

PTI Doc

**CALFED Bay-Delta Program
Levee System Integrity Workplan**
by
Levee and Channel Technical Team
December 11, 1996

Purpose:

The CALFED Levee and Channel Technical Team was formed for the purpose of developing a Long-Term Levee Improvement Plan. This workplan outlines the activities that the Levee and Channel Technical Team is engaged in to provide a detailed description of the Delta Long-Term Levee Improvement Plan. Elements of the Plan include: levee maintenance and improvement; prioritization of islands for special levee and habitat improvement funds; subsidence control; beneficial reuse of dredge material; habitat banking; levee associated habitat; seismic susceptibility; emergency response; in-channel islands; levee associated recreation; and continued funding for the System Integrity Common Program.

This effort is enhancing the information developed by the Levee and Channel Technical Advisory Committee of the Bay Delta Oversight Council. Improvements to levee system integrity are directly linked to improvements for ecosystem quality, water supply reliability, and water quality.

Approach:

The CALFED Bay Delta Program is currently leading an effort to define this program with technical input from various interests including Delta residents, State and federal agencies, and Delta agencies such as local reclamation districts and the Delta Protection Commission. This effort in proposing refined definitions of the elements of the overall Long-Term Levee Improvement Plan is currently being coordinated through the Levee and Channel Technical Team. CALFED Bay-Delta Program staff is coordinating with this and other groups as the process moves into Phase II (programmatic environmental review, reconnaissance-level analysis, and pre-feasibility-level planning effort). The short-term products for Phase II include prioritization of special flood control projects and a long term subsidence management plan.

The elements necessary to address the issues relevant to implementing the Common Program as part of CALFED alternatives include the following:

Formation of technical sub-teams to address specific issues related to levee associated habitat, land subsidence, beneficial reuse of dredge material, emergency response, seismic susceptibility, in-channel islands, and levee associated recreation.

Priorities and actions within the Special Habitat Improvements and Flood Control Projects Program. An important aspect of this element is the identification and prioritization of special flood control benefits.

The funding for the levee program has two elements: baseline (Subventions) funding that treats all islands equally; and funding for special projects. This work element of the overall Long-Term Levee Improvement Plan is identifying islands that contain important attributes with high public benefit appropriate for special projects funding. Prioritization will rank islands as having high, medium, or low public-benefit value for consideration of special projects funding. The sub-team will use the following four-step process for identifying and prioritizing islands:

- identify and adopt criteria
- develop criteria information on each island ("information matrix")
- identify and adopt the objectives for prioritizing island attributes
- rank each island's ability to meet each objective (high, medium, or low)

Habitat projects and levee habitat corridors will be prioritized based upon the Ecosystem Restoration targets and goals.

Schedule:

- October - initial island resource matrix, initial evaluation criteria
- December - final island resource matrix, final evaluation criteria
- January - prioritization lists to CALFED and BDAC for action

Subsidence control plan of action will emphasize implementation of subsidence control plans based on research into "capping" and techniques which maximize accretion through shallow water flooding. Utilizing GIS technology, parameters that have been found through ongoing research to effect subsidence (depth of peat soil, historical subsidence rates, percent organic matter, land use levee stability, and island location), will be mapped to aid land use planning decisions for subsidence control:

This sub-team will also look at how historical agricultural practices influenced subsidence rates and whether or not agricultural management is feasible on capped soils.

Schedule:

- October - collect evaluate and digitize into GIS database the spatial data factors that affect subsidence and levee stability
- December - assess spatial relationships among the factors and prioritize islands and portions of islands for subsidence control implementation options
- February - prepare draft subsidence control plan for CALFED Bay Delta Program and BDAC review

Levee associated habitat. The work of the levee associated habitat sub-team is dependant on CALFED's ecosystem restoration technical review team work and goals and targets for different habitats in the Delta. The sub-team is looking for opportunities to link habitat restoration with flood control activities. When CALFED staff determines goals and targets under the ecosystem restoration program, the sub-team will evaluate constraints on habitat improvements and establish demonstration projects to evaluate the effectiveness of linking habitat projects with flood control. Any policy issues will go through the Ecosystem Subcommittee.

Schedule:

- November - draft constraints list and proposed levee associated habitat development techniques for distribution to technical team
- February - draft presentation package for public workshop/CALFED
- On-going - coordinate with Ecosystem Quality Technical Team

Beneficial reuse of dredge material policies and procedures. With the identified need for suitable material for levee maintenance and habitat development, the technical sub-team will be investigating the following:

- propose recommendations for legislative action to promote beneficial reuse of dredge material
- developing dredge material testing protocol and sediment quality criteria
- cost sharing opportunities
- using a GIS database for management of dredge material data including sediment quality, and historical monitoring results
- developing in-stream sediment traps for harvesting clean material on regular intervals
- developing dredge material stockpile sites in the Delta to store material until it is needed
- permit streamlining to reduce project costs

- establishing a Dredged Material Management Office to coordinate Delta beneficial re-use projects
- conducting further demonstration projects of dredged material reuse

These efforts will be coordinated closely with the Regional Water Quality Control Board and the San Francisco Bay Long Term Management Strategy (LTMS) program for the upland utilization of in-Bay dredge material.

Schedule:

- October - develop draft workplan
- July - refined rehandling facilities, sediment traps, and stockpiles map

Delta levee emergency response plan. In coordination with existing law, State, federal, and local agencies, a comprehensive emergency response plan will be developed to utilize the appropriate available resources to prevent the occurrence and severity of flood threatening incidents. Included in this plan will be standardized work agreements for emergency levee work, criteria for eligible levee work, definition of an emergency levee event, establishment of a multi-agency response team, documentation requirements to streamline reimbursements, and stages of emergency response. The sub-team will also review existing plans and make recommendations for changes in the local, State, and federal emergency response procedures.

Schedule:

- December - draft standardized work agreements
- March - form a multi-agency response team
- April - initial emergency response plan
- May - finalize emergency response plan

Delta levee seismic susceptibility will be explored by continuing research that began with the Department of Water Resources' Phase I Delta Seismic investigation. Since there are a great many unknowns regarding the dynamic properties of the peaty foundation layers which commonly exist beneath the levee system, the continued research will attempt to reduce the major uncertainties by: installing strong-motion accelerometers at three to four levee sites in the Delta; creating a geologic model for deeper soil deposits; field and laboratory testing to better determine the static and dynamic properties of organic soils; field and laboratory testing to better determine liquefaction potential; and investigate the potential activity of the Coast Range-Sierra

/Nevada Boundary Zone. These efforts will be closely coordinated with the USGS, UCD, and interested stakeholders. The seismic sub-team is also evaluating emergency preparedness for earthquake damage and multiple island failures. This effort will be closely linked with the emergency response sub-team.

Schedule:

- October - initial levee damage susceptibility map, perform field and laboratory geotechnical studies, install surface and subsurface strong motion sensors
- May - refined levee damage susceptibility map
- On-going - continue research for Phase II and Phase III reports

Delta in-channel islands This technical sub-team was established by the San Francisco Estuary Project to consider alternatives for protecting and restoring in-channel islands in the Delta. The sub-team is charged with integrating the San Francisco Estuary's efforts into CALFED, finalizing a framework for protecting and restoring in-channel islands, and seeking stakeholder concurrence on managing in-channel islands.

A management strategy will be developed for in-channel island protection and restoration that is ecosystem based and uses consensus decision making and provides for voluntary participation. The management strategy will guide the In-Channel island Technical Sub-team as it prioritizes and implements demonstration projects. Furthermore, a guidebook will be developed that establishes a program for immediate implementation that includes: using site-specific criteria, setting priorities; using adaptive management; describing regulatory processes and possible funding sources; establishing a research monitoring program; providing up-to-date bioengineering and ecological restoration techniques and land use management information; and providing public education and outreach.

Schedule:

- February - collect data for guidebook and identify scope of problem; seek endorsements and consensus for a demonstration project; and set priorities
- June - select initial demonstration project and begin implementation

Levee associated recreation is currently limited in the Delta and historically has been characterized by significant impacts to levees including loss of vegetative cover, removal of rip-rap, and accelerated levee erosion. This

element will consist of identifying appropriate places for recreational developments and propose recreational facilities that are compatible with other Delta benefits and users. Enhancements will improve current opportunities and create new areas for passive and active recreation.

Schedule:

On-hold

Consistent with the CALFED philosophy, the Levee and Channel Technical Team's workplan will be implemented in phases. Phasing is necessitated by financing research, environmental documentation, public coordination and consensus building.

Actions	Phases				
	I	II	III	IV	V
Subventions	X	X	X	X	X
Special Projects	X	X	X	X	X
Subsidence		X	X	X	X
Emergency Response	X				
Seismic		X			
Beneficial Reuse	X	X	X	X	X
Sediment Traps		X			
In Channel Habitat	X		X		X
Levee Habitat	X	X	X	X	X
Recreation			X	X	X