



## Chapter 5 Resource Management Strategies

### 5.1 Introduction

A resource management strategy (RMS) is a project, program, or policy that helps local agencies and governments manage their water and related resources. The Santa Barbara County IRWM Region views the RMS identified in Table 5.3 as tools that complement the operation of the Region’s existing water system, help guide development and operation of systems, and will be implemented to achieve IRWM Plan 2013 Objectives.

The Region initiated the identification of IRWM Plan 2013 RMS by reviewing strategies from the regional IRWM Plan 2007 and comparing them to the California Water Plan Update 2009 RMS. IRWM Plan 2013 RMS were selected using those two lists as a starting point. The Region then identified which RMS would provide a set of RMS that would help the Region achieve its objectives (see Chapter 4) and develop a diversified portfolio of projects.

### 5.2 Documenting the Process

The task of selecting appropriate RMS was conducted by the Cooperating Partners (regional water management group) Steering Committee Objectives, Targets, and Project Workgroup (Objectives Workgroup). The groundwork for the selection process was laid by first identifying regional issues and conflicts, then regional objectives, and finally targets. In selecting the regional RMS, the Objectives Workgroup identified criteria that should be used to select appropriate RMS: the criteria included, 1) support the attainment of one or more regional objectives and/or 2) be addressed within existing water, wastewater, flood, land use, watershed, or other water and land use related management plan. With these criteria in place, the Objectives Workgroup was able to select a diversified set of RMS that is regionally relevant and most likely to help achieve regional objectives and targets.

The Objectives Workgroup gave thorough consideration to which RMS would assist the Region in dealing with the effects of climate change. The Objectives Workgroup consulted with the Climate Change Workgroup and reviewed research on the topic (see Chapter 3.6). The Region selected “address climate change” as an objective. Table 5.2 (Resource Management Strategies Implementing Objectives) features RMS organized by objectives. Under the objective “address climate change”, the table lists appropriate regional RMS. The Climate Change Workgroup examined the high priority vulnerability issues and made certain that the Region has identified RMS that to to address those issues. Table 5.3 (Regional RMS that address Climate Change High Priority Vulnerability Issues) identifies RMS that address high priority climate change vulnerability issues.

#### 5.2.1 California Water Plan Resource Management Strategies

The DWR 2012 Guidelines direct IRWM regions to consider and address the RMS identified in the California Water Plan Update 2009 in their updated plans. The RMS are listed in Table 8 from the California Water Plan Update 2009. The Objectives Workgroup used these RMS as the starting point in their selection of RMS best suited for the Santa Barbara County IRWM Region.

The California Water Plan Update 2009 RMS are listed below in the left column of Table 5.1 along with a DWR description of the RMS in the middle column. The California Water Plan Update 2009 RMS are grouped into six broad management objectives. Then in the right column, Table 5.1 notes whether or not the Region selected the RMS and provides a discussion of why the RMS are or are not appropriate for the Region. The only California Water Plan Update 2009 RMS not viewed as appropriate for this Region is “CALFED Surface Storage”. Table 5.1 also includes custom RMS that were selected as appropriate to the Region. Those RMS are described alongside the State RMS.

**Table 5.1: California Water Plan RMS Considered and RMS Selected by the Region**

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
<b>Reduce Water Demand</b>		
Agricultural Water Use Efficiency	Increasing water use efficiency and achieving reductions in the amount of water used for agricultural irrigation. Includes incentives, public education, and other efficiency-enhancing programs.	Agricultural water use efficiency was selected as a RMS. The largest water users in the Region are agriculture water users. In Santa Barbara County, most agricultural water supplies are obtained from private groundwater wells. Some farmers on the South Coast buy some or all of their water from a water purveyor. Agricultural water use efficiency is practiced both by private agricultural businesses and by local water agencies. Water costs represent a significant portion of the overall operating costs for many growers and economic factors have led to significant improvements in agricultural water use efficiency within the Region during the past 30 years.
Urban Water Use Efficiency	Increasing water use efficiency by achieving reductions in the amount of water used for municipal, commercial, industrial, irrigation, and aesthetic purposes. Includes incentives, public education, and other efficiency-enhancing programs.	Urban water use efficiency was selected as a RMS. It has been practiced in the County for over two decades. As the Region is highly dependent on local water resources, i.e. groundwater and surface water, water conservation programs are highly developed and have been effective in reducing per capita water use. The County Water Agency implements a Water Efficiency Program to implement demand reduction on a regional basis. The County urges responsible design of landscapes and appropriate choices of appliances, irrigation equipment and the other water-using devices that enhance the wise use of water. Municipalities also implement water conservation programs. In recent years, laws have been passed that require efficient plumbing devices, appliances, and landscape designs. Most agencies in the Region provide rebates to customers as an incentive to conserve.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
<b>Improve Operational Efficiency and Transfers</b>		
Conveyance - Delta	Maintaining, optimizing use of, and increasing the reliability of regional treated and untreated water conveyance facilities. Included within this strategy is maintaining the ability to obtain and convey imported water supplies into the Region.	Conveyance - Delta was selected as a RMS by the IRWM Region. The Region imports Delta water through infrastructure maintained by the Central Coast Water Authority (CCWA). CCWA is a joint power authority comprised of eight member agencies with each agency dedicated to maintaining, optimizing the use of, and increasing the reliability of water conveyance facilities. Those facilities include 130 miles of pipeline, a water treatment plan, storage facilities, and other systems. This strategy was selected by the IRWM Region as an appropriate RMS as SWP water is highly valued and important.
Conveyance – Regional/ Local	Strategies include improvement conveyance systems, upgrading aging distribution systems, promoting development of more extensive interconnections among water resources systems, establishing performance metrics for quantitative and qualitative indicators and assuring adequate resources to maintain the condition and capacity of existing constructed and natural conveyance facilities.	Conveyance – Regional/Local was selected as a RMS by the IRWM Region. This is an important RMS for the Region with a distinct IRWM objective - Maintain and Enhance Water and Wastewater Infrastructure Efficiency and Reliability – highlighting the important of the RMS. A key regional issue is the lack of redundancy and capacity in storage and distribution systems which leave Region vulnerable to water supply shortages during times of drought and emergencies. The Region has added another regionally-oriented RMS to this RMS which is <i>Increase Back-Up Facilities, Interconnections, Redundant Power Sources, and Treatment Facilities to Secure Water Supplies.</i>
System Reoperation	Managing surface storage facilities to optimize the availability and quality of stored water supplies and to protect/enhance beneficial uses. Includes balancing supply and delivery forecasts, coordinating and interconnecting reservoir storage, and optimizing depth and timing of withdrawals.	System reoperation was selected as a RMS by the IRWM Region. Managing the regional infrastructure to optimize the availability and quality of water supplies is essential to maximizing water supplies. It is a regional goal to increase the redundancy and capacity in storage and distribution systems.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
Water Transfers	Contracting to provide additional outside sources of imported water to the Region over and above contracted State Water Project and Colorado River supplies	This RMS was selected by the Region as water transfers, while not widely used at this time, could play a more important role in the future providing a means to import water in addition to SWP water.
<b>Increase Water Supply</b>		
Conjunctive Management and Groundwater Storage	Using and managing groundwater supplies to ensure sustainable groundwater yields while maintaining groundwater-dependent beneficial uses, including coordinating management of ground- water and surface water supplies (conjunctive use)	System reoperation was selected as a RMS by the IRWM Region. The Region is reliant on groundwater as a major source of water supply. The City of Santa Maria uses treated wastewater to help recharge groundwater supplies. The Region selected several groundwater management strategies that collectively will increase the supply of groundwater. Those strategies include: Conjunctive Use and Groundwater Management, Efficiency and Conservation Measures, Groundwater Remediation/Aquifer Remediation, Prevention of Contamination and Salt Water Intrusion, and Recharge Area Protection.
Desalination	Developing potable water supplies through desalination of seawater. Includes disposal of waste brine.	Desalination was selected as a RMS by the IRWM Region. The City of Santa Barbara owns a desalination facility that can be brought into operation if needed during severe drought or water shortage conditions; relatively elevated costs for desalination make the desalination plant the last supply option to be used during drought periods.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
Precipitation Enhancement	Increasing precipitation yields through cloud seeding or other precipitation enhancing measures.	Precipitation Enhancement was selected as a RMS by the IRWM Region. The County Water Agency conducts a weather modification program better known as “cloudseeding” to augment rainfall and runoff in watersheds behind the major water reservoirs; Lake Cachuma and Gibraltar Dam on the Santa Ynez River and Twitchell Reservoir near Santa Maria. The operational program has been in existence since 1981 and follows research conducted between 1957 and 1974 that indicated significant increases in rainfall could be achieved by seeding convective bands embedded in winter storms that move through the area.
Recycled Municipal Water	Developing usable water supplies from treated municipal wastewater. Includes recycled water treatment, distribution, storage, and retrofitting of existing uses.	Recycled Municipal Water was selected as a RMS by the IRWM Region. The Region currently produces 4,177 acre-feet per year of recycled water and plans on expanding production to 7,035 acre-feet per year by 2035. Recycled water is distributed by Goleta Water District, the City of Santa Barbara, and Laguna County Sanitation District. The City of Lompoc also has a regional Reclamation Plant for treatment and disposal. The use of recycled water also has the added benefit of reducing wastewater discharge into the ocean which is a highly valued outcome in the Region.
Matching Water Quality to Use	Optimizing existing resources by matching the quality of water supplies to the required quality associated with use.	Matching Water Quality to Use was selected as a RMS by the IRWM Region. Several water agencies have adopted regulations requiring the use of recycled water in place of potable supplies for certain non-potable irrigation uses. Additionally, untreated water is being used in the Santa Maria Valley for landscape irrigation.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
<b>Increase Water Supply</b>		
Surface Storage – CALFED	Developing additional CALFED storage capacity or more efficiently using existing CALFED storage capacity.	Surface Storage – CALFED was not selected as a RMS by the IRWM Region because the Region is not located in the Bay-Delta area which is the focus of the CALFED Program.
Surface Storage – Regional/Local	Developing additional yield through construction or modification (enlargement) of local or regional surface reservoirs or developing surface storage capabilities in out-of-region.	Surface Storage – Regional/Local was selected as a RMS by the IRWM Region. The Region has four major reservoirs that are managed for various uses. The Region seeks to augment regional storage through the removal of sediment. It is a regional goal to increase local storage capacity for the south coast sub-region.
<b>Improve Water Quality</b>		
Drinking Water Treatment and Distribution	Includes improving the quality of the potable supply delivered to potable water customers by increasing the degree of potable water treatment. Strategy also may include conveyance system improvements that improve the quality of supply delivered to treatment facilities.	Drinking Water Treatment and Distribution was selected as a RMS by the IRWM Region. The Region also added the following to this RMS - Utilization of New or Additional Technologies for Water and Wastewater Treatment that are Economical and Environmentally Sustainable. The use of new or additional technology is seen as an opportunity to improve treatment in an economical and environmentally sustainable manner. The Region is continuously implementing projects and program to comply with increasingly stringent federal and State drinking water standards and new technology plays a potential role in this compliance.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
Groundwater and Aquifer Remediation	Includes strategies that remove pollutants from contaminated groundwater aquifers through pumping and treatment, in situ treatment, or other means.	Groundwater and Aquifer Remediation was selected as a RMS by the IRWM Region. The Region has identified the need to improve groundwater quality through the control and treatment of salts, nutrient, and industrial contaminants. For example, the Santa Maria Valley Groundwater Assessment (Appendix 1-C), conducted as part of the IRWM Plan 2013, examined the transport and fate of salts and nutrients in surface water and groundwater in the valley. Attention is being focused on providing extensions of sewer systems to serve densely populated areas that remain on septic systems and the remediation of groundwater contamination at orphaned sites. Santa Barbara County Water Agency is conducting in-depth groundwater basin studies to determine the location and trends of groundwater quality impairments.
Matching Water Quality to Use	Optimizing existing resources by matching the quality of water supplies to the required quality associated with use.	Matching Water Quality to Use was selected as a RMS by the IRWM Region. Several water agencies have adopted regulations requiring the use of recycled water in place of potable supplies for certain non-potable irrigation uses. Additionally, untreated water is being used in the Santa Maria Valley for landscape irrigation.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
Pollution Prevention	Strategies that prevent pollution, including public education, efforts to identify and control pollutant contributing activities, and regulation of pollution-causing activities. Includes identifying, reducing, controlling, and managing pollutant loads from non-point sources.	Pollution prevention was selected as a RMS by the IRWM Region. The Region works with the SWRCB and CCRWQCB to comply with the following: water quality planning programs (adoption, review, and amendment of state wide and basin water quality control plans and policies) including development and adoption of Total Maximum Daily Loads (TMDLs) and implementation plans; regulatory programs including the permitting and control of discharges through the NPDES and WDR permits, discharge to land, and stormwater and storage tank programs; monitoring and quality assurance programs; and non-point source management programs (e.g. Watershed Management Initiative). The Region established a complementary RMS, Prevention of Contamination and Salt Water Intrusion, because certain coastal areas of the Region are vulnerable to seawater intrusion during times of drought.
Salt and Salinity Management	Recommendations that encourage stakeholders to proactively seek to identify sources, quantify the threat, prioritize necessary mitigation action and work collaboratively with entities with the authority to take appropriate actions.	Salt and Salinity Management was selected as a RMS by the IRWM Region. Stakeholders in the Santa Maria Valley proactively conducted the Santa Maria Valley Groundwater Assessment to support the development of a Salt and Nutrient Management Plan pursuant to the SWRCB Policy 2009-0011. There are denitrification projects in progress in areas that overlie Santa Maria groundwater basin. Other sub-regions are pursuing compliance with SWRCB water quality management programs.
Urban Runoff Management	Includes strategies for managing or controlling urban runoff, including intercepting, diverting, controlling, or managing stormwater runoff or dry season runoff.	Urban Runoff Management was selected as a RMS by the IRWM Region. Various entities in the Region are focusing their efforts on poor surface water quality in creeks, rivers, and oceans due to polluted storm water and urban runoff discharges. The Region is implementing strategies for managing and controlling urban runoff to comply with SWRCB and CCRWQCB regulatory programs including the "Watershed Management Initiative.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
<b>Practice Resources Stewardship</b>		
Agricultural Lands Stewardship	Includes strategies for promoting continued agricultural use of lands (e.g. agricultural preserves), strategies to reduce pollutants from agricultural lands, and strategies to maintain and create wetlands and wildlife habitat within agricultural lands. Stewardship strategies for agricultural lands include wetlands creation, land preserves, erosion reduction measures, invasive species removal, conservation tillage, riparian buffers, and tailwater management.	Land preservation represents a key agricultural land stewardship activity implemented within the Region and was selected as an appropriate RMS. The County of Santa Barbara's Agricultural Preserve Program (Agricultural Commissioner's Office) works toward the goal of long term conservation of agricultural and open space lands. The program enrolls land in Williamson Act or Farmland Security Zone contracts whereby the land is enforceably restricted to agricultural, open space, or recreational uses in exchange for reduced property tax assessments. Land stewardship practices that are implemented by private landowners include erosion control, habitat conservation, pollution-reduction, creek restoration projects, steelhead enhancement projects, fuels management projects, water quality testing projects, invasive species removal projects, watershed management projects. Agricultural and grazing lands are also responsible for carbon sequestration projects. The Regional Board is also involved in regulating (e.g. discharge permits or conditional waivers) agricultural land stewardship including regulation of animal confinement, agricultural operations, and nursery operations.
Economic Incentives	Includes economic incentives (e.g. loans, grants, water pricing) to promote resource preservation or enhancement.	Economic Incentives was selected as a RMS by the IRWM Region. Several water agencies maintain economic incentives to encourage water conservation, including rebate programs and tiered water rates. The region actively seeks State and federal grants to promote resource conservation.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
Ecosystem Restoration	Strategies that restore impacted or impaired ecosystems, and may include invasive species removal, land acquisition, water quality protection, revegetation, wetlands creation and enhancement, and habitat protection and improvement, habitat management and species monitoring.	Ecosystem Restoration was selected as a RMS by the IRWM Region. Ongoing efforts within the Region include but are not limited to habitat restoration in flood plains; land conservation; invasive species control; rehabilitation and revegetation; wetlands preservation; debris clearance from south coast creeks; restoration of habitat damaged by wildfires; non-point source pollution control; and addressing flow hydraulics and preserving natural flow hydrology.
Forest Management	Strategies that promote forest management include long-term monitoring, multi-party coordination, improvement in communications between downstream water users and communities and upstream forest managers, residents, and workers, and revisions of water-quality management plans between the SWRCB and forest management agencies to address concerns with impaired water bodies.	<p>Forest Management was selected as a RMS by the IRWM Region. Approximately one-third of the land area within the County is located within the Los Padres National Forest, which includes two wilderness areas, the San Rafael Wilderness and the Dick Smith Wilderness. The national forest includes portions of watersheds that provide an important water source for coastal populations, as well as important habitat for several threatened, endangered, proposed, candidate, and sensitive species. The Region has had several meetings regarding project development with the Los Padres National Forest (LPNF) representative. The LPNF has been collaboratively involved in the IRWM.</p> <p>The Region expanded the description to the following: Forest Management including Control of Fuel Loads. The control of fuel loads is undertaken by the US Forest Service and collaborative projects to this end are under consideration.</p>

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
Land Use Planning and Management	Includes land use controls to manage, minimize, or control activities that may negatively affect the quality and availability of groundwater and surface waters, natural resources, or endangered or threatened species.	Land Use Planning and Management was selected as a RMS. The Region continually coordinates to improve coordination of land use planning with water resource planning. The Region pursues increased land and water land use coordination with the Los Padres National Forest, Vandenberg Air Force Base, State Parks, private lands including agricultural lands, the Santa Barbara County Planning and Development Department, and all community and municipal developments and planning departments. The Santa Barbara County Water Agency is working collaboratively with the County Planning & Development Department & the Ag Commissioner's Office on a groundwater project for one of the County's main groundwater basins.
Recharge Area Protection	Includes land use planning, land conservation, and physical strategies to protect areas that are important sources of groundwater recharge.	Recharge area protection was selected as a RMS by the IRWM Region. Protecting recharge areas is important to the Region. An example is in the Santa Maria Watershed where Twitchell Reservoir delays a portion of intercepted storm flow from the Sisquoc and Cuyama rivers for later release and percolation to the Santa Maria Groundwater Basin.
Water-Dependent Recreation	Enhancing and protecting water-dependent recreational opportunities and public access to recreational lands.	The Region selected and expanded this RMS to include an emphasis on adding educational opportunities to water-dependent recreation by re-labeling the RMS as "Incorporation of Educational Opportunities in Water-Related Projects. This RMS is appropriate for the Region as there are many water-dependent recreational opportunities on lakes, rivers, streams, and in the Pacific Ocean. Some of the recreational opportunities include fishing, swimming, waterfowl hunting and birding, picnicking, camping, hiking, biking, boating, canoeing, and kayaking.

<b>RMS Considered</b> (CA Water Plan Update 2009)	<b>RMS Overview</b> (CA Water Plan Update 2009)	<b>RMS Selected by the Region</b> (with Description of RMS)
Watershed Management	Comprehensive management, protection, and enhancement of groundwater and surface waters, natural resources, and habitat.	Watershed Management was selected as a RMS by the IRWM Region. The Region approaches creating and implementing water resource plans, programs, projects, and activities on both a watershed and local level. Watershed management has proven effective in managing, coordinating, and integrating physical, chemical, and biological processes that make up the river based sub-regions of the regional systems including the Santa Maria Valley, San Antonio Creek, Santa Ynez River, and South Coast. The Region added the following RMS to underscore the importance of mitigating the impact of wildfire using a watershed approach - Watershed Management (including Controlled Burns) to Mitigate the Impact of Wildfire and Associated Erosion. Erosion control is emphasized to preserve water storage capacity.

RMS Considered (CA Water Plan Update 2009)	RMS Overview (CA Water Plan Update 2009)	RMS Selected by the Region (with Description of RMS)
<b>Improve Flood Management</b>		
Flood Risk Management	Strategies that decreasing the potential for flood-related damage to property or life including control or management of floodplain lands or physical projects to control runoff.	<p>Flood Risk Management was selected as a RMS by the IRWM Region. Flood Risk Management includes projects and programs that assist individuals and communities in managing flood flows and prepare for, respond to, and recover from a flood.</p> <p>The Region has an extensive flood control system which includes 24 miles of levees along the Santa Maria River, and other flood control features including closed conduits, lined channels, earth channels, retarding and recharge basins, debris basins, and sediment trapping basins. The Region also has a countywide real time hydrologic monitoring system to assist with flood prevention and response. The Region chose to add additional definition to this State RMS by including the following three regional RMS:</p> <ul style="list-style-type: none"> <li>• Structural Improvements to Flood Infrastructure to Decrease Flooding</li> <li>• Management of Creek and River Systems to Reduce Flood Flow</li> <li>• Multi-Purpose and Multi-Benefit Flood and Stormwater Management</li> </ul>

**Table 5.2 Other RMS Considered and Included as Regional RMS**

Other RMS	RMS Description
Dewvaporation/Atmospheric Pressure Desalination	The Region selected this RMS as one tool to potentially use in the future. Dewvaporation/Atmospheric Pressure is defined in the California Water Plan Update 2009 as follows: Dewvaporation is a specific process of humidification-dehumidification desalination. Brackish water is evaporated by heated air, which deposits fresh water as dew on the opposite side of a heat transfer wall. The energy needed for evaporation is supplied by the energy released from dew formation. Heat sources can be combustible fuel, solar or waste heat. The tower unit is built of thin plastic films to avoid corrosion and to minimize equipment costs. Towers are relatively inexpensive since they operate at atmospheric pressure.
Develop and Maintain a Diversified Mix of Water Resources	The Region added the RMS Develop and Maintain a Diversified Mix of Water Resources because the development and maintenance of a diversified mix of water resources is essential to regional water supply self-sufficiency. The Region has identified challenges such as loss of storage capacity in reservoirs due to sedimentation, the fluctuations in deliveries of SWP water, and the need for additional storage capacity on the south coast. These challenges underscore the need for this RMS and implementation of projects such as stormwater capture, distribution system connections, and groundwater clean-up.
Protect Reservoirs from and Remove Sedimentation	This RMS is connected to the preceding RMS and the Local Supply RMS as protecting reservoirs including Twitchell Reservoir, Lake Cachuma, Gibraltar Reservoir, and Jameson Lake from and removing sedimentation is important. For example, the Twitchell Reservoir has been accumulating sediment at a 70% greater rate than expected with the accumulated sediment reaching an estimated 45,142 AF.
Rainfed Agriculture	Rainfed Agriculture was selected as a RMS by the IRWM Region. Rainfed agriculture is encouraged and increasingly incorporated into crop operations where and when appropriate.

Other RMS	RMS Description
Emergency Response	<p>The Region finds that it is increasingly vulnerable to emergency occurrences such as drought, earthquakes, flooding, fires, potentially terrorism and vandalism. Planning for and responding to emergencies is a priority for the Region thus the three below RMS were added:</p> <ul style="list-style-type: none"> <li>• Plan for and Address the Impacts of Emergency Situations Such as Drought, Earthquakes, Flooding, Fires, Terrorism, and Vandalism to Ensure Water Quality, Water Supply, and Ecosystem Health</li> <li>• Develop Inter- and Intra-Regional Emergency Response and Mutual Aid Plans</li> <li>• Ensure Fire Protection Capacity through Water Storage, Delivery Systems, and Power Facilities</li> </ul>
Rehabilitation and Replacement of Aging Water and Wastewater Delivery and Treatment Facilities	<p>The Region places a high priority on rehabilitating and replacing aging water and wastewater delivery and treatment facilities. Recent projects include bringing the Goleta Sanitary District to full secondary treatment, updating the Lompoc Regional Wastewater Reclamation Plant, and updating the El Estero Recycled Water Treatment Facility to full capacity.</p>
Renewable and Efficient Energy Facilities	<p>The Region has adopted several RMS aimed at dealing with the impacts of and adapting to climate change. Future updates to and new infrastructure will incorporate, when feasible, renewable and efficient energy facilities. The climate change related RMS include:</p> <ul style="list-style-type: none"> <li>• Energy Use Reduction by Water and Wastewater Systems</li> <li>• Renewable Energy Generation and Use by Infrastructure</li> <li>• GHG Emissions Reduction</li> </ul>
Support Projects in Disadvantaged Communities	<p>This regional RMS points out the importance of supporting DACs in the Region. The Region has set a regional target of directing 10% of all grant funding to projects from disadvantaged communities. The IRWM governance structure includes several DACs in the governance structure and the Region has included several DAC projects in Prop 50 and Prop 84 grant applications.</p>
Consultation, Collaboration, and Assistance to Better Sustain Tribal Water and Natural Resources	<p>This RMS points to the regional stakeholder outreach efforts that have worked to improve consultation, collaboration, and assistance, where needed and requested, to Tribal interests in the Region.</p>

## 5.2.2 IRWM Plan 2013 Resource Management Strategies

The following diversified set of RMS was selected by the Region as most appropriate to implement the regional objectives. They are listed below in Table 5.3 and organized according to the regional objective they strategically support and implement.

**Table 5.3: Resource Management Strategies Implementing Objectives**

<b>SB IRWMP Objective</b>	<b>Resource Management Strategy</b>
Protect, Conserve, and Augment Water Supplies	<ul style="list-style-type: none"> <li>• Agricultural Water Use through Efficiency and Conservation Measures</li> <li>• Urban Water Use through Efficiency and Conservation Measures</li> <li>• Rainfed Agriculture</li> <li>• Conjunctive Management &amp; Groundwater Storage</li> <li>• Desalination</li> <li>• Precipitation Enhancement</li> <li>• Recycled Municipal Water</li> <li>• Surface Storage – Regional/Local</li> <li>• Protect Reservoirs from and Remove Sedimentation</li> <li>• Dewvaporation or Atmospheric Pressure Desalination</li> <li>• Use of Lower Quality Water or Recycled Water for Landscaping and Other Non-Potable Uses</li> <li>• Develop and Maintain a Diversified Mix of Water Resources</li> <li>• Pollution Prevention</li> <li>• Capture and treat stormwater</li> <li>• Watershed Management (including Controlled Burns) to Mitigate the Impact of Wildfire and Associated Erosion</li> <li>• Water Transfers</li> </ul>
Protect, Manage, and Increase Groundwater Supplies	<ul style="list-style-type: none"> <li>• Conjunctive Use and Groundwater Management</li> <li>• Efficiency and Conservation Measures</li> <li>• Groundwater Remediation/Aquifer Remediation</li> <li>• Prevention of Contamination and Salt Water Intrusion</li> <li>• Recharge Area Protection</li> </ul>

<b>SB IRWMP Objective</b>	<b>Resource Management Strategy</b>
Practice Balances Natural Resource Stewardship	<ul style="list-style-type: none"> <li>• Agricultural Lands Stewardship</li> <li>• Economic Incentives- Loans, Grants and Water Pricing</li> <li>• Restoration and Protection of Ecosystems, Wildlife Habitat, Sensitive Species, and Fisheries</li> <li>• Forest Management including Control of Fuel Loads</li> <li>• Recharge Area Protection</li> <li>• Management of Water-Dependent Recreation</li> <li>• Watershed Management</li> <li>• Incorporation of Educational Opportunities in Water-Related Projects</li> <li>• Utilization of New or Additional Technologies for Water and Wastewater Treatment that are Economical and Environmentally Sustainable</li> </ul>
Protect and Improve Water Quality	<ul style="list-style-type: none"> <li>• Drinking Water Treatment and Distribution</li> <li>• Groundwater Remediation/Aquifer Remediation including Shallow</li> <li>• Groundwater Contamination at Orphaned Sites</li> <li>• Salt and Nutrient Management</li> <li>• Desalination</li> <li>• Urban Runoff Management</li> <li>• Reduction of Wastewater Discharge into the Ocean through Use of Recycled Water</li> <li>• Prevention of Point and Non-Point Sources of Pollution</li> <li>• Capture and treatment of stormwater</li> <li>• Upgrade Wastewater Treatment to meet Current and Future State and Federal Water Quality Standards</li> <li>• Utilization of New or Additional Technologies for Water and Wastewater Treatment that are Economical and Environmentally Sustainable</li> </ul>
Improve Flood Management	<ul style="list-style-type: none"> <li>• Flood Risk Management</li> <li>• Structural Improvements to Flood Infrastructure to Decrease Flooding</li> <li>• Management of Creek and River Systems to Reduce Flood Flow</li> <li>• Multi-Purpose and Multi-Benefit Flood and Stormwater Management</li> </ul>
Improve Emergency Preparedness	<ul style="list-style-type: none"> <li>• Conveyance – Regional/Local</li> <li>• Increase Back-Up Facilities, Interconnections, Redundant Power Sources, and Treatment Facilities to Secure Water Supplies</li> <li>• Plan for and Address the Impacts of Emergency Situations Such as Drought, Earthquakes, Flooding, Fires, Terrorism, and Vandalism to Ensure Water Quality, Water Supply, and Ecosystem Health</li> <li>• Develop Inter- and Intra-Regional Emergency Response and Mutual Aid Plans</li> </ul>

<b>SB IRWMP Objective</b>	<b>Resource Management Strategy</b>
Maintain and Enhance Water and Wastewater Infrastructure Efficiency and Reliability	<ul style="list-style-type: none"> <li>• Conveyance – Regional/Local</li> <li>• Rehabilitation and Replacement of Aging Water and Wastewater Delivery and Treatment Facilities</li> <li>• System Reoperation</li> <li>• Renewable and Efficient Energy Facilities</li> <li>• Ensure Fire Protection Capacity through Water Storage, Delivery Systems, and Power Facilities</li> </ul>
Address Climate Change	<ul style="list-style-type: none"> <li>• System Reoperation</li> <li>• Energy Use Reduction by Water and Wastewater Systems</li> <li>• Renewable Energy Generation and Use by Infrastructure</li> <li>• Recycled Municipal Water</li> <li>• Urban Water Use Efficiency</li> <li>• Agricultural Water Use Efficiency</li> <li>• Enhance Natural Functions of Watersheds including Carbon Sequestration</li> <li>• GHG Emissions Reduction</li> <li>• Plan and Prepare for Weather Variability</li> </ul>
Ensure Equitable Distribution of Benefits	<ul style="list-style-type: none"> <li>• Support Projects in Disadvantaged Communities</li> <li>• Consultation, Collaboration, and Assistance to Better Sustain Tribal Water and Natural Resources</li> </ul>

### 5.2.3. Regional Resource Management Strategies that address Climate Change High Priority Vulnerability Issues

The Objectives Workgroup examined the high priority vulnerability issues that had been identified by the Climate Change Workgroup and selected RMS that addressed those issues. Table 5.4 identifies regional RMS that address high priority climate change vulnerability issues describes the vulnerabilities.

**Table 5.4 Regional RMS that address Climate Change High Priority Vulnerability Issues**

<b>High Priority Vulnerability</b>	<b>Description of Impact of High Priority Vulnerabilities</b>	<b>RMS addressing Climate Change</b>
Water Demand	<ul style="list-style-type: none"> <li>• Habitat demand would be impacted</li> <li>• Limited ability to conserve further</li> <li>• Lack of groundwater storage to buffer drought</li> <li>• Meeting demand in peak seasons would be more difficult</li> </ul>	<ul style="list-style-type: none"> <li>• Urban Water Use Efficiency</li> <li>• Agricultural Water Use Efficiency</li> <li>• Plan and Prepare for Weather Variability</li> <li>• Recycled Municipal Water</li> </ul>

High Priority Vulnerability	Description of Impact of High Priority Vulnerabilities	RMS addressing Climate Change
Water Supply	<ul style="list-style-type: none"> <li>• Decrease in imported supply</li> <li>• Decrease in groundwater supply</li> </ul>	<ul style="list-style-type: none"> <li>• System Reoperation</li> <li>• Recycled Municipal Water</li> <li>• Urban Water Use Efficiency</li> <li>• Agricultural Water Use Efficiency</li> <li>• Plan and Prepare for Weather Variability</li> <li>• Water Transfers</li> <li>• Conjunctive Management and Groundwater Storage</li> <li>• Desalination</li> <li>• Precipitation Enhancement</li> <li>• Surface Storage – Regional/Local</li> <li>• Groundwater and Aquifer Remediation</li> <li>• Matching Water Quality to Use</li> <li>• Salt and Salinity Management</li> <li>• Recharge Area Protection</li> <li>• Develop and Maintain a Diversified Mix of Water Resources</li> <li>• Protect Reservoirs from and Remove Sedimentation</li> <li>• Rehabilitation and Replacement of Aging Water and Wastewater Delivery and Treatment Facilities</li> </ul>
Water Quality	<ul style="list-style-type: none"> <li>• Increased constituent concentrations</li> <li>• Poor water quality in surface waters</li> <li>• Decrease in recreational opportunity</li> <li>• Increase in treatment needs and costs</li> <li>• Increased erosion and sedimentation</li> </ul>	<ul style="list-style-type: none"> <li>• Recycled Municipal Water</li> <li>• Plan and Prepare for Weather Variability</li> <li>• Desalination</li> <li>• Groundwater and Aquifer Remediation</li> <li>• Pollution Prevention</li> <li>• Salt and Salinity Management</li> <li>• Urban Runoff Management</li> <li>• Agricultural Lands Stewardship</li> <li>• Forest Management</li> <li>• Recharge Area Protection</li> </ul>

High Priority Vulnerability	Description of Impact of High Priority Vulnerabilities	RMS addressing Climate Change
Sea Level Rise	<ul style="list-style-type: none"> <li>• Decrease in land</li> <li>• Damage to coastal infrastructure/recreation/tourism</li> <li>• Damage to ecosystem/habitat</li> </ul>	<ul style="list-style-type: none"> <li>• Plan and Prepare for Weather Variability</li> <li>• Land Use Planning and Management</li> <li>• Rehabilitation and Replacement of Aging Water and Wastewater Delivery and Treatment Facilities</li> <li>• Agricultural Lands Stewardship</li> <li>• Ecosystem Restoration</li> <li>• Enhance Natural Functions of Watersheds including Carbon Sequestration</li> </ul>
Ecosystem and Habitat	Increased impacts to coastal species	<ul style="list-style-type: none"> <li>• Enhance Natural Functions of Watersheds including Carbon Sequestration</li> <li>• GHG Emissions Reduction</li> <li>• Renewable Energy Generation and Use by Infrastructure</li> <li>• Plan and Prepare for Weather Variability</li> <li>• Pollution Prevention</li> <li>• Agricultural Lands Stewardship</li> <li>• Ecosystem Restoration</li> <li>• Forest Management</li> </ul>