

2014 Annual Report



DELTA STEWARDSHIP COUNCIL
A California State Agency

Against a backdrop of the third-driest year in California's recorded history, 2014 marked the first full year of implementation for the Delta Plan. While the drought exposed some critical weaknesses in the state's water supply reliability and protection of the Delta ecosystem, it also underscored the importance of actions in both the Delta Plan and in Gov. Jerry Brown's five-year California Water Action Plan, many of which are now underway.

Three major activities warrant special mention:

Covered Actions – The Delta Reform Act requires agencies with certain actions in the Delta to certify their consistency with the Delta Plan. This meant developing the regulatory framework to handle these "covered actions" and any appeals. Staff also developed an "early consultation process" through which project proponents can better understand how to determine whether their project is a "covered action" and, if it is, how the Delta Plan's regulatory policies might apply and what consistency would look like.

Bay Delta Conservation Plan (BDCP) – The Delta Reform Act assigns the Council and the Delta Independent Science Board (ISB) several key review roles in the development of the BDCP. In May the ISB and the Council reached a major milestone by reviewing and providing comments on the draft BDCP and accompanying environmental impact report. Project proponents for this proposed habitat restoration and water conveyance improvement project have followed up with Council staff to clarify and address those comments.



Delta Levees Investment Strategy – The Council developed the policy framework for, and launched an update of, the Delta Plan's regulatory priorities for Delta levee investments. This update combines economics, engineering, and decision-making techniques to identify funding priorities and assemble a comprehensive investment strategy for the levees. Much of this year was spent working with state and local agencies to develop the framework and collect and verify the data on which the strategy will be based.

On a statewide level, Governor Brown and the Legislature approved major advancements in groundwater management, with the onus on local agencies to develop and implement plans to achieve and maintain long-term sustainability. The Legislature also came together in nearly unanimous fashion to pass – and two-thirds of California voters in November approved – a \$7.5 billion water bond that funds many actions to further the coequal goals.

California's current drought has created a strong statewide awareness and momentum for moving forward on the essential elements of both the Delta Plan and the California Water Action Plan. The question remains, however, whether that awareness and momentum can be used not just to move critical projects forward now, but also maintained in order to accomplish longer-term projects once the current drought passes.

A handwritten signature in blue ink, appearing to read "JRP". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Jessica R. Pearson, Executive Officer

Californians statewide responded to the drought by increasing conservation and efforts to improve water-use efficiency — dramatically so in many regions.

The Delta Plan is the principal document called for in the Delta Reform Act, which provided specific direction for many of the Plan's goals and objectives.

The Delta Plan is a comprehensive management plan that uses 14 regulatory policies and 73 non-regulatory recommendations for actions by state and local agencies to guide improvement of statewide water supply reliability, provide a vibrant and healthy ecosystem, and preserve, protect, and enhance the rural, agricultural, and recreational characteristics of the Delta.

The Council and the Delta Plan

The delta formed by the confluence of California's two largest rivers – the Sacramento and the San Joaquin – represents many things to many people: a transfer point for the state's major water diversion systems; the largest estuary on the west coast of the Americas; a hub for electric, natural gas, and transportation facilities; a maze of waterways important for both recreational and commercial fishing interests; a large agricultural producer; and a place to call home.

The Delta Stewardship Council was launched in 2010 to advance the state's coequal goals for the Delta – a more reliable statewide water supply and a healthy and protected ecosystem, both achieved in a manner that protects and enhances the unique characteristics of the Delta as an evolving place. To do this, the Council developed a long-term sustainable management plan for the Delta that includes 14 policies with the force of law and 73 recommendations that require coordinated action at the federal, state, and local levels.

Perhaps the Council's most important and challenging role is the facilitation, coordination, and integration of a range of actions and policies in support of the coequal goals. Implementing the Delta Plan occurs through the Council's leadership of the Interagency

Implementation Committee, ongoing staff-to-staff agency coordination, development of science to support the Delta Plan and related activities, and use of the Council's statutory authority over "covered actions" – plans, programs and/or projects that must be consistent with the Delta Plan. The latter includes informal staff-level discussions with project proponents – "early consultations" – that help ensure awareness of the Council's policies and how they apply.

In the chapters that follow, we discuss the objectives of the Delta Plan and highlight accomplishments of the Council in 2014 as well as those of the other state and local agencies tasked with implementing parts of the Plan.

This was a year of change for the Council itself: Members elected



Randy Fiorini as chair; Phil Isenberg became vice-chair; members Patrick Johnston and Frank Damrell were reappointed to four-year terms; Susan Tatayon and Aja Brown were appointed to new four-year terms; and Larry Ruhstaller served in the role reserved for the chair of the Delta Protection Commission. Members Hank Nordhoff and Gloria Gray came to the end of their four-year appointments. The Council also chose a new executive officer, Jessica Pearson.

With the new leadership team in place, the Council commenced on its first full year implementing the Delta Plan.

The Council uses its monthly meetings to explore critical issues in relationship to the Delta Plan, focusing attention on areas that need additional work, highlighting areas of progress, and making recommendations for future actions, all guided by the best available science.

- ◆ **Coequal goals** – Early in the year the Council discussed with a panel of state and federal agencies how the drought was affecting management of California’s water supplies and environmental water flows in the Delta. At year’s end they returned to explore lessons learned from the drought and the actions necessary to prepare for the possible continuation of the drought.
- ◆ **Water supply reliability** – The Council focused attention on the impacts of reduced Delta diversions

and surface water supplies on groundwater withdrawals, particularly in the San Joaquin Valley and endorsed an Issue Paper that made recommendations for additional surface water storage projects both large and small. They also discussed with state and local agencies the statewide responses to the Governor’s call for a reduction in water use of 20 percent compared to 2013 and the development of local resources and water management strategies.

- ◆ **Ecosystem Restoration** – The Council held meetings with agencies and stakeholders about the need to expedite near-term projects and endorsed a Habitat Restoration Issue Paper that sets forth areas of focus by Council staff for the next two years and recommends actions by other agencies.



Council Chair Randy Fiorini

- ◆ **Conveyance** – The Council oversaw thorough scientific and general reviews of the Environmental Impact Report for the proposed Bay Delta Conservation Plan (BDCP). The BDCP is a comprehensive conservation strategy aimed at protecting dozens of species of fish and wildlife, while improving conveyance through the Delta for California's two biggest water delivery projects. The Council and the Delta Independent Science Board noted several strengths of the BDCP and recognized the vast amount of work to develop the plan and its environmental review. They also discussed major concerns and suggested specific improvements, in particular a better inclusion of best available science

The Council’s monthly meetings explore critical issues in relationship to the Delta Plan, focusing attention on areas that need additional work, highlighting areas of progress, and making recommendations for future actions, all guided by the best available science.

Delta Plan Interagency Implementation Committee

State/Delta Agencies:

Delta Stewardship Council
(DPIIC Chair)
California
Natural Resources Agency
California Environmental
Protection Agency
California Department of
Food and Agriculture
Delta Protection Commission
Department of Water Resources
Department of Fish and Wildlife
State Water Resources
Control Board
Sacramento-San Joaquin Delta
Conservancy
Central Valley
Flood Protection Board

Federal Agencies:

Department of the Interior
Bureau of Reclamation
U.S. Fish and Wildlife Service
NOAA National Marine
Fisheries Service
U.S. Environmental Protection
Agency
U.S. Army Corps of Engineers
U.S. Geological Survey

and adaptive management, and better mitigation of impacts to the Delta.

- ◆ **Risk Reduction** – Even as the drought reduced the amount of water flowing through the state’s rivers and streams, the risk of flooding in the Delta is ever-present. Therefore, the Council focused attention on flood safety and emergency preparedness, exploring with state and local agencies ways to resolve different approaches to levee funding and disaster response, as well as guiding the ongoing development of the Council’s Delta Levees Investment Strategy.

All of these discussions contributed to helping shape a \$7.5 billion water bond approved by voters in November that contains funding for ecosystem restoration, storage, Delta levees, and local water resource development.

Delta Plan Implementation Committee

Implementation of the Delta Plan requires a high degree of coordination between state, federal, and local agencies and stakeholders. In response, the California Legislature through the Delta Reform Act tasked the Council with establishing and overseeing a committee of agencies to implement the Delta Plan. In accordance with

Water Code section 85204, the Delta Stewardship Council identified 17 agencies to compose the core membership of the Delta Plan Interagency Implementation Committee (DPIIC).

This group of high-level agency leaders met twice to facilitate Delta Plan implementation through increased coordination and integration in support of shared national, statewide, and local goals for the Delta. The inaugural meeting was held in April followed by a second meeting in November. Working groups of these implementing agencies address specific issues throughout the year.

With a commitment to priority-focused discussions, interagency coordination, pursuit of the coequal goals, and maintaining accountability, the DPIIC member agencies strive to work through consensus-based action to support implementation. Several issue-areas are priorities for further policy discussion, including Delta levee investments, habitat restoration, and collaborative science in support of the *One Delta, One Science* concept. Most importantly, how to integrate and leverage funding for these efforts and others will be a constant focus for the Committee. Delta Stewardship Council staff works closely with DPIIC member agencies, other implementing agencies, and interested parties to facilitate progress in these priority areas.



California Secretary for Natural Resources John Laird addresses the Delta Plan Interagency Implementation Committee (*Council photo*).

Objective:

A more reliable water supply for California means better matching the state's demands for reasonable and beneficial uses of water to the available water supply. For regions that use water from the Delta watershed, it also means reducing their reliance on the Delta through improved regional self-reliance.

This will be done by promoting, improving, investing in, and implementing projects and programs that increase the resiliency of the state's water systems, increase water efficiency and conservation, increase water recycling and use of advanced water technologies, improve groundwater management, expand storage, and improve Delta conveyance and operations.



Lake Oroville Reservoir in
November 2014.
(Photo courtesy DWR.)

Water Supply Reliability

Water Year 2014 ended as the third driest year on record, severely testing the application of California's coequal goals. State and federal water project allocations were cut to near zero. Water was released from supply reservoirs to protect fish and repel salinity in the Delta and diversions by more senior water rights holders were curtailed. Californians were called on to conserve water as never before, with Gov. Jerry Brown declaring a drought emergency and issuing an executive order calling for an overall statewide reduction in water use by 20 percent compared to 2013. And water was trucked to some communities where the wells literally had run dry.

Californians responded, saving more than 77 billion gallons between June and September — about enough water to supply a million people for an entire year. Although statewide water conservation reached only half of the 20

percent target set by the Governor's executive order, some individual communities achieved large reductions in water use. The City of Grover Beach, a coastal community in San Luis Obispo County, logged a 52 percent reduction in September; the City of Davis in inland Yolo County hit 28 percent in the same month.

As a result, major supply reservoirs in the Delta watershed were not depleted as severely as had been feared earlier in the year. Drought awareness no doubt also played a part in California voters' overwhelming decision to support a \$7.5 billion water bond that will help fund statewide as well as local and regional water supply improvements, many of them included in the California Water Action Plan, the California Department of Water Resources' (DWR) California Water Plan Update, as well as the Council's own Delta Plan.

The Delta Plan lays out four core strategies for providing a more reliable statewide water supply for California:

- ◆ Increase water conservation and expand local and regional suppliers
- ◆ Improve groundwater management
- ◆ Improve conveyance and expand storage
- ◆ Improve water management information

The Council proactively addresses many of these issues during discussions at its monthly meetings and in staff meetings with agencies and stakeholders.

The Council continued to participate in the development and environmental review of several major efforts this year. Examples are ongoing consultation with DWR regarding the Bay Delta Conservation Plan (BDCP), including comments on the draft BDCP Environmental Impact Report/Environmental Impact Statement (EIR/EIS), and the Upper San Joaquin River Basin Storage Investigation Project EIS. The Council is working with DWR and the State Water Resources Control Board (SWRCB) in developing the 2015 Urban and Agricultural Water Management Plan guidelines so water suppliers can more clearly demonstrate consistency with the Delta Plan and California law to reduce reliance on the Delta for meeting California's future water supply needs. The Council also is encouraging groups working to identify and recommend ways to reduce procedural and administrative impediments to water transfers.

Many of the projects that implement the Delta Plan and further the State's coequal goals are carried out by agencies other than the Council. Examples of successful 2014 efforts at the state, regional, and local levels include more efficient water use that advances the Delta Plan's call for reduced reliance on Delta water supplies. Actions to



conserve water are underway in both cities and farmlands that receive water exported from the Delta, including:

Urban Efficiency – Los Angeles Mayor Eric Garcetti issued an Executive Directive to reduce per capita potable water use by 20 percent by 2017, three years sooner than required by California law; reduce the Department of Water and Power's purchase of imported potable water by 50 percent by 2024; and announced the creation of an integrated water strategy that increases local supplies and improves water security.

Agricultural Efficiency – The San Luis Canal Company (Canal Company), which provides water for 45,000 acres of farmland near Los Banos, is completing the first of several 10-year Master Plan programs to increase the efficiency of its distribution system and increase the efficiency of the individual farmer's irrigation practices. The Canal Company has completed the first of four planned regulating reservoirs and is saving more than 9,000 acre-feet of water from being spilled outside the service area each year. When completed, the four reservoirs will save a total of 30,000 acre-feet annually. To improve their irrigation practices, farmers have invested in drip or subsurface irrigation on more than 13,000 acres and it is expected that 80-90 percent of the Canal Company service area will make the investment in the next five years.

Los Angeles Mayor Eric Garcetti issued an Executive Directive to reduce the city's purchase of imported potable water by 50 percent by 2024 by meeting conservation goals faster and through local resource development.

By the Numbers ...

Of the 24 actions tracked by the Delta Plan's administrative performance measures for Water Supply Reliability:

- 4 completed
- 14 in process
- 6 not started

These performance measures track actions such as surface water storage studies, a listing of the state's groundwater basins in critical condition of overdraft, and proposed actions to address those basins in critical overdraft.

Groundwater – Governor Brown signed an historic three-bill package that provides the framework and authority for local agencies to manage their groundwater supplies sustainably. Local agencies will be required to develop, within five years, sustainable groundwater management plans and begin implementation of those plans. If the local management plans do not do enough to protect groundwater supplies, the bills authorize the SWRCB to act as a backstop to protect groundwater resources until the plans can be improved. Better groundwater management under the new laws can enhance water supply reliability by using supplies exported from the Delta conjunctively with water pumped from underground, as recommended in the Delta Plan.

Conveyance – The Bay Delta Conservation Plan (BDCP) reached a major milestone with the release of the Draft BDCP and the Plan's Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for public review and comment. In August, the Department of Water Resources and the other state and federal agencies leading the BDCP announced that they will publish a partially Recirculated Draft BDCP, EIR/EIS, and Implementing Agreement in early 2015. The agencies are currently reviewing the comments received through the public comment period, and the recirculated documents will include those portions of each document that warrant another public review prior to publication of final documents. If the BDCP is approved pursuant to the Delta

Reform Act, it will be incorporated into the Council's Delta Plan.

Storage – In response to recommendations in both the Delta Plan and the Council's Issue Paper on storage, the California Water Commission, Department of Water Resources, and the Association of California Water

Agencies joined with the Council early in the year to survey local water agencies for potential water projects and programs. The survey identified projects that would add new or expand existing surface or groundwater storage capacity, enhance opportunities for conjunctive use, improve water supply reliability, and improve operational efficiency. The goal of this effort is to identify a comprehensive inventory of projects that can be implemented in the near term at the regional or local level that will complement the major storage projects being studied at the state and federal levels. The survey identified approximately 60 different projects capable of providing multiple public benefits including water supply reliability.

Transfers – Even in the midst of this oppressive drought, water suppliers south of the Delta were able to transfer approximately 460,000 acre-feet through the Delta from willing sellers in the Sacramento River watershed. DWR, Reclamation, SWRCB, and the state and federal fish agencies assembled a water transfer task force that met weekly with the goal of aligning their respective focus on ensuring that appropriate water transfers could occur without unnecessary impediments. The task force's work helps fulfill a Delta Plan recommendation.



The City of Davis residents use yard signs to proclaim their water-saving efforts—which resulted in a 28 percent reduction in water use in September.



(Photo By Michelle Orr at ESA PWA.)

Panorama of construction work at Calhoun Cut to reestablish tidal connection to the historic marsh and channel system.

Ecosystem Restoration

The state's third driest year also severely tested the State's other coequal goal for the Delta: protecting, restoring, and enhancing the Delta ecosystem. Low reservoir storage levels severely hampered water managers' ability to make cold-water releases during the winter to prevent salmon eggs from drying out. Low flows in the spring also threatened to make the juvenile salmon migration to the ocean much more perilous than usual, so wildlife managers trucked more than 30 million young fish from upstream hatcheries in the Central Valley to release at locations in Rio Vista and the Bay. This extraordinary approach was the best option to ensure that a reasonable number of young fish survived the trip to the ocean.

The Delta Plan contains policies and recommendations for restoring the Delta ecosystem organized into five core strategies:

- ◆ Create more natural functional flows
- ◆ Restore habitat
- ◆ Improve water quality to protect the ecosystem
- ◆ Prevent introduction of and manage nonnative species impacts
- ◆ Improve hatcheries and harvest management

The following pages highlight some of the work by the Council and other agencies to implement the ecosystem portions of the Delta Plan.

Delta Flows – More natural, functional flows of water into and through the Delta are among the keys to restoration of its ecosystem, the Delta Plan concludes. Even as drought managers worked overtime to maintain flows that protect Delta water quality and fish, the Council's

Objective:

The coequal goal of ecosystem protection, restoration, and enhancement means successfully establishing a resilient, functioning estuary and surrounding terrestrial landscape capable of supporting viable populations of native resident and migratory species with diverse and biologically appropriate habitats, functional corridors, and processes.

Delta Science Program helped to lay a sounder scientific basis for long-term action to better manage Delta flows. Following a public workshop in February, a panel of independent scientists convened by the Council's Delta Science Program prepared a report intended to help narrow areas of scientific disagreement and uncertainty over the Delta outflows necessary for a healthy estuary.

Notably, the panel's May report provided a synthesis of the "best available science" that should be used when determining the outflow updates for the Board's Bay-Delta Plan.

Additionally, the Council's Delta Science Program conducted a second workshop on interior Delta flows in April. A separate panel of independent scientists, also convened by the Council's science program, submitted its

final report from that workshop in July to assist the State Water Resources Control Board (SWRCB) in making decisions on interior Delta flow requirements.

The reports will be used by the SWRCB to help set flow objectives for the Delta as part of the Board's update of the 2006 Bay-Delta Water Quality Control Plan. Updating the Water Quality Control Plan flow objectives and meeting those updated objectives when approving new projects are central tenets of the

recommendations and regulatory policies of the Council's Delta Plan.

Restore Delta Habitat – Restoring some of the habitats lost when the Delta was converted to agricultural use are among the actions needed to recover its fish and wildlife, the Delta Plan concludes. As with other elements

of the Delta Plan, the Council relies on many other agencies with their own statutory mandates to undertake the projects and programs that meet the Delta Plan's recommendations. Council scientists and planners have been engaging in early consultation with project managers to help to ensure that habitat restoration projects are consistent with the Delta Plan, particularly with respect to use of best available science and adaptive management.

Examples of work on restoration projects in the development stage:

The Sherman Island Whale's Mouth Project –

This 600-acre permanent freshwater emergent wetland, to be created by the Department of Water Resources (DWR), will reverse subsidence, improve habitat for wildlife, and sequester carbon. Council staff assisted DWR in developing monitoring metrics and effectiveness monitoring strategies. As a result, the project became the first to be certified consistent with the Delta Plan's policies in September.

Dutch Slough Tidal Marsh Enhancement

Project – DWR has completed planning for the 1,178-acre restoration site including 560 acres of tidal marsh. In 2014, DWR began updating the six-year-old plan it had developed to guide adaptive management of the restored site, drawing on newly available science to help test scientific hypotheses. After learning that DWR lacked sufficient funds to implement its adaptive management plan, Council staff worked with partners at the California Department of Fish and Wildlife (DFW) to identify funding for monitoring and adaptive management. This funding commitment, along with the update to the adaptive management plan, put DWR on track to certify this project's consistency with the Delta Plan in December 2014.

Two other projects underway also help implement the Delta Plan's ecosystem goals:



(Photo by Chris Austin)
Dutch Slough Tidal Marsh
restoration site.

By the Numbers ...

Of the 26 actions tracked by the Delta Plan's administrative performance measures for Ecosystem Restoration:

1 completed
20 in process
5 not started

These actions include a priority listing of "Stage 2 Actions for Nonnative Invasive Species."

Of the 17 actions tracked by the Delta Plan's administrative performance measures for Water Quality:

6 completed
11 in process
0 not started

These actions include completion of the Central Valley Drinking Water Policy and development of the Sacramento-San Joaquin Delta regional water quality monitoring program.

Calhoun Cut Enhancement Project – Part of DFW's 965-acre Calhoun Cut Ecological Reserve in Solano County, this project broke ground in October. The project, located in the Cache Slough Complex, one of the Delta Plan's priority habitat restoration areas, will reestablish tidal connection to the historic marsh and channel system as well as enhance existing marsh habitat.

Antioch Dunes Reuses Dredged Material – The Antioch Dunes, part of the San Francisco Bay National Wildlife Refuge Complex, provide important and rare Delta habitat for endangered butterflies and plants. They also exemplify an ecosystem that is being restored through the reuse of dredged material, thanks to a symbiotic partnership among the Refuge, the U.S. Army Corps of Engineers, and the Port of Stockton, which needed a disposal site for sand dredged from the shipping channel in the nearby San Joaquin River.

Examples of planning and adaptive management in 2014 that further the Delta Plan's ecosystem restoration goals included:

The Suisun Marsh Plan (SMP) – Finalized in 2014, this 30-year management plan helps maintain the historic duck clubs in the Suisun Marsh while also promoting tidal marsh restoration which will benefit threatened and endangered species. Council staff helped establish, and currently co-chairs, the SMP Adaptive Management Advisory Team, which brought together scientists and regulators to review two future restoration projects in 2014: DWR's Overlook Duck Club project and the DFW's Hill Slough project.

Habitat Restoration Issue Paper – Developed by Council staff and endorsed by the Council in August, this paper was prompted by the Delta Independent Science Board's review of habitat restoration in the Delta. An example of the Delta Reform Act's call for adaptive

management, the paper also incorporates ideas from the *Delta Science Plan* and the draft Delta Restoration Framework. Council staff will use the paper to focus its own work and encourage others to focus their work in key areas that will spark progress towards implementing habitat restoration portions of the Delta Plan over the next two years.

Science Support for Restoration – Building on its groundbreaking Delta Historical Ecology Study, the San Francisco Estuary Institute is developing landscape visualizations for the priority habitat restoration areas of the Delta through its Delta Landscapes Project, which recently released its report, *A Delta Transformed: Ecological Functions, Spatial Metrics and Landscape Change*. The Delta Conservancy, through its Restoration Network, has led the development of a proposed Restoration Hub, which would apply best available science to support the development of restoration project designs within a landscape context in consultation with stakeholders.

Levee Vegetation Policy – In 2014, the U.S. Army Corps of Engineers announced an interim policy that includes the latitude to allow trees and other vegetation on otherwise eligible Delta levees, a policy change recommended in the Delta Plan.

Invasive Species – In May, DFW, U.S. Fish and Wildlife Service, and NOAA Fisheries released the final version of the Ecosystem Restoration Program *Conservation Strategy*, which included a list of priority actions for addressing nonnative invasive species, as recommended by the Delta Plan. In August, the Delta Conservancy convened the first coordination meeting for state and federal agency staff responsible for managing or controlling invasive species.

Objective:

Improved water quality supports a healthy ecosystem and the multiple beneficial uses of water, including municipal supply and recreational uses such as fishing and swimming. To support a more resilient and healthy Delta ecosystem, salinity patterns should be consistent with more natural flow patterns with inflows of high-quality water. Nutrient concentrations should support diverse and productive aquatic food webs, and should not cause excessive growth of nuisance aquatic plants or blooms of harmful algae. Physical attributes of the aquatic environment, such as dissolved oxygen (DO) concentrations, temperature ranges, and turbidity levels, should support the needs of native species.

At all times, the Delta should be free of harmful concentrations of toxic substances. Discharges of treated wastewater, urban runoff, or agricultural return flows should be regulated so that they do not have a negative effect on the Delta.

Water Quality

The sometimes tenuous balance of the coequal goals is clearly evident in maintaining Delta water quality. Drinking water should have little salt and limited dissolved organic matter, and salt also is a problem for agricultural irrigation; water for fish, however, should be rich in dissolved organics and, reflecting the nature of an estuary, could have highly variable salinity.

The Council has a limited role in water quality because the broad authority to protect and regulate water quality is vested with other state agencies, principally the SWRCB. The Delta Plan, however, does set forth priority Delta-specific recommendations for those agencies and focuses on four core strategies:

- ◆ Require Delta-specific water quality protection
- ◆ Protect beneficial uses by managing salinity
- ◆ Improve drinking water quality
- ◆ Improve environmental water quality

In July, the Council hosted a panel of experts on salinity management who provided information on how operations of the State Water Project and Central Valley Project influence salinity in the Delta as well as the effects of salinity on Delta water users, especially during a time of drought. Additionally, the Council's Science Program is

working with the San Francisco Bay Regional Water Quality Control Board, the Central Valley Regional Water Quality Control Board (RWQCB), and the San Francisco Estuary Institute Aquatic Science Center (SFEI-ASC) on the research needed to support development of regional water quality criteria for nutrients that can threaten the estuary's health. The Council is supporting work through the Aquatic Science Center to compile data and develop a modeling approach that will connect the Delta and San Francisco Bay nutrient criteria development efforts.

Another significant accomplishment includes the successful restoration of dissolved oxygen (DO) levels in the Stockton Deep Water Ship Channel segment of the San Joaquin River. This previously represented a salmon migration barrier and area unsuitable to most fish species, sometimes leading to fish kills. The ongoing monitoring program generated data that clearly showed what kind of management actions could be undertaken to improve the ship channel and demonstrate the value of restorative investments. The RWQCB oversees implementation of the San Joaquin River DO Total Maximum Daily Load program that includes operation of an oxygen aeration system. Other actions by the Regional Board that have helped improve DO conditions include the reduction of ammonia discharges from the City of Stockton's Regional Wastewater Control Facility.



(Photo courtesy of Chris Austin.)

Delta as a Place

The Sacramento-San Joaquin Delta is the heart of California—a unique blend of agriculture, recreation, tourism, commerce, infrastructure, history, and natural beauty. The Delta Reform Act requires that the coequal goals 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.”

The Delta Plan contains five core strategies for protecting and enhancing the Delta:

- ◆ Designate the Delta as a special place worthy of

national and state attention

- ◆ Plan to protect the Delta’s lands and communities
- ◆ Maintain Delta agriculture as a primary land use, food source, key economic sector, and a way of life
- ◆ Encourage recreation and tourism that allow visitors to enjoy and appreciate the Delta, and that contribute to its economy
- ◆ Sustain a vital Delta economy that includes a

Objective:

The Council envisions a future where the Delta’s unique qualities are recognized and honored. Agriculture will continue to thrive on the Delta’s rural lands; and its cities, ports, and rural villages will be desirable places to live, work, and do business. Visitors to the region will enjoy recreation on and in its waterways, marshes, resorts, parks, and historic legacy communities. The Delta’s land uses and development will be resilient, protecting the rural character of the area, reducing risks to people and property, adjusting to changing conditions, and promoting the ability to recover readily from distress. The Delta’s economic vitality will provide resources to respond to change and to support the families and businesses that make the Delta home.

The vision of the Delta as an evolving place also acknowledges the role of Delta residents in shaping the future of the region through active and effective participation in Delta planning and management.

By the Numbers ...

Of the 24 actions tracked by the Delta Plan’s administrative performance measures for Delta as a Place:

2 completed

20 in process

2 not started

These actions include completion of the application to formally designate both the Sacramento-San Joaquin Delta and Suisun Marsh as a National Heritage Area.

mix of agriculture, tourism, recreation, commercial and other industries, and vital components of state and regional infrastructure

In its ongoing efforts to preserve, protect, and enhance the Delta during the past calendar year the Council worked on the following:

Promoting Farmland

Conservation through Smart Growth –

Council staff has worked to ensure that updates of local general plans by Delta cities and counties and Sustainable Communities Strategies developed by regional councils of governments are consistent with the Delta Plan, particularly with respect to ecosystem restoration opportunities, farmland conservation, and flood risk reduction. In 2014, the San Joaquin Council of Governments briefed the Council on its draft Sustainable Communities Strategy, which was adopted as part of its Regional Transportation Plan later in the year. Staff also commented on the general plan updates prepared by San Joaquin County and the cities of Sacramento and Brentwood, urging that they include better protection for farmland, avoid floodplain development, and provide opportunities to restore habitat.

Transportation – The Delta’s transportation infrastructure not only serves the region’s residents and supports its economy, but also is a critical link in networks connecting throughout the state, the Delta Plan concludes. At the Council’s June meeting, representatives of the Contra Costa Transportation Authority, the San Joaquin County Public Works Department, and the Sacramento Area Council of Governments discussed current and future

challenges to the Delta’s roadways, most of which are vital for the agricultural economy. The California Department of Transportation (CalTrans) reported that the agency has started a statewide vulnerability assessment of the state highway system to climate change impacts: sea level rise, increased temperatures, and extreme weather events. The Council will use the information presented to consider how

best to integrate transportation issues into its ongoing levees investment prioritization study, provide additional consultation to the BDCP agencies on mitigation of transportation impacts, and promote better coordination of the many transportation planning efforts in the Delta.

Mitigate the BDCP’s Effects on the Delta’s Unique Values – The Council reviewed the BDCP and its environmental impact report/statement and noted in its comment letter that it needs to better assess and mitigate the cumulative impacts of the BDCP’s conveyance and habitat restoration actions to agriculture, recreation, community character, aesthetics, and historical and archaeological resources in the Delta. The

Council’s comment letter called for improving the assessment and mitigation of water quality impacts, too. Furthermore, the Council recommended that the BDCP agencies develop regional conservation strategies for each restoration opportunity area with additional guidance about restoration actions, measures to avoid or reduce impacts to infrastructure and agriculture, opportunities for nature-based outdoor recreation, and more realistic timelines for realizing benefits.

National Heritage Area Designation – In 2013,



For 42 years the Courtland Pear Fair has been a celebration of Delta agriculture and community.

bills that would establish a Sacramento-San Joaquin Delta National Heritage Area, as recommended in the Delta Plan, were introduced in both the U.S. Senate and House of Representatives. In 2014, the Council was among many local governments, businesses, and citizen groups who supported the legislation, but neither bill passed.

Examples of successful implementation of the Delta Plan's recommendations in 2014 at the state, regional and local levels include:

Historic Preservation and Community

Development – Several groups are engaged in planning for the vitality and preservation of the Delta's legacy communities, as recommended in the Delta Plan. In Spring 2014, RioVision, a diverse group of civic leaders, business owners, and citizens, participated in a design assistance program run by the American Institute of Architects that led to the development of a visionary development plan for the City of Rio Vista. In May 2014, the Delta Protection Commission partnered with the statewide project Preserving California's Japantowns and the Sacramento-San Joaquin Delta Conservancy to host a workshop exploring the reuse of the historic Japanese school in Clarksburg. Sixty people, including agency representatives, members of the community, architects, planners, and historic preservation specialists, participated in the workshop to explore various options for this unique building, one of the last of its kind in existence. In September 2014, nearly 100 people came to Isleton to celebrate the first phase of the Bing Kong Tong building's \$600,000 restoration, funded by the Sacramento Housing and Redevelopment Agency.

New Recreational Opportunities – Improving recreation facilities contributes to the Delta's vitality, the Delta Plan concludes. In 2014, the City of West Sacramento inaugurated a 1.25-mile trail stretch of the Clarksburg Branch Line Trail, the latest addition to the regionwide Great California Delta Trail network. The network

envisions a continuous recreational corridor through all five Delta counties, linking the San Francisco Bay Trail system to the American Discovery Trail and the Pony Express National Historic Trail, which extend east to the Sierra Nevada. The Clarksburg Branch Line is a paved multiuse trail that utilizes the old Yolo Short Line Railroad right-of-way and provides an alternative route for commuting and leisure. In August, the Council helped the East Bay Regional Park District celebrate the opening of its Big Break Visitor Center by meeting there as part of the Council's tour of habitat projects in east Contra Costa County. The building project was partially funded by a \$2.5 million grant from the State of California's Proposition 84. Blue Heron Trails is a new wildlife viewing and habitat study area at Stone Lakes National Wildlife Refuge in Sacramento County. This innovative project is restoring over 300 acres of land to native wetlands, grassland, and riparian forest. Students and visitors are able to explore 50 acres of wildlife habitat that is open to the public.

Tourism – Using input from the community, Delta Conservancy and Delta Protection Commission board meetings, surveys, and focus groups, a Delta logo has been developed. The logo brings together various aspects of the Sacramento-San Joaquin Delta, including the iconic bridges connecting communities, miles of waterways, fertile agricultural lands, and native wildlife. The Conservancy and Commission are continuing to work together to develop and implement a marketing plan to fully utilize the logo and promote the Delta as a tourist destination, as recommended in the Delta Plan.

Boating – In the past year, the Delta Protection Commission has reinvigorated its Abandoned Vessels Working Group, which has kicked off an effort to identify and map Delta abandoned vessels, partnering with the U.S. Coast Guard to develop a database that will assist in documenting and quantifying the problem.



The logo brings together various aspects of the Delta, including the iconic bridges connecting communities, miles of waterways, fertile agricultural lands, and native wildlife.

Objective:

The risks of flooding in the Delta are reduced, despite an increase in sea levels and altered runoff patterns. Delta residents, local governments, and businesses are better prepared to respond when floods threaten. Bypasses are expanded; channels are improved; and strong, well-maintained levees protect local communities and State interests.

Rural areas and the Delta's legacy communities will also be protected from flood risks by careful land use planning that discourages urban development in flood-threatened areas. Local agencies will be better financed and protected and State funds for desired projects will be prioritized for State interests in the Delta, including human health and safety.

Eliminating flood risks will be impossible, but prudent planning, reasonable land development, and improved flood management will significantly reduce risk, and serve the coequal goals of a more reliable water supply, and a protected and restored Delta ecosystem.

Risk Reduction

The Governor's California Water Action Plan stresses the need for improved flood protection for the state. The Delta is a flood-prone area, with more than 1,115 miles of levees, creating approximately 65 islands or tracts, with approximately 700,000 acres of land within the legal limits of the Delta. Those levees are at risk due to earthquakes, floods, subsidence, and sea-level rise and represent a significant threat to the people and property in the Delta that they protect.

The Delta Reform Act states, "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." As such, the Delta Plan contains the following core strategies:

- ◆ Improve emergency preparedness and response
- ◆ Finance and implement flood management activities
- ◆ Prioritize flood management investment
- ◆ Improve residential flood protection
- ◆ Protect and expand floodways, floodplains, and bypasses
- ◆ Integrate Delta levees and ecosystem function, and limit liability

In January the Council approved a three-year, \$2 million interagency agreement between the Council and Department of Water Resources (DWR) for work related to updating funding priorities for state investments in Delta levees as called for in the Governor's California Water Action Plan and the Delta Plan.

In May the Council selected a Dutch engineering firm, ARCADIS, to assist with completion of the Delta Levees Investment Strategy. The investment and risk-reduction strategy will outline a suite of investments that best address the State's goals and priorities including risk reduction actions, a tiered ranking of investments on Delta islands and tracts, and an allocation of costs based on those who benefit. Upon adoption by the Council, these priorities will replace the interim Delta Plan policy and implementing regulation. The proposed strategy also will be submitted to the California Legislature to help guide its future decisions about funding.

In September Council staff drafted an issue paper, *State Investment in Delta Levees: Key Issues for Updating Priorities*, to summarize key topics to be addressed during the development of updated Delta Plan provisions and other recommendations regarding State investments in Delta levees. Staff also began a continuing series of workshops and meetings with state and federal agencies, reclamation districts, and the public as part of the development of the Delta Levees Investment Strategy.

Efforts to promote effective emergency preparedness and strategic levee investments as required by the Delta Plan include these successful local and regional projects:

Emergency Preparedness

Delta Emergency Communications Grant – To improve emergency preparedness and response, \$5 million in Proposition 84 funds were granted in 2013 to Delta counties to improve emergency communication throughout the Delta and across county lines as recommended in the

Sacramento-San Joaquin Delta Multi-Hazard Coordination Task Force Report. Grantees are about halfway through their three-year grant contract with DWR and approximately \$1.5 million has been paid to the Delta counties. Efforts include the installation of a cell tower at Twitchell Island and the purchase of radio and other communications equipment.

Flood Emergency Response Delta Grant – Six awards, totaling \$5 million in Proposition 1E funds were made by DWR in 2014 to local governments in the Delta to improve flood emergency response at the local level. These grants help participating agencies to develop flood safety

plans, conduct flood emergency response exercises, attend training courses, and purchase flood-fight materials. A second grant solicitation package is anticipated in 2015.

Emergency Response Facility Improvement Project – This project provides additional physical resources to quickly respond to levee failures in the Delta. DWR is developing three facilities in the Delta for storage of additional flood-fight supplies and increased stockpiling and deployment of rock, sand, and other materials which are needed to assist in



(Photo courtesy of USACE.)

Heather Grommet (center), a civil engineer with the U.S. Army Corps of Engineers Sacramento District, tracks levee data from a mock assessment of levee issues during a small-scale flood emergency response exercise in the Sacramento-San Joaquin River Delta near Walnut Grove in August.

By the Numbers ...

Of the 19 actions tracked by the Delta Plan’s administrative performance measures for Risk Reduction:

- 1** completed
- 11** in process
- 7** not started

These actions include evaluating the need for additional stored repair material sites throughout the Delta instead of over-reinforcing key Delta levees.

*Central Valley Flood
Protection Board
approved \$12 million
in FY 2014-15 for
the DWR Delta
Levees Maintenance
Subventions Program.*

protecting potentially breached or failing levees as well as assisting with emergency repairs. The initial environmental document to establish the three project sites was completed in 2013. Each project, Rio Vista, West Weber-Stockton, and Brannan Island State Recreation Area have individual timelines for development. DWR has secured a long-term lease from the Central Valley Flood Protection Board for the Rio Vista site, purchased two parcels which compose the West Weber-Stockton site, and is in negotiations with the Department of Parks and Recreation to secure a Memorandum of Understanding/Interagency Agreement that would allow for flood fight equipment and materials to be located at Brannan Island. With the Council's approval for DWR to spend Proposition 1E funds for design and construction, DWR began to develop draft construction documents. Once the site-specific CEQA document and other environmental and construction permits have been secured, DWR will advertise and award construction contracts.

Levee Maintenance and Improvements

Maintaining Delta Levees – The Central Valley Flood Protection Board approved \$12 million each in FY 2013-14 and FY 2014-15 for the DWR Delta Levees Maintenance Subventions Program. This is a cost-share program that provides technical and financial assistance to local levee maintaining agencies in the Sacramento-San Joaquin Delta for the maintenance and rehabilitation of eligible Delta levees. In each of the two fiscal years, 68 applications were received; 68 work agreements have been executed for FY 2013-2014, and work agreements are being prepared for FY 2014-2015.

Smith Canal Gate – The existing levees along Stockton's Smith Canal are heavily encroached upon and

cannot be certified as meeting Federal Emergency Management Agency standards or the State's Urban Levee Design Criteria, placing approximately 8,000 properties and 24,000 people at increased risk from flooding. The San Joaquin Area Flood Control Agency (SJAFC) is proposing the Smith Canal Gate Project to design and construct a gate-type closure structure at the mouth of Smith Canal adjacent to the San Joaquin River/Stockton Deep Water Ship Channel. The proposed project would close off Smith Canal during high flow events, causing existing Smith Canal levees to function as a secondary risk-reduction measure. SJAFC is working on the Environmental Impact Report which is scheduled to be released in early 2015. Council staff worked with SJAFC to discuss how the project could be consistent with the Delta Plan.

Southport Sacramento River Early Implementation Project – The West Sacramento Area Flood Control Agency and the U.S. Army Corps of Engineers are proposing the Southport Sacramento River Early Implementation Project and released the project's joint Environmental Impact Statement/Environmental Impact Report in November 2013. The preferred project scope, in addition to levees improvements, will also involve setting back approximately 3.6 miles of levees as called for in the Delta Plan. Additionally, the project will involve the breach and degrading of the existing levee to restore the historical Sacramento River floodplain, which aligns with recommendations in the Delta Plan. The primary purpose of this project is to achieve the state-mandated minimum 200-year level of flood protection for the City of West Sacramento by modifying the approximately 50 miles of levees surrounding West Sacramento. Council staff worked with West Sacramento to discuss how the project could be consistent with the Delta Plan.

Science and Adaptive Management

The Council's Delta Science Program was established to provide the best possible unbiased scientific information to inform water and environmental decision-making in the Delta. In this synthesizing and coordinating role, the Council's job is to get the right people at the table working on the right issues, facilitate independent peer review for many different agencies and programs, and staff the Delta Independent Science Board in its oversight role for Delta science.

Completed at the end of 2013, the Delta Science Plan lays out a shared vision for science across the Delta science community and has three key components. The first is the Science Plan itself. The second is a Science Action Agenda, which represents a joint work plan for a four-year cycle. The third is a review of that four-year cycle, summarizing what we have learned in order to improve management decisions and inform the next Science Action Agenda.

In 2014, the Science Program formed the Science Advisory Committee which met three times to provide early advice on development of an Interim Science Action Agenda and 2015's update of *The State of Bay-Delta Science* — a baseline review of scientific knowledge last published in 2008.



Lead Scientist Dr. Peter Goodwin

In addition, the use of best available science and adaptive management for covered actions is required by the provisions of the Delta Plan.

Notable accomplishments include:

Interim Science Action Agenda — The Interim Science Action Agenda was a 2014 priority of the Council and also was acknowledged as a priority by the Delta Plan Interagency Implementation Committee. That vision is represented by *One Delta, One Science*, which means an open Delta science community that works together to build a shared state of knowledge with the capacity to adapt and inform current and future water and environmental decision-making in the Delta.

The Interim Science Action Agenda is a first step toward the full Science Action Agenda by laying out the current priority science actions within organizations, programs, and agencies. It is being used to identify opportunities for leveraging existing efforts and connecting managers and scientists with similar needs. The full Science Action Agenda will prioritize and

align near-term science actions to inform management, develop the common body of knowledge that advances the understanding of the dynamic Delta system and achieves the objectives of the Delta Science Plan. The Science Action Agenda will identify priorities for research, monitoring, data management, modeling, synthesis, communication, and building science capacity.

Objective:

Science and adaptive management are tools that provide managers and decision-makers an approach for using public funds more effectively, and increase the likelihood of success for a given project.

Best available science is developed through a process that meets the criteria of (1) relevance, (2) inclusiveness, (3) objectivity, (4) transparency and openness, (5) timeliness, and (6) peer review.

Develop a comprehensive science plan that specifies how scientific research, monitoring, analysis, and data management will be coordinated among entities.

Collaborative Adaptive Management Team –

When the U.S. District Court issued another one-year extension—to February 2015—for the remanded salmon and Delta smelt biological opinions, it was based on the promise of a strong adaptive management program with assistance from the Council’s Science Program. The Collaborative Adaptive Management Team (CAMT) is made up of high-level managers and scientists representing state and federal agencies, water contractors, and non-governmental organizations to serve as a working group to identify scopes of work, staff, and resources necessary to implement topic area work plans. CAMT formed two teams of scientists from representative organizations to develop a methodology and science process for addressing the disagreements identified in the CAMT process. One team is covering Delta smelt and the other is covering south Delta salmonids.

Data Summit –

In June the Council’s Delta Science Program in close collaboration with the science community organized the Environmental Data Summit 2014 that explored how data can be turned into information useful for Delta decision-making. The goal of the Summit was to bring together scientists, resource managers, decision-makers, academia, stakeholders, and interested citizens to discuss a new era in information management and knowledge discovery and to develop an overarching vision and strategy to sustain data integration efforts while taking advantage of constantly evolving technology. Speakers discussed how to build on existing and emerging data management systems to allow the Delta’s environmental and project data to be easily accessed and processed from diverse computer systems. Conclusions from the Summit can lead to more efficient ways of accessing and integrating data from disparate sources to

The Environmental Data Summit 2014 explored how data can be turned into information useful for Delta decision-making.



More than 1,100 scientists, students, and policymakers attended the 8th biannual Bay-Delta Science Conference (Council photo).

improve Delta management.

Science Conference – The 2014 Bay-Delta Science Conference: “Making Connections” was held in October and co-sponsored with the U.S. Geological Survey. This major local conference, held biennially, highlights the most recent discoveries that influence decisions about the Delta. One of the highlights of this 8th biennial conference was the keynote address featuring Mike Connor, Deputy Secretary of the Interior. There were 50 oral sessions, 250 talks, and 185 posters. Attendance exceeded 1,100 scientists, students, legislative staff, and policymakers – making this one of the most successful science conferences to focus on a regional issue.

Brown Bag Luncheon seminars and CABA seminars – Brown Bag luncheon seminars are developed by the Delta Science Program with assistance from the Ecosystem Restoration Program and the Surface Water Ambient Monitoring Program. In 2014, Brown Bag seminars were revitalized by the addition of a thematic approach. Themes included the carbon cycle and land-use change, restoration, infrastructure, and monitoring for a total of 21 seminars and an increased attendance of nearly 950 for the year. The Delta Science Program, in coordination with the U.C. Davis Center for Aquatic Biology and Aquaculture (CABA) also sponsored three seminars. The CABA day-long symposia are oriented to scientists and highlight the most recent scientific developments. The year began with a seminar on lower food web dynamics and the implications of wetland habitat restoration in February, followed by a seminar in May on high-throughput approaches for monitoring environmental effects on Bay-Delta organisms. The year ended with a seminar on the Yolo Bypass as a reconciled ecosystem. All three seminars had a combined attendance of nearly 500.

San Francisco Estuary and Watershed Science (SFEWS) and *Estuary News* – The *San Francisco Estuary and Watershed Science (SFEWS)* (http://www.escholarship.org/uc/jmie_sfews) is a unique online journal that is a primary source of peer-reviewed, credible science relevant to water management issues of the San Francisco Bay and Sacramento-San Joaquin Delta. As an “open access” science outlet, the journal publishes articles and is available—free of charge—to any interested reader. Articles published in the journal influence not only the local scientific community but also important policy decisions or dialogue. The Council also partially sponsors the *Estuary News*, a quarterly publication of the San Francisco Estuary Partnership whose responsibility is to protect, restore, and enhance water quality and habitat in the Estuary. The average quarterly readership is 4,000.

Peer Review Panels – The Council’s Science Program convenes independent scientific review panels throughout the year to assure the quality of Delta science. In January an independent science panel conducted its third phase review of the draft Bay Delta Conservation Plan (BDCP) Effects Analysis. In November an independent science panel conducted its annual review of the Long Term Operations Biological Opinions (LOBO) actions required by the Endangered Species Act related to salmon, steelhead, green sturgeon, and Delta smelt for operations of the State and Federal Water Projects (Water Projects). In November an independent science panel reviewed one of CAMT’s proposed investigations on understanding population effects and factors that affect entrainment of Delta smelt at the Water Projects.

The Council’s Science Program convenes independent scientific review panels throughout the year to assure the quality of Delta science.

The Delta Stewardship Council was created in legislation to achieve the state mandated coequal goals for the Delta.

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



DELTA STEWARDSHIP COUNCIL
A California State Agency