

## Summary of San Diego IRWM Climate Change Planning Study

### Purpose:

The Climate Change Planning Study (Study) examines current climate change science, policies, and regulations in terms of how they affect the San Diego Integrated Regional Water Management Region (Region). The Study serves as an initial guide for the Region to begin incorporating climate change adaptation and mitigation measures into its Integrated Regional Water Management (IRWM) Plan.

### Background:

Climate change is an issue that has been recognized by the State through a number of pieces of legislation and policy. An addition to the Water Code, §10541, has laid the groundwork for inclusion of climate change in IRWM Plans. Regions are required to complete both an adaptation analysis and a mitigation analysis. The adaptation analysis allows a region to examine how it might respond to climate change, while the mitigation analysis examines how a region might reduce GHG emissions.

To fulfill DWR's requirements and work through the climate change analysis discussed above, the Region established a Climate Change Workgroup (Workgroup) comprised of various water resources and planning representatives that have experience in climate change planning within the Region to work with a consultant to develop this Climate Change Planning Study (Study). In addition, local climate change efforts, in particular the San Diego Foundation Regional Focus 2050 Study which defines Region-specific climate change impacts, were used in the climate change assessment.

### Effects of Climate Change on the Region:

Based on current studies, the below list of climate change impacts and effects was generated for the Region.

Impact	Effect
Temperature	<ul style="list-style-type: none"> <li>• 1.5°F to 4.5°F average temperature increase</li> </ul>
Rainfall	<ul style="list-style-type: none"> <li>• Variable projections predict between 35% drier and 17% wetter</li> <li>• Increase in variability between years</li> </ul>
Supply	<ul style="list-style-type: none"> <li>• Up to 25% decrease in SWP supply</li> <li>• Up to 20% decrease in Colorado River supply</li> <li>• 164,000 afy average shortfall in imported supply</li> </ul>
Demand	<ul style="list-style-type: none"> <li>• Potential 0.6% to 1.8% increase in demand by 2035</li> </ul>
Sea level rise	<ul style="list-style-type: none"> <li>• 12 to 18 inch rise in mean sea level rise</li> </ul>
Wildfires	<ul style="list-style-type: none"> <li>• 40% increase in California Coastal Shrub acreage burned in Southwestern U.S.</li> <li>• 54% increase in overall acreage burned in Western U.S.</li> </ul>

### Climate Change Vulnerability Analysis

The above impacts and effects were then considered by the Workgroup to determine how the Region is vulnerable to climate change. The below table contains a partial list of prioritized vulnerabilities for the Region. This list was developed based on the Box 4-1 of the *Climate Change Handbook* recommended for use by DWR. These vulnerabilities were listed in priority levels ranging from very low to very high.

Priority Level	Category and Vulnerability Issue (Partial List)
Very High	Water Supply: Decrease in imported supply
High	Water Supply: Sensitivity due to higher drought potential Water Quality: Increased constituent concentrations Flooding: Increases in flash flooding and inundation (extreme weather) Sea Level Rise: Inundation of storm drains and sewer systems Ecosystem/Habitat: Decrease in available necessary habitat Ecosystem/Habitat: Decrease in ecosystem services

## Climate Change Management Strategies

Strategies for adapting to and mitigating against climate change were examined, and prioritized using the above list of prioritized vulnerabilities. Management strategies considered by the Workgroup were extracted from the California Water Plan (2009), as well as local planning documents. A sample list of Tier 1 strategies is below. These Tier 1 strategies are considered “no regret” strategies (they will provide benefits should climate change effects not occur), the mitigate GHGs or are GHG neutral, and address the highest priority vulnerability of a decrease in imported supply with climate change. Additional levels of Tier 2 strategies, Tier 3 strategies, and additionally considered strategies are listed in the Study.

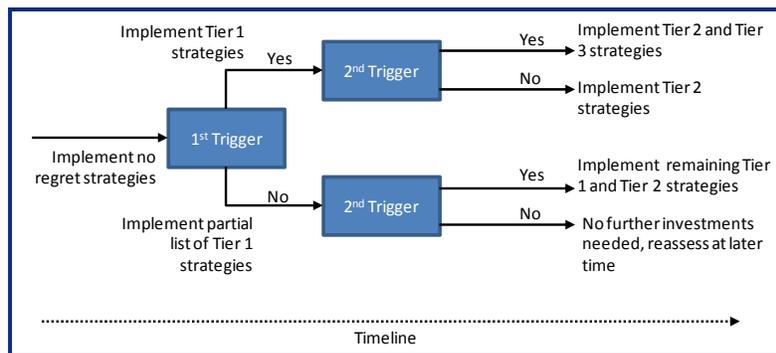
Tier 1 Strategies	
<b>Water Demand Reduction:</b>	Urban water use efficiency, crop idling for water transfers, education, gray water use, rainfed agriculture
<b>Operational Efficiency/Transfers Improvement:</b>	Conveyance- Regional/local, System Reoperation
<b>Water Supply Increase:</b>	Conjunctive Management & Groundwater Storage, Recycled Municipal Water
<b>Water Quality Improvement:</b>	Drinking Water Treatment and Distribution, Groundwater/Aquifer Remediation, Pollution Prevention, Salt and Salinity Management, Urban Runoff Management
<b>Flood Management Improvement:</b>	Flood Risk Management
<b>Sea Level Rise:</b>	Water facility planning in coordination with land use/SLR planning

## Recommendations

The Study ends with a series of recommendations for the Region as it considers climate change in future water resource planning.

### Adaptive Management

There is a level of uncertainty in projecting the effects and impacts of climate change. To respond to this, it is recommended that adaptive management be used in implementing climate change strategies. This consists of identifying and monitoring the most important uncertainties and translating them into risk triggers or early warning indicators, and allows for a flexible path of actions to take as triggers occur.



### Climate Change Related Objectives and Targets

DWR requires that climate change be incorporated into IRWM Plan objectives. The following objectives and targets are recommended:

**Objective: Effectively address climate change through adaptation and mitigation in water resource management.**

Target 1: Encourage development of cost-effective carbon-efficient strategies for water management projects.

Target 2: Incorporate adaptation strategies to respond to sea-level rise, rainfall variability, and temperature variability in planning for water and wastewater management.

Target 3: Reduce or neutralize GHG emissions in all areas of water resources management.