

DELTA OBSERVATIONS AND CONCLUSIONS

Introduction

Thanks to the MWD and the SDWA for the opportunity of seeing the Delta firsthand. From a lawyer's perspective it is like visiting the scene of the accident. There is no substitute for up close and personal. Here follow my observations and impressions. A little knowledge can be dangerous and many of the issues can only be the subject of expert opinions.

The Political Tangle

The immediate problem is the probably deferred maintenance on the levees, coupled with the funding for repair. On the other side of the picture is the interruption of the flow of water to Southern California, the peripheral canal that was never built and reconsideration of that proposition along with its funding. The political tangle is between the two interests and the single source of financing, water bonds. While the political standoff remains the delta smelt, an endangered indicator species, has become ensnared with the pumping system, mandating a judicial partial shutdown of the water going south.

Fish Hatchery

The side trip to the fish hatchery was instructive in two senses. The fish hatchery can produce volumes of salmon on demand. Why then can't we build a delta smelt hatchery, perhaps on or in a lost tract and produce enough delta smelt to take them off the endangered list if not create a commercial fishery raising delta smelt?

Invasive Species

There are at least two invasive species, one a water plant (the blue colored water we saw at Franks Island) and the other a mollusk. Each is working its respective change in the Delta, the plant life, displacing existing water plants, the mollusk, digesting food in the water column creating survival problems for at least the delta smelt and perhaps other fish. The two invasive species likely have pluses and minuses. As has been observed elsewhere, everything came from somewhere and is likely headed elsewhere. We need to study these new arrivals. They may teach us something. For instance, the plant that gave a blue cast to the water may be a harvestable bio fuel. In China mollusks similar in size to the Delta invaders are eaten. Maybe we have an export crop for the Chinese. (just kidding)

Water Quality

In general the water quality of the Delta is degenerating. Improving the quality of the water is a function of what is being put into the San Joaquin and Sacramento rivers by way of storm runoff, agricultural runoff, sewerage and other man-generated pollutants. Runoff needs to be captured, cleaned up and used on site. It should not be allowed off site unless pollutant free. The sewerage needs to be cleaned up and reused on site. What takes place in the Delta so far as water quality is concerned is governed by what takes place upstream. There was at common law the common enemy doctrine pertaining to storm water. That is you could not concentrate or increase the flow of water across your land onto the land of your neighbors. Perhaps we need a practice to the effect that water taken out of the watershed/river and returned to the watershed/river must be as good as or better than the water taken. The discharge of secondary waste water into the Sacramento can't help the quality of water in the Delta. Somewhere up stream in the head waters of the Sacramento and San Joaquin Rivers are clear, clean streams of water that become fouled in too many ways on their way to San Francisco Bay. That must stop.

Salinity

The Delta is further threatened by sea borne salinity. As an estuary the Delta is subject to the tidal incursions of salt water some of which "leaks" into the Delta outside the estuary proper. The Delta islands and tracts are sinking and the farmlands themselves experience salt issues presumably requiring periodic flushing. As the annual flow of water into the Delta varies, so must the natural incursion of salt water. With high annual flow, there is less incursion, conversely more with less annual flow. Drought means more salinity. We have no gateway to keep the salt water in San Francisco Bay and out of the Delta in the Netherlands approach to sea water, just keep it out. On the other hand we saw a gateway that could block the flow of water from one stream to another in whole or in part. Perhaps a similar gate or dam needs to limit the sea water intrusion into the Delta on an as needed basis.

Ecological Engineering

There were engineering experiments demonstrated. The first was a rebuilding of sinking farmland by fallowing a plot and allowing reeds to grow, die off and over time grow back soil and humus to be farmed sometime in the future. The second experiment was reinforcing existing levees through planting of trees, bushes and grasses while broadening the base of the levee. Both seemed to work, but time and cost seemed to prevent widespread adoption of such engineering. Earthen levees bound together by root systems of trees and bushes would be much less vulnerable to storm damage or liquefaction in an earthquake. Both of the experiments demonstrated what they were intended to show. In effect we saw the best management practice for strengthening levees and the best management practice for recovering lost tracts. These practices need to be considered in any overall plan for the Delta and adopted on a cost benefit analysis that views the Delta as sustainable.

Expert Opinion

The engineer who rode with us the second day suggested sustainability of the Delta was a goal. He would separate the water southbound from the Delta through some sort of a peripheral canal. By separating the Delta issues from the water supply issues, the Delta ecology is separated from the water quantity and quality issues of the water headed south. That may exacerbate the salinity issue, but it would give Southern California the water to which it is entitled.

Conclusion

The Delta levees, if not repaired in some fashion, will fail. Earthquake induced failure at present would be catastrophic. Storm induced failure may also be catastrophic. A decision to repair or not to repair should be made on a cost benefit analysis. That analysis, using best management practices derived from the successful engineering experiments, should be made for each island and tract, with a commitment to repair those levees that can reasonably be repaired. Those levees not reasonably reparable should be failed, subject to reclamation, again using best management practice for recovering lost tracts. That seems to be the symmetry of what we saw.

The peripheral canal moving through land above sea level, some of which has been urbanized, seems prohibitively expensive. Could a water conveyance pipeline be built through the Delta in the Sacramento River or along a line of levees adjacent to the river isolating the southbound waters from the Delta waters? Could such a pipeline be part of the levee system? Removing the better quality water above the Delta would affect the quality of the Delta water, but water quality is a watershed issue and needs to be addressed as such. Sea intrusion would be minimized to the extent the volume of water in the Delta is not changed. The water is either in the Delta or in the pipeline, the volume being composed of the two.

If read as maintaining the status quo, the issue of sustainability is troublesome. If read as accommodating reasonable change, sustainability may be achievable. We have imposed farmlands and levees on a river system designed by nature to handle drainage from an enormous watershed the flows of which vary according to rainfall in any given year.

That much of the farmland is below sea level is most curious. Is the unsubsidized cost of crop production competitive?

We also extract quantities of water to send to Southern California, in effect removing water from the watershed and the Delta. There is a professor of Geography at SDSU who maintains that if you take water from one watershed and move it to another, you harm both watersheds, the first by taking away its ability to sustain life and giving the second life that is unsustainable. If that observation is true, we have a problem that can only be mitigated through the better use (conservation), new water sources (desalinization) and reuse of waters. We then have a moving shifting sustainability that will function only in the flux of the Delta problems and solutions. We may be asking too much of the Delta and too little of ourselves.