

CALFED Bay-Delta Program

Levee System Integrity Program Plan Year 10 (State FY 2009-2010; Federal FY 2010)

Implementing Agencies:

Department of Water Resources
Department of Fish and Game
US Army Corps of Engineers

July 1, 2009



Introduction

This Levee System Integrity Program Plan identifies the CALFED Program activities that are scheduled to be completed during State Fiscal Year (FY) 2009-2010 and Federal FY 2010. The Plan also describes progress made to date on the previous year's program plan. As appropriate, the Program Plan and activities will be adjusted during the year to reflect, for example, changes in priorities, funding, policies or program direction.

Progress Report

The following are the highlights of the program accomplishments made in State FY-08/09 and Federal FY 09. It lists each of the activities accomplished in the current year and describes the progress made or expected to be made through the end of the fiscal year.

Activity undertaken related to CALFED Goals and Objectives and status of that activity.

Provide Base Level Protection – Levee Maintenance

The Delta Levee Maintenance Subventions Program (Subventions Program) was funded at \$20 million in FY 08/09 and the Delta Levee Special Flood Control Projects (Special Projects) was funded at \$31.5 million in FY 08/09. During Fiscal Year 2008-09 the program continued to work cooperatively with levee maintaining agencies in the Delta to preserve 760 miles of eligible project and non-project levees in the Sacramento – San Joaquin Delta. Maintenance includes routine annual maintenance, habitat mitigation, emergency response, repairs to restore the levee crest, slope protection, levee patrolling, repair of slips and scarps, and the associated engineering and construction costs. Unavoidable impacts to habitat were fully mitigated or formal agreements were made to do so.

Provide Base Level Protection – Levee Improvement

Through cooperative effort among local, state, and federal interests the program has improved more than 45 levee miles for stability and overtopping since Year 1. Improvements during FY 2008-09 include rehabilitating selected sections of levee crest. Significant projects were undertaken on New Hope Tract and Bethel, Bradford, Jersey and Twitchell Islands. Continuing consolidation of the foundation will reduce the crest elevation of these levees over time and additional work will be required before the levee sections will stabilize at the upgraded standard. The electromagnetic anomaly survey of delta levees continued under a grant from FEMA/OES. The 50-acre habitat mitigation site on Bradford Island which was planted in 2007 with native species to offset impacts associated with levee improvement projects on the island was maintained. An endowment was established for long-term maintenance activities and an agreement was processed with DFG.

Special Improvement Projects – Levee Improvement

Special improvement projects are projects which will restore levee sections, raise the levee crest above the current elevation up to a level not exceeding PL 84-99 Delta-specific standard. The Special Projects Program was extended to all islands in the Delta and eligible portions of the Suisun Marsh. An application

process was developed and a Project Solicitation Package was prepared. A total of 41 requests for funding were received and 16 projects were recommended for funding. Selection criteria are available on the website at <http://www.water.ca.gov/floodmgmt/dsmo/bdlb/spp/>. Limitations on availability of funding stopped all Special Projects work in FY 2008-09, however, we anticipate approving 16 projects for funding shortly after the end of the fiscal year. In addition, the U. S. Army Corps of Engineers is actively engaged in projects within the Delta under PL108-361 their CALFED levee Integrity Program. The Following internet link location includes USACE reports that may be reviewed and a listing of their accomplishments: <http://www.spk.usace.army.mil/projects/civil/Delta/News.html>

Net Habitat Enhancement

The cooperative efforts of the LSIP have resulted in the creation of approximately 33 acres of riparian and wetland habitat along with 16,000 linear feet of Shaded Riverine Aquatic habitat in the Delta. Islands where this habitat enhancement has occurred include Decker, Twitchell, Webb Tract, and McCormack Williamson Tract. The Program has other significant habitat enhancement projects under development at Meins Landing, Dutch Slough, and Sherman Island. Purchase of Meins landing was finalized in 2005 and will eventually provide tidal estuary habitat in Suisun Marsh and help to offset impacts of levee projects on Van Sickle Island. The restoration at Meins landing is being coordinated with the Suisun Marsh Plan. The administrative draft EIR for enhancement at Dutch Slough was initiated in 2006 and is expected to be completed in early 2009. Dutch Slough, which encompasses 1,166 acres, will restore a large contiguous area of intertidal habitat. A project to continue to create setback levees on Sherman Island and to concurrently restore about 2000 linear feet of tidal lands and SRA along this reach was permitted in 2007 and construction has been completed.

Subsidence Control Plan/Beneficial Reuse of Dredged Material

Subsidence and the methods leading to its reversal have been studied for several years on Twitchell and Sherman Islands under grants from the CALFED Levee System Integrity Program. These studies have shown that it is possible to stop subsidence by shallow flooding and that it is possible to begin reversing its effects by growing aquatic plants. The rice growing project is being evaluated by CALFED Independent Science Board; however, the carbon sequestration is too costly to implement. Additional studies in-progress show promise for further increases in land surface elevation through dispersing silts and soils over the fallen aquatic plants.

While these methods may hold some promise for the future, there is a continuing loss of 35,000 cubic yards of peat soils daily resulting from business as usual, including pumping the islands to keep them dry. However, the Department of Water Resources recognizes the ongoing problem of subsidence and will establish a leadership role in its control and reversal on islands and in areas they own.

Larger scale subsidence control and subsidence reversal demonstration projects will provide real opportunities to determine suitable best management practices to minimize the loss of organic soils and reverse the subsidence trend. Commencing in 2006, the Department embarked on a cooperative effort with Ducks Unlimited, Reclamation District 341 to modify management of an existing duck club on Sherman Island to maximize subsidence reversal. In addition, the Department continued working with the USGS on a demonstration project on Twitchell Island to determine relationships among biomass accumulation,

sediment deposition, and water management and to delineate priority areas on the island for subsidence control.

The Department continued its efforts associated with the beneficial use of dredged material. Bradford Island received 56,000 cubic yards of dredged material. To date, about 1.4 million cubic yards of dredged materials has been obtained for beneficial uses

Emergency Management and Response Plan

The Department of Water Resources implemented emergency response activities for the flooding associated with the storms of December 2005 and January 2006. Flood fight efforts in the Delta were affected through activation of the emergency response plan developed within the Delta Levees Program. The Department participated in emergency actions in various parts of the state. LSIP participated in emergency actions in the Delta on Bacon, Bethel, Bouldin, Bradford, Jersey, Sherman, and Twitchell Islands, and Hotchkiss Tract in the Delta and Simmons- Wheeler, Honker Bay and Van Sickle Island in the Suisun Marsh. Overtopping of islands in the Marsh occurred. No levees were lost in the western Delta; however, the program spent nearly one half of its Special Project's budget on flood damage repair. Program staff continues to work with local levee maintaining agencies to provide funds and technical support for emergency measures necessary to prevent overtopping, erosion, and flooding of Delta and some Suisun Marsh islands. FOC is formulating a comprehensive plan addressing preparedness and response in the event of a catastrophic levee failure.

Delta Levee Risk Assessment

The ROD presented its Preferred Program Alternative that described actions, studies, and conditional decisions to help fix the Delta. Included in the Preferred Program Alternative Stage 1 implementation was the completion of a Delta Risk Management Strategy (DRMS) study that would assess levee failure risks in the Delta. DRMS would also evaluate the consequences of levee failure and develop recommendations to manage the associated risk. Based on this need and legislative requirements a Request for Qualifications was advertised in November 2005 and URS Corporation of Oakland, California was the successful applicant. The DRMS study was undertaken in two phases. Phase 1 analyzes the risks and consequences of levee failure in the Delta Region (which is defined to be both the Sacramento-San Joaquin River Delta and the Suisun Marsh). The Phase 1 analysis current and future levee failure risk from earthquakes, high water conditions [storms and tides], climate change, subsidence, dry-weather events and a combination of these factors. The analysis also estimates the consequences of levee failures to the local and state economy, public health and safety and the environment. Phase 1 was completed and the final report and executive summary were released in February 2009.

Phase 2 of the DRMS study evaluates long-term risk-reduction options for the Delta Region. It will not propose a new plan for the region; rather, Phase 2 will describe a discrete set of actions that can be taken to reduce the risks and consequences of levee failures. Phase 2 efforts were nearly completed before the State's on-going fiscal crisis necessitated the suspension of the consultant's contract and for an indefinite period of time.

Levee Maintenance and Levee Improvement

The Stage 1 goals for Levee System Integrity are described under the Priorities section. Each of the actions, except beneficial reuse, is significantly behind schedule. Though contracting difficulties can account for some of the delay in certain elements, it is the absence of adequate, sustained matching funds from the State and federal government sources that is the primary cause for this program's delay.

The current progress toward achieving Base Level Protection is falling behind because the available funding is used for maintenance, in an effort to preserve the levees for future enlargement. Over the past 5 years the local agencies have been spending their funds that were available for levee improvements to pay the pro-rata charge and cost share on maintenance.

Where the program has obtained significant levee improvements, many of these improvements were obtained in great extent through local funds. When taken in the aggregate, Levee System Integrity has provided only about 50% of the cost of achieving the maintenance and improvements to the levee system. By supporting local districts at the 50% rate, rather than at the 75% rate specified in CALFED documents, the program is less able to achieve the goals stated in the ROD.

Activity

Major activities for LSIP include Levee Maintenance, Levee Improvement and Other Components listed previously. These activities are all carried out through a cooperative effort of DWR, DFG and the Delta maintaining agencies, using local funds and additional funds provided by the state and federal governments through the program. These additional program funds provide the means for accomplishing the major levee work, environmental mitigation, conducting the studies, paying for development of emergency response functions, and other program attributes. The funding for LSIP should be consistent, at a level that provides incremental improvement; however, it has varied significantly over the years. The ROD provided a theoretical budget and corresponding targets that would allow the program to achieve base level protection for 200 additional miles of Delta levee and accomplish other goals. The historic funding received within the program is approximately 30% of the ROD targets. This funding level has preserved the Delta, but denied it the improvements promised in the ROD. The uncertainty in program funding has required that some goals be revised downwards and schedules be extended.

Flood protection funds from Propositions 1E and 84 total \$275 million, these funds are used for the Delta program Delta flood control projects. In Year 10 (State fiscal year 2009-10) the program will continue to follow well established priorities, although there will be a significant increase in local assistance available.

Levee Maintenance

The Subventions Program will provide funding for maintenance activities to preserve the existing levees, protect individual islands, provide mitigation for habitat impacts, and provide a base upon which to build when funding is increased.

The Special Projects Program funding will be used to make improvements to critical levee stability, and to fund the "Other Components" portion of the CALFED LSIP. This funding assures habitat mitigation for project impacts, habitat enhancement for both Subventions and Special Projects, implementation of beneficial reuse projects, and improvements to the emergency response.

Levee Improvements

Though some improvements are obtained with local funding only, program funding for levee improvements above the PL84-99 standard will wait until the critical levee needs are resolved through DRMS and the Delta Vision Process.

Other Components

Legislation

The Subventions Program is scheduled to sunset on July 1, 2010. This means the program will have a significantly reduced ability to provide funding for local agencies to complete their work in levee maintenance, improvement, and restoration. In the long run, this will result in an increase risk of levee failure and will undo some of the work accomplished during the past years of the program.

Federal Funding

The Federal government has authorized funding and they are waiting for appropriations.

State

FY 08-09 State of California budget issues, no sales of bonds and direction from the State Treasurer not to commit funding to bond related programs has put DWR's Special Projects program payments on hold until budget issues are resolved.

State operations funding will allow researchers to continue the ongoing study of subsidence and economical methods to reverse it.

FOC Staff and local agencies will continue making improvements in supplies, planning, coordination effort and other means to make improvements to the emergency response system.

Current year funding available for Beneficial Reuse of Dredged Material will come from the Special Projects Program budget and is limited to participation in a Delta Long-Term Management Strategy for beneficial reuse of dredged material and other activities that are economically justified.

Special Projects funding will continue to be used to provide net habitat enhancement benefits as required by law.

Staff from DWR and DFG has begun a comprehensive assessment of the Suisun Marsh levee system and associated habitat mitigation and enhancement projects as a component of the SMP using funding provided by the involved departments.

The table below describes specific activities under each program component scheduled for Year 10.

Activity: Provide Base Level Protection – Levee Maintenance

The CALFED Program element of Base Level Protection is implemented incrementally with significant planning, coordination, contracting, scientific investigation, and cost sharing with local agencies. The Subventions Program works closely with these agencies and other local interests to provide regular levee inspections by qualified private engineering firms, timely repairs, re-establishment of crest elevation lost to consolidation, and incremental enhancements to stability that will, over time, result in attaining the CALFED goals, provided that there is adequate, consistent, and timely funding.

Subventions Program – Continue to provide financial assistance to local agencies for preservation and rehabilitation of non-project Delta levees and project levees within the primary zone consistent with no net habitat loss and long-term net habitat improvement. Achievement of Base Level Protection is possible over time with sufficient program funding.

Local support is strong for the Subventions Program as evidenced by the historic cost sharing of 50% and not less than 25%.

Expected Deliverables: The Subventions Program will provide reimbursement for approximately 67 reclamation districts for levee maintenance and stability improvements.

Schedule: This is an annually recurring program and will continue for the duration of available funding to support the work. The ROD schedule is significantly delayed by funding shortfalls, limitations on local cost share funding, shortage of materials, and other problems.

Cost: There is up to \$25 million available for the Subventions Program in FY 08-09 and up to \$25 million in FY 09-10.

Suisun Marsh Levee Maintenance – Work with interested parties to define funding needs and work within CALFED to obtain baseline allocations that will begin to provide financial assistance to local agencies for preservation and rehabilitation of Suisun Marsh levees consistent with no net habitat loss and long-term habitat improvement. Achievement of Base Level Protection is possible over time with sufficient program funding.

Schedule: Ongoing

Activity: Implement Special Improvement Projects – Levee Improvements

USACE Studies: - CALFED Levee Stability Program: PL 108-361 authorizes a total of \$90 million for support of Levee System Integrity. Delta interests responded to the USACE request for levee stability proposals by submitting 54 potential projects totaling more than \$1 billion in estimated costs. The USACE evaluated the proposals and prioritized potential projects according to USACE environmental, economic, and other implementation criteria. In May 2006, USACE completed a Report to Congress with the priority list identifying levee stability projects in the Delta. There has been no decision by the Congress to determine future actions and appropriations.

Schedule: Ongoing

Activity: Implement a Levee Subsidence Control Plan/ Beneficial Reuse of Dredged Material

Subsidence reversal has been studied for several years on Twitchell Island under the CALFED Levee System Integrity Program. Studies have shown that it is possible to reverse subsidence by shallow flooding. However, problems associated with taking land out of agriculture, poor quality of the resulting young "peat soil", and production of Tri Halo Methane precursors (carcinogenic substances) require additional study before recommending a specific subsidence reversal plan. This study of peat growth continues with support from the program for maintenance of the ponds.

An additional study on dispersing silts and soils on fallen aquatic plants continues to be stalled due to contracting difficulties. The DWR is working to restore these contracts and continue this study.

Ultimately, subsidence reversal best management practices must reflect the outstanding scientific investigations that lead to the best practicable alternatives that can be applied directly adjacent to levees as fully coordinated with the outcome of the risk assessment study and cost sharing with local agencies.

Deliverables: The CALFED-DWR was completed in December 2007. Deliverables were received from the Subcontractors. Studies are ongoing to determine methods of subsidence reversal that are compatible with existing Delta activities. DWR is also working with Ducks Unlimited and RD 341 to design and rebuild an existing duck club at Mayberry Slough on Sherman Island to alter the hydrology to permanent wetlands. The site will be monitored to evaluate the change in hydrology on waterfowl. Current methods for subsidence reversal preclude much of the agriculture in the Delta and create water quality problems with THMs.

Suisun Marsh Levee Subsidence Control – Continue to work with interested parties to obtain funding for pilot projects in the Suisun Marsh such as tidal wetlands restoration, muted-tidal, or alternative seasonal diked wetlands management strategies to assess subsidence reversal. Also, the program will continue economically justified reuse of dredge material in the Suisun Marsh.

Schedule: Ongoing

Reuse of Dredge Material – The continued reuse of dredge material to increase levee stability and for habitat enhancement has become more restrictive due to increasingly more stringent water quality criteria. Costs have increased and the reuse of dredged material for levee stability or habitat improvements is limited. Costs for acquiring and reusing dredged material exceed the cost of purchasing commercial borrow for Levee System Integrity Program projects. Continuation of this portion of the program is being reevaluated to determine if it is cost effective for the program.

Deliverable: DWR continues to participate in the Delta Long Term Management Strategy (LTMS) and reuse clean dredged material for levee rehabilitation.

Schedule: Ongoing - This element is on schedule achieving approximately 70% of the ROD commitment. The program remains

committed to use available dredged material to strengthen levees wherever it is allowed and proves to be cost effective.

Activity: Implement a Levee Emergency Management and Response Plan

Emergency Response - The FOC will lead in emergency response and the LSIP Program will fulfill in obligations under Water Code Section 12994.

Activity: Delta Risk Management Strategy

Delta Risk Management Strategy: The Delta Risk Assessment Strategy (DRMS) contract was awarded in 2005 and Phase 1 work has been completed. The results of Phase 1 show that the State's economy is at elevated risk from specific multiple levee failure scenarios. Phase 2 will evaluate potential management scenarios to manage levee failure risks and consequences. Phase 2 efforts have been suspended indefinitely due to the State's on-going fiscal crisis. The results of the DRMS study will be used to form the basis of multiple agency support for specific actions in the Delta to reduce the controllable risk from levee failure and support ecosystem health. The results will become a component of Delta Vision Process (DVP). Upon completion, the DVP and results of the DRMS study will play a significant role in the planning and implementation of the LSIP.

Schedule: Inventory of Assets/Trends – December 2006 (Delta Vision Process Assessment Report)

Risks & Consequences – (Final Phase 1 Report) Completed, February 2009. Risk Reduction Strategies and Recommendations – Phase 2 , nearly completed, suspended indefinitely.

Special Improvement Projects- Levee Improvements

Levee Improvement: A significant portion of the budget (\$3.2 million) for Special Projects was used to fund major levee rehabilitation projects on the eight western delta islands (Bethel, Bradford, Jersey, Sherman and Twitchell islands and the Suisun Marsh. Large engineering studies were also funded on New Hope Tract, Webb Tract, and Holland Tracts, Hotchkiss and Twitchell Islands. Special Projects will continue to fund those levee rehabilitation projects on the eight western delta islands and other areas consistent with the legislative mandates of AB 360 that appear to pose the most significant risk until an alternate strategy is developed in the DRMS and DVP process.

Habitat Mitigation and Enhancement: The LSIP provides significant improvements to Delta habitat. The program has restored a portion of Decker Island to tidal marsh and has active projects on Bradford, Medford, Sherman, Twitchell, and Jersey Islands along with Dutch Slough within the Delta and on Miens Landing in the Suisun Marsh. Planning is ongoing for habitat mitigation and improvement projects, including a habitat banking initiative to increase the efficiency of levee repairs while contributing to landscape level habitat benefits. Habitat restoration along a Setback Levee on Sherman Island continues, as well as habitat projects on Bradford Island, McCormack Williamson Tract and at Grizzly Slough. The LSIP works cooperatively with local agencies to achieve habitat mitigation and enhancement which helps develop the sites at reasonable prices.

Schedule: Ongoing

Potential Problems: Future funding of the LSIP will be provided by bond funds from Proposition 84, via annual appropriations. The new policy of the USCOE to strictly enforce a 50-year-old policy with regard to vegetation on levees will be extremely problematic for LSIP habitat mitigation and enhancement programs. Other challenges include identifying funding sources appropriate to finance long term maintenance of restored habitats consistent with the standards required by DFG.
