Water Supply Benefits of Multi-benefit Flood Management Projects

Prepared by John Cain of River Partners

Restoring floodplains along the lowland rivers of California's Central Valley is one of the best ways to protect public safety and restore fish and wildlife habitat. Multi-benefit flood management projects not only give rives more room to safely accommodate large floods, but they also improve water supply reliability, water quality, recreational opportunities, and habitat for fish and wildlife.

Multi-benefit flood management projects provide many important water supply benefits.

1. **Reduce Conflict:** Conflict between endangered species requirements and water supply demand is one of California's largest water management challenges. Multi-benefit flood management projects reduce conflict between water management for consumptive users and for ecological purposes. There is very strong scientific evidence that frequently inundated floodplain habitat benefits salmon and other fish and wildlife. The only cost effective way to increase the area of frequently inundated floodplain habitat without dedicating additional water to instream flows is to widen or otherwise modify regulatory floodways.
2. **Reduce Water Demand:** Widening regulatory floodways generally results in the acquisition of riparian lands and water rights that can be retired in all years or fallowed in dry years. Agricultural production is still possible in a frequently inundated floodplain, but acquisition of floodplain lands creates the opportunity to fallow or retire senior and riparian water rights on floodplain lands, at least in dry years.
3. **Improve Water Quality:** Reducing the need for irrigation of riparian lands, reduces both the diversion of relatively high quality water and the discharge of poor quality return water. In addition, floodplain wetlands filter and cleanse polluted waters.
4. **Water Retention and Usability:** Widening floodways increases floodwater retention and groundwater recharge in a manner that could have significant water supply benefits. Floodplains capture peak flows and then release them back in a manner that provides benefits for both water diverters and ecological function. In some cases, floodplain restoration can significantly recharge depleted aquifers storing water in wet years for use in dry years. In all cases, flood plain restoration increases recharge in shallow aquifers during wet periods for use later in the season by water diverters and fish. Water released from the shallow aquifer back to a river is generally cooler then the river and can thus provide important temperature refugia benefits for migrating salmon.
5. **Reservoir Operations and Storage:** Widening the regulatory floodway will ultimately create opportunities for changes in reservoir operations that will increase carryover storage from wet years to dry years. Currently, reservoir operators must keep a portion of the reservoir empty to capture dangerous floods. In late 2012, only two months before the driest calendar year on record, reservoir operators were forced to release hundreds of thousands of acre-feet of water to maintain the "flood reservation" in Central Valley Reservoirs. Larger downstream floodways would allow reservoir operators to safely release more water during large storms, enabling them to safely keep more water in the reservoir during all other periods.