Overview
CALFED Flood Protection Opportunities

The CALFED Bay-Delta Program is developing a long-term comprehensive plan that will restore ecological health and improve water management and protection of beneficial uses of the Bay-Delta system. Specific actions will address Bay-Delta problems in ecosystem quality, water quality, levee system vulnerability, and water supply reliability. Many of these can also improve flood protection in the system.

The attached map shows some of the Program elements which promote flood protection while also meeting other Program objectives. Following are brief descriptions of these elements.

Delta Levee/Channel Improvements - The majority of the land within the Delta is below sea level. Approximately 1100 miles of existing levees encircle different tracts of lands to form "islands" used for agriculture, habitat for important terrestrial species, towns, and infrastructure. These levees also provide a significant link in protecting the water supply reliability for 2/3 of California's water users. Many of these levees do not meet high standards for flood protection and the Bay-Delta system faces an unacceptably high risk of inundation of Delta islands due to potential levee failure. Improving levees by building them higher and stronger will significantly improve flood protection and could provide new opportunities for habitat restoration and protection. Channel improvements, in conjunction with the levee improvements, allow for carrying larger floods. The Department of Water Resources' suspended **North Delta Program** is one example of proposed levee and channel improvements that have been under study for several years.

Setback Levees - Many existing levees are located at the edge of river channels. Constructing new levees farther away from the channel provides for a wider area to carry flood waters. This wider flood plain will also temporarily store some flood waters and may serve to lower flood flows to downstream areas. The wider flood plain also creates new opportunities for habitat restoration.

Bypass - Existing bypass channels were constructed years ago along portions of the Sacramento and San Joaquin Rivers to divert some of the flood flows out of the rivers and thus relieve pressure on the main channel. The combination of the rivers and the bypasses can carry more water than the rivers alone. Improvements to the existing San Joaquin Bypass by construction of new **setback levees** would allow for carrying even more flow and new opportunities for habitat restoration. An extension of this bypass system along the San Joaquin River and through the Delta could reduce flood risk along the lower San Joaquin River.

Managed Floodways - Rather than constraining rivers to flow within a strict corridor width, they can be allowed to meander throughout their floodways in certain areas where impacts on farms, roads, diversions, and cities can be mitigated. This use of full natural floodways can

result in better temporary flood storage and reduced flood flows to downstream areas. The floodway concept can also create new opportunities for habitat restoration.

Flood Easements - The rights to periodically flood some areas can be purchased to eliminate the need for expensive levees or other improvements to protect those areas from flooding. The flooding of "designated floodways" would temporarily store flood waters and lessen the flooding threat to downstream areas. The areas covered by flood easements can continue with their traditional land use during non-flooding times when the existing uses are farming, grazing, habitat, or recreational.

Flood Control Storage - Major storage reservoirs on the Sacramento and San Joaquin Rivers and tributaries currently have storage dedicated for flood control. Raising key dams, such as Friant Dam, could provide new water for water users and the environment and additional storage for flood control. Storing water at times of high inflow can reduce flows to downstream areas subject to flooding.

Offstream Storage - Potential offstream storage reservoirs would be filled by diverting water from the main rivers at times of high flow resulting in some reduction in downstream flood risk. These reservoirs would primarily store water for multiple water uses including environmental flows. Depending on how the offstream reservoirs are designed to operate in conjunction with existing reservoirs, some new system-wide flood storage could be developed. For instance, due to the increase in offstream storage for beneficial uses, other reservoirs on the rivers could be held lower (more flood storage available) in the winter without jeopardizing overall water deliveries. In addition, there will be opportunities to move water from onstream reservoirs (e.g. Oroville) at the start of the flood season into offstream storage; improving flood storage while saving water.

E-014148