

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BAY-DELTA SCIENCE PROGRAM



The Metropolitan Water District of Southern California relies on the State Water Project (SWP) to meet about 30 percent of the water supply needs for 19 million people in Southern California. The SWP's main purpose is to divert and store water during runoff periods and distribute the supply to urban and agricultural areas of need in Northern California, the San Francisco Bay area, San Joaquin Valley, Central Coast, and Southern California. Water captured and delivered through the system also generates clean power, provides recreational assets, fish and wildlife enhancement, and water quality improvements in the Sacramento – San Joaquin Delta (Bay-Delta). The SWP provides high quality, low-salinity water that helps meet multiple water quality goals and is used to blend higher salinity Colorado River water to meet Metropolitan's salinity target of 500 mg/L at its treatment plants, saving millions of dollars annually in avoided costs from salinity impacts. The high quality SWP water supply also allows increased development of recycled water in Southern California.

The Metropolitan Bay-Delta Science Program includes supporting ecosystem investments and continued scientific exploration within the Bay-Delta. Best available science from the program helps to inform: Bay-Delta operations, key decision-making processes including investments and future science studies, ecosystem habitat, regulatory development and leads to multi-party partnerships. These partnerships include other government agencies, non-profit and academia. The Bay-Delta program plays a key role not only in supporting SWP water supply reliability and Bay-Delta ecosystems, but it also ensures higher water quality, supports water affordability, and allows for future recycled water development in Southern California.



Sacramento – San Joaquin Delta

Delta Science

Metropolitan supports water supply reliability and ecosystem restoration as co-equal goals. Metropolitan's policies and activities are directed at supporting strong science for protecting the Bay-Delta environment, driving better management decisions and supporting effective regulations. Metropolitan's Bay Delta science program has been established and is funded with the understanding that ensuring a reliable water supply requires increased knowledge of how the ecosystem can be managed.



Conducting surveys at Ryer Island in Suisun Bay

KEY ELEMENTS INCLUDE:

Scientific Expertise to design, manage and participate in scientific investigations addressing Metropolitan's priorities and policies;

Funding Science studies through direct funding, collaborations, staff in-kind contributions and by pursuing external grant funding sources to leverage Metropolitan's science investment;

Ecological and Science Collaborations with external organizations to conduct science studies, including the State Water Contractors (SWC), Interagency Ecological Program (IEP) a consortium of State and Federal agencies conducting ecological investigations since 1970's, Collaborative Science and Adaptive Management Program (CSAMP), Delta Stewardship Council (DSC) Delta Science Program, and university scientists; and

Active Participation in the Bay-Delta Science Community

by communication of science study findings, participation in science conferences and publishing results of scientific studies in peer reviewed journals.

BAY-DELTA SCIENCE PROGRAM HIGHLIGHTS



Predation study enclosures on Bouldin Island 2017/18.
Photo courtesy Curt Schmutte

Delta Stressors

Multiple stressors in the Bay-Delta ecosystem affect the health, abundance and distribution of listed fish species, however, we have limited understanding of the impacts of various stressors and their specific role in the decline of listed species. The Bay Delta science program includes investigation into key stressors to develop information that can support development of effective management actions. These studies include investigation into how non-native predator species impact native salmon, how toxic contaminants affect Delta smelt and juvenile salmon, and how nutrients from water discharges affect the food web.

Delta Seismic Hazard Research

Along the Delta waterway path toward the export pumps in the south Delta, emergency pathway research studies include seismic ground motion and deformation analysis, monitoring and measurement techniques to plan for levee improvements, and detection of levee voids that cause failure risks.

Delta Islands Research

Research activities on Metropolitan's Delta Island properties have focused on land use and habitat opportunities, efforts to pilot test subsidence reversal actions and resilience against climate change. Key areas of focus include invasive species control, carbon emission research, water diversion measurement research, land subsidence and greenhouse gas reduction.

Habitat Needs for Delta Fish

Another Bay Delta science focus area is developing a better understanding of habitat needs of federal and state listed fish species and monitoring the effectiveness of habitat improvement actions. Compared to the historical Delta, the modern Delta is highly altered and has a small fraction of tidal marsh habitat remaining with greatly reduced levels of primary production. Food and habitat limitation have been identified as important stressors for listed species. The science efforts include investigation of salmon habitat needs, pilot studies to enhance the food web, longfin smelt habitat studies, and pilot projects to benefit Delta smelt.



Suisun Marsh

