

I have a suggestion that I think bears real consideration regarding the Delta water discussions that are now being looked at.

The key issue seems to be insuring the quality of the fresh water that is pumped from the Delta, specifically, protecting against salt water intrusion during limited periods of time associated with occasional levee ruptures.

Such ruptures are inevitable regardless of levee protection measures. History indicates such.

Salt water intrusion may occur until the "island" where the levee has failed fills with water. This is because there is a temporary inrush of water into the island that may be strong enough to pull some salty bay water "uphill" during certain brief conditions such as high tide. However, as soon as the water level stabilizes within the flooded "island", that "suction" fully disappears and the intrusion risk is completely eliminated, returning the situation to normal. And, since the Delta continually flows towards the ocean, any intrusion is flushed and diluted rather rapidly.

If aquaduct pumping is temporarily stopped during the brief levee failure crisis period until the "stabilization" occurs, salt water infiltration can be significantly mitigated; perhaps even stopped. Nevertheless, it may be desirable to create positive "check-valve" on the Bay's salt water that can be deployed when required.

Solution:

Install a "backflow preventer" in the river at **Pittsburg**. This would be similar to the tidal gates now being used in Europe. These would only be deployed during levee failure emergencies and would prevent saltwater intrusion until the flooding of an "island" is stabilized. This would be relatively cheap and completely non-obtrusive when not being deployed.

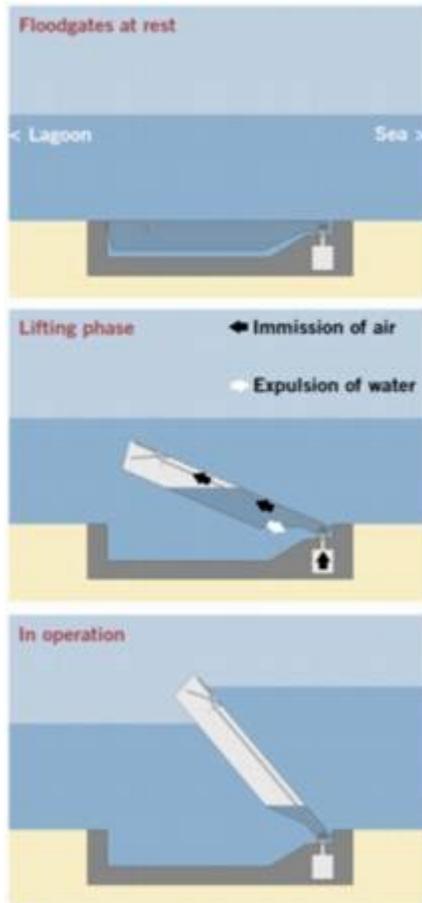
Benefit:

- a) Eliminates risk of saltwater infiltration during island flooding emergencies which are always rare and short-lived by definition.
- b) Comparatively low cost
- c) Minimal environmental impact and only temporary at that, when deployed.
- d) No "periferal canal" or "conveyance" delta bypass canal required...which is an expensive, highly unpopular solution that is tantamount to extending the current concrete California Aquaduct to the upstream headwaters of the Delta below Sacramento. Such a bypass canal would create a tremendous negative environmental controversy and would have highly divisive political consequences.
- e) Would allow maximum allowable acre-feet of pumping at the California Aquaduct intake- fully as much as any periferal canal or other Delta bypass would allow, taking environmental factors into account. Even if many "islands" flooded, this supply of fresh water could continue noninterrupted.

Install the "backflow prevention gates" at / around Pittsburgh, where the Sacramento and San Joaquin Rivers converge into one outflow. This is also where the fresh water begins to transition to salt water.



Here are the recommended "backflow prevention" gates:



What about the specter of rising sea levels?

This long-term speculation is completely independent from the saltwater intrusion risk discussed above. If sea levels *do* rise significantly (say, 10'-15'), the entire low-lying Bay Area and Central Valley will be flooded. Trillions of dollars of real estate and industry will be underwater. Fortunately, this change would likely occur slowly over decades, allowing plenty of time for a *radical* response. Example: San Francisco and the central valley could be protected by the creation of a permanent dam at the Golden Gate area (yes!) with shipping locks. The coastal mountains would do the rest of the job.

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