



2013 San Diego Integrated Regional Water Management Plan

7 Regional Coordination

This chapter addresses requirements set forth in the Relation to Local Water Planning, Relation to Local Land Use Planning, and Coordination standards included in the 2012 IRWM Program Guidelines (DWR 2012).

7.1 Overview

The intent of this chapter is to document various aspects of coordination between local, regional, State, and federal agencies related to water resource management in the San Diego IRWM Region. This chapter includes general background information about how the 2013 IRWM Plan process has encouraged regional coordination, as well as specific information about the planning studies completed for the 2013 IRWM Plan. Specifically, this chapter includes information about:

- How the 2013 IRWM Plan relates to planning documents and programs established by local water-related agencies.
- The current relationship between land use planning, regional water issues, and the water management goals included in *Chapter 2, Vision and Objectives*.
- The process used to coordinate various stakeholder groups to avoid conflicts and take advantage of efficiencies.
- Information about coordination with other neighboring IRWM efforts.

7.2 Consistency with Local Plans

As described throughout this 2013 IRWM Plan, the San Diego IRWM Program is an “umbrella” planning process that consolidates and synthesizes information from existing processes throughout the IRWM Region. *Chapter 10, Data and Technical Analysis* provides detailed information about the planning documents that were used as the basis of information within the 2013 IRWM Plan. *Chapter 2, Vision and Objectives* demonstrates the detailed stakeholder outreach and engagement process that was used to develop the planning hierarchy included in the 2013 IRWM Plan. The following sections provide detailed information about coordination with various planning activities, including specific planning studies that were completed for the 2013 IRWM Plan pertaining to regulatory programs, flood control planning, land use planning, and climate change.

7.2.1 Coordination of Water Management Planning Activities

The San Diego IRWM Program is a stakeholder-driven planning process. Through the RAC and other public meetings, stakeholders have the opportunity to bring water management issues and priorities into the IRWM Program. When water management issues or priorities are presented to the RAC by stakeholders, they are then vetted by the group to determine which ones should be included as part of the IRWM Plan.

In addition to stakeholder input, the 2013 IRWM Plan relied heavily on existing planning documents. Of particular importance was the San Diego County Water Authority's 2010 Urban Water Management Plan, which formed the base document of this IRWM Plan because it contains a roll-up of all water supply and recycled water flow projections for all 24 member agencies throughout the San Diego Region. None of the other water management topics (stormwater, wastewater, natural resources, flood management, etc.) has a regional resource document that contains regularly updated information compiled for all agencies that manage that resource. For this reason, the IRWM Plan relied upon individual planning and management documents from the various entities that manage other (non-water supply) water resources in the Region. The IRWM Plan goals and objectives (*Chapter 2, Vision and Objectives*) generally incorporate the regional goals of all planning documents in Table 7-1. However, the IRWM Program and this IRWM Plan have no authority over the existing plans and resources that are referenced herein; this IRWM Plan is an umbrella document that attempts to consolidate current planning efforts on a broad variety of water management topics from throughout the Region.

As part of the 2013 IRWM Plan, the RWMG and the RAC created four Workgroups to develop planning studies addressing key water resource issues: Regulatory Coordination, Flood Management, Land Use, and Climate Change. These planning studies were tasked with assessing current plans in the Region for applicability to the 2013 IRWM Plan, to identify opportunities for collaboration between the IRWM Program, water managers, and other planners, and to develop recommendations to incorporation of key issues and goals of these plans (along with priority actions) into the 2013 IRWM Plan. These planning studies are presented in greater detail below.

7.2.2 Coordination with Other State and Federal Agencies

The IRWM Program recognizes the need to include other State and federal agencies in regional water resources planning. Several of these agencies are represented on the RAC – including the U.S. Bureau of Reclamation and the Regional Water Quality Control Board (Regional Board) – and others are included on the stakeholder list as interested parties. Table 7-2 provides an overview of these other agencies and their interest in water management.

7.2.3 Coordinating and Resolving Inconsistencies

The IRWM Program engages stakeholders from throughout the Region, in an effort to increase communication and collaboration that will improve water resources management. Through an open dialogue and stakeholder involvement process, the IRWM Program helps to build relationships between stakeholder groups (including local planning agencies). This reduces conflicts between stakeholder groups, and helps to identify and resolve conflicts and inconsistencies in management efforts and plans. By utilizing stakeholder input, the 2013 IRWM Plan ensures that it is addressing the concerns and needs of the Region, and provides opportunities for coordinated planning efforts.

Table 7-1: IRWM Relation to Local Water Management Planning*

Types of Local Plans	Jurisdiction	Updates	Coordination During Planning Process	Relation to IRWM Plan
Urban Water Management Plans (UWMPs) Agricultural Water Management Plans (AWMPs) Groundwater Management Plans (GWMPs)	Water agencies	Every 5 years	Water supply, wastewater, recycled water projections are coordinated with land use/growth projections	Incorporated per Water Authority UWMP
Salt and Nutrient Management Plans (SNMPs)	Wastewater, Water agencies	Unknown – anticipated every 5 years	SNMPs use existing basin and regional studies, and documented issues and instances of noncompliance to develop management strategies	Will be incorporated in future
Recycled Water Master Plans (RWMPs)	Wastewater, Water agencies	As needed	Recycled water projections are coordinated with land use/growth projections	Incorporated per Water Authority UWMP
Wastewater Master Plans (WWMPs)	Wastewater agencies	As needed	Wastewater projections are coordinated with land use/growth projections	Incorporated per Water Authority UWMP
Watershed Urban Runoff Management Plans (WURMPs) Jurisdictional Urban Runoff Management Plans (JURMPs) Water Quality Improvement Plans (WQIPs)	Stormwater agencies	Every 5 years	Coordination between cities and agencies within each watershed management area	Incorporated
Hydromodification Management Plans (HMPs)	Stormwater agencies	As needed	Coordination between cities and agencies to manage hydromodification from new development	Incorporated
Flood Control Plans	Flood agencies or departments	As needed	Flood hazards are coordinated with land use/growth projections	Incorporated
Land Use Plans	Land use agencies, SANDAG	As needed	Land use planners may coordinate with other managers when developing plans. Other plans often incorporate portions General Plan	Incorporated per Water Authority UWMP
Watershed Management Plans	Land use agencies, NGOs	As needed	Watershed goals and strategies generally address surface water/habitat	Incorporated in watershed characterizations
Multiple Species Habitat Conservation Plans (MSHCPs)	Planning agencies	As needed	MSHCP outlines conservation areas; Included activities must comply with MSHCP requirements	Incorporated
Basin Plan/303(d) Listing	Regional Board	Every 3 years	Basin Plan includes water quality objectives; 303(d) list identified water bodies that are not compliant	Incorporated
*Planning documents listed in this table are those that currently exist and are not governed by the IRWM Program. For information about implementation activities that are proposed by the IRWM Program, refer to <i>Chapter 11, Implementation</i> .				

Table 7-2: Other State and Federal Agencies with Interest in IRWM

Agency	Authority and Interest in IRWM Program
State of California	
Regional Board	The prime water quality regulatory authority within the Region, responsible for protecting beneficial uses and establishing and enforcing water quality standards. The Regional Board is a RAC member.
Department of Water Resources (DWR)	Establishes a framework for statewide water resources management within the <i>California Water Plan Update 2009</i> , and administers the IRWM Grant Program.
California Environmental Protection Agency (Cal/EPA)	Oversees and coordinates public health and environmental regulation within six State of California departments: Air Resources Board, Department of Pesticide Regulation, Department of Toxic Substances Control, Integrated Waste Management Board, Office of Environmental Health Hazard Assessment, and the State Water Resources Control Board (State Board)
Department of Fish and Wildlife	Oversees implementation of the federal Endangered Species Act and regulates activities that may impact endangered species and their habitats
California State Parks	Operates a number of state beaches, state parks, and coastal preserves and recreational areas within the Region
California Department of Forestry	Charged with firefighting, resource management (including administering state and federal forestry assistance programs), and protecting and enhancing California's forest lands
California Coastal Conservancy	Works in partnership with local governments, public agencies, nonprofit organizations, business, and private landowners to coordinate and provide funding to purchase, protect, restore, and enhance coastal resources and access.
Caltrans (California Department of Transportation)	Responsible for planning, maintaining, and constructing surface transportation facilities including highways, roads, bike paths, bridges, and rail transportation facilities. Caltrans addresses land use, air, and water quality impacts of such surface transportation facilities.
California Coastal Commission	In partnership with coastal Cities and the County, plans and regulates the use of land and water in the Region's coastal zone. In this land use planning and regulation role, the Coastal Commission is involved in coastal water quality protection, habitat protection, and public access and recreation.
California State Lands Commission	Oversees lands held in public trust. In this capacity, the Commission manages a variety of public lands, including submerged lands under tidal and navigable waterways. The Commission is also involved in securing and maintaining public access to public lands.
Federal Agencies	
U.S. Environmental Protection Agency (EPA)	Through powers delegated to the Regional Board, implements the Clean Water Act and oversees Regional Board and State Board's implementation of federal NPDES permits, water quality standards, water quality enforcement, and water quality certification programs.
U.S. Fish and Wildlife Service (USFWS)	Oversees implementation of the federal Endangered Species Act and regulates activities that may impact endangered species and their habitats.
National Marine Fisheries Service (NMFS)	Oversees implementation of the Endangered Species Act for marine species and regulates activities that may impact these species.
U.S. Army Corps of Engineers (USACE)	Has regulatory authority over all work within navigable waters, and regulates such projects through the issuance of permits. Additionally, the Corps of Engineers reviews and approves Special Area Management Plans (SAMPs). With this background, USACE can provide valued input to the Region's water management planning process.
U.S. Geological Survey (USGS)	Collects and analyzes regional hydrologic data, and coordinates with local agencies to perform special water resources studies.
U.S. Bureau of Land Management (BLM)	Manages federal lands within the Region, including lands proposed as future Wilderness Areas.
U.S. Forest Service (USFS)	Manages the Cleveland National Forest, which comprises a significant portion of the upstream reaches of the larger watersheds of the Region.
Natural Resources Conservation Service	A division of the U.S. Department of Agriculture provides technical and financial assistance in a variety of areas related to the conservation of soil, water, and other natural resources.

Agency	Authority and Interest in IRWM Program
U.S. Bureau of Reclamation (USBR)	Involved in a variety of water resources management areas central to the IRWM Plan, including water supply, the reclamation of land and water resources, surface water storage, desalination, recreation, agricultural land stewardship, and water rights. USBR also administers funding for the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI, Public Law 102-575). USBR is a RAC member.
U.S. Navy	Operates numerous bases and installations within the Region, and plans and implements facilities (via the Naval Facilities Engineering Command) for the U.S. Navy and U.S. Marine Corps within the County.
U.S. Marine Corps	Operates numerous bases and installations within the Region. U.S. Marine Corps Base Camp Pendleton is a Water Authority member agency.
Bureau of Indian Affairs	Administers and manages lands held in trust for the Region's Native American Tribes.

7.3 Relation to Local Water Planning

7.3.1 Water Planning Overview

Numerous water supply plans address Southern California water facilities and water supply, developed by both regional and local agencies.

Regional Water Planning

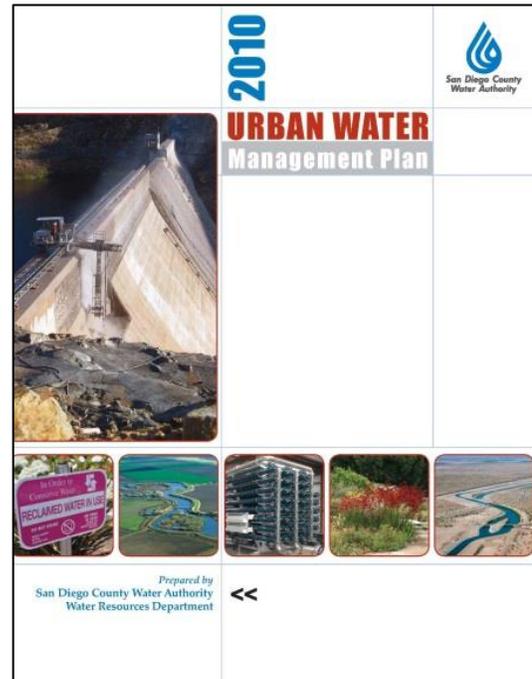
Metropolitan Water District of Southern California (Metropolitan) provides the Water Authority with the Region's imported water supply and develops the following regional water plans:

1. *The Regional Urban Water Management Plan for Southern California* (Metropolitan, 2010a) addresses water supply reliability and demand management from Metropolitan's regional perspective within Southern California.
2. *The 2010 Urban Water Management Plan* (Metropolitan 2010) addresses imported water supply issues and reliability, regional demand reduction efforts, water quality issues, and regional approaches toward the development of local supplies.
3. Metropolitan is also in the process of updating their *Integrated Water Resources Plan* (Metropolitan, 2010b), which will serve as Metropolitan's master plan for long-term water reliability for Southern California.

As the Region's primary water supply provider and sole supplier of imported water, the Water Authority serves as the primary regional water planning agency within the Region. All major public water agencies within the Region are either Water Authority members or receive retail supplies from a Water Authority member. Water Authority member agencies collaborate to implement the Water Authority's mission of providing a safe and reliable water supply to its 24 member agencies. Current Water Authority water development plans include the following:

1. *The 2010 Urban Water Management Plan* (Water Authority, 2010) continues the Water Authority's long-standing commitment toward improving water supply reliability through diversification of the Region's water supplies and development of local water sources. This plan takes into account data from the most recent growth forecasts developed by the Region's regional land use planning agency (San Diego Association of Governments [SANDAG]). The regional growth projections are used to calculate water demands to ensure adequate supplies are being identified in the planning document to meet future growth within the region. The *2010 Urban Water Management Plan* sets forth the Water Authority's commitment to achieve water supply reliability and diversity through:

- a. comprehensive water conservation programs that support and encourage residential conservation, commercial/industrial/institutional conservation, and agricultural water management and conservation,
 - b. continued progress in implementing the Water Authority and Imperial Irrigation District agreement for long-term transfer of conserved Colorado River water,
 - c. coordination with a private enterprise to pursue and develop a new reliable source of local supply from the Carlsbad Seawater Desalination Project,
 - d. supporting member agency efforts to optimize production from local groundwater aquifers, including groundwater extraction projects, brackish groundwater recovery projects, and groundwater recharge/recovery projects,
 - e. supporting member agency effort to assess and implement alternative supply/conservation options, and
 - f. supporting member agency efforts to develop supplies through non-potable recycled water supplies or indirect potable reuse.
2. A *Regional Water Facilities Master Plan* (Water Authority, 2002) that identifies projects and facilities required to achieve the Regional objective of reducing imported water dependence and ensuring a safe and reliable water supply.
 3. A *Capital Improvements Program* to implement the projects and facilities identified in the *Regional Water Facilities Master Plan*.
 4. A *Water Shortage and Drought Response Plan* (Water Authority, 2012) that sets forth Water Authority management of water supplies during periods of shortage.



Water Authority's 2010 Urban Water Management Plan

As discussed above, none of the other water management topics (stormwater, wastewater, natural resources, flood management, etc.) has a regional resource document that compiles information from throughout the Region. This IRWM Plan instead used the individual agency management plans for those resources as described above in Table 7-1.

Local Agency Water Planning

The Water Authority plans are developed in consultation with local water agencies, and reflect local agencies' water planning and projects. Table 7-3 identifies local water agencies that have developed UWMPs, water or recycled water master plans, or watershed sanitary survey assessments. All listed local agency UWMPs were updated in 2010, and each of the local agency UWMPs address the same regional themes presented in the *Water Authority's 2010 Urban Water Management Plan*.

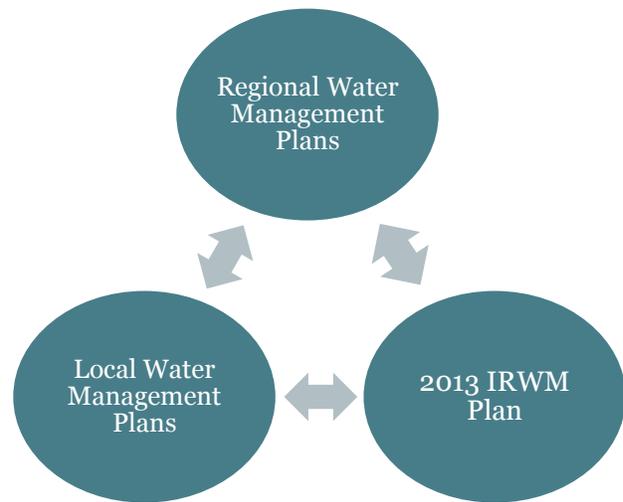
Table 7-3: Summary of San Diego Region Water Supply Plans

Water Agency	Urban Water Management Plan ¹	Water Master Plan ²	Recycled Water Master Plan ³	Sanitary Surveys ⁴
San Diego County Water Authority	•			
Carlsbad Municipal Water District	•	•	•	
City of Del Mar		•		
City of Escondido	•	•	•	•
Fallbrook Public Utility District	•	•	•	
Helix Water District	•	•		•
City of Oceanside	•	•	•	
Olivenhain Municipal Water District	•	•	•	•
Otay Municipal Water District	•	•	•	
Padre Dam Municipal Water District	•	•	•	
City of Poway	•	•	•	•
Rainbow Municipal Water District	•	•		
Ramona Municipal Water District	•	•	•	•
Rincon Del Diablo MWD	•	•	•	
City of San Diego	•	•	•	•
San Dieguito Water District	•	•		
Santa Fe Irrigation District	•	•	•	
Sweetwater Authority ⁵	•	•		•
U.S.M.C. Base Camp Pendleton		•	•	
Vallecitos Water District	•	•	•	
Valley Center MWD	•	•	•	
Vista Irrigation District	•	•	•	•
Yuima Municipal Water District		•		

- 1 Urban Water Management Plan updated in 2010 and submitted to California Department of Water Resources.
- 2 Includes adopted water master plans and water facilities plans for conveyance, storage, or treatment facilities. Also includes capital improvements budgets for proposed facilities.
- 3 Includes plans for the treatment, distribution, marketing, or sale of recycled water. Depending on the agency, the plan may be incorporated within the agency's water master plan or serve as a stand-alone planning document.
- 4 Includes watershed sanitary surveys that have been updated by the listed agencies within the past five years, as required under the State of California Surface Water Filtration and Disinfection Treatment Regulations (Title 22, Section 64665 of the California Code of Regulations).
- 5 Sweetwater Authority is comprised of the South Bay Irrigation District and City of National City, both of which are Water Authority members.

7.3.2 IRWM Consistency with Water Management Plans

This 2013 IRWM Plan is consistent with regional and local water plans developed by Metropolitan, the Water Authority, and local agencies, and incorporates goals and elements of these individual plans. Further, the foundation of the IRWM Plan is based on water management issues, goals, and water quality protection needs identified within regional and local water management plans. Local water management planning is often thought of in terms of urban water management planning for water supply; however, the IRWM Plan includes information from all relevant water management topics including stormwater, wastewater, natural resources, flood management, etc.



Stakeholder Coordination

Stakeholder coordination represents a key reason for the consistency between the IRWM Plan, regional water plans, and local agency water plans. Water agencies that comprise the Water Authority also serve as key stakeholders in the IRWM Process. The Water Authority, in addition to coordinating water supply planning with member agencies, serves on the RWMG within the IRWM planning effort.

As a result of this collaboration, stakeholder input from the IRWM process is incorporated into the water planning process, and stakeholder input from the water planning process is incorporated into the 2013 IRWM Plan. This collaboration and stakeholder cross-pollination ensures that both the IRWM Plan and regional/local water plans incorporate and address the same range of water supply and stakeholder-driven issues.

Consistency of Goals

The IRWM Plan goals were developed through a stakeholder-driven process, and address water supply reliability, water quality, natural resources, and integrated water resource management. In establishing these goals, the IRWM Plan goal-development process considered the goals and objectives of regional and local water plans (see *Chapter 2, Vision and Objectives*). Through this process, the IRWM Plan goals embed the Water Authority's "safe and reliable water supply" mission, as well as supporting the goals of individual local agency plans. Coordination and integration opportunities afforded through the IRWM Plan process can, in turn, influence regional and local water plan updates. Through this ongoing process, updated goals and water planning issues from local and regional water plans can be considered and incorporated into the IRWM Program.

Section 8 of the Water Authority's *2010 Urban Water Management Plan* addresses the benefits and opportunities for coordination between regional and local water supply plans and the IRWM Plan process.

Regional/Local Water Plans Incorporated into IRWM Plan

In addition to a shared stakeholder base and common goals, information and issues addressed in the regional and local water plans are incorporated directly into the IRWM Plan. Table 7-4 addresses how key elements within regional and local water plans are reflected within the 2013 IRWM Plan.

Table 7-4: Consistency of 2013 IRWM Plan with Regional/Local Water Plans

Elements within Regional / Local Water Plans ¹	Consistency with 2013 IRWM Plan
Goals and objectives in water plans and updated URWMs	<ul style="list-style-type: none"> Incorporated into goals and objectives of IRWM Plan
Participating stakeholders	<ul style="list-style-type: none"> Stakeholders reviewed and applicable stakeholders added to IRWM stakeholder list
Institutional issues	<ul style="list-style-type: none"> Incorporated into IRWM Plan region description
Water demands projections	<ul style="list-style-type: none"> Incorporated into IRWM Plan region description
Description of water storage, treatment, and supply systems	<ul style="list-style-type: none"> Incorporated into IRWM Plan region description
Planned water system improvements	<ul style="list-style-type: none"> Incorporated into IRWM Plan region description
Implemented or planned local supply development or opportunities	<ul style="list-style-type: none"> Incorporated into IRWM Plan region description
Environmental or water quality issues	<ul style="list-style-type: none"> Incorporated into IRWM Plan region description
Constraints to supply optimization or development	<ul style="list-style-type: none"> Addressed in IRWM Plan region description
Project planning and support needs	<ul style="list-style-type: none"> Project scoring process updated to reflect regional priorities expressed by stakeholders

In summary, the 2013 IRWM Plan incorporates current and relevant elements of both regional and local water supply plans. By identifying and addressing management issues common to multiple local water agencies, the intent of the IRWM Process is to foster agency/stakeholder coordination and integration of projects to achieve the IRWM Plan objectives.

7.4 Relation to Regulatory Programs

In scoping development of this 2013 IRWM Plan, the RWMG and RAC determined that improving the working relationships between IRWM stakeholders and regulatory agencies would facilitate better water management in the Region. As such, a planning study specifically geared toward identifying collaborative opportunities was prepared.

7.4.1 Relevant Regulatory Programs

A number of regulatory agencies (see Table 7-5) influence IRWM planning and IRWM-supported projects: resource agencies, health agencies, and water quality agencies. Water quality agencies establish water quality standards or regulate water quality. Resource agencies can influence specific areas of IRWM planning, including stream channel modifications, flood channel maintenance, endangered species review, environmental protection, and land use. Health agencies regulate drinking water source control, treatment, and quality; they also assist the Regional Board in regulating environmental water quality, wastewater treatment, disposal, and reuse.

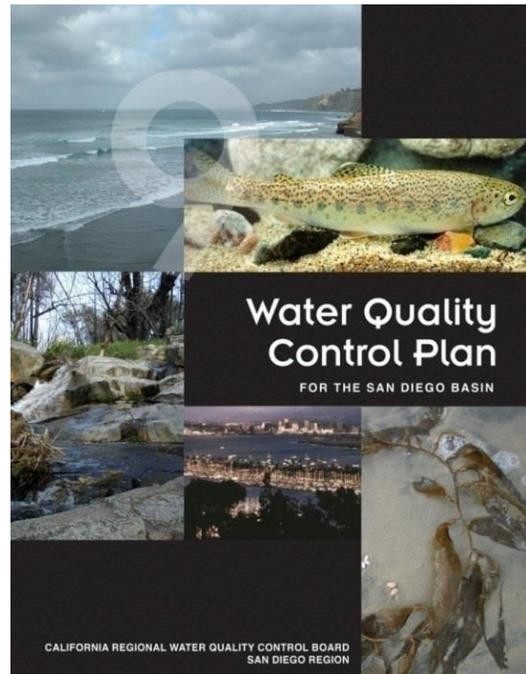
Table 7-5: Summary of Key Regulatory Agencies that Influence IRWM Planning

Category	Agency
Water Quality	<ul style="list-style-type: none"> Regional Water Quality Control Board, San Diego Region State Water Resources Control Board U.S. Environmental Protection Agency
Resource Agencies	<ul style="list-style-type: none"> U.S. Army Corps of Engineers U.S. Fish and Wildlife Service U.S. National Oceanographic and Atmospheric Administration Fisheries Service California Department of Fish and Wildlife California Coastal Commission
Health Agencies	<ul style="list-style-type: none"> California Department of Public Health County of San Diego Department of Environmental Health

Establishment of Water Quality Plans and Policies

The Regional Board and EPA have broad authority in establishing receiving water standards, regulating discharges, and enforcing compliance with water quality standards, plans, and policies. Water quality plans that establish receiving water standards within the San Diego Region include:

- *Water Quality Control Plan for the San Diego Region (Basin Plan)* (Regional Board, 1994), which designates beneficial uses and establishes ground and surface water quality objectives and implementation policies to protect the beneficial uses.
- *Water Quality Control Plan, Ocean Waters of California (California Ocean Plan)* (State Board, 2009a), which establishes prohibitions, water quality objectives, and implementation policies for discharges to ocean waters.
- *Water Quality Control Plan for Enclosed Bays and Estuaries (Bays and Estuaries Plan)* (State Board, 2009b), which establishes water quality and sediment objectives and implementation policies for discharges to enclosed bays and estuaries.
- *Water Quality Control Plan for Control of Temperatures in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan)* (State Board, 1998), which establishes water quality objectives and implementation policies related to thermal discharges.
- *California Toxics Rule* (Title 40, Section 131.38 of the *Code of Federal Regulations*) (EPA, 1998), which establishes water quality objectives for toxic constituents for inland surface waters and enclosed bays and estuaries.



The Basin Plan designates beneficial uses and establishes water quality objectives for the Region.

- *Point-Source National Pollutant Discharge Elimination System (NPDES) Permits* are administered under Section 402 of the Clean Water Act to regulate discharges to federal surface waters from point-source and non-point discharge sources. Point-source NPDES permits are issued to specific entities that discharge to surface waters. The Regional Board implements the NPDES program under authority delegated by EPA. NPDES permits are established for five-year periods, but can be renewed.
- The Regional Board regulates non-point source discharges from *Municipal Separate Storm Sewer Systems (MS4s) Program* that jointly regulate stormwater copermittees. The MS4 NPDES permits establish prohibitions, effluent limitations, action levels, monitoring and reporting requirements, and required runoff management programs for regulating runoff and stormwater discharges. Currently, San Diego County MS4 copermittees are regulated under a single MS4 NPDES permit.
- *Waste Discharge Requirements* are issued by the Regional Board to regulate wastewater discharges (or threatened discharges) to land or to groundwater. Waste discharge requirements specify effluent concentration limits that are based on ensuring compliance with applicable Basin Plan groundwater quality concentration objectives.
- *List of 303(d) Impaired Waters*, prepared by the Regional Board pursuant to CWA Section 303(d), identifies surface waters that are not in compliance with applicable water quality standards. The list is forwarded to the State Board, along with recommended schedules for the preparation of *Total Daily Maximum Loads (TMDLs)* and waste load allocations to attain the standards. EPA approved the State's 2008/2010 303(d) impaired water list in November 2011.

7.4.2 Opportunities for Collaboration

Focus on Regional Board Coordination

While IRWM planning activities can be affected by regulatory actions taken by resource or health agencies (see Section 7.4.1), the flexibility of resource and health agencies to coordinate with the IRWM Program may be limited by a narrow range of regulatory authority or focus, inflexible regulatory requirements or mandates, and decision processes that do not incorporate stakeholder input. The Regional Board purview, on the other hand, extends over a broad range of IRWM planning activities. Additionally, the Regional Board consults with the resource agencies, health agencies, EPA, and the State Board in establishing water quality standards and permits requirements and offers a built-in opportunity for interagency input. Additional reasons for considering opportunities for IRWM/Regional Board collaboration include:

- the IRWM Program and Regional Board each focus on issues specific to the San Diego Region,
- parallels exist in the water quality protection goals of the IRWM Program and the Regional Board,
- the IRWM Program and Regional Board operate under open processes that encourages public participation and stakeholder input, and
- the Regional Board enjoys flexibility in establishing water quality standards that are specific to the water quality and beneficial use protection needs of the San Diego Region.

Additionally, while the Regional Board's regulatory mandates have expanded over the years, resources available to the Regional Board have not kept pace with the expansion of these regulatory

responsibilities. As a result, the Regional Board utilizes its limited resources to address what it deems to represent the highest priority regional water resource protection needs. The IRWM Program is, in essence, a stakeholder-driven resource allocation process. In areas where IRWM and Regional Board goals and responsibilities are compatible, the potential exists for resources provided through the IRWM Program to assist the Regional Board in addressing a greater range of water quality issues and priorities.

IRWM Regulatory Workgroup

Recognizing this potential compatibility, the RWMG and RAC organized a Regulatory Workgroup to support the 2013 IRWM Plan that included Regional Board participation along with a broad range of stakeholders. The Workgroup objectives included:

- serving as an ideas forum or “think tank” to develop suggestions on how the IRWM Program and Regional Board can collaborate to more effectively address regional water issues, and
- providing direction in the preparation of an issues paper (Workgroup Report) that summarizes potential IRWM and Regional Board collaborative opportunities and identifies recommended actions to pursue sensible collaborative opportunities.

Regulatory Workgroup input was provided through a series of workshops. A technical team supported the Workgroup effort by facilitating Workgroup meetings, organizing Workgroup directives, preparing documents to support and focus Workgroup discussion, and preparing a report that summarized Workgroup findings and recommendations.



The purpose of the IRWM Regulatory Workgroup was to determine where regulatory conditions may allow changes to existing regulations to better-achieve regional goals.

Shared IRWM/Regional Board Goals

The Regional Board is in the process of updating its "Practical Vision", which will establish a strategic plan, priorities, and intended future direction. While the Practical Vision is in the developmental draft phase, Regional Board staff presented key priority themes of the draft Practical Vision to the Work Group. In presenting the priority themes, Regional Board staff also advised that IRWM and Regional Board collaboration should be directed toward the shared IRWM/Regional Board goals of improving water quality and environmental conditions.

Table 7-6 compares the Regional Board's mission and Practical Vision priority themes with the IRWM Plan mission and objectives. As shown in the table, the IRWM Plan and Regional Board share considerable common interests; IRWM Plan objectives address each of the priority themes addressed in the draft version of the Regional Board's Practical Vision.

Table 7-6: Comparison of IRWM Plan and Regional Board Missions and Objectives

Regional Board Priorities ¹	IRWM Plan
<p>Mission: Preserve and enhance the quality of California’s water resources and to ensure their proper allocation and efficient use for the benefit of present and future generations.</p>	<p>Mission: To develop and implement an integrated strategy to guide the San Diego Region toward protecting, managing, and developing reliable and sustainable water resources. Through a stakeholder-driven process and adaptive process, the Region can develop solutions to water-related issues and conflicts that are economically and environmentally preferable, and that provide equitable resource protection for the entire Region.</p>
<p>Priority Themes¹</p> <ul style="list-style-type: none"> • Ensure the health of ground and surface waters • Implement effective monitoring and assessment • Support recovery of wetlands and riparian areas • Achieve proactive public outreach and communication • Support sustainable local water supplies 	<p>IRWM Plan Objectives²</p> <ol style="list-style-type: none"> 1. Encourage the development of integrated solutions to address water management issues and conflicts 2. Maximize stakeholder/community involvement and stewardship of water resources 3. Effectively obtain, manage, and assess water resource data and information 4. Further the scientific and technical foundation of water management 5. Develop and maintain a diverse mix of water resources 6. Construct, operate, and maintain a reliable infrastructure system 7. Enhance natural hydrologic processes to reduce the negative effects of hydromodification and encourage integrated flood management 8. Effectively reduce sources of pollutants and environmental stressors 9. Protect, restore and maintain habitat and open space 10. Optimize water-based recreational opportunities 11. Effectively address climate change

¹ Priority themes identified by Regional Board staff as being presented in draft versions of the *San Diego Water Board Practical Vision, 2013-2019*, which sets forth the Regional Board’s proposed strategic plan for the next five years. The information presented in this table reflects draft materials provided to the IRWM Program in 2012.

² Objectives identified within the 2013 San Diego Region IRWM Plan.

Identified Collaborative Outcomes

The Workgroup utilized the following process to identify potential IRWM and Regional Board collaborative opportunities to achieve mutual IRWM/Regional Board goals:

1. Identify potential issues of mutual interest to the IRWM Program and Regional Board.
2. Prioritize the potential issues of interest to identify issues with strong and broad Workgroup support and identify desired outcomes for IRWM/Regional Board collaboration.
3. Identify IRWM Program assets and identifying potential collaborative measures that could be undertaken to achieve the desired outcomes.

The Workgroup utilized five facilitated workshops to identify, assess, and prioritize issues of common IRWM and Regional board interest. Through this process, the Workgroup identified the following desired outcomes for IRWM/Regional Board collaboration.

Desired Outcome No. 1: Support Science-Based Basin Plan Objectives

Support the Regional Board's triennial review process and Regional Board programs and efforts to update science-based assessments of relations between Basin Plan objectives and beneficial use protection.

Desired Outcome No. 2: Support Science-Based Impaired Water Listings and Compliance

Support Regional Board programs and efforts to (1) update impaired water listings that are based on science and robust data and (2) achieve water quality compliance and protect beneficial uses.

Desired Outcome No. 3: Support Prioritization of Habitat Restoration Needs and Opportunities

Support the Regional Board in implementing a process for prioritizing wetlands and riparian habitat restoration needs and opportunities, and coordinate with resource agencies to address regional restoration needs and issues.

Workgroup Recommendations

The Workgroup noted that limited Regional Board staff resources may constrain Regional Board participation in the above desired outcomes. As a result, collaboration between the IRWM Program and the Regional Board may be most useful to the Regional Board in areas where such collaboration:

- assists the Regional Board in executing their statutory responsibilities and in complying with state and federal mandates,
- results in increased regulatory resources or efficiency,
- does not result in increased Regional Board staff workloads,
- assists the Regional Board in stakeholder involvement, and/or
- generates measurable outcomes that demonstrate conformance with applicable water quality standards, requirements and policies.

Recommendations of the Workgroup were presented in *Potential IRWM/Regional Board Collaborative Opportunities, 2013 IRWM Plan*. The Workgroup report is presented as Appendix 7-A.

The Workgroup recommended that IRWM/Regional Board collaboration be centered on benefits that the IRWM Program can provide, which include:

- vision and advocacy,
- technical expertise,
- stakeholder coordination, and
- project funding.

The Workgroup recognized that IRWM/Regional Board collaboration to address the desired outcomes would require an ongoing and evolving process. To initiate progress toward achieving the desired outcomes, the Workgroup identified (1) initial objectives to facilitate progress toward the outcomes, and (2) initial recommended actions (deemed "early action" items) to achieve the initial progress objectives. Table 7-7 presents recommended initial progress objectives and early action items for supporting desired outcomes 1, 2, and 3. To support these desired outcomes, the Workgroup also identified early actions directed toward an overarching goal of improving communication between the IRWM Program and Regional Board.

Table 7-7: Summary of Regulatory Work Group "Early Action" Recommendations

Desired Outcome of IRWM/Regional Board Collaboration	Initial Objective to Facilitate Progress toward Desired Outcome	Early Action Recommendations to Achieve Initial Objective
1. Support science-based Basin Plan objectives	<ul style="list-style-type: none"> Identify science-based Basin Plan modifications that may warrant higher priority than provided in 2011 triennial review 	<ul style="list-style-type: none"> Convene caucus of IRWM stakeholders to (1) identify Basin Plan objectives targeted for review/revision and (2) discuss and review support needs Organize IRWM stakeholder participation in the Regional Board Triennial Review process to promote priority Regional Board action on the Basin Plan issues targeted by IRWM stakeholders
2. Support science-based 303(d) impaired water listings.	<ul style="list-style-type: none"> Identify existing 303(d) listings that may warrant reevaluation or reclassification 	<ul style="list-style-type: none"> Convene caucus of IRWM stakeholders to (1) identify 303(d) listings requiring modification and (2) and discuss/review support information needs Organize IRWM stakeholder participation in the Regional Board 303(d) stakeholder review process and promote priority Regional Board action on the listings targeted by IRWM stakeholders
3. Support prioritization of habitat restoration needs and opportunities	<ul style="list-style-type: none"> Assess and promote resource agency interest in prioritization of habitat restoration opportunities 	<ul style="list-style-type: none"> Convene meeting between IRWM stakeholders and resource agencies to discuss means of identifying, coordinating, and prioritizing restoration opportunities
<i>Overarching actions to support Desired Outcomes 1, 2, and 3</i>	<ul style="list-style-type: none"> Improve communication between the IRWM Program and Regional Board 	<ul style="list-style-type: none"> Assign IRWM liaison to attend Regional Board meetings Provide Regional Board Executive Officer with periodic IRWM update reports for inclusion in Regional Board agenda packets

7.5 Relation to Salinity Planning

As part of the 2013 IRWM Plan, regional stakeholders prepared, or are in the process of preparing, several planning documents related to salinity planning: the *Proposed Guidelines – Salinity/Nutrient Management Planning in the San Diego Region (9)* (Water Authority et al. 2010) were completed in 2010 and accepted by the Regional Board, and five Salt and Nutrient Management Plans are currently under development.

7.5.1 Recycled Water Policy

In February 2009, the State Board adopted Resolution No. 2009-011, which established a statewide Recycled Water Policy. The Recycled Water Policy requires the State Board and the Regional Boards to focus their limited resources on projects that require substantial regulatory review due to unique site-specific conditions, and exercise their authority to the fullest extent possible to encourage the use of recycled water, consistent with state and federal water quality regulations.

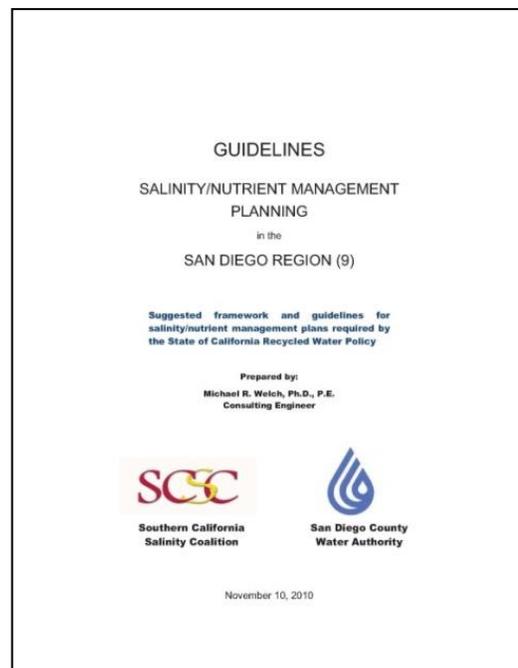
While California’s Porter-Cologne Act charges Regional Boards with developing and enforcing Basin Plan groundwater quality objectives, the Regional Boards’ permitting and enforcement jurisdiction is limited to the regulation of "discharges of wastes", including wastewater, stormwater and recycled water. The Recycled Water Policy recognizes that wastewater and recycled water projects may represent only a portion of the overall salinity/nutrient loads within a watershed or groundwater basin. To address this, the Recycled Water Policy requires that the management of salinity and nutrient loads be done through the development of regional and sub-regional salt and nutrient management plans. The Policy identifies stakeholder-driven Salt and Nutrient

Management Plans (SNMPs) as the appropriate means for identifying and managing salinity and nutrient loads; per the Policy, those stakeholders with a vested interest in groundwater are responsible for developing SNMP.

The Recycled Water Policy requires that SNMPs be prepared for each California groundwater basin or sub-basin, or have made substantial progress toward completion, by May 2014. While the intent of the SNMP requirements is to promote statewide recycled water use while providing for groundwater quality protection, the San Diego Regional Board essentially met this intent during the 1980s and 1990s through a series of recycled water/groundwater protection studies and associated Basin Plan modification efforts. These prior efforts resulted in the promotion of recycled water use throughout a large portion of the Region.

7.5.2 Salinity/Nutrient Planning Guidelines

1. Establish a framework under which SNMPs may be established by interested agencies and stakeholders,
2. Assess the Region's aquifers and identify aquifers that are suitable for the development of SNMPs and prioritize the Region's groundwater basins for the development of SNMPs,
3. Present "tiered" work scopes for developing SNMPs within the Region in which the level of required assessment is based on the size of the basin, the level of basin complexity, and the potential for conflicts between recycled water use and groundwater quality protection,
4. Identify roles of agencies and identify categories of potential stakeholders,
5. Identify suggested approaches and the expected level of effort for completing the required SNMP tasks for each of the required SNMP phases, including:
 - Step 1: conducting an initial basin characterization.
 - Step 2: identifying and quantifying salinity/nutrient sources,
 - Step 3: identifying supplemental monitoring needs and collecting required data,
 - Step 4: identifying and evaluating potential salinity/nutrient management strategies, selecting appropriate strategies for implementation, and identifying applicable Basin Plan modifications to implement the recommended strategies, and
 - Step 5: identifying assessment metrics for evaluating SNMP effectiveness.
6. Provide guidance on which SNMP constituents should be addressed,
7. Identify strategies to be considered in managing salinity/nutrient sources and loads, and
8. Outline the process for regulatory review and approval of developed SNMPs.



The SNMP Guidelines were developed to provide local agencies with guidance in developing SNMPs

The Regional Board formally endorsed the SNMP Guidelines on November 10, 2010 with the adoption of Resolution R9-2010-0125.

Recommended Approaches

The SNMP Guidelines identified the salinity and nutrient constituents of concern for the Region based on regional and basin-specific groundwater quality studies and characterizations, groundwater uses, recycled water standards, and compliance issues. Using the Basin Plan constituents of concern as the basis for this exercise, Table 7-8 identifies which of these constituents of concern are applicable to the Region, why they are or are not considered a constituent of concern, and if and how the various SNMPS should approach addressing these constituents.

Basin Prioritization

The SNMP Guidelines organized the Region's groundwater basins into five tiers, ranging from highest priority (Tier A) to lowest (Tier E) regarding the perceived sensitivity of groundwater resources and the related need for salt and nutrient management planning. Table 7-9 provides a listing of the groundwater basin tiers.

- Tier A basins are larger than 60,000 acre-feet, and are significantly used (or proposed for use) for municipal groundwater use. Tier A basins may be contaminated in the downstream portion, and the hydrogeology, groundwater quality, and management alternatives have been well studied. Tier A basins are the highest SNMP priority.
- Tier B basins are those basins which have a capacity of 50,000 acre-feet or less, located in urbanized or agricultural areas. While they have variable groundwater quality, it nevertheless remains useable for agricultural or municipal use. Tier B basins may experience occasional noncompliance with groundwater quality objectives, and have significantly less potential yield than Tier A basins. They are also less well studied than Tier A basins. Tier B basins are a medium SNMP priority.
- Tier C basins are smaller, shallow aquifers with capacities less than 20,000 acre-feet, in unconsolidated sediments. Wastewater and recycled water agencies in Tier C basins may experience occasional noncompliance with water quality objectives, and yields from Tier C basins are modest or small. There are fewer studies that help characterize hydrogeology, groundwater quality, and groundwater transport in Tier C basins than in Tier A or Tier B basins. Tier C basins are a medium SNMP priority.
- Tier D basins are further divided into two categories: Tier D-1 and Tier D-2. Tier D-1 basins are large or moderately sized urbanized coastal groundwater basins. They have higher salinity groundwater quality, with groundwater quality objectives for TDS that exceed 1200 mg/L. Municipal supply is developed or proposed in these basins through demineralization. Tier D-1 basins are a low SNMP priority. Tier D-2 basins are similar to Tier D-1, but are moderate to small-sized, may be coastal or inland, and are not currently developed for public water supplies. On November 10, 2010, the Regional Board adopted Resolution No. R9-2009-0125 which endorsed the SNMP Guidelines (Regional Board, 2010). At its March 2013 meeting, the Regional Board further confirmed that Tier D-2 basins as identified in the salt and nutrient management plan guidelines are small coastal basins that are not currently used for developing water supplies, and in which recycled water compliance with water quality objectives is not generally a high concern. The SNMP Guidelines recommend that Tier D basins do not require an SNMP.

- Tier E basins are the lowest priority basins for SNMPs. These are located in the rural, eastern portion of the Region, and generally include groundwater dependent communities located outside Metropolitan’s service area, the recycled water service area, and the intended scope of the SNMP Guidelines. Tier E basins do not require an SNMP.

Table 7-8: Recommended Salt/Nutrient Management Approaches

Constituent of Concern	Management Issue	Recommended Approach in SNMP
TDS	<ul style="list-style-type: none"> • Recycled water effluent limits of 1000 mg/L is typical in Region • Groundwater baseline salinity is frequently near or at basin objectives • Compliance with recycled water effluent limits is often challenging 	<ul style="list-style-type: none"> • TDS is likely to be the primary constituent of concern in SNMPs
Chloride	<ul style="list-style-type: none"> • Compliance is not typically an issue in the Region 	<ul style="list-style-type: none"> • Only need to address chloride if basin-specific needs have been identified
Sulfate	<ul style="list-style-type: none"> • Compliance is not typically an issue in the Region 	<ul style="list-style-type: none"> • Only need to address sulfate if basin-specific needs have been identified
Sodium	<ul style="list-style-type: none"> • Compliance is not typically an issue in the Region 	<ul style="list-style-type: none"> • No need to address. May address on a project-by-project basis if necessary
Boron	<ul style="list-style-type: none"> • Compliance is not typically an issue in the Region • Exceptions are those agencies with industrial discharge sources from boric acid etching operations 	<ul style="list-style-type: none"> • Only need to address Boron if basin-specific needs have been identified, or otherwise locally warranted. • Boron will likely need to be addressed for Carlsbad and Vallecitos areas once Carlsbad Desalination plant is operational
Fluoride	<ul style="list-style-type: none"> • Compliance is not typically a problem, but may be a problem in the future 	<ul style="list-style-type: none"> • Basin Plan objectives for fluoride are inconsistent with CDPH and EPA recommendations. If the objectives are updated, there is no need to address fluoride
Nitrate	<ul style="list-style-type: none"> • Occasional noncompliance in areas with wastewater percolation to groundwater • Recycled water effluent limits not currently established, may be regulated in the future • Recycled water use may reduce fertilizer use 	<ul style="list-style-type: none"> • No need to address nitrogen, except on an as-needed, project-by-project basis • May prefer a mass-balance approach • If nitrate is addressed, must also address potential cumulative effects
Iron and Manganese	<ul style="list-style-type: none"> • Recycled water iron and manganese compliance is an increasing concern • Nutrient uptake by vegetation causes difficulty in determine source loads 	<ul style="list-style-type: none"> • Needs to be addressed in either an SNMP or through project-specific modifications of effluent limits consistent with a regionally coordinated assessment of iron and manganese demands, application, and uptake.
Phosphorus	<ul style="list-style-type: none"> • No groundwater quality objectives exist for phosphorus in Region • Not easily transported through soil 	<ul style="list-style-type: none"> • No need to address.

Source: Adapted from *Proposed Guidelines – Salinity/Nutrient Management Planning in the San Diego Region (9)* (Water Authority et al. 2010)

Table 7-9: Groundwater Basin Tiers in Region 9*

Tier A Basins			
• Lower Santa Margarita	• Santee/El Monte		
• Hodges/San Pasqual			
Tier B Basins			
• San Mateo	• Pala/Pauma	• Santa Maria	
• San Onofre	• San Marcos	• Poway	
• Las Flores	• Escondido	• Middle Sweetwater	
Tier C Basins			
• Valley Center	• Miramar		
• Keys Creek	• San Vicente/Gower		
• Vista	• National City		
Tier D Basins			
Tier D-1		Tier D-2	
• Oceanside Mission	• Bonsall/Moosa	• San Elijo	• Otay
• Mission Valley	• Batiquitos, Buena Vista	• Lower San Dieguito	• Lower Tijuana
• Lower Sweetwater	• Agua Hedionda, Encina	• El Cajon	
Tier E Basins			
• Santa Ysabel	• Descanso	• Campo	
• Warner	• Portrero	• Cottonwood	
• Pine Valley			

*Basin names correspond to the Salinity/Nutrient Management Planning guidance document (Water Authority et al., 2010), see *Chapter 5, Watershed Characterizations* for information on how these basin names correspond to those found in DWR's Bulletin 118 and the 2013 IRWM Plan.

Source: Water Authority et al. 2010

SNMP Process

The statewide Recycled Water Policy acknowledges that the salt and nutrient management needs of groundwater basins will vary across the state, and that the contents of an SNMP will be dependent on site-specific factors. Key components common to all SNMPS are that they be developed in a stakeholder driven process, they assess water quality and salinity/nutrient loads within each basin, and that they identify and evaluate strategies for achieving compliance with Basin Plan water quality objectives and protect beneficial uses.

Using existing knowledge of groundwater basins and uses in the Region, along with stakeholder input through a series of salinity/nutrient management coordination workshops in 2009 and 2010, the SNMP Guidelines identify the key components of SNMPS for the Region, which vary by Tier. However, it should be emphasized that these are meant as guidelines and not required components.

Step 1: Initial Basin Characterization

Identify the basin and define the study area to be evaluated, review existing groundwater studies, identify stakeholders and develop outreach, identify and quantify beneficial uses, characterize existing an historic groundwater quality and distribution, and identify salt/nutrient parameters to be addressed in the SNMP.

Step 2: Identify and Quantify Salinity/Nutrient Sources

Identify and quantify salt/nutrient loads to the basin for constituents identified in Step 1, and develop tools to evaluate the basin's assimilative capacity and fate and transport of salt/nutrient loads. This may include reviewing prior models, determining if a flow/transport model or mass-balance approach is appropriate, and ranking sources by impact on water quality.

Step 3: Supplemental Monitoring

Identify data gaps and develop and implement a plan for addressing them. Supplemental monitoring may be required to better assess hydrogeology or provide complete characterization of groundwater quality. The monitoring plan must be designed to determine water quality in the basin. Monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.

Step 4: Salinity Nutrient Management Strategies

Identify the management goals for the SNMP, develop a list of appropriate management strategies, evaluate the potential effectiveness of the management strategies, evaluate and select alternative management strategies, address Basin Plan modifications that may be associated with the recommended management strategies, and to assess environmental regulatory compliance, such as CEQA and NEPA. Note that different strategies for upstream and downstream portions of basin may be appropriate and special consideration may be required in basins upstream from potable supply reservoirs. Additionally, balancing conflicts between groundwater and recycled water uses may be required using a decision model.

Step 5: Assessment of Plan Effectiveness

The final step in the SNMP process is to assess the effectiveness of the SNMP. This will require identification of metrics, development and implementation of a monitoring program, and establishment of a framework and schedule for auditing and updating the SNMP.

7.5.3 Salt/Nutrient Management Plans in the Region

In March and April 2013, the Water Authority entered into agreements with five agencies to develop SNMPs in the Region. This effort has been funded in part through an IRWM Planning Grant under Proposition 84. The five SNMPs will be developed in support of the basins that have been prioritized by the Region.

Lower Santa Margarita River Basin

The Fallbrook Public Utility District (Fallbrook PUD) is preparing an appendix in support of the Lower Santa Margarita River Basin SNMP currently being developed by USMC Base Camp Pendleton. The Lower Santa Margarita River Basin is a Tier A groundwater basin, and therefore of highest priority for development of an SNMP. This document will look at the use of highly-treated recycled water in the upper basin that may be used to improve water quality in the lower basin. Fallbrook PUD is considering working with Camp Pendleton to implement indirect potable reuse (IPR) by discharging highly treated recycled water into Fallbrook Creek, which will then be diverted for groundwater recharge at Camp Pendleton. Camp Pendleton uses groundwater as its primary water supply source, and is therefore concerned with groundwater quality. Groundwater quality violations may trigger federal investigations due to Camp Pendleton's military operations. This appendix will address the impacts of the proposed IPR project on the salt and nutrient loads in the Lower Santa Margarita River Basin, and will be incorporated into the SNMP for the basin.

Fallbrook PUD has recently kicked off the effort to amend the Lower Santa Margarita River Basin SNMP to include recycled water discharges into Fallbrook Creek. The kickoff included representatives from the Marine Corp Base Naval Weapons Station and adjacent water agencies.

Santee/El Monte Basin

The Santee/El Monte Basin is a Tier A basin, with increasing salinity in the downstream (Santee) portion and lower salinity in the upstream (El Monte) portion of the basin. While the basin currently serves as a water supply for several agencies, the City of San Diego is considering it for potential expanded groundwater use. The Padre Dam Municipal Water District (Padre Dam MWD) is currently developing an SNMP for the Santee portion of the basin. This will include identification of salt and nutrient sources, basin capacity and loading estimates, recycled water use and recharge goals and objectives, determination of any necessary reductions of loading rates, proposed mitigation measures, and development of a monitoring plan.

To date, Padre Dam MWD has completed water quality data collection, development and approval of a project approach plan, coordination with the Regional Board, and several stakeholder meetings. The stakeholder meetings were advertised as public meetings on both the Padre Dam MWD and Regional Board websites.

For further development of the Santee/El Monte Basin, historic water rights issues need to be reconciled with beneficial uses of the basin for municipal agencies contributing return flow from imported and recycled water.

San Pasqual/Hodges Basin

The San Pasqual/Hodges Basin is an agricultural basin owned by the City of San Diego. The downstream portion (Hodges) has increasing groundwater salinity, though the upstream portion

(San Pasqual) remains fairly high quality. The City of San Diego is considering the San Pasqual/Hodges Basin for potential future water supply, making it a Tier A basin. The City of San Diego Public Utilities Department is currently developing a preliminary SNMP for the San Pasqual portion of the basin. This preliminary SNMP will include a detailed outline for review and input from the City. The City of San Diego will also develop a preliminary salt and nutrient loading analytical tool. They will conduct a consumptive use analysis, build a soil moisture budget that will include groundwater recharge and irrigation pumping analysis, and develop a summary of the basin salt and nutrient budget data. All of this work will be rolled up into a summary of preliminary results, which may be used for future development of a final SNMP.

To date, the City of San Diego has completed a draft SNMP that includes initial basin characterization, the identification of salinity/nutrient sources, and identified the need for additional supplemental monitoring of well, surface water, and agricultural run-off. Coordination with the Regional Board is ongoing and other area stakeholder meetings will be taking place shortly.



Santa Luz golf course in the San Dieguito Watershed uses recycled water for irrigation and water features.

Source: Jeff Pasek, City of San Diego

Escondido Valley Basin

The Escondido Valley Basin is a Tier B groundwater basin, and is managed in part by the Rincon del Diablo Municipal Water District (Rincon MWD). The Rincon MWD began development of an SNMP in November 2012. This SNMP will include identification of the salt and nutrient sources in the basin, along with basin capacity and loading estimates. It will also consider the recycled water use and recharge goals and objectives for the Escondido subarea, and determine what, if any, reductions in loading rates will be necessary. It will propose feasible mitigation measures, schedule tasks to identify measures that can be used to reduce or improve the Escondido subarea, and will develop a monitoring plan.

To date, Rincon MWD has begun the initial basin characterization, the identification of salinity/nutrient sources, and coordination with the Regional Board and City of Escondido.

San Vicente/Gower Basin

The San Vicente/Gower basin is a Tier C groundwater basin. The Ramona Municipal Water District (Ramona MWD) has entered into an agreement with the Water Authority to develop an SNMP for the Gower portion of the basin. As part of the SNMP, Ramona MWD will identify the salt and nutrient sources in the basin, as well as the basin capacity and loading estimates. It will consider recycled water use and recharge goals and objectives, and determine any necessary reductions to loading rates. Finally, it will propose mitigation measures, schedule completion tasks to identify measures to reduce or improve the Gower basin, and develop a monitoring plan.

For the Gower SNMP, Ramona MWD has compiled and analyzed water quality and other relevant data in GIS, developed a project workplan, and hosted several stakeholder meetings.

7.5.4 Salt/Nutrient Management Plan for Tier D and E Basins

Although the SNMP Guidelines recommended that no SNMP is necessary for Tier D and E basins, the following presents recommendations for managing salts and nutrients in Tier D and E basins within the San Diego IRWM Region.

As described above, Tier D basins are divided into two categories: Tier D-1 and Tier D-2. Tier D-1 basins are large or moderately sized urbanized coastal groundwater basins. They have higher salinity groundwater quality, with groundwater quality objectives for TDS that exceed 1200 mg/l. Municipal supply is developed or proposed in these basins through demineralization. Tier D-1 basins are a low SNMP priority. Tier D-2 basins are similar to Tier D-1, but are moderate to small-sized, may be coastal or inland, and are not currently developed for public water supplies. Tier E basins are the lowest priority basins for SNMPS. These are located in the rural, eastern portion of the Region, and are outside both Metropolitan's service area and the recycled water service area. Groundwater in many of these basins remains good to excellent. Table 7-10 lists the Tier D and E basins in the Region.

Based on the potential impacts to the basins by salt and nutrient loadings, the existing groundwater quality, or designated beneficial uses, specific basin-wide analysis for the Tier D and E basins is not recommended by the SNMP Guidelines. Typical salt loading in the San Diego Region comes from application of potable water, recycled water, groundwater or other supplies to irrigate landscaping or agriculture. Nutrient loading comes primarily from use of fertilizers. Impacts from nutrients can be minimized by understanding the background nutrient concentration in the water supply and only adding nutrients necessary for proper plant growth. Salt loading can be minimized by avoiding overwatering and planting landscapes that require minimal application of water. Nutrient

loading to use areas from irrigation and fertilizers should not exceed the nutrient demands of the vegetation.

Measures that agencies and stakeholders may implement to minimize nutrient and salt loading include providing information to the public regarding application of irrigation water at agronomic rates, encouraging training for site supervisors or landscapers at large irrigation sites, encourage appropriate use of fertilizers, encourage use of smart controllers, consider adopting water rate structures that encourage water use efficiency, promote landscapes that require minimal watering, and supporting other appropriate measures deemed necessary to lessen nutrient loading. These approaches can be incorporated into existing water conservation, recycled water and storm water programs.

Table 7-10: Tier D and E Groundwater Basins

Basin Tier	Groundwater Basin	Municipal Water Agencies	Municipal Wastewater Agencies
Tier D-1	Oceanside Mission	• City of Oceanside	• City of Oceanside
	Mission Valley	• City of San Diego	• City of San Diego
	Lower Sweetwater	• Sweetwater Authority	• City of National City • City of Chula Vista
Tier D-2	Bonsall/Moosa	• Rainbow MWD	• Rainbow MWD • Valley Center MWD
	Batiquitos, Buena Vista	• Carlsbad MWD	• City of Carlsbad • Carlsbad MWD • Leucadia WWD
	Agua Hedionda, Encina	• Carlsbad MWD	• City of Carlsbad • Carlsbad MWD • Leucadia WWD
	San Elijo	• Olivenhain MWD • San Dieguito Water District	• Olivenhain MWD • San Elijo JPA
	Lower San Dieguito	• Olivenhain MWD • Santa Fe Irrigation District	• Olivenhain MWD • Rancho Santa Fe CSD • Fairbanks Ranch CSD
	El Cajon	• Helix Water District • Otay Water District	• City of El Cajon
	Otay	• City of San Diego • Otay Water District	• City of San Diego • Otay Water District
	Lower Tijuana	• City of San Diego	• City of San Diego
Tier E	Santa Ysabel	• N/A	• N/A
	Warner	• Vista Irrigation District	• N/A
	Pine Valley	• N/A	• N/A
	Descanso	• N/A	• N/A
	Portrero	• N/A	• N/A
Tier E	Campo	• N/A	• N/A
	Cottonwood	• N/A	• N/A

Source: Water Authority et al., 2010

7.6 Relation to Flood Control Planning

Flood management in the Region is dispersed across various agencies, and often grouped within other departments, such as planning departments, emergency response, sanitary districts, and others. The Region lacks a centralized agency to coordinate flooding, providing an opportunity within the 2013 IRWM Plan to compile flood information across the Region and present recommendations for Regional flood management that may be utilized by individual agencies.

7.6.1 Relevant Flood Control Plans

Given the fragmented, and sometimes marginalized, nature of flood management in the Region, flood control plans may be incorporated as part of other plans, such as General Plans, rather than individual Flood Control Plans. Plans with relevant flood information were reviewed for the Integrated Flood Management (IFM) Study, described below. IFM is an integrated, multidisciplinary effort, so other sources of data used in the IFM included flood hazard and flood plain analyses, environmental documentation, biology and wildlife studies, water quality reports, watershed hydrology and hydraulic studies, land use plans, and various GIS layers and existing maps. Appendix 7-B details these plans further.

The other significant plan used during development of the IFM study was *California's Flood Future: Recommendations for Management the State's Flood Risk* (Flood Future Report). This report was developed by DWR and the USACE as part of the State Flood Management Planning Program, funded under Proposition 84. The Flood Futures Report documents flood threats and management approaches in California, and recommends strategies for managing flood risks.



Flooding can impact multiple jurisdictions or agencies, such as transportation, planning, and sanitation.

Photo credit: Bruce Phillips, PACE

7.6.2 Opportunities for Collaboration

The Integrated Flood Management Workgroup was convened in 2012 and 2013 to develop an IFM Study. This IFM Study acts as a guidance document to facilitate integrated water resources approaches to flood management. It identifies a sustainable flood and water management approach as:

- an interconnection of flood risk management actions within broader water resources management, ecosystems, and land use planning,
- providing and recognizing value of coordinating across geographic and agency boundaries,
- evaluating opportunities and potential impacts from a system perspective,
- recognizing the importance of environmental stewardship and sustainability, and

- providing for system flexibility and resiliency in response to changing conditions, such as climate change and population growth

Issues that make integrated flood management in the Region challenging include:

- Projects require extensive stakeholder involvement, which increases project planning costs.
- Flood management responsibility is fragmented.
- Different methodologies and inadequate data make risk assessment complex and costly to complete.
- Land use decisions may not adequately prioritize public safety.
- Delayed permit approvals and complex permit requirements are obstacles to flood risk reduction.
- Flood management projects are not prioritized from a “watershed” system-wide or multi-benefit perspective.
- Flood risk funding as well as long term funding for operations and maintenance.

In order to develop the IFM guidance planning document, the Workgroup underwent a series of six steps: 1) Involving watershed/floodplain managers and stakeholders; 2) Understanding the problems and the flood risks; 3) Defining watershed goals and objectives; 4) Identifying opportunities or constraints; 5) Identifying possible management strategies and approaches; 6) Creating a planning guidance document; and 7) Developing implementation prioritization evaluation criteria. Figure 7-2 shows the process of the IFM Workgroup. Throughout this process, the Workgroup focused on integrating the needs and opportunities of individual watersheds into the Region as a whole, recognizing that each watershed’s needs may vary.

Watershed/Floodplain Managers Workgroup

Stakeholder involvement occurred through three workshops during the IFM process. The first workshop, held on June 26, 2012 provided stakeholders with the program objectives and an overview of IFM. The second workshop, on December 4, 2012, defined the opportunities, goals, and strategies for IFM in the Region. The final workshop, on June 5, 2013, provided an opportunity to review the draft version of the document and give feedback.

Understanding the Flood Risks

In order to understand the problems and the flood risks for each watershed, the Workgroup used hydrology information for the Region and FEMA’s flood hazard maps. It is noted that the FEMA flood hazard maps are regional, and may not reflect local flood risks. The County of San Diego has also developed flood maps for areas that are known risks, but may not be captured by the FEMA maps. The Workgroup reviewed the flood management plans for each of the 19 entities responsible for flood management within the IRWM Region.



Flash flooding is a flood risk common to all watersheds in the San Diego Region.

Photo credit: Bruce Phillips, PACE

The Workgroup identified flash flooding as a flood risk common to all watersheds in the Region. A flash flood is defined as one when the peak flow travels from one end of the watershed to the other in less than six hours. None of the watersheds in the Region have a response time longer than six hours, making all of them vulnerable to flash flooding, though the greatest risk is in the central and eastern portions of San Diego County. Other flood risks include shallow flooding – due to a lack of channels for water to drain, flooding from inadequate drainage systems (most stormwater systems in the Region are designed for the 10-year flood), and dam failures – typically a result of age, poor design, or disaster. Table 7-11 summarizes flood types in the Region.

Table 7-11: Flood Types and Causes

Flood Hazard	Description Cause
Coastal Flooding	Winter and spring coastal storm, high winds and storm surges
Debris Flow Flooding	Heavy localized rainstorms on hillsides and high sediment producing or unstable areas subject to erosion or post-watershed fires
Slow Rise Flooding	Floodplain with limited hydraulic capacity and heavy precipitation generate runoff greater than capacity
Flash Flooding	High volume rainstorm, thunderstorms, or slow moving storms
Alluvial Fan Flooding	High volume rainstorm and thunderstorm displacing high volume of sediment to alluvial fan geographic features
Urban Drainage Flooding	Large rainstorms which exceed the capacity of the local urban drainage system resulting in flooding

In order to evaluate flood risks, flood hazards were characterized using indicator maps (e.g. spatial distribution of flow velocity, water height, duration) to estimate how these would interfere with human activities in the flood areas. An analysis of the data and sources described above led to an estimate of flood damages within each watershed and flood risks by land use types, per Figure 7-1.

Figure 7-1: Total Estimated 100-Year Approximate Dollar Flood Damage by Watershed

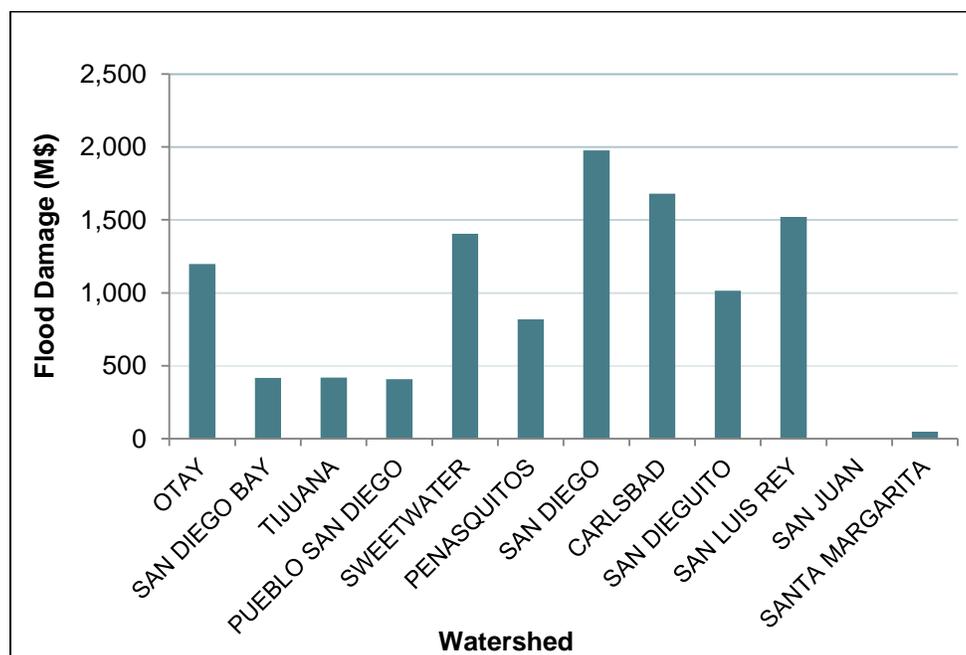
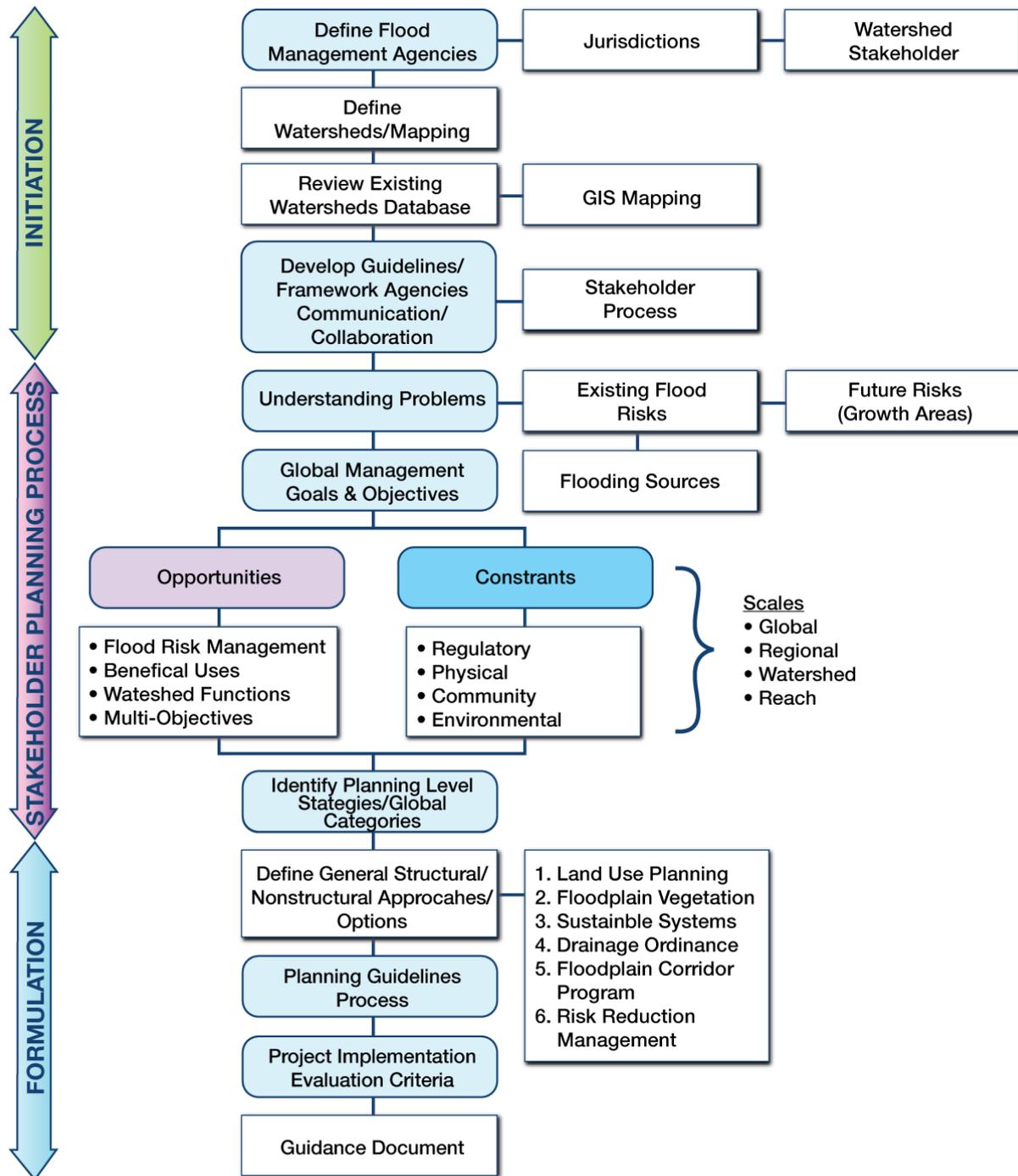


Figure 7-2: Overview of General Work Plan for Integrated Flood Management Study

INTEGRATED FLOOD MANAGEMENT PROGRAM DEVELOPMENT

Work Program Flow Chart



Defining Watershed Goals and Objectives

IFM uses a different approach to flood management than traditional flood protection strategies. In IFM, structural projects, nonstructural measures, and natural watershed functions are all used to manage flooding. Different strategies may be necessary in individual watersheds, but may include land stewardship, conjunctive water manage, ecosystem restoration, land use planning and management, surface storage, and urban runoff management, among others. IFM requires communication with watershed stakeholders, an integration of land and water management, management of the water cycle as a whole, adoption of a mix of complementary strategies, and adoption of integrated hazard management approaches, and follows these principles:

1. Every flood risk scenario is different: there is no flood management blueprint.
2. Designs for flood management must be able to cope with a changing and uncertain future.
3. Rapid urbanization requires the integration of flood risk management into regular urban planning and governance.
4. An integrated strategy requires the use of both structural and non-structural measures and good metrics for “getting the balance right”.
5. Heavily-engineered structural measures can transfer risk upstream and downstream.
6. It is impossible to entirely eliminate the risk from flooding. Hard-engineered measures are designed to defend to a pre-determined level.
7. Many flood management measures have multiple co-benefits over and above their flood management role.
8. It is important to consider the wider social and ecological consequences of flood management spending.
9. Clarity of responsibility for constructing and running flood risk programs is critical.
10. Implementing flood risk management measures requires multi-stakeholder cooperation.
11. Continuous communication to raise awareness and reinforce preparedness is necessary.
12. Planning should target quick recovery, and should use that recovery to build capacity

Identification of Opportunities or Constraints

Flood management in the Region is challenging because of the varied geomorphic conditions within and across watersheds; the presence of urban development in close proximity to steep, rainfall-collecting terrain and coastal flooding; the climate which leads to short but potentially intense rainy seasons; and the risk of sudden flooding as a result of the geographic and meteorological conditions in the Region. This study classified each opportunity or constraint into four categories: 1) physical conditions, 2) regulatory, 3) land use, and 4) environmental/biological. Opportunities and constraints for each of these categories are described in Table 7-12.

Table 7-12: Opportunities/Constraints for Regional Floodplain Management

Opportunity / Constraint	Reference
Physical Features	
Hydraulic conveyance limitations of existing roadway and utility crossings	<ul style="list-style-type: none"> • Identification of hydraulic limitations as potential target areas for fixes that may reduce areas of flooding and sedimentation
Existing facilities and structures located with the floodplain	<ul style="list-style-type: none"> • Define existing flood risk from existing facilities/uses within the floodplain
Sediment delivery with flood flows from foothill areas	<ul style="list-style-type: none"> • Excessive sediment delivery causes deposition and will ultimately be deposited at a downstream location with flatter slope • High sediment yields bulk the flood waters and increase depth of flooding
Limited topographic relief/slope that limits hydraulic conveyance in valley areas	<ul style="list-style-type: none"> • Facility sizes will increase further downstream within the watershed because of the reduced slope
Soils/geology primarily alluvial deposits that are highly erodible	<ul style="list-style-type: none"> • Channel migration routinely occurs • Erosion hazards for development adjacent to channels
Specialized geographic/geomorphic features which include alluvial fans and coastal plains	<ul style="list-style-type: none"> • Hydraulic conditions are unique and conventional flood management solutions are not applicable
Topographic features result in steep slopes in the mountains/foothills and extremely flat slopes on the valley floors	<ul style="list-style-type: none"> • Changes in hydraulic conveyance and sediment delivery because of the change in slopes
Regulatory	
No centralized regional flood agency for the entire San Diego region. San Diego County Flood Control District is only responsible for the unincorporated County areas and all other municipalities manage floodplains individually	<ul style="list-style-type: none"> • Flooding problems within the County area are extremely varied and associated with the different individual watersheds • Comprehensive planning required that reflects the current though process for flood management and the environmental considerations for each of the regional watersheds that will cross over political boundaries
FEMA/NFIP requirements for community floodplain regulations	<ul style="list-style-type: none"> • NFIP requirements have the most influence on floodplain restrictions
Water quality limitations and restrictions based on the Basin Plan and identified TMDLs	<ul style="list-style-type: none"> • Water quality restrictions should be implemented as part of the regional planning solution
Land Use Features	
Various urban/commercial landuse and additional manmade encroachments within the floodplain	<ul style="list-style-type: none"> • Limitations of development and landuse restrictions within active flood hazard zones
Environmental/Biological	
Environmental permitting limitations for activities/structures within the floodplain (i.e. endangered species, etc.)	<ul style="list-style-type: none"> • Additional costs or limitations on the potential solutions available because of environmental regulatory restrictions
Many existing floodplain corridors have special defined ecological preserve or similar designations because of habitat for sensitive species	<ul style="list-style-type: none"> • Existing floodplains and streams are valuable biological resources for preservation

Identification of Possible Management Strategies and Approaches

Four types of IFM strategies could be used Region-wide: 1) Non-Structural approaches, 2) Restoration of natural floodplain functions, 3) Structural approaches, and 4) Emergency management. These strategies are described in greater detail in Appendix 7-B, and summarized in Table 7-13 below. Appendix 7-B also provides detailed descriptions of how to apply IFM strategies.

Table 7-13: IFM Strategies

Strategy	Actions
<i>Non-Structural Approach</i>	
Land Use Planning	Policies, ordinances, regulations to limit development in floodplain
	Policies, ordinances, regulations to encourage land uses that are compatible with floodplain functions
Floodplain Management	Floodplain mapping and risk assessment
	Land acquisitions and easements
	Building codes and flood-proofing
	Retreat – relocation, abandonment, demolition of buildings
	Flood risk awareness (information and educations)
	Flood insurance
<i>Restoration of Natural Floodplain Functions</i>	
Restoration of function	Promoting natural hydrologic, geomorphic, and ecological processes
	Protecting and restoring quantity, quality, and connectivity of native floodplain habitats
	Invasive species reduction
<i>Structural Approach</i>	
Flood Infrastructure	Levees and floodwalls
	Channels and bypasses
	Retention and Detention Basins
	Culverts and pipes
	Shoreline and streambank stabilization
	Debris mitigation structures
Reservoir and Floodplain Storage and Operations	Storage Operations
	Groundwater Recharge
Operations and Maintenance	Maintenance of flood control structures, especially for those constructed in early to mid-Twentieth Century
<i>Flood Emergency Management</i>	
Emergency Management	Flood preparedness
	Emergency response
	Post-flood recovery

Development of Implementation Prioritization Evaluation Criteria

IFM strategies should be selected that will ensure the maximum number of benefits are achieved, the best location to maximize benefits is selected, that multiple flood hazard issues are addressed, and that different water resources objectives are achieved. The Workgroup used the GIS IFM watershed planning tool to evaluate different IFM opportunities. The criteria for identifying opportunities included floodplain areas, highly permeable soils, groundwater basins, riparian vegetation or sensitive habitat area, and high sediment producing areas. Opportunities were those areas where multiple criteria overlapped. The IFM Planning Study included as Appendix 7-B contains maps of each watershed in the Region showing the various opportunities that were identified.

Recommendations

As described above, flood management in the Region is the responsibility of 19 different agencies, fragmenting flood management efforts. As such, the Workgroup recommends creation of a Watershed/Floodplain Managers Forum to promote collaboration and coordination to implement IFM strategies.

The Workgroup also recommends that flood management projects include numerous alternatives in order to cover a range of available potential solutions. Analysis of these alternatives could then be used as part of any environmental or regulatory requirements, such as CEQA. Design solutions should be developed with an understanding of the underlying hydrologic and hydraulic processes. By using a “toolbox” of design components, innovative solutions may be generated that are more appropriate or effective for a given watershed than a routine alternative.

Other recommendations include:

- Improve understanding and accuracy of regional and local flood risks,
- Develop regional watershed database to assist in flood management planning,
- Develop watershed based planning, including collaboration with stakeholder groups,
- Initiate understanding and awareness of IFM,
- Identify applicable IFM strategies that can be used within the County, and
- Develop watershed planning guidance program implementing IFM through different land planning regulations.

Recommendations and actions that were selected by the RAC and RWMG for inclusion as a priority in this 2013 IRWM Plan are provided in *Chapter 11, Implementation*.

7.7 Relation to Land Use Planning

The Land Use and Water Management Study (Land Use Study) was developed by the Land Use Planning Workgroup, and was presented to the RAC and stakeholders at the February 6, 2013 RAC meeting. The Land Use Study examines how integrated land use planning and water resources management occurs in the San Diego IRWM Region, and identifies ways to improve regional collaboration and coordination between water managers and land use planners. The study found a lack of communication between water managers and land use planners in the Region and that efforts to link water management and land use decisions was often challenging. The relationships between water managers and land use planners were often reactive, instead of proactive. Recommendations included in the Land Use Study seek to resolve these issues and improve relationships between these two groups in order to promote orderly growth and development, and economic and environmental well-being of communities, while protecting water resources.

Land Use Workgroup

The Land Use Workgroup used an eight-step process to assess the current relationship between water management and land use planning in the Region: 1) Gap analysis; 2) Assessment of current collaboration and cooperation between water managers and land use planners; 3) Workshop with water managers and land use planners to solicit input on current relationships and identify issues and opportunities for collaboration; 4) Identification of strengths, opportunities, and challenges to create key issues matrix; 5) Development of a Model Water Element for use in general plan updates; 6) Development of preliminary recommendations to improve collaboration and coordination; 7) Workshop with water managers, land use planners, and stakeholders to review and comment on

draft Model Water Element; 8) Incorporation of stakeholder input on Model Water Element and Recommendations and Key Issues Matrix. The RWMG was also involved throughout the Land Use Study process to provide guidance, input, and review of deliverables.

Two workshops were held to develop the Land Use Study: May 2, 2012 and August 21, 2012. The May 2, 2012 workshop provided an opportunity for water managers, land use planners, and other stakeholders to give feedback on the survey results and the general nature of the collaborative relationships. This workshop saw 30 people in attendance. The August 21, 2012 workshop allowed the Workgroup to review and provide feedback on the draft recommendations and Model Water Resources General Plan Policy Guide, described below.

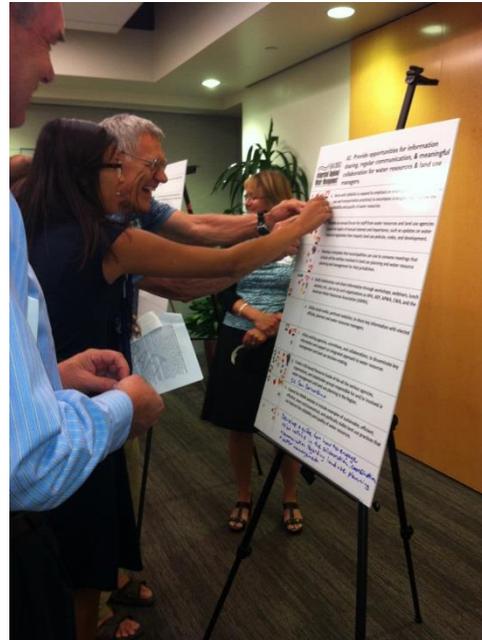
7.7.1 Relevant Land Use Planning Documents

As described above, the first step in developing the Land Use Study was to conduct a data gap analysis. The Land Use Workgroup reviewed the 19 General Plans in the Region to identify gaps between water resources management and land use planning. This review sought to determine the extent to which water policy was covered within each General Plan, identify gaps in water policy in the region, and assess the complexity of water resources management as it relates to land use planning. The Regional Comprehensive Plan, produced by SANDAG, was also reviewed because it is the long-term planning framework for greater San Diego County.

In addition to the land use planning documents, the Workgroup reviewed a series of water resources management plans, such as Urban Water Management Plans, Recycled Water Master Plans, Floodplain Master Plans, and Water Supply Assessments. They found that information related to water resources management was typically found throughout the General Plans, rather than in a single, consolidated section. This is due, in part, to the variety of water management topics, including water supply and demand, water quality, wastewater treatment and disposal, watershed features and processes, flood management, and stormwater management. Another significant challenge to coordination and collaboration is the mismatch between land use planning jurisdictions and water management jurisdictions.

The gap analysis found seven major issues that contribute to the challenges of coordinated water resources management and land use planning:

1. Plans varied greatly in time frames and preparation dates
2. General Plans lacked a dedicated Water Element
3. Communities anticipating growth focused on water policies for new development; built-out communities focused on water policies for redevelopment
4. Substantial variation in natural features affects the issues addressed in General Plans



Land Use Planners and Water Managers at the workshop identified opportunities for collaboration.

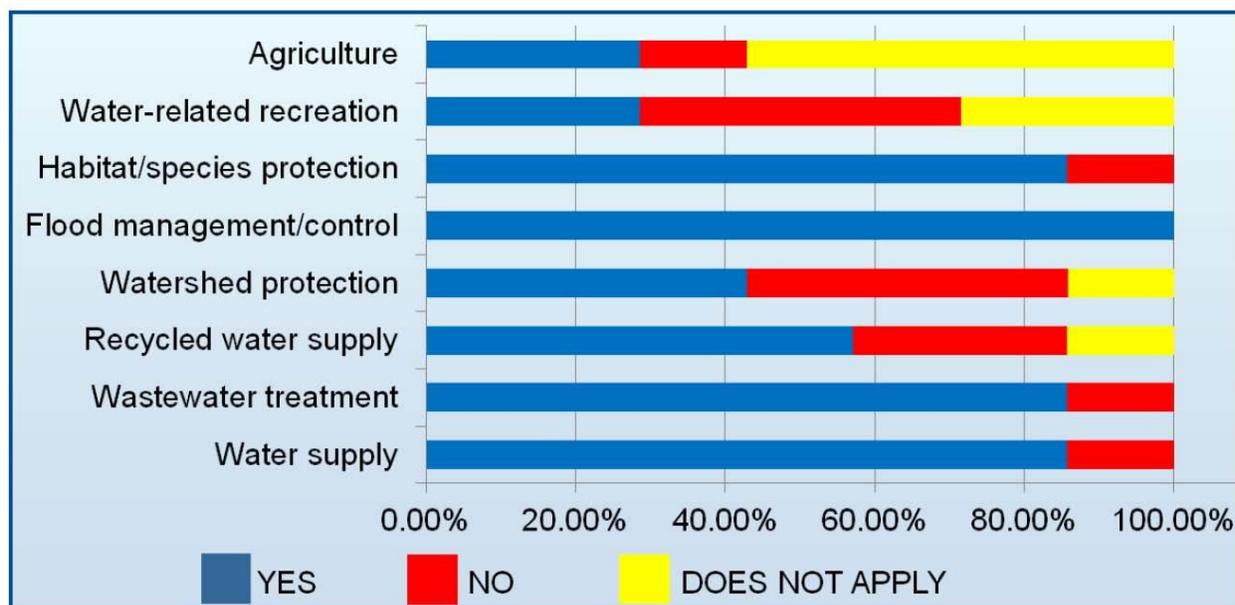
Photo Credit: Rosalyn Prickett, RMC Water and Environment

5. Local land use control may be limited by water-related issues under jurisdiction of State and Federal agencies
6. Considerable variation was observed in the strength of long-range water policies, depending on age of General Plan
7. Responsibility for water management tasks within departments varies from agency to agency

7.7.2 Current Relationships between Water Managers and Land Use Planners

To determine the extent of existing collaboration and coordination between water managers and land use planners, and identify issues and opportunities for these relationships, the Land Use Workgroup distributed surveys to a total of 44 people, approximately half of whom were water managers and half land use planners. The Land Use Workgroup received 14 surveys back, again, approximately half from land use planners and half from water managers. The results from the survey were analyzed and presented at the first workshop. As shown in Figures 7-3, land use planners cooperate with water managers to varying degrees.

Figure 7-3: Percentage of Planning/Community Development Departments with Working Relationships with Water Resource Agencies/Staff



7.7.3 Opportunities for Collaboration

The information from the Gap Analysis, Surveys, and Workshop #1 were used to characterize the relationship between land use planners and water managers, and identify the strengths, opportunities, and challenges facing the relationship, and to develop methods to overcoming existing impediments to enable proactive, rather than reactive, relationships. Characterization of the relationship was challenging due to variation in degree of coordination, type of resource involved, and level at which coordination occurs within different agencies. The strengths, opportunities, and challenges are summarized in Table 7-14.

Table 7-14: Strengths, Opportunities, and Challenges Identified by Land Use Workgroup

Strengths	Opportunities	Challenges
<ul style="list-style-type: none"> • Coordination is already occurring regularly • Most planners consult with water agencies when updating General Plans • One water agency uses General Plans when doing its plan update • Most planning and water agencies work together on joint policy/implementation efforts • Urban Water Management Plans are prepared in coordination with land use projections • Land use planners and water managers from several jurisdictions participated in Land Use Study Workshops 	<ul style="list-style-type: none"> • Beneficial to have: joint training to improve information exchange; cross training and joint activities to explore improved integration • Planners more likely than other departments to be responsible for implementation of water-resource activities • A set of water resources goals, objectives, and policies for Region would be beneficial • Legislation mandates more interaction between land use planners and water managers 	<ul style="list-style-type: none"> • Too many silos exist, reluctance to give up authority • Awareness and understanding of issues and processes is lacking between managers and planners • Plans, policies, projects, and programs must be integrated; framework for integration needed; a universal approach will not be effective • Decision-making often does not consider impacts beyond jurisdictions • Information is extensive but not readily available • Land use planners not aware of IRWM program • General Plans do not address spectrum of water management topics and water policies are not specific enough • Challenge to address water rights with tribes • Staff does not have resources to take on extra work

Conclusion and Outcomes

The final four steps in the process involved drafting a Model Water Resources General Plan Policy Guide (Policy Guide); drafting recommendations for improved collaboration and coordination; hosting a workshop to review the draft Policy Guide and recommendations and solicit public input; and finalizing the Policy Guide, Recommendations, and Key Issues Matrix in the Land Use Study. Each of these three deliverables is available as Attachments 1, 2, and 3, respectively, in the Land Use Study found in Appendix 7-C.

The Policy Guide can assist land use planners in incorporating and addressing water management issues and needs in local land use documents. Workgroup recommendations regarding the relationship between land use planners and water managers focused on two categories:

1. Support or facilitate collaborative preparation of various joint water resources and land use planning efforts and work in the Region
2. Provide opportunities for information sharing, regular communication, and meaningful collaboration for water resources and land use managers

Recommendations that will be implemented as priority actions in the 2013 IRWM Plan are provided in *Chapter 11: Implementation*.

The Key Issues Matrix also provides recommendations to address each issue. These recommendations are broken down by actions that can be implemented by the IRWM Program, Municipalities/Land Use Planners, and Water Agencies/Managers. Details can be found in Attachment 3 of Appendix 7-C.

7.8 Relation to Climate Change Planning

The Climate Change Study, developed by the Climate Change Workgroup and approved by the RAC, serves as an initial guide for the IRWM Region for incorporating climate change adaptation and mitigation measures into IRWM Planning. To develop this guidance, the Climate Change Workgroup reviewed current climate change science, policies, and regulations, and assessed how they related to the IRWM Region.

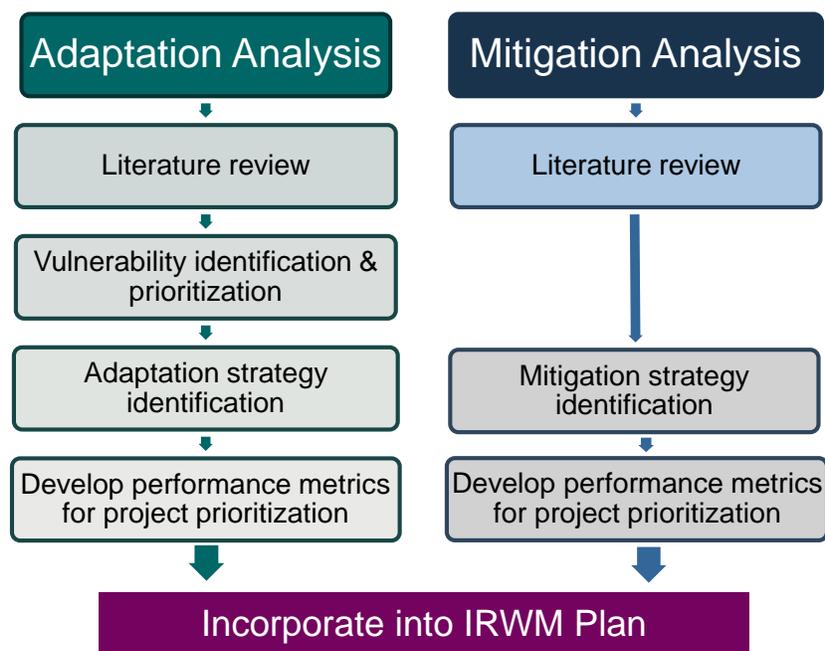
Three major climate change impacts were considered to be closely related to water resource management in the San Diego IRWM Region:

1. Temperature increases
2. Precipitation pattern changes
3. Sea level rise

Climate Change Analysis Process

The Climate Change Workgroup used the following review process, shown in Figure 7-4, to meet DWR's 2012 IRWM Plan Guidelines' Climate Change Standard.

Figure 7-4: Climate Change Analysis Process



7.8.1 Relevant Climate Change Planning Documents

To provide a context for understanding climate change, its potential impacts in the Region, and how to assess adaptation or mitigation strategies, the Climate Change Workgroup reviewed a number of climate change documents and data, including the relationship between water supplies, water infrastructure, and energy use. Water resources and energy use are linked in three primary ways: 1) Water pumping and purification, 2) Wastewater treatment, and 3) Water heating. Because of this linkage, energy use may be reduced both by conserving water and optimizing water operations.

The Climate Change Workgroup also reviewed State legislation and policies related to climate change:

- Executive Order S-3-05
- Assembly Bill 32 (AB32): The California Global Warming Solutions Act of 2006
- Climate Change Scoping Plan
- Senate Bill 97 (SB97)
- Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water
- Executive Order S-13-08
- California Climate Adaptation Strategy
- GHG Reporting Rule

Review of the AB 32-required Scoping Plan identified six GHG emissions reduction measures:

1. Water use efficiency
2. Water recycling
3. Water system energy efficient
4. Reuse of urban runoff
5. Increase renewable energy production
6. Public goods charge

The Workgroup identified The Climate Registry as a useful tool and database for agencies or entities to report GHG emissions. The San Diego County Water Authority, the County of San Diego, and the City of San Diego belong to The Climate Registry, along with a number of other agencies and organizations in the IRWM Region. A number of climate mitigation and adaptation plans for individual cities and agencies in the Region were also identified and reviewed. Finally, the Workgroup reviewed the San Diego Foundation's Climate Initiative, which recommended that every jurisdiction in the County complete a GHG emissions inventory.

The literature review conducted in this step of the process resulted in Table 7-15, a breakdown of the impacts and effects of climate change on the San Diego IRWM Region. This table was presented to and vetted by the Workgroup in June 2012.

Table 7-15: Impacts and Effects of Climate Change on Region

Impact	Effect
Temperature	1.5°F to 4.5°F average temperature increase
Rainfall	Variable projections predict between 35% drier and 17% wetter Increase in variability between years
Supply	Up to 25% decrease in SWP supply Up to 20% decrease in Colorado River supply 164,000 acre-feet per year shortfall in imported supply
Demand	Potential 0.6% to 1.8% increase in demand by 2035
Sea level rise	12 to 18 inch rise in mean sea level rise
Wildfires	40% increase in California Coastal Shrub acreage burned in Southwestern U.S. 54% increase in overall acreage burned in Western U.S.

Vulnerability Identification and Prioritization

Using DWR’s *Climate Change Handbook for Regional Water Planning*, the Climate Change Workgroup developed an analysis of the Region’s vulnerabilities. This analysis was the primary activity of the Climate Change Workgroup during their June 2012 workshop. Once vulnerabilities were identified, they were ranked and categorized. Vulnerabilities were categorized into five priority levels: Very High, High, Medium, Low, and Very Low. Table 7-16, below, shows the vulnerability issues and their respective rankings. Details regarding processing of vulnerabilities can be found in the Climate Change Study, included in this Plan as Appendix 7-D.

The potential risk that could arise from not addressing the climate change vulnerabilities include: insufficient water supply, inability to meet demand during droughts, poorer water quality, damage from increased flooding, damage to habitats and sensitive species, and coastal flooding and inundation of storm drains and sewer systems.

Adaptation/Mitigation Strategy Identification

Potential adaptation and mitigation strategies were identified using the State of California’s *California Water Plan*, and refined through the review of other climate change reports and plans, including regional climate change documents. Strategies were identified and prioritized by determining feasibility and relevancy.

The final list of prioritized strategies is provided in Chapter 5 of Appendix 7-D.

Table 7-16: Prioritized Climate Change Vulnerability Issues

Priority Level	Category and Vulnerability Issue
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) Ecosystem/Habitat: Decrease in available necessary habitat Sea Level Rise: Inundation of storm drains and sewer systems Ecosystem/Habitat: Decrease in ecosystem services
Medium	Water Demand: Crop demand would increase Water Demand: Industrial demand would increase Water Supply: Decrease in groundwater supply Water Quality: Increase in treatment cost Sea Level Rise: Damage to coastal recreation / tourism due to inundation
Low	Water Demand: Limited ability to conserve further Water Supply: Lack of groundwater storage to buffer drought Water Quality: Increased eutrophication Flooding: Increases in inland flooding Ecosystem/Habitat: Increased impacts to coastal species
Very Low	Water Demand: Limited ability to meet summer demand Water Supply: Invasive species can reduce supply available Water Quality: Decrease in recreational opportunity Sea Level Rise: Decrease in land Sea Level Rise: Damage to ecosystem/habitat Ecosystem/habitat: Decrease in environmental flows Hydropower: Decrease in hydropower potential

7.8.2 Opportunities for Collaboration

The Climate Change Study contains a list of recommendations for successful implementation of identified climate change adaptation and mitigation strategies. These recommendations focus on implementation of adaptive management, and prioritization of projects that address climate change impacts.

Adaptive management uses a flexible path of actions in order to implement different measures if key risk triggers or early warning indicators are met. This allows managers to plan for and adjust management strategies to best respond to changes, which can be important when managing issues with high uncertainty, such as climate change. According to the Climate Change Handbook, there are five steps in an adaptive management plan:

1. Identify risk triggers associated with important vulnerabilities or uncertainties
2. Quantify impacts and uncertainties
3. Evaluate strategies and define an implementation path that allows for multiple options at specific triggers
4. Monitor performance and critical variables in the system
5. Implement or reevaluate strategies when triggers are reached

In addition to adaptive management, the Climate Change Workgroup recommended prioritizing projects that help to address climate change, which may be done in two ways: 1) Include climate

change adaptation or mitigation in the IRWM Plan Objectives, and 2) Include a weighted climate change scoring category in project selection, based on strategy prioritization described above. Both of these recommendations have been incorporated into this 2013 IRWM Plan (see Objective K, *Chapter 2, Vision and Objectives* and Table 9-2, *Chapter 9, Project Evaluation and Prioritization*).

7.9 Summary of Agency Coordination

As described in *Chapter 6, Governance and Stakeholder Involvement*, the San Diego IRWM program facilitates the RAC and Workgroups to allow for agency coordination and communication. These stakeholder groups enable the various planning entities within the Region to communicate about the water resource issues and challenges they are facing, as well as IRWM-funded projects and programs. Increased knowledge of what other entities are doing allows stakeholders to partner or combine activities and reduce redundancies.

As described in *Chapter 3, Region Description*, the San Diego RWMG cooperates with the two neighboring IRWM regions in the San Diego Funding Area on topics of mutual interest: the Upper Santa Margarita and South Orange County IRWM Regions. The three RWMGs coordinate directly through the Tri-County FACC's period meetings and conference calls. The group addresses water management issues that occur within the two watersheds that overlap Region boundaries: Santa Margarita River and San Juan. The group is specifically tasked through their MOU to identify projects that will address issues within the overlay areas (see *Chapter 3, Region Description*). For example, the Upper Santa Margarita and San Diego IRWM Regions both submitted a joint project in Proposition 84-Rounds 1 and 2 that document and address nutrient loading in the Santa Margarita River Estuary and tributaries. Although the three RWMGs coordinate directly through the Tri-County FACC, they have not consolidated into a single IRWM region because of differences in political boundaries, water management infrastructure, regulatory permitting, and land use authority.

As described above, the IRWM Program coordinates directly with numerous local planning entities on water resource issues and projections. Other State and federal agencies participate in the IRWM Program through the RAC and stakeholder email list (see Table 6-4 in *Chapter 6, Governance and Stakeholder Involvement*).

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