Delta is home to industries that serve the region’s agricultural, transportation, and recreation sectors. The Delta also serves as an important corridor and crossroads for utilities and other infrastructure; a complex network of pipelines and above-ground transmission lines serve and connect the Delta with surrounding urban regions and other parts of California.

Risks to the existing Delta are increasing. Urbanization at the edges of the Delta, inappropriate recreational use, an aging levee system, climate change, rising sea levels, and other pressures threaten to overwhelm the Delta. Despite the need, federal, state and local decisions influencing land and water uses in the Delta are not well coordinated. There is no clear, consistent regional or statewide plan to address these concerns.

When local recommendations are added by the Delta Protection Commission, among other agencies, the Delta Plan is designed to protect and enhance the unique culture, recreation, agricultural values, and natural resources of the Delta in a manner that reduces risks and allows the Delta to evolve and adapt to changes in the future.

**COEQUAL GOALS, INHERENT OBJECTIVES,
AND OTHER OBJECTIVES TO PROTECT AND ENHANCE THE UNIQUE CULTURAL,
RECREATIONAL, NATURAL RESOURCES, AND AGRICULTURAL VALUES OF THE
CALIFORNIA DELTA AS AN EVOLVING PLACE**

COEQUAL GOALS (Public Resources Code 29702)

29702. *The Legislature further finds and declares that the basic goals of the state for the Delta are the following:*

- (a) *Achieve the two coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.*
- (b) *Protect, maintain, and, where possible, enhance and restore the overall quality of the Delta environment, including, but not limited to, agriculture, wildlife habitat, and recreational activities.*
- (c) *Ensure orderly, balanced conservation and development of Delta land resources.*
- (d) *Improve flood protection by structural and nonstructural means to ensure an increased level of public health and safety.*

INHERENT OBJECTIVES TO THE COEQUAL GOALS (Water Code Section 85020)

85020. *The policy of the State of California is to achieve the following objectives that the Legislature declares are inherent in the coequal goals for management of the Delta:*

- (a) *Manage the Delta's water and environmental resources and the water resources of the state over the long term.*
- (b) *Protect and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place.*
- (c) *Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a healthy estuary and wetland ecosystem.*
- (d) *Promote statewide water conservation, water use efficiency, and sustainable water use.*
- (e) *Improve water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta.*
- (f) *Improve the water conveyance system and expand statewide water storage.*
- (g) *Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and investments in flood protection.*
- (h) *Establish a new governance structure with the authority, responsibility, accountability, scientific support, and adequate and secure funding to achieve these objectives.*

OTHER OBJECTIVES

The coequal goals and inherent objectives listed above seek to support protection and enhancement of the unique cultural, recreational, and agricultural values of the Delta as an evolving place. Achievement of these broad goals and objectives requires implementation of specific policies. Water Code Section 85302 provides direction on the implementation of measures to promote the coequal goals and inherent objectives.

85302.(h). *The Delta Plan shall include recommendations regarding state agency management of lands in the Delta.*

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Draft Findings, Policies, Performance Measures, and Targets

[Ed. Note: performance measures and targets not included in this version of the Draft Delta Plan, will be added as policies are further developed.]

Protect and Enhance Unique Cultural Values of the Delta as an Evolving Place

Protect and enhance the unique cultural values of the California Delta as an evolving place
(based upon Water Code Section 85020(b))

Findings

- ◆ **THE DELTA HAS A UNIQUE CULTURE AND HERITAGE BASED ON ITS DISTINCTIVE NATURAL AND AGRICULTURAL HISTORY.** The Delta's economy and rural culture are defined by agriculture, managing water, moving people and goods along the Delta's waterways, and the network of infrastructure that connect the Delta to other regions of the state. (Delta Blue Ribbon Task Force, Delta Vision Strategic Plan, October 2008, page 59)
- ◆ **THE DELTA IS SIGNIFICANT TO THE STATE AND NATION AS A CULTURAL PLACE AND AS AN IMPORTANT ECOSYSTEM AND WATER SOURCE.** The Delta has high visibility nationally and within California, and its economy increasingly relies on recreation, tourism and agriculture. The Delta is a source of water for farmlands, growing communities and businesses. (Sacramento-San Joaquin Delta Conservancy Act, §32301(f); Delta Blue Ribbon Task Force, Delta Vision Strategic Plan, October 2008, page 59)
- ◆ **THE DELTA SUPPORTS A UNIQUE COMBINATION OF ENVIRONMENTAL AND ECONOMIC RESOURCES THAT PROVIDE THE BASIS FOR MUCH OF ITS LOCAL ECONOMY.** The Delta's land and water supports vital energy, transportation, communications and water conveyance facilities, and important agricultural, recreational and cultural resources that offer outdoor recreation and tourism opportunities. (Delta Blue Ribbon Task Force, Delta Vision Strategic Plan, October 2008, page 59)
- ◆ **OVER THE PAST 40 YEARS, SUBSTANTIAL URBANIZATION HAS OCCURRED ALONG THE PERIPHERY OF THE DELTA AND WITHIN THE SECONDARY ZONE OF THE DELTA.** Even in the Primary Zone of the Delta, residential land uses are becoming more prominent, such as on Grand Island. Conflicting State policies allow for continued development around periphery of urban areas and on agricultural land instead of infill within existing city boundaries. (California Department of Conservation, Farmland Mapping and Monitoring Program GIS data, 1984-2008)
- ◆ **CONTINUED PRESSURE EXISTS TO DEVELOP LANDS WITHIN THE DELTA.** This adversely affects agriculture, the ecosystem, and ultimately recreation and tourism by people who come to enjoy the Delta's rural landscape and waterways. (California Department of Conservation, Farmland Mapping and Monitoring Program GIS data, 1984-2008)

- 1 ♦ **CITIES AND COUNTIES ARE PRIMARILY RESPONSIBLE FOR LAND USE**
 2 **DECISIONS AFFECTING THE DELTA.** Local general plans and development regulations
 3 (such as zoning codes) are the primary mechanisms for implementing land use policy. Counties
 4 primarily designate and regulate floodways to assure that permitted land uses do not conflict with
 5 flood management, but flood management is the responsibility of other entities.
- 6 ♦ **LOCAL LAND USE DECISIONS UPSTREAM OF THE DELTA AND SUISUN MARSH**
 7 **IMPACT THE DELTA.** Continued urbanization surrounding the Delta and Suisun Marsh could
 8 adversely affect water use, water quality, flooding potential/stormwater management, natural
 9 community impacts, especially Delta flow and quality patterns and related ecosystems. (State
 10 Water Code Section 85022 | SBX7 1)
- 11 ♦ **THE COMPLEX SYSTEM OF DELTA GOVERNANCE COMPLICATES**
 12 **COORDINATED AND INTEGRATED PLANNING EFFORTS IN THE DELTA.** No one
 13 level of government or government agency is fully in charge, or capable of responding in an
 14 orderly and effective way to numerous threats facing the Delta. City and county general plans do
 15 not integrate with each other at boundary lines or have a coordinated regional approach to the
 16 management of Delta resources. (EO 2-17-06; Delta Blue Ribbon Task Force, Delta Vision
 17 Strategic Plan, October 2008, page vi)
- 18 ♦ **COMPREHENSIVE REGIONAL PLANNING BASED ON COORDINATED LOCAL**
 19 **EFFORTS CAN BEST ACHIEVE THE LEGISLATIVE OBJECTIVES OF THE DELTA**
 20 **PLAN.** Regulation of land use and related activities that threaten the integrity of the Delta's
 21 resources can best be advanced through comprehensive regional land use planning implemented
 22 through reliance on local government in its local land use planning procedures and enforcement.

23 Protect and Enhance Unique Recreational Values of the Delta as 24 an Evolving Place

25 *Protect and enhance the unique recreational values of the California Delta as an evolving place*
 26 (based upon Water Code Section 85020(b))

27 Findings

- 28 ♦ **DELTA WATERWAYS PROVIDE SIGNIFICANT RECREATIONAL BENEFITS TO**
 29 **ALL CALIFORNIANS.** The Delta's waterways and marinas offer recreational opportunities of
 30 statewide and local significance and are a source of economic benefit to the region. Due to
 31 increased demand and usage, public safety problems exist associated with that usage requiring
 32 increased coordination (and funding) by all levels of government. (Public Resources Code
 33 29712(a))
- 34 ♦ **BOATING WITHIN THE DELTA PROVIDES A SIGNIFICANT REGIONAL**
 35 **ECONOMIC BENEFIT.** Recreational boating within the Delta is of statewide and local
 36 significance and is a source of economic benefit to the region, and to the extent of any conflict or
 37 inconsistency between this division and any provisions of the Harbors and Navigation Code,
 38 regarding regulating the operation or use of boating in the delta, the provisions of the Harbors and
 39 Navigation Code shall prevail. (Public Resources Code 29712(b))
- 40 ♦ **THE DELTA PROVIDES OPPORTUNITIES FOR A VARIETY OF WATER-BASED**
 41 **RECREATION.** The Delta and Suisun Marsh provide numerous opportunities for recreation,
 42 such as boating, kayaking, fishing, hiking, birding, and hunting. However, there is a need for
 43 land-based recreational access points including parks, picnic areas, and campgrounds.
 44 (Sacramento-San Joaquin Delta Conservancy Act, §32301(e))

- 1 ♦ **DELTA WATERWAYS PROVIDE AQUATIC HABITAT AND ARE A POPULAR**
 2 **SOURCE OF RECREATION.** The Delta lands currently have access to thousands of miles of
 3 rivers and sloughs lacing the region. These waterways provide habitat for many aquatic species
 4 and the uplands provide year-round and seasonal habitat for amphibians, reptiles, mammals, and
 5 birds, including several rare and endangered species. The area is extremely popular for many
 6 types of recreation including fishing, boating, hunting, wildlife viewing, water-skiing, swimming,
 7 hiking, and biking. (Delta Protection Commission Land Use and Resources Management Plan.
 8 February 25, 2010.)
- 9 ♦ **THE DELTA'S CULTURAL HERITAGE IS LINKED TO RECREATIONAL**
 10 **OPPORTUNITIES OFFERED BY ITS NUMEROUS WATERWAYS, AGRICULTURE,**
 11 **AND BIOLOGICAL DIVERSITY.** The rich cultural heritage, strong agricultural/economic
 12 base, unique recreational resources, and biological diversity of the Delta should be preserved and
 13 recognized in public/private facilities, such as museums, recreational trails, community parks,
 14 farm stands, community centers, and water access facilities within the Delta. (Land Use Policy P1
 15 - Delta Protection Commission Land Use and Resources Management Plan. February 25, 2010)

16 Protect and Enhance Unique Agricultural Values of the Delta as an 17 Evolving Place

18 *Protect and enhance the unique agricultural values of the California Delta as an evolving place*
 19 (based upon Water Code Section 85020(b))

20 Findings

- 21 ♦ **THE DELTA IS AN AGRICULTURAL REGION OF GREAT VALUE TO THE STATE**
 22 **AND NATION AND THE RETENTION AND CONTINUED CULTIVATION AND**
 23 **PRODUCTION OF FERTILE PEATLANDS AND PRIME SOILS ARE OF**
 24 **SIGNIFICANT VALUE.** Delta agriculture makes an important contribution to the regional and
 25 state economy, and the value per acre contribution is greater than many other agricultural regions
 26 in the state. (Public Resources Code Section 29703(a))
- 27 ♦ **AGRICULTURE IS THE PRINCIPAL LAND USE IN THE DELTA BUT HAS**
 28 **DECLINED FROM 80 PERCENT OF THE DELTA'S TOTAL LAND AREA IN 1984 TO**
 29 **74 PERCENT IN 2008.** About 75 percent of the Delta's total land area is Prime Farmland, the
 30 most productive category of farmland. The division of agricultural lands into smaller parcel sizes
 31 adversely affects the viability of agriculture. All Delta counties have experienced significant
 32 parceling of agricultural lands and increasing rural residential development, replacing agricultural
 33 uses and encroaching into agricultural areas. (Farmland Mapping and Monitoring Program, 1984-
 34 2008)
- 35 ♦ **LEVEE CONSTRUCTION AND CONVENTIONAL AGRICULTURAL PRACTICES**
 36 **HAVE RESULTED IN SUBSIDENCE OF DELTA ISLANDS.** Subsidence caused by some
 37 unsustainable agricultural practices continues to reduce the elevation of much of the Delta's land
 38 surface, in some areas by as much as 25 feet below sea level. Land subsidence will continue
 39 where organic soils are conventionally farmed. (Status and Trends of Delta-Suisun Services. May
 40 2007.)
- 41 ♦ **THE PERIPHERY OF THE DELTA IS UNDERGOING RAPID URBANIZATION**
 42 **ASSOCIATED WITH SUBSTANTIAL POPULATION GROWTH.** Current and future
 43 population growth increases the demand for developable land, particularly in areas near the Bay
 44 Area, Stockton, and Sacramento. This demand results in the conversion of open space, primarily

1 agricultural land, to residential and commercial uses. Increasing concern exists regarding the
2 potential for urbanization and projects in the Secondary Zone to impact the Primary Zone. (Delta
3 Protection Commission Land Use and Resources Management Plan. February 25, 2010.)

- 4 ♦ **URBANIZATION AND LOSS OF AGRICULTURAL LANDS HAVE OCCURRED**
5 **UNDER LOCAL PLANNING POLICIES THAT ARE NOT CONSISTENT**
6 **THROUGHOUT THE DELTA.** (DWR, 2007 | Delta Vision Strategic Plan, October 2008, page
7 111; California Department of Water Resources (DWR). 2007. Status and Trends of Delta-Suisun
8 Services Supplemental CD. May 2007.)

- 9 ♦ **THE ACQUISITION OF FARMLAND AND SUBSEQUENT RETIREMENT OF THAT**
10 **LAND AFFECTS THE ECONOMIC BASE FOR FARM SUPPORT INDUSTRIES.** The
11 economic base for community businesses rely on patronage from citizens working in farm or
12 farm support industries; the tax and assessment base for special districts, counties, and the State;
13 and the existing wildlife use patterns that have adapted to agricultural land use patterns. (Delta
14 Protection Commission Land Use and Resources Management Plan. February 25, 2010.)

- 15 ♦ **AGRICULTURE SUPPORTS OPEN SPACE AND HABITAT FOR WATERFOWL.**
16 Agricultural lands of the Delta, while adding greatly to the economy of the state, also provide a
17 significant value as open space and habitat for water fowl using the Pacific Flyway, as well as
18 other wildlife. Continued dedication and retention of Delta lands in agricultural production
19 contributes to the preservation and enhancement of open space and habitat values. Agricultural,
20 recreational, and other uses of the Delta can best be protected by implementing projects that
21 protect wildlife habitat before conflicts arise. (Public Resources Code; 29703(b) and 29710)

22 Reduction of Risk by Promoting Appropriate Land Uses

23 *The Delta Plan shall attempt to reduce risks to people, property, and state interests in the Delta*
24 *by promoting appropriate land uses. (based upon Water Code Section 85305(a))*

25 *Findings*

26 The following findings describe issues related to reduction of Delta risk from a land use planning
27 perspective. Other findings regarding reduction of risks to people, property and state interests are
28 presented in Chapter 8.

- 29 ♦ **RISKS TO THE DELTA MUST BE REDUCED TO ALLOW FOR ITS EVOLUTION,**
30 **PROTECTION, AND ENHANCEMENT.** For the Delta to continue to thrive as a place while it
31 evolves and adapts to a changing climate, risks to people, property, agriculture, industries,
32 infrastructure, recreation, and natural habitats that make the Delta a unique place must be
33 reduced.
- 34 ♦ **RISK INCREASES AS THE DELTA'S POPULATION GROWS.** The periphery of the Delta
35 is undergoing rapid urbanization associated with substantial population growth, and occasional
36 development proposals occur in the Primary Zone . The growth of nearby population centers of
37 the San Francisco Bay Area, Sacramento, and Stockton inevitably increases the demand for
38 developable land. Development in and around the boundaries of the Delta converts open space,
39 primarily agricultural land, to residential and commercial uses. Such development increases the
40 number of people at risk, and increases the value of property subject to flooding. Increasing
41 concern exists regarding the potential for urbanization and projects in the secondary zone to
42 impact the Primary Zone. (Delta Protection Commission, Land Use and Resources Management
43 Plan, February 2010.)

- 1 ♦ **LEVEES PROTECTING URBAN AND RURAL LANDS ARE, AND NEED TO REMAIN,**
2 ♦ **DIFFERENT.** The Legislature recognizes that the level of flood protection for agricultural lands
3 is not considered acceptable for lands developed for urban uses. (Water Code 9601(c) (d))
4 Responsibilities and liabilities for levee maintenance and flood damages in the Delta are often
5 based on whether a levee is maintained for water supply purposes rather than the use of the land
6 protected. The variance between the cost of maintenance and repair of a levee is not necessarily
7 considered in context of the value of lands protected by a levee.
- 8 ♦ **LAND USE DECISIONS MUST DISCOURAGE DEVELOPMENT IN FLOODPRONE**
9 ♦ **AREAS.** Cities and counties rely upon federal flood plain information when approving
10 developments, but the information available is often out of date and the flood risk may be greater
11 than that indicated using available federal information (Water Code 9601(c, e)). Linking land use
12 decisions to flood risk and flood protection estimates comprises only one element of improving
13 lives and property in the Central Valley. Federal, state, and local agencies may construct and
14 operate flood protection facilities to reduce flood risks, but flood risks will nevertheless remain
15 for those who choose to reside in Central Valley flood plains. Making those flood risks more
16 apparent will help ensure that Californians make careful choices when deciding whether to build
17 homes or live in Central Valley flood plains, and if so, whether to prepare for flooding or
18 maintain flood insurance. (Water Code section 9601(c) (g))
- 19 ♦ **APPROPRIATE LAND MANAGEMENT CAN ELIMINATE SUBSIDENCE AND**
20 ♦ **REDUCE RISKS.** Using appropriate land management techniques such as low carbon
21 agricultural practices can reduce or eliminate subsidence and maintain the Delta’s agricultural
22 values. (Nature Conservancy et al. Greenhouse Gas Reduction and Environmental Benefits in the
23 Sacramento-San Joaquin Delta: Advancing Carbon Capture Wetland Farms and Exploring
24 Potential for Low Carbon Agriculture, December 2010)

25 Working Categories of Potential Policies and 26 Recommendations

27 The following categories have been identified to be considered as a basis for development of policies and
28 recommendations for performance measures and targets restoration to protect and enhance the unique
29 cultural, recreational, natural resources, and agricultural values of the Delta as an evolving place.

- 30 ♦ *Direct Development not Agriculture or Recreation (where feasible) to Existing Towns*
31 ♦ *Reduce/Reverse Subsidence of Peat Soils*
32 ♦ *Support National Heritage Area Designation*
33 ♦ *Facilitate Transfer of Development Rights in the Statutory Delta to Areas Outside Delta*
34 ♦ *Promote Statewide Recognition of Delta*
35 ♦ *Focus Development away from Agriculture and Habitat*
36 ♦ *Identify Major Gateways*
37 ♦ *Enterprise Zones*
38 ♦ *Delta Recreation Plan*
39 ♦ *Create Regional Economic Plan*
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Chapter 10

Governance Plan to Support Coequal Goals

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4 *Under Development*

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Chapter 11

Finance Plan to Support Coequal Goals

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4 *Under Development*

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Chapter 12

Delta Plan: Integration of Policies, Performance Measures and Targets, and Adaptive Management

Under Development