



DELTA WETLANDS PROJECT

FLOOD CONTROL

Flood control in the central Delta is different than flood control elsewhere in the State.

What does damage in the Delta is the combination of high river flows, extreme tides and wind driven waves¹. Wave height is a function of the amount of open water that wind has to work on. Waves from an open body of water such as Franks Tract and the San Joaquin River are much higher and more damaging than from a more typical Delta channel.²

The most effective flood control measure in the Delta is a “good neighbor” policy; to keep levees strong and to make sure that if islands fail they are reclaimed and not allowed to develop into permanent bodies of open water. Failed islands such as Mildred Island and Franks Tract become perpetual threats to their neighbors.

As designed and permitted, the Delta Wetlands Project enhances flood control in the Delta in two ways:

1. Delta Wetlands will significantly strengthen 56 miles of levees in the heart of the Delta. The four Delta Wetlands islands will be among the strongest in the Delta. Reservoir islands filled with fresh water will not draw brackish water into the Delta if a levee should fail.
2. If other islands flood and brackish water is drawn into the Delta, the Delta Wetlands Project can be used as a “first response” facility to minimize the impact to export water quality in one of two ways. If the reservoir islands are full of fresh water, that water can be released into the Delta to flush and dilute the brackish water, improving water quality. If the reservoir islands are empty, brackish water could be pulled onto the islands in order to isolate it until it can be discharged without adverse water quality impact.

Moreover, the project could be constructed and operated to provide additional flood control benefits.

¹ By the time a flood event reaches the central Delta, it is so spread out that the increase in water level is much less than normal tidal variation. In the central Delta, the difference between a 100 year and a 300 year flood event is only 6 inches. Just a little upstream on the Sacramento and San Joaquin Rivers, it is more than 6 feet.

² Delta Wetlands Project reservoir islands will be designed to withstand wind and wave erosion during a storm event from interior and exterior sides.

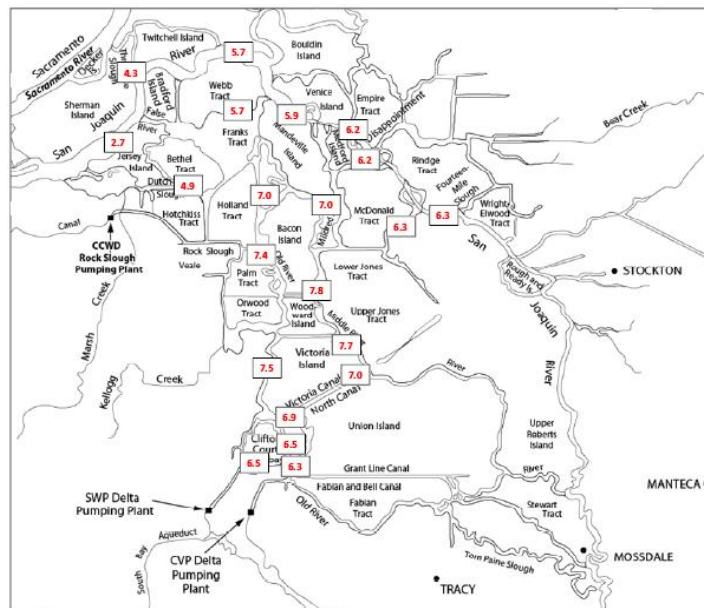
Sometimes the difference between an island flooding or not flooding is a matter of inches. Delta land owners understand this reality.

“I was out on the levees in the mid-fifties with my father. My father’s family were the original landowners of McDonald Island, one of the major islands in the central Delta. In 1955, we were battling the floods. I remember him saying as we drove by our gauge, ‘Son, we’ve got a half an hour to go and we’re not going to make it,’ because the water was already coming over the top of the levee. We came back about 15 minutes later and the water was down about a foot. He said: ‘somebody flooded.’³”

Hoping that your neighbor’s island will flood first has long been an informal but prevalent Delta flood control strategy. This has led to the anomalous situation where a neighbor’s levee improvements can be viewed as a threat. A better strategy would be to design and operate some islands so that they will flood in an engineered and predictable manner. Delta Wetlands’ island levees could be redesigned to include high capacity emergency intakes (e.g., weirs) at strategic locations, with land-side improvements to protect against scour. These weirs could reduce flood elevations locally and protect neighboring islands during flood crests.

The Delta Wetlands Project is designed and permitted to flood two islands for storage purposes. With appropriate design and permit modifications, the project could be used to provide flood control benefits in addition to the storage benefits already planned.

A recent study by Jones & Stokes quantifies the benefits that could be realized by building flood control facilities into the reservoir islands. Reduction in peak flood elevations could range between three and seven inches over a wide area as shown on the chart, below.



³ Tom Zuckerman as quoted in “ReEvnsioning the Delta” by Eisenstein, Kondolf and Cain of UCB