



### ● Salton Sea Update

#### Summary

The following is an update on the status of the Salton Sea. The Salton Sea was a significant issue in the negotiations that led to the 2003 Quantification Settlement Agreement (QSA) and its related agreements. To facilitate the QSA, state legislation was passed that limited the obligations of the Imperial Irrigation District (IID), the San Diego County Water Authority (SDCWA), and the Coachella Valley Water District (CVWD), for mitigating impacts to the Salton Sea caused by transfers of conserved water from IID, as well as the costs for long-term ecosystem restoration. The State of California agreed to pay any remaining costs associated with Salton Sea restoration. The State’s unlimited obligation was the key issue in the litigation that recently voided the QSA and other agreements, which is now under appeal. The condition of the Salton Sea continues to have the potential to impact the Colorado River and Metropolitan.

#### Detailed Report

##### Geography and History

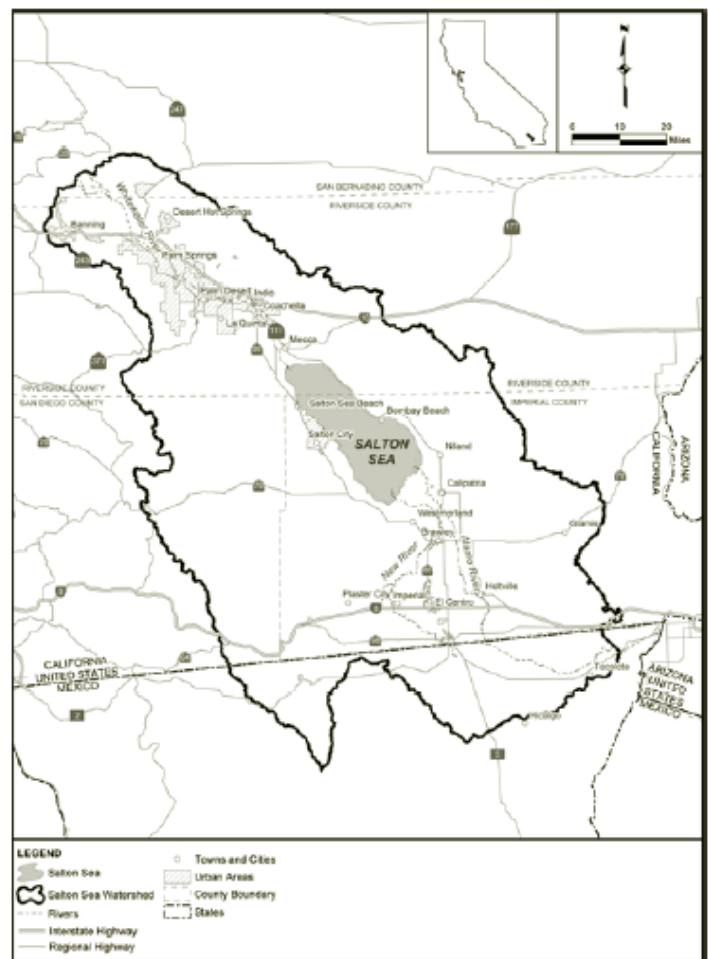
The Salton Sea occupies the lowest elevations of an 8,360 square- mile interior basin located within the southeast corner of California. Much of this watershed is below sea level, reaching as low as 278 feet below sea level, and back on the scale of geologic time, was once an extension of the Gulf of California. The tremendous silt load from the Colorado River derived from the canyons upstream were deposited into the Gulf, creating a land barrier isolating the Salton Sink.

Over centuries the Colorado River alternated its course from discharge into the Gulf of California to discharge into the Salton Sea Basin resulting in a cycle of basin filling and complete desiccation. The Basin was in its desiccated state when the Imperial Valley was first explored and settled in the 1800s. In 1905, the Colorado River diversion headworks for the irrigation canal to the Imperial Valley failed and resulted in nearly two years of uncontrolled flows into the Basin. Once control was restored evaporation quickly reduced the size of the newly filled Sea to a level that equalized with inflows, most of which is agricultural drainage.

##### Current Status

The present water surface elevation of the Salton Sea is 231 feet below sea level and covers portions of Riverside and Imperial counties for a total inundated area of over 350 square-miles (nearly one-half the area of Orange County).

The Salton Sea is sustained primarily by agricultural drainage from IID and CVWD, as well as drainage and municipal wastewater from Mexico. Annual inflows of approximately 1.1 MAF convey dissolved solids to the Salton Sea that concentrate, while outflow from the Sea



Salton Sea Basin

## Board Report (Salton Sea Update)

is by evaporation only. Presently, the salinity is 50,000 milligrams per liter (mg/L), or 140 percent of Pacific Ocean salinity.

As late as 1999, the Salton Sea supported a prolific fishery consisting of species introduced from the Gulf of California and was popular for sport fishing. Since 1999, however, the four primary sport fish populations have disappeared. The remaining fishery is dominated by tilapia at populations that are approximately one-tenth of those observed in 1999.

### **State Legislation and the Quantification Settlement Agreement**

To facilitate execution of the QSA, in 2003 the Legislature passed a series of bills that addressed Salton Sea concerns by:

- declaring that the State will undertake restoration of the Salton Sea ecosystem,
- limiting the liability of IID, CVWD, and SDCWA, and
- directing the preparation of a Salton Sea restoration study.

The Department of Fish and Game (DFG) was authorized to enter into the QSA Joint Powers Authority (QSA JPA) with IID, CVWD, and SDCWA to fund and implement IID's mitigation and monitoring program for the IID water transfers to SDCWA. Under the QSA JPA, IID, CVWD, and SDCWA are obligated to fund the first \$133 million in mitigation costs, with the remainder to be funded by DFG. As described below the latest estimate of the capital costs to mitigate the potential air quality impacts from exposed Sea sediments is as much as \$0.8 billion. In January 2010, State Judge Roland L. Candee issued a statement of decision ruling that the DFG mitigation funding commitment under the QSA JPA was an unconstitutional indebtedness of the State and invalidated the QSA, the QSA JPA, and ten other QSA-related agreements. That ruling is being appealed by the water districts and the state.

### **The Need for Restoration of the Salton Sea Ecosystem**

Because of its geohydrologic setting, the Salton Sea is naturally increasing in salinity and is projected to reach the tolerance level for the remaining fishery by 2017. At that point the Sea would no longer support the current populations of fish-eating birds that feed and roost in the area.

Congress recognized in the Salton Sea Reclamation Act of 1998 that appropriate federal agencies should offer alternative restoration options to Congress and the public in order to avoid further deterioration of the internationally significant habitat and wildlife values of the Salton Sea and to protect the wide array of economic and social values that exist in the immediate vicinity of the Salton Sea. Although the Secretary of the Interior submitted reports in January 2000, no action was taken to pursue restoration projects.

In the absence of federal action, the California Legislature passed its own legislation in 2003, making findings that the Salton Sea will eventually become too saline to support its fishery and fish-eating birds unless a restoration plan is adopted and implemented. The Legislature found that the federal government's failure to issue adequate reports in a timely fashion had unnecessarily constrained the Legislature's ability to consider fully the costs and benefits of various options to restoration that should be undertaken at the Salton Sea. Accordingly, the Legislature directed the Natural Resources Secretary (Resources Agency) to undertake a restoration study to determine a preferred alternative for the restoration of the Salton Sea ecosystem and the protection of wildlife dependent on that ecosystem.

In undertaking the restoration study the Resources Agency identified a range of alternatives with capital costs ranging from \$2.3 billion to \$5.9 billion, and annual maintenance costs of \$20 million to \$149 million. The scope of the alternatives ranged from managing large acreages of shallow saline ponds that would support an invertebrate-based ecosystem, to the construction of high earthen barriers to create a marine sea that would support a fishery-based ecosystem. Following review of input received from stakeholders on the alternatives, in May 2007 the Resources Agency presented to the Legislature a recommended preferred alternative with an estimated capital cost of \$8.9 billion and annual maintenance costs of \$142 million. In addition to providing a large marine sea that would support a fishery, the preferred alternative incorporates the construction of

## Board Report (Salton Sea Update)

52 miles of high earthen barriers situated in a manner to preserve and maximize as much as the present shoreline as possible.

Before the preferred alternative can be constructed, the Resources Agency identified a list of “Period I” activities to be completed over a five-year period at a cost of \$510 million, including a habitat demonstration project, biological and water data collection, investigation of methods to control exposed sediments, final design, and completion of environmental documentation. Some funding exists in the Salton Sea Restoration Fund established by the 2003 State legislation. Presently, the Fund has approximately \$16 million and is scheduled to receive additional deposits of over \$9 million from IID and \$42 million from Proposition 84 bond revenues. Another \$100 million is included in the water bond currently scheduled for the November 2010 ballot. No other funding has been identified.

To date neither Congress nor the California Legislature have authorized or funded a restoration project.

### **Impacts of the IID Water Transfers to SDCWA**

The transfer of conserved water from IID to SDCWA would result in reduced drainage flows to the Salton Sea, exacerbating the rate of the naturally increasing salinity of the Salton Sea. In addition, reduced flows to the Sea would result in a declining water surface elevation as the Sea adjusts to its new inflow-evaporation equilibrium. Because of the nearly flat topography at the Sea’s shore a small decline in elevation results in relatively large areas of exposed lands. Exposure of previously inundated sediments are a potential air quality nuisance from fugitive dust, similar to that observed at Owens Dry Lake.

In considering its approval of the IID transfers to SDCWA, the SWRCB concluded that IID be required to maintain salinity levels at the Salton Sea that would have existed in the absence of the transfer for a period of 15 years [through 2017]. The SWRCB reasoned that this requirement would mitigate impacts from the transfer long enough to allow the study of the feasibility of long-term restoration actions to be completed. At the same time, the requirement reflected the SWRCB’s recognition that it would be unreasonable to have mitigation requirements remain in effect if ultimately a plan were developed to restore the Salton Sea without requiring continued mitigation by the parties to the transfer, or if restoration were determined to be infeasible. These mitigation flows through 2017 were incorporated into the QSA and its related agreements.

### **Projected Salinity of the Salton Sea**

With the provision of mitigation flows, Salton Sea salinity is projected to reach 64,000 mg/L by 2017, which is greater than the tolerance level for successful tilapia reproduction. When the mitigation flows cease in 2018, the salinity is projected to increase at a greater rate, reaching 100,000 mg/L by 2024 and 200,000 mg/L by 2034. Increasing salinity would result in an ecosystem that would evolve from the 20th century fishery base to an ecosystem based on brine flies and brine shrimp.

The anticipated loss of the existing fishery would not impact the IID water transfers to SDCWA by virtue of the mitigation flows provided through 2017. Nonetheless, the IID mitigation and monitoring plan includes the installation of barges on the Pacific Ocean off San Diego County to provide substitute roosting habitat for fish eating birds at a cost of approximately \$0.2 million. No other mitigation is required of IID with respect to increasing salinity of the Sea.

### **Projected Decline of the Sea’s Water Surface Elevation**

Since the 2003 execution of the QSA, the Sea’s water surface has dropped by three feet. The provision of mitigation flows has offset reductions in flow to the Sea that otherwise would have taken place by the IID water transfers to SDCWA. The recent surface elevation decline is due to reductions in inflow caused by other factors including, (i) California use of Colorado River water being limited to 4.4 MAF forcing reductions in use by IID and CVWD to their Priority 3 Colorado River entitlements, (ii) reductions in use by IID and CVWD as was necessary to complete paybacks of nearly 225,000 acre-feet of water to the Colorado River system for overruns accrued during 2001 and 2002, and (iii) reductions in drainage from Mexico due to increasing reuse of its wastewater. The three-foot elevation drop exposed over 6,000 acres of previously inundated land. By 2017, the last year in which mitigation flows are provided, the water surface elevation is

## Board Report (Salton Sea Update)

projected to continue to decline another four feet to approximately 235 feet below sea level, exposing nearly 15,000 acres from the time the QSA was executed in 2003.

Because of the provision of mitigation flows, the projected extent of exposed sediments from 2003 through 2017 would not be due to the IID transfers to SDCWA. In a May 2007 report to the Legislature, the Resources Agency opined that control of these exposed sediments is subject to existing air quality law and regulation and would be the responsibility of the individual landowners.

With the cessation of mitigation flows beginning in 2018, the Sea's water surface elevation is projected to decline by nearly 20 feet by 2030 exposing over 65,000 acres. This exposure would be an impact attributable to the IID water transfers to SDCWA. From funding provided by the QSA JPA, the control of these sediments is the responsibility of IID and is incorporated into the mitigation and monitoring plan adopted by IID pursuant to its approval of the IID water transfers to SDCWA. In the May 2007 report to the Legislature the Resources Agency estimated that projects to control sediments exposed after 2017 could cost as much as \$0.8 billion in capital and \$49 million in annual operation and maintenance.