



## **Biogeochemistry of the Salton Sea, California**

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The Salton Sea is a saline, closed basin lake 70 meters below MSL in the southern desert of California. It is the largest lake in California with a surface area of 945 km<sup>2</sup> and an annual inflow of 1,600 million m<sup>3</sup>. The Sea is hypereutrophic due to nutrient inputs from farm runoff, and the elevated sulfate concentration results in hydrogen sulfide production and fish kills in the summer and fall. The salinity of the Sea is 47 g/L and rising, with an annual salt load of 4 million metric tons. Plans are being developed for construction of a salt repository to control the rising salinity, improve water quality, and maintain the Sea as a refuge for migratory birds. We estimate 700,000 metric tons of calcite are precipitating in the Sea each year, along with 7,000 tons of iron sulfide minerals. Hydrogen sulfide production rates, reoxidation rates in the water column, and atmospheric releases of H<sub>2</sub>S have been measured. In addition, we have measured dimethylsulfide concentrations >6 uM in the surface water, which are the highest ever reported. Hydrodynamic modeling of the proposed modified Sea indicates that persistent stratification could occur with the potential for episodic releases of hydrogen sulfide during fall mixing.