

## **Hope Springs Eternal: Adaptive Management of Mitigation Water Supplies in a Desert Wetland Complex**

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### **ABSTRACT**

The Coachella Canal carries Colorado River Water 123 miles from a diversion west of Yuma, Arizona northward to farmers and residents near Indio, California. In 2006, the middle 34 miles of earthen canal was finally replaced by a new parallel concrete-lined canal, completing a 60 year effort to line the entire canal length. This project was designed to save about 30,000 acre-feet of water lost annually to leakage. However, a consequence of the project will be the gradual desiccation of several hundred acres of leakage-dependent wetland habitats downslope of the old unlined canal. To mitigate for this, the project is required to restore, enhance, and protect wetland resources within the adjacent Dos Palmas Area of Critical Environmental Concern. The historic Dos Palmas oasis is sustained by a fault-induced spring, one of many natural seeps and springs along the southern section of the San Andreas Fault. After the Coachella Canal was built in the 1940s, leaking canal water entered the unconfined and confined aquifers upslope of Dos Palmas and where it surfaced downslope, greatly expanded the natural palm oases, marsh, desert riparian, and aquatic habitats. This was followed by the digging of many new shallow and deep wells, and the construction of large fish-farm ponds which have further altered the hydrology of Dos Palmas. The project is required to develop new sources of water to mitigate for the lost canal leakage. Four possible options were identified in the planning phase: acquisition of existing wells, installation of new wells (into the regional aquifer), removal of non-native phreatophytes, and controlled recharge of up to 4,800 ac-feet/year of water from the new canal. This presentation describes the hydrology and wetland habitats at Dos Palmas, the water supply infrastructure, monitoring network, and long-term adaptive management approach to sustaining this complex resource in perpetuity.