Interim Federal Action Plan for the California Bay-Delta

December 22, 2009

Introduction

On September 29, 2009, six Federal agencies – the Department of the Interior (DOI), Department of Commerce, Department of Agriculture (USDA), Department of the Army, Environmental Protection Agency (EPA), and the Council on Environmental Quality – signed the California Bay-Delta Memorandum of Understanding (MOU). The MOU established a Federal Leadership Committee to coordinate the Federal response to the California water crisis and to facilitate a partnership with the State of California in addressing California's water supply and environmental challenges. The MOU also committed the Federal agencies to develop an Interim Action Plan on an expedited basis.

The MOU reflects the latest manifestation of the Administration's ongoing effort to address California's water issues in an aggressive and coordinated fashion. The Administration is giving priority attention to these issues because the Sacramento/San Joaquin River Delta-San Francisco Bay Estuary (Bay-Delta) is among the most important estuary ecosystems in the nation. The Bay-Delta is the hub of the nation's largest water delivery system, providing drinking water to 25 million Californians. The ecosystem sustains about $400 billion of annual economic activity, including a $28 billion agricultural industry and a robust set of recreational opportunities.[1] Until recently, it has supported a thriving commercial and recreational fishing industry that normally contributes hundreds of millions of dollars annually to the California economy. The Bay-Delta is home to 55 species of fish and 750 species of plants and wildlife.

The Bay-Delta is in crisis. After decades of steep and steady decline, the ecosystem has reached a point of collapse, with some imperiled fish species at all-time low population levels and threats from climate change and associated sea-level rise, seismic risks, and other stressors – such as pesticides, pollutant discharges, and invasive species – underscoring the system's vulnerability. California has experienced three consecutive years of drought during which annual reservoir recharge has been only one-half to two-thirds of average.[2] As a result, water supply managers are facing the potential of a fourth consecutive dry year with low reservoir levels, and both agricultural and urban water customers are being asked to make significant reductions in water use. Fisheries also continue to reflect the damaging effects of drought on top of many decades of environmental degradation of the Bay-Delta. The commercial fishing season continues its third year of painful restrictions, including the closure of the commercial salmon fishery. The State of California estimates that the fishery closure in 2009 alone caused the loss of 2,690 jobs and led to an economic loss of $279 million.[3]

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[1] Fact Sheet, Office of the Governor, State of California, http://www.gov.ca.gov/index.php?/fact-sheet/6969/; News Release No. 03-083, California Department of Food and Agriculture, http://www.cdfa.ca.gov.

[2] "California Drought: Hydrological and Regulatory Water Supply Issues," Congressional Research Service (Dec. 7, 2009), p.1.

[3] April 21, 2009, Proclamation by Governor Arnold Schwarzenegger, "State of Emergency – Chinook Salmon."

The economic impacts of this crisis on the people of California have been severe, particularly in the Central Valley, which is among the lowest income regions of California. Already high as a result of the housing and economic crisis, unemployment in the Central Valley has increased as a result of the region's severe drought conditions, water use restrictions, and other complex factors. Both farmers and cities are facing continued uncertainty in their future water supplies.

It has become apparent that the State's water infrastructure, built many decades ago by the State and Federal governments to serve half the population it does today, is a system under considerable strain. With California's population expected to increase by another 20 million by 2050, it is imperative that everyone – the State, the Federal Government, local governments, farmers, urban residents, and all Californians – share responsibility for addressing this crisis and building a sustainable water future.

In the context of a broader effort to promote the restoration of important ecosystems nationwide (such as the Chesapeake Bay, Everglades, and Great Lakes), the Obama Administration has taken swift and wide-ranging action to move California water issues from the back burner to the forefront of Federal attention during 2009. The Federal Government has invested more than $1 billion this year in addressing California's water needs. It has initiated independent review of the scientific issues associated with the continuing decline of Bay-Delta endangered and threatened species. It has expedited and expanded voluntary water transfers in the Central Valley to aid drought-stricken water districts. And it has dedicated more than $40 million toward immediate drought relief projects. After several years of being on the sidelines, the Administration is working in close partnership with the State of California to develop both short-term actions and a long-term strategy for providing a sustainable water supply and successful ecosystem restoration.

The Interim Federal Action Plan

This Interim Federal Action Plan (Interim Action Plan) has been developed to further the goals of the MOU entered into by six Federal agencies on September 29, 2009. The MOU sets out the Administration's vision of a healthy and sustainable Bay-Delta ecosystem that provides for a high-quality, reliable, and sustainable long-term water supply for California, and restores the environmental integrity and sustainability of the Bay-Delta ecosystem. As noted above, the MOU formally establishes the Bay-Delta Federal Leadership Committee to coordinate Federal efforts related to California's ongoing water crisis, and it specifically provides for the expeditious development of this Interim Action Plan.

With this Interim Action Plan, the Federal agencies are describing in a single document a variety of Federal actions and investments that the Administration is undertaking in a coordinated fashion to help address California's current water supply and ecological crises. The Federal Leadership Committee will be actively monitoring short, mid-term and long-term needs and developments. This Interim Action Plan will be subject to ongoing review and revision as circumstances warrant.

Commitment to Work Closely With the State of California and Local Authorities

The most important aspect of the Interim Action Plan is the Federal Government's reaffirmation of its partnership with the State of California and local authorities, and its commitment to coordinate its actions with those of the State and local authorities. The Administration recognizes that the State of California bears the primary responsibility to address water needs in the State, and that many of the actions that must be taken to balance water supply and demand, and to restore environmental damage lie in the hands of State and local authorities. In that regard, we applaud the ongoing leadership that the Governor and the State legislature have demonstrated in ensuring a sustainable water supply and a healthy Bay-Delta ecosystem. In particular, the State has engaged in a series of long-term, stakeholder-driven planning efforts during the last several years, from the Delta Vision process to the Bay-Delta Conservation Plan (BDCP). The Governor and the California legislature also recently enacted a comprehensive package of water reforms that codifies the State's commitment to pursue enhanced water supply reliability and ecosystem restoration as co-equal goals. This Interim Action Plan embraces the pursuit of the co-equal goals that are now codified in State law: "*providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem*."[4]

This Interim Action Plan focuses primarily on a set of immediate near-term actions that complement the longer term planning processes already underway in California. Most important in that regard, as discussed further below, Federal agencies are eager to support the State of California's recently enacted water legislation, including its support for the BDCP process and its commitment to develop a new Delta plan pursuant to recently enacted State law. As these efforts develop, Federal agencies will continually reevaluate their priorities and actions to help ensure synergies between Federal, State, and local activities and to leverage resources.

Promoting Science-Based Decisions

In addition to emphasizing the Federal commitment to work closely with the State of California on these issues, this Interim Action Plan reflects a Federal commitment to relying on science-based decisions in developing and implementing solutions for diverse Bay-Delta challenges, including water supply, ecosystem restoration, flood risk management, and drought relief. Federal agencies recognize that a variety of stressors have contributed to the current ecological and water supply crisis. They also recognize that a holistic, watershed-scale approach is critical for effectively addressing the impacts of these stressors. As manifested in this Interim Action Plan, Federal agencies believe that they must target their resources toward the full set of factors affecting the Bay-Delta system in order to see tangible improvements in water supply and ecosystem health.

[4] SBX7 1 (Simitian/Steinberg), signed into law on November 12, 2009), amending Cal. Pub. Res. Code Section 29702.

Promoting high-quality science will help ensure that decisions are not made on the basis of incomplete or speculative scientific analysis, which can lead to continued stakeholder conflict rather than sustainable science-based solutions. High-quality scientific information can help agencies and stakeholders understand the current status of the system, the causes of its decline, and the probable effects of alternative actions and policy choices.

This emphasis on science-based decisions permeates this Interim Action Plan and is a significant component of each of the agencies' key actions. Enhancing our scientific understanding through research activities in each of these areas – and making decisions based on this enhanced understanding – will ensure that Federal agencies are most effective in promoting a sustainable long-term future for the Bay-Delta.

Ensuring Effective Performance

Federal agencies recognize and expect that their enhanced focus on Bay-Delta restoration and reliable water supply will translate into concrete, measurable, and timely results. Toward this end, this Interim Action Plan includes a list of specific actions that are designed to yield meaningful, quantitative results wherever possible. To gauge the success of specific initiatives in this Interim Action Plan – and to define the success of Federal activities overall – the agencies will develop clear and concrete milestones and measures of success.

Federal agencies recognize that this Interim Action Plan represents only one step in the Federal Government's renewed commitment to the Bay-Delta after a long period of relative detachment, and that this plan will require periodic re-evaluation and revision to be effective. Federal agencies will carefully monitor progress under this Interim Action Plan, gauge the success of existing efforts, and realign, curtail, or cancel projects not achieving results. Additionally, as Federal, State, and local priorities change and long-term planning processes under the BDCP and California's new legislative package move ahead, the Interim Action Plan and its actions will be revised to fit these evolving priorities.

On November 5, 2009, President Obama published a memorandum in the Federal Register that recognizes the unique legal and political relationship between the United States and Indian tribal governments, and that commits Federal agencies to meaningful consultation and collaboration with tribal officials. Consistent with this memorandum, Federal agencies recognize the need to coordinate and consult with tribal governments as agencies work to implement this Interim Action Plan.

Organization of this Interim Federal Action Plan

This Interim Action Plan organizes the set of Federal actions into four interconnected priorities. These priorities cut across and coordinate among the program- or issue-specific "stovepipes" common to the Federal Government, emphasizing agencies' enhanced commitment to collaborative and interdisciplinary solutions both among Federal agencies and with State and

local authorities. Achieving meaningful results will require effective integration and prioritization of programs and resources across Federal and State agencies and with affected stakeholders.

Federal priorities are as follows:

First, agencies will **work in concert with the State of California and local authorities** in producing the Bay-Delta Conservation Plan (BDCP) and in developing joint planning activities with the State.

Second, agencies will work together to **encourage the smarter supply and use of Bay-Delta water**. Agencies will facilitate permitting and construction of the Delta-Mendota and California Aqueduct Intertie, enhance water transfers, implement scientific evaluation of turbidity and Delta smelt, conduct independent scientific reviews of the impact of Bay-Delta biological opinions, intensify and align Federal water conservation efforts with those of the State and affected communities, and support water efficiency and conservation in agriculture.

Third, agencies will work together on programs and projects to **ensure healthy Bay-Delta ecosystems and improve water quality**. Recognizing that Delta restoration will require a robust watershed approach, agencies will investigate and mitigate other stressors affecting Bay-Delta species, accelerate construction and upgrade of species restoration facilities, advance ecosystem restoration projects, prioritize projects that reduce fish-water supply interactions, address climate change, and diversify water supply for refuges.

Fourth, agencies will work together to **help deliver drought relief services and ensure integrated flood risk management,** including providing statutorily authorized drought relief programs and drought management tools for farmers, and developing more holistic plans for stabilizing existing flood control infrastructure and managing flood risk.

To implement these priorities, Federal agencies have targeted their resources toward a narrow set of ongoing, newly focused, and/or new initiatives. Several of these projects will yield tangible results soon, and several others will enhance our knowledge of the system in order to inform longer term decision-making. Highlighting a select number of these ongoing initiatives in this Interim Action Plan reaffirms their continued importance and reinforces agencies' commitment to getting the job done. The emerging or re-focused issues and initiatives included in this Interim Action Plan represent new efforts or priorities that will be launched as expeditiously as possible by Federal agencies to help address California's water crisis.

The actions and recommendations included in this Interim Action Plan represent those that the Federal Leadership Committee and its agencies currently propose to undertake with projected resources. The Committee has committed to using existing resources to begin implementation of this strategy wherever possible. Funds from other activities may be used to support these high-priority activities as available. The President's Budget for Fiscal Year (FY) 2011 is currently under development and will be released in February 2010. The completion of the FY 2011

President's Budget will help to inform the implementation of actions contained in this Interim Action Plan. In addition, the House of Representatives recently passed legislation that, if enacted, would impact activities that could be undertaken by the Federal Agencies.

This Interim Action Plan is not a final agency action subject to judicial review, nor is it considered a rule. Nothing in this Interim Action Plan is meant to, or in fact does, affect the substantive or legal rights of third parties or bind the Federal agencies.

I. Work in Close Partnership with the State of California and Local Authorities to Ensure Smarter Water Use and Restore Healthy Ecosystems

A. Revitalize Federal-State-Local Partnership in Development of the Bay-Delta Conservation Plan

Federal agencies are committed to and will bolster their active participation in partnership with the State and local authorities in the collaborative, long-term Bay-Delta Conservation Plan (BDCP) process. Federal agencies recognize the importance of cooperating closely with their State and local counterparts in addressing Bay-Delta issues. The BDCP is a collaborative process among diverse stakeholders that is intended to produce a science-based, long-term plan. It is the most significant effort currently under way to address the long-term critical water issues facing California. The BDCP intends to identify a set of water flow and habitat restoration actions to contribute to the recovery of endangered and sensitive species and their habitats in the Bay-Delta, thereby providing for both species/habitat protection and improved reliability and flexibility in water supply, while ensuring the vitality of communities and agriculture.

Federal agencies are fully committed to the BDCP process and will more fully engage in it in order to help set a long-term path for reliable water supply, habitat restoration, and response to the Delta's non-water-supply stressors. They will dedicate resources to develop and process the documents needed to expeditiously move the plan forward, including the draft of the plan itself, the associated Environmental Impact Statement (EIS), and permits under the Federal Endangered Species Act (ESA) and the Clean Water Act that comply with the provisions of these Federal laws.

B. Develop a Near-Term Coordinated Federal-State Plan to Help Implement Key Aspects of California's Recently Enacted Water Legislation

Federal agencies will work in partnership with California authorities to help implement key aspects of the State's new water legislation. As noted above, the California legislature recently passed, and the Governor signed, a comprehensive package of water reforms that

addresses many of the underlying challenges facing this ecosystem. In particular, the legislation created a Delta Stewardship Council, established new State-wide water conservation targets, and called for improved groundwater monitoring and increased enforcement of illegal water diversions. The legislation also provides for a more comprehensive Delta Plan that furthers the co-equal goals of providing a more reliable water supply and protecting, restoring, and enhancing the Delta ecosystem. Federal agencies are reviewing this recently enacted California legislation to better understand where it can partner with the State of California to coordinate its restoration efforts.

As the State of California begins to implement this new legislation, Federal agencies will work in close partnership with their State counterparts to identify joint priorities and opportunities for more robust collaboration. These priorities and opportunities will be embodied in a Coordinated Federal-State Work Plan on California water issues to be developed by February 2010. The Coordinated Federal-State Work Plan will focus on near-term actions to be taken during 2010 and will complement this Interim Action Plan and add specificity to several actions described herein. The Coordinated Federal-State Work Plan will also address Federal involvement in aspects of the recently enacted California legislation, including the Delta Stewardship Council, the to-be-developed Delta Plan and its BDCP foundation, and the habitat restoration provisions of the Sacramento-San Joaquin Delta Conservancy's Strategic Plan. Federal agencies also recognize the need to work closely with the State and local authorities in developing mid- and longer term infrastructure options that can potentially address the chronic conflicts that led the Delta Vision report commissioned by the Governor to conclude that current water supply strategies are unsustainable in the face of Bay-Delta ecosystem collapse, climate change impacts, and seismic risks.

II. Encourage Smarter Supply and Use of Bay-Delta Water

A. Expedite Permitting and Construction of the Delta-Mendota and California Aqueduct Intertie Project

In an effort to further improve water supply in this shared Federal-State water system, Federal agencies will expeditiously complete permitting and construction of the Delta-Mendota and California Aqueduct Intertie Project. As proposed, the Intertie would further the Federal-State partnership in water operations by connecting the Delta-Mendota Canal (DMC) and the California Aqueduct via a new pipeline and pumping plant. This action would address DMC conveyance conditions that presently restrict full use of the C.W. "Bill" Jones Pumping Plant, which is the primary Federal water delivery facility that provides water to Central Valley Project (CVP) contractors south of the Bay-Delta.

The Intertie will allow for maintenance and repair activities that are less disruptive to water deliveries, provide the flexibility to respond to CVP and State Water Project (SWP) emergencies,

and potentially restore as much as 35,000 acre-feet of average annual supply to the CVP. The Intertie project is currently undergoing expedited environmental review by the Bureau of Reclamation (Reclamation) and other agencies. In December 2009, the Record of Decision (ROD) for the Intertie will be signed. Construction will likely commence in June 2010 and be completed by October 2011.

B. Enhance Water Transfers for Improved Water Supply

In an effort to use existing water supplies in the smartest and most efficient ways possible, voluntary water transfers and efficiency improvements in operating the CVP and SWP will play an increasingly important role. In 2009, Reclamation and other Federal agencies (including, in particular, the US Fish & Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS)), working with the California Department of Water Resources (DWR), facilitated the transfer of over 600,000 acre-feet of water by and among CVP contractors and users of SWP water to ensure water was available to the highest-priority users.

Federal agencies are committed to building on the record-breaking transfer activity that they facilitated in 2009. Toward that end, Federal agencies will work with DWR to continue to devote priority attention to willing-buyer, willing-seller water transfers to help move water to areas that need it most. In 2010 and beyond, Federal agencies and DWR are developing a two-year water transfer program based in part on the 2009 Drought Water Bank. In 2012, the agencies are pursuing a ten-year Programmatic Water Transfer Program, which is intended to improve the environmental review associated with potential transfers in order to expedite the ability of the water market to meet outstanding needs in future years, consistent with the environmental provisions of applicable laws and the parameters and guidelines set forth in the Central Valley Project Improvement Act.

This effort will involve close coordination among Federal, State, and local water and wildlife managers to move the transferred water within available pumping periods to areas where the water is most needed. Also, to facilitate improved planning, Reclamation has issued rescheduling guidelines that will allow water contractors south of the Bay-Delta to carry-over stored water for use in 2010. Finally, Reclamation will work with DWR and other relevant entities to evaluate the need for a consolidated place of use permit from the State Water Resources Control Board (SWRCB) to better facilitate transfers. Under existing water rights permits, the application of CVP water is limited to geographic areas known as "places of use." The same applies to the SWP's permit. To facilitate water transfers in 2010, Reclamation and DWR propose to petition the SWRCB to allow for a merging of the combined CVP and SWP places of use, thereby allowing CVP water to be delivered to SWP areas and for SWP water to be delivered to CVP areas.

The specific goal for 2010 is to facilitate and expedite transfers of water between willing sellers and buyers. Reclamation is cooperating with DWR to obtain programmatic environmental

documentation that will cover north-to-south transfers for the 2010 water year. Consistent with current practices, Reclamation also will work to allow use of CVP facilities (via Warren Act contracts) to convey and store non-CVP water.

C. Implement the Scientific Evaluation Called for in the 2-Gates Project on an Expedited Basis

1) **2-Gates Fish Protection Demonstration Project**: In an effort to better inform water supply decisions and improve water operations, Federal agencies have been pursuing a demonstration project related to the movement of delta smelt. This project was proposed as a scientific experiment to test the hypotheses that delta smelt follow turbidity and that smelt entrainment at the pumps could be prevented by keeping turbid water away from the pumps. The project called for the mounting of gate structures on barges and then the installation of such structures at Old River and Connection Slough. Once in place, the gates would be operated to reduce turbidity near the State and Federal pumps, and an evaluation could then be made of whether turbidity is, in fact, an accurate predictor of the presence of smelt. If such a correlation were established, the new information potentially could be used to allow for higher pumping levels during periods of clear water near the pumps.

   Federal agencies have undertaken intensive review and permitting efforts on this project in recent months. As the reviews have proceeded, it has become clear that the project purpose could most expeditiously be advanced by first proving (or disproving) the underlying hypothesis that must be established for the 2-Gates project to be effective as a potential water supply enhancement. Indeed, if the hypothesis that smelt move with turbid waters can be demonstrated in the field, it may be possible to adjust pumping rates without the physical installation of the gates (for example, by increasing pumping rates during clear water periods).

   These developments spurred the Federal agencies, through the U.S. Geological Survey (USGS), to immediately undertake and implement a new project (described below) to evaluate the smelt-turbidity relationship, with the hope that the project can provide information more quickly than waiting for the installation of the 2-Gates project.

2) **Accelerated Field Study of a Potential Smelt-Turbidity Relationship**: The delta smelt Biological Opinion (BO) issued by FWS contains provisions prescribing a range of flow limitations that affect water exports from the Delta pumps. The flow limitations and levels at which the pumps may operate are to be determined by the interagency Smelt Working Group in consideration of hydrologic conditions and potential entrainment of the species at the pumps. USGS scientists, working together with other Federal and State agency scientists and independent scientists from UC Davis, have been working intensively over the last few months to implement a new project that will gather field-based data to evaluate a potential relationship between delta smelt and turbidity. The first phase of the project has

been implemented and included the installation of 14 real-time turbidity sensors in the Delta. These sensors now record and feed real-time turbidity measurements into a central location where they can be accessed for use in connection with water supply decision-making.

In the second phase of the study, USGS and partners will coordinate and oversee a pilot smelt sampling project before, during, and after major turbidity events that will help provide information on the location of delta smelt, the relationship between smelt and turbidity, and other factors relevant to smelt location, behavior, and movement. If the results of this USGS-coordinated project demonstrate that smelt tend to move with turbid waters, this new information could inform decision-making regarding allowable pumping during periods when the newly-installed sensors indicate that turbid waters will not be drawn into the pumps. The project results also may provide information about whether it would be a cost-effective strategy to install physical gates to attempt to diminish the interaction between turbid waters and the pumps and, if so, what the optimal location of such gates might be.

USGS anticipates that this study will be the initial step in an ongoing, long-term scientific effort to work with the Interagency Ecological Program (IEP) for the San Francisco Estuary, the CALFED Science Program (which will become the Delta Science Program), and other State and Federal partners to conduct comprehensive research to provide critical understandings about the relationship between water conditions and smelt movement. In future years, such research could yield new knowledge needed for water and fish management. Elements of the proposed work include turbidity/sediment models, hydrodynamic models, delta smelt life-cycle population modeling, integration of the physical and ecological models, and science for optimal multi-species management.

D. Assist the National Academy of Sciences in Its Review of the Potential Availability of Alternative Water Supply Opportunities

DOI and the Department of Commerce are sponsoring a scientific review that is being conducted by the National Academy of Sciences (NAS) to provide an independent scientific evaluation of the relationship between Bay-Delta endangered species and water supply from the Delta.

The first phase of the NAS review will explore the potential for scientifically supportable alternatives that would lessen impacts to water supply while providing a level of protection to relevant fish species and their designated critical habitats equal to or greater than the protection currently provided. This analysis by NAS is expected by March 15, 2010. Federal agencies are preparing materials to assist the NAS panel in undertaking this important analysis. Agencies are committed to working cooperatively with the NAS as it explores, on an expedited

basis, whether alternative strategies can be employed in this water year to meet the dual goals of water supply and endangered species protection.

E. Strengthen Federal Water Conservation Efforts

Federal agencies will align their water conservation programs and focus efforts to help reduce demand in targeted regions. One of the most important features of the recently enacted State legislation is the adoption of State-wide conservation strategies as a part of a comprehensive water supply plan for California's future.

The Federal agencies embrace California's commitment to water conservation and, through this Interim Action Plan, commit to provide Federal support for the conservation effort. Federal agencies also recognize the importance of taking a holistic view of the San Joaquin and Sacramento River Basins and the critical role that private and public lands play in the health of the ecosystem. In particular, acting through a variety of programs operated by the Bureau of Reclamation, USDA's Natural Resources Conservation Service (NRCS), and EPA, Federal agencies will coordinate the funding that they are providing through cost-shared financial and technical assistance to the State, agricultural entities and municipal water agencies for water management improvements and to accelerate implementation of conservation activities. The U.S. Army Corps of Engineers (Corps) also has ongoing water conservation work underway at a project level.

As part of the Federal agencies' reinvigorated focus on the Bay-Delta, they will work to expeditiously align their project planning, conservation, and project operations activities to leverage limited resources and to maximize benefits of water conservation in areas served by the CVP and SWP. Working closely with State and local partners, this Federal partnership will address both agricultural and municipal water use, assist the regions most affected by the drought and regulatory restrictions on pumping, and help the State meet its recently legislated goals of reducing urban water use 20% by 2020 while continuing to improve agricultural water-use efficiencies across the State.

More specifically, agencies will:

- Host a roundtable in February 2010 with State and local agencies (including SWRCB, DWR and the Department of Public Health) to explore tangible opportunities to further align implementation and Federal-State funding priorities for water recycling and conservation efforts;
- By April 2010, work with the State and local authorities to initiate joint planning studies and demonstration projects in 5 targeted regions served by the CVP and SWP;
- Build upon the joint USDA-DOI "Bridging the Headgate" initiative to provide conservation assistance to irrigation districts;
- Strategically identify areas most amenable for accelerated planning assistance;

- Enhance data availability for improved agricultural water decision-making, including the National Oceanic and Atmospheric Administration (NOAA)'s Seven-Day Evapotranspiration Project, a cooperative initiative with the State and UC Davis on providing forecasts that ensure more effective planning for future fresh water use;
- Focus voluntary, on-farm efforts directed toward water conservation, sediment reduction, invasive species control, pesticide reduction, and wildlife habitat improvement; and
- Improve and protect the health of the Sacramento and San Joaquin River headwaters and surrounding forest lands by restoring resiliency of forests to reduce the threats of catastrophic fire and by increasing water storage capacity and the attenuation of flows through wet meadow restoration in the Shasta-Trinity National Forest, Mendocino National Forest, and Sierra National Forest.

F. Support Water Efficiency and Conservation in Agriculture

Through permanent statutory authority, USDA provides farmers and ranchers with financial and technical assistance to adopt water efficiency and conservation practices. These practices help producers stretch limited available water to bring in a crop, or help maintain the life of permanent orchards, vineyards and pasture. These projects include drip irrigation systems, irrigation water management, pruning, and stock water distribution systems.

During 2009, the 30-county Bay-Delta region has received $28.3 million in financial assistance through the Environmental Quality Incentives Program (EQIP), the Wetlands Reserve Program, and the Agricultural Watershed Enhancement Program for undertaking a mix of voluntary on-farm conservation and water use efficiency projects. USDA provided $1.3 million from October 2008 to September 2009 in 13 Bay-Delta counties through the Cooperative Conservation Partnership Initiative (CCPI), which leverages resources of partners – Tribes, local governments, nongovernmental organizations, and producer organizations – to provide financial and technical assistance for conservation programs.

In 2010, USDA anticipates building upon its programs in 2009 by:

- Providing similarly robust conservation and water efficiency funding and programs; and
- Doubling participation rates of agricultural producers in the Bay-Delta region in the Wetland Reserve Program, Wetland Reserve Enhancement Program, and Wildlife Habitat Incentives Program.

III. Work in a Focused and Expedited Manner to Address the Degraded Bay-Delta Ecosystem

A. Investigate and Mitigate Stressors Affecting Bay-Delta Species

Federal agencies will target their efforts to investigate and mitigate the impacts of stressors on imperiled native species and the Bay-Delta ecosystem. Water quality in the Delta and its tributaries is impaired, contributing to the ecological and water supply crisis in the Bay-Delta. While there is no question that pumping operations in the Bay-Delta are negatively impacting listed species, many other factors are contributing to the estuary's water quality degradation, including agricultural runoff, aquatic pesticides, urban stormwater and wastewater, legacy mercury from upstream historic mine sites, and non-native species introduced via ballast water and other routes. To address these other stressors, Federal agencies will do the following:

1) **NAS Review**: NAS has committed to help evaluate the potential impacts that other stressors, including pesticides, discharges of urban pollutants (including ammonia), and invasive species, may be having on endangered species in the Bay-Delta. Federal agencies will work closely with NAS and supply the review panel with all relevant information that may be useful to its review of these important issues.

2) **Water Quality:** EPA will assess the effectiveness of the current regulatory mechanisms designed to protect water quality in the Delta and its tributaries, including standards for toxics, nutrients, and estuarine habitat protection.

   This assessment will be designed in consultation with the SWRCB and the Central Valley Regional Water Quality Control Board (CVRWQCB). In July 2008, these Water Boards adopted a Strategic Workplan for guiding their Bay-Delta activities.[5] EPA will continue to support many of the significant activities in that Workplan through technical and financial assistance. Over the next several years, the State anticipates multiple point-source permit renewals, new State standards for the Southern Delta and lower San Joaquin River, and Total Maximum Daily Loads (TMDLs) for pesticides in the Central Valley and mercury in the Delta. EPA's assessment will complement these ongoing State activities as well as new requirements in the recent California legislation.

   EPA will work with the State Board in issuing an Advance Notice of Proposed Rulemaking (ANPR) to solicit public input on the array of water quality stressors and approaches to better protect water quality for all beneficial uses, including the interactive/additive effects of various stressors, which are difficult to address under the current regulatory

[5] http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/strategic_plan/docs/baydelta_workplan_final.pdf

framework. EPA will evaluate and synthesize the input received to assist California regulators as they consider amending water quality standards and requirements. As part of this effort, EPA will work with the Water Boards to consider whether permitted point and nonpoint source dischargers are imposing unacceptable stresses on aquatic resources and, if so, what additional controls are appropriate. EPA will collaborate with NAS as this assessment proceeds.

3) **Water Quality Monitoring**: EPA will work with other State and Federal agencies to establish a comprehensive water quality monitoring and assessment program in the Delta and its tributaries. Significant water quality monitoring is being done in the Delta watershed, but the efforts are fragmented. Information is being collected in incompatible formats, and there is no systematic attempt to analyze or effectively use the information. EPA and DOI will work with other Federal and State agencies to better integrate existing and planned monitoring programs and to develop long-term funding and governance agreements. Integration will include the following programs, at a minimum:
    - The Interagency Ecological Program;
    - The Delta Regional Monitoring Program being developed by the Central Valley Water Regional Water Quality Control Board (CVWRWQCB);
    - EPA's under-development San Joaquin Basin Monitoring Strategy;
    - The Sacramento River Watershed Program;
    - Potential BDCP water quality monitoring requirements;
    - Future San Joaquin River Restoration Program monitoring activities; and
    - The CALFED Science Program (to become the Delta Science Program).

4) **Pesticides**: Using its authority under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA is addressing issues related to the potential effects of pesticides to threatened or endangered species in the Bay-Delta while, to the extent appropriate, continuing to keep pest control tools available. EPA will complete Biological Assessments and ESA consultations for 74 pesticides and eleven species in the Bay-Delta. Where adverse impacts to Bay-Delta aquatic resources are indicated, EPA will make necessary changes to pesticide application guidelines.

5) **Invasive Species**: Federal agencies will reinforce their cross-agency collaboration in the FWS-led Bay-Delta Non-Native Invasive Species (NIS) program. The program will focus on preventing the introduction of new invasives (e.g., quagga mussels), limiting or eradicating existing invasives (e.g., *Egeria densa*), and reducing adverse impacts from infestations. Additionally, pursuant to the Clean Boating Act of 2008, EPA will promulgate regulations concerning cleaning of recreational boats as they move between waters in order to reduce potential for invasive species movement.

B. Accelerate Construction and Upgrade of Facilities to Restore Delta Smelt and Other Native Aquatic Species

Federal agencies will actively pursue options for restoring populations of delta smelt and other imperiled native aquatic species through a restoration hatchery. Delta smelt populations have declined so severely that immediate intervention will likely be needed to prevent their extinction in the wild. To ensure future viable smelt populations, and to guard against extinction of other native aquatic species, such as longfin smelt, green sturgeon, and split-tail, it will be necessary both to resolve questions of how to maintain genetic diversity and to find methods to raise large numbers of the species in captivity for reintroduction into restored habitat.

1) **Fish Restoration Facility**: A Federal-State and City partnership, led by FWS, has been formed to promote development of a restoration facility. The partnership is working to secure the funding needed for the engineering analysis and design of a larger permanent facility – the Bay Delta Center for Collaborative Science and Restoration Propagation of Native Imperiled Aquatic Species – to be located at Rio Vista, CA. This facility would be capable of maintaining genetic refugia of delta smelt and other imperiled native aquatic species and producing the volumes of fish necessary for restoration and recovery. Federal agencies expect to partner with the State and City in conducting initial engineering design, site demolition and preparation activities, planning and environmental compliance consultation, and other activities.

2) **Backup Refugium**: A backup refugium also is needed to guard against a catastrophic event and loss of genetic diversity in delta smelt and to provide an interim restoration propagation facility until the Rio Vista Complex is operational. The existing UC Davis Delta Smelt Research and Culture Facility at Banks Pumping Plant was never envisioned as a long-term propagation facility, and considerable improvements are necessary to upgrade the facility to ensure operation, redundancy, and safety. Federal agencies will continue to work with UC Davis and the State to upgrade and ensure safety compliance for the existing facility at Byron.

C. Advance Delta Habitat Restoration Projects

Federal agencies will identify and prioritize key ecosystem restoration projects that help ensure the viability of the Bay-Delta ecosystem, protect endangered species, and contribute to sustainable water supplies. Several completed or ongoing Bay-Delta planning processes have emphasized habitat restoration as a critical element in restoring the ecosystem and its fisheries, improving water quality, and finding smarter and more efficient ways to manage sources of existing water. However, most potential restoration projects still await approval and the necessary funds for construction and implementation before action occurs on the ground. To help encourage more aggressive action toward ecosystem restoration, agencies will:

- Establish a Task Force that, working with the State, will identify existing hurdles and take steps to streamline the process for implementing existing State and Federal restoration projects;
- Investigate a mechanism to "pool" resources among Federal agencies for specific types of restoration actions, where authorized, in order to speed up priority projects; and
- Explore new or expanded opportunities for leveraging non-profit land stewardship organizations to facilitate Federal land acquisition and ecosystem management.

Agencies will target their short-term habitat restoration efforts on the following areas:

San Joaquin River*:* Federal agencies will prioritize this comprehensive effort to restore flows to the San Joaquin River from Friant Dam to the confluence of the Merced River and to restore a self-sustaining Chinook salmon fishery while reducing or avoiding adverse water supply impacts from restoration flows. Reclamation began releasing interim flows from Friant Dam on October 1, 2009 and will pursue a variable flow approach in the future that mimics historical peak flows.

Battle Creek: In 1999, Reclamation, NMFS and FWS, the California Department of Fish and Game, and Pacific Gas and Electric Company entered into an MOU to implement a restoration project spanning Tehama and Shasta Counties that will reestablish approximately 42 miles of prime salmon and steelhead habitat on Battle Creek, plus an additional six miles on its tributaries. The species include the State- and Federally listed Central Valley spring-run Chinook salmon, the Sacramento River winter-run Chinook salmon, and the Central Valley steelhead. Restoration of this perennial cold-water habitat will protect these species during drought, contribute to the recovery of these fish populations, and improve water supply reliability. Phase 1A construction on the North Fork Battle Creek began in 2009. In April 2009, DOI committed $26 million in ARRA funds for Phase 1B. Construction on Phase 1B will begin in June 2010 on the South Fork of Battle Creek.

Cache Slough: This area in the northern Bay-Delta has a high biodiversity of native aquatic species and sensitive habitat, and a high potential for restoration success. In 2007, it had the highest concentration of pre-spawning adult delta smelt. Restoration and preservation has begun through conservation easements and public lands. FWS has prioritized additional engineering work, habitat restoration, and purchase of easements at this site.

Yolo Bypass Floodplain: Increasing the frequency, duration, and extent of inundation of the Yolo Bypass, a critical part of the Delta flood protection system and part of the overall Sacramento River floodplain, will increase the availability of shallow floodplain habitat known to provide good spawning conditions for splittail and good rearing conditions for splittail and juvenile chinook salmon. The BDCP Habitat Restoration Technical Team is considering a modification to the existing Corps-operated Fremont Weir to allow greater frequency of floodplain activation in the Yolo Bypass from January

through April. The Yolo Bypass Management Strategy, developed in concert with local landowners and stakeholders within the Yolo Bypass, has also identified the potential for spring flooding of the bypass to provide habitat improvements for listed fish species. Federal agencies recognize that the Bypass supports existing agricultural, wetland, and flood control uses and are committed to working within the BDCP and Yolo Bypass Working Group processes to find ways to improve habitat for Delta fish species, with an eye toward flood risk and safety.

D. Continue to Prioritize the Construction of Facilities that Reduce Fish-Water Supply Interactions

Federal agencies will continue to prioritize construction of facilities that reduce fish-water supply interactions. Priority is being given to the following projects:

Patterson Fish Screen: Federal agencies are interested in supporting construction of a fish screen for the Patterson Irrigation District, whose existing 195 cubic feet per second (cfs) diversion represents the second-largest unscreened diversion on the San Joaquin River. Design and environmental compliance activities are complete, and $7.2 million in Federal funds has been committed to the project. Construction is awaiting provision of the mandated cost-share by the District or the State. Patterson has submitted a request to the State for $4.7 million to match a portion of the Federal cost share.

Red Bluff Fish Passage: This project includes construction of a new pumping plant that will provide water diversions to the Tehama-Colusa Canal, allowing the Red Bluff Diversion Dam gates to be permanently raised from the Sacramento River. Reclamation allocated $110 million in Recovery Act funding to the project, which is a required action under the June 2009 NOAA biological opinion. Completion of this project would remove a long-recognized impediment to migration of listed species.

Contra Costa Fish Screen: Reclamation is applying more than $30 million in Recovery Act funds to construct and install a fish screen that will prevent resident and migratory fish from being drawn into the Contra Costa Canal at the Rock Slough intake. This diversion is currently one of the largest unscreened Delta diversions. The project will be completed and operational in 2011.

E. Augment the Analysis of Projected Climate Change-Related Impacts on the Bay-Delta

Federal agencies will leverage their climate science programs and expertise to better understand and more aggressively take into account and adapt to the impacts of climate change on water supply and Bay-Delta ecosystem restoration. Climate change is expected to have considerable impacts on California, with the Federal Global Change Research Program

anticipating reduced precipitation and increased temperatures in California. Such impacts may have substantial effects on water quality and supply, ecosystem health, endangered species, agriculture, recreation, and flood risk management. To address this challenge, Federal agencies will take the following actions:

Carbon Sequestration and Delta Subsidence Reversal Project: Emerging marsh vegetation has tremendous carbon sequestration potential, estimated to be as much as ten times that of forests. USGS has provided seed funding to initiate a new project that builds upon the success of two pilot wetlands that have been in place on the Delta's Twitchell Island since 1997. This project would construct a larger demonstration wetland (300-600 acres) that would verify how this sequestration potential could be realized at a farm scale. Carbon sequestration and the accumulated vegetative residue also raise the surface of the soil, reversing land subsidence and reducing the vulnerability of island levees to failure and possible seawater intrusion. USGS looks forward to working with the State to identify funding that would enable continued development of this pilot project.

Explore Opportunities for Ecosystem Services Marketing of Carbon Credits for Agriculture: Significant opportunities for carbon sequestration linked to water quality improvements may exist in the Bay-Delta. Restoration of peatlands show promise for providing long-term carbon storage while potentially providing multiple water quality, levee stabilization, and habitat benefits. Currently, protocols for reporting carbon sequestration are being considered by the California Climate Action Registry (CAR), along with other agriculture-related sequestration protocols.

USDA will contribute technical assistance and data resources to CAR in order to support the development of the proposed carbon offset protocols that may be used in estuary and tidal wetlands restoration. Further, USDA will work with the California Air Resources Board to clarify and enhance the greenhouse gas offsets provisions in its current Proposed Draft Regulation that establishes California's cap-and-trade program. The Bay-Delta provides several opportunities to integrate water quality market development with potential greenhouse gas offsets by facilitating landowner participation in environmental markets and accelerating the application of conservation practices. NRCS and other USDA agencies will commit resources to working with local governments and Delta agricultural operations to increase opportunities for launching restoration projects, constructing irrigation tailwater ponds, restoring wetlands, and undertaking other multi-environmental services projects.

Use of methane digesters in dairy operations could accelerate carbon market participation for local landowners in the Bay-Delta region. Further, integration of carbon markets with renewable energy portfolio contributions, as well as water quality improvements, may provide USDA and California an opportunity to demonstrate how ecosystem services markets can work together. On December 15, 2009, Secretary Vilsack announced an agreement with U.S. dairy producers targeting a 25% reduction in

greenhouse gases in the dairy sector, initially emphasizing installation of anaerobic digesters for electricity production and methane gas destruction. As a result, USDA will:

- Work with the State to help integrate livestock and dairy management into greenhouse gas reduction and renewable energy programs;
- Prioritize dairy and other livestock operations in the Bay-Delta watershed for water quality mitigation projects. Several operations may be eligible for methane capture and destruction carbon credits under CAR's manure management protocol; and
- Work to increase enrollment and participation in these programs, including small business loans and other financial assistance programs.

Salmon Reintroduction: Reintroduction of salmon along with fish passage improvements to historically occupied habitats will help to restore access of salmon and steelhead to their historic, higher elevation habitats. These important efforts not only can help to improve population viability in the short term, but also will provide these species a cold water refuge under expected temperature and precipitation changes. While this action may not have immediate benefits, it will help the species become more resilient to future climate change impacts. Habitat evaluations for projects on the Sacramento, Yuba, and American Rivers are underway or will begin in 2010. Later phases of reintroduction are expected to begin in 2011 and 2012.

California Climate and Water Resources Handbook: EPA will partner with DWR, SWRCB, and the Corps of Engineers in 2010 to develop a "handbook" to help integrate climate change considerations into California's Integrated Regional Water Management (IRWM) program. IRWM is a collaborative and multi-disciplinary approach used in California to manage all aspects of water resources in a region. Local entities, particularly smaller systems and municipalities, need assistance incorporating climate change considerations into their water resource planning in order to ensure that future investments are based on the best available information.

F. Diversify Water Supply for Refuges

Federal agencies will bolster efforts to diversify Refuge Level 2 water supply deliveries. Reclamation continues to coordinate with Federal and State refuge managers to identify opportunities to schedule delivery of contracted water supplies to months outside the agricultural season. Further, $5 million in Recovery Act funding is being made available in 2010 to install groundwater wells to help supply water to three refuges, freeing up CVP supplies for agricultural and urban use. Reclamation is also evaluating the feasibility of reusing drainage water in Grasslands Water District to produce some Level 2 water.

IV. Help Deliver Drought Relief Services and Ensure Integrated Bay-Delta Flood Risk Management

A. Deliver Agricultural Drought Relief Services and Provide Farmers and Ranchers the Tools to Better Manage for Drought

USDA provides drought relief to California farmers and ranchers adversely affected by ongoing drought conditions through multiple programs with permanent statutory authority, including several new programs authorized in the 2008 Farm Bill. Based on Governor Schwarzenegger's requests in 2009, the Secretary designated 57 of California's 58 counties as disaster-affected. Through the implementation of new disaster programs, USDA anticipates providing California producers suffering from drought timelier and greater levels of assistance. In addition to these USDA-delivered programs, producers also insure against losses from drought and other causes utilizing Federal crop insurance policies supported by USDA and delivered by private insurance companies. USDA's key drought relief programs for responding to current and future drought conditions include:

Supplemental Revenue Assistance Payment Program (SURE): SURE provides assistance to farmers who have suffered crop losses due to natural disasters, including drought. USDA will begin sign up for 2008 crop losses in late 2009 or early 2010. SURE has been enhanced to provide assistance for each year a producer suffers a qualifying loss (rather than only one out of every three years) and to provide increased coverage to producers who suffer yield declines due to long-term droughts. These changes will increase the likelihood that producers who have suffered during California's extended drought both qualify for a disaster payment and receive a higher payment.

Livestock Forage Disaster Program (LFP): LFP provides assistance to livestock producers during droughts and will provide substantial assistance to California producers. This new program contains notable advantages for California's livestock producers over previous disaster programs, including substantially higher payments, timelier payments (often within a few weeks of qualifying), and the ability to receive payments each year rather than only one out of three. To date, LFP has already provided California $1.7 million, and payments continue to be made.

Tree Assistance Program (TAP): In early 2010, USDA's Farm Service Agency (FSA) intends to implement the Tree Assistance Program (TAP) in California. Farmers and orchardists who lose vines or trees due to drought will be able to use TAP to reestablish their orchards and vines.

Emergency Assistance for Livestock, Honey Bees and Farm Raised Fish Program (ELAP): Livestock producers, beekeepers and fish producers who suffer losses not covered under SURE, TAP, and LFP will be able to receive assistance from this program when FSA begins issuing ELAP payments in early 2010.

Noninsured Crop Disaster Assistance Program (NAP): NAP provides coverage to farmers who grow non-insurable crops and suffer natural disasters. California producers have received approximately $4.8 million from NAP on 2009 losses.

Emergency Conservation Program (ECP): The ECP program provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures in periods of severe drought. California received $182,500 through ECP from October 2008 to September 2009.

Emergency Farm Loans (EFL): EFL funding is contingent upon Secretarial disaster designations. Emergency loans help producers recover from production and physical losses due to drought, flooding, other natural disasters, or quarantine. Loans may be used to help restore or replace essential property, pay all or part of production costs associated with the disaster year, pay essential family living expenses, reorganize the farming operation, or refinance certain debts. From October 2008 to September 2009, $93 million in loans were provided to California producers, with $1.1 million in the form of emergency loans.

Environmental Quality Incentive Program (EQIP): USDA launched a Special EQIP Drought Initiative in 2009 that provided an additional $3.2 million in financial assistance to drought-stricken producers. This assistance allowed producers to provide temporary coverage in fallowed fields subject to severe wind erosion, to rehabilitate springs for stock water, and to undertake other critically needed conservation measures. If drought conditions persist in 2010, USDA is ready to develop and launch a successor EQIP effort to provide critical assistance to California producers.

B. Undertake Integrated Flood Risk Management Activities in Partnership with the State of California and Local Authorities

Federal agencies will coordinate closely with the State of California and local authorities and undertake holistic flood risk management activities to assess existing infrastructure conditions and rehabilitation needs, explore opportunities for improving operations, emphasize non-structural solutions, and identify new infrastructure options for protecting Bay-Delta and Central Valley communities. The current water conveyance and flood protection systems were constructed over a long period by different entities and to serve diverse goals. As a result, water conveyances are often inefficient, many levees are degraded and have seepage issues, and the systems are not up to current standards. Nor are they capable of withstanding certain seismic events or the effects of climate change, including sea-level rise. To promote integrated flood risk management, Federal agencies will examine Bay-Delta and Central Valley challenges and opportunities to ensure reliability among water supply, the environment, and social and economic health. Agencies will prioritize the following activities:

- Taking into consideration the funding recently appropriated for levee stabilization and flood protection in the State legislative package, Federal and State agencies will identify a near-term process to coordinate their actions in 2010 and to maximize the projects' effectiveness and reach.
- Actively support the Central Valley Integrated Flood Management Study (CVIFMS), the CALFED Levee Stability Program, and other similar studies and processes to identify smarter and more effective ways to balance the myriad and often-competing uses of the floodplain. The Corps-led Delta Islands and Levees Feasibility Study will help assess flood risks and target opportunities for flood mitigation activities and ecosystem restoration. Public and agency scoping meetings for the Feasibility Study will be conducted before October 2010. Technical studies, including hydraulic and hydrologic data development and modeling, are planned between 2010 and 2012.
- Actively partner with the State on the Pinole Shoal Management, California Project (PSM), establishing a joint, long-term framework for Delta channel maintenance and construction activities while maximizing the beneficial reuse of dredged sediments. In 2010, the partners will establish a trial Delta Dredging and Reuse Management Team and formulate management alternatives for the Delta PSM.